

BSD SPECIALIST // CHEAT SHEET

Cross-BSD commands, persistent configuration, administration workflows, Unix tools, and exam traps.

01 // BASE SYSTEM + SOFTWARE711 / W14

INSTALL + IDENTIFY // 711.1 / W3	
COMMON	uname -a or uname -srn identifies the kernel and release.
FREEBSD	bsdinstall; freebsd-update is the blueprint's base-system upgrade path.
NETBSD	sysinst installs and upgrades the operating system.
OPENBSD	Boot bsd.rd, then choose install or upgrade.
- The named BSD matters: common command and file names can still differ in behavior.	
PACKAGES + PORTS // 711.2 / W4	
FREEBSD	pkg install / delete / info / upgrade. Ports build from /usr/ports with make.
NETBSD	pkg_add, pkg_delete, pkg_info; pkg_admin audit; pkgsrc builds with make.
OPENBSD	pkg_add, pkg_delete, pkg_info; pkg_add -u updates installed packages.
- Binary package installation, source builds, pending upgrades, and vulnerability audits are separate checks.	
BOOT + SERVICES // 711.3 / W3	
FLOW	boot(8) loads the kernel; init starts rc; rc.d scripts start services. inetd multiplexes configured services.
COMMON	/etc/rc.conf and /etc/rc.d; shutdown -r now restarts. Know the single-user boot path.
FREEBSD	service name start / stop / restart / status; persist name_enable="YES" in rc.conf.
NETBSD	service or /etc/rc.d/name; persist name=YES in rc.conf.
OPENBSD	rcctl enable / start / check / restart name; settings live in rc.conf.local.
HARDWARE + KERNEL // 711.4-5 / W4	
COMMON	dmesg; sysctl name or sysctl -a; persist supported MIBs in /etc/sysctl.conf.
FREEBSD	pciconf, devinfo, camcontrol; kldstat, kldload, kldunload; boot/loader.conf.
NETBSD	pcictl, atactl, scsictl; modstat, modload, modunload.
OPENBSD	dmesg, atactl, scsi, config; /etc/boot.conf; no loadable kernel modules.
SECLEVEL	Raised securelevels restrict privileged changes. Lowering follows the OS-specific boot or single-user path.
BLUEPRINT MAP // 60 WEIGHT UNITS	
WEIGHTS	711 installation/software 14; 712 storage 11; 713 administration 11; 714 networking 10; 715 Unix skills 14.
FORMAT	60 multiple-choice and fill-in-the-blank questions in 90 minutes; certification validity is 5 years.
- Weights express relative importance, not guaranteed question counts. The official command and file lists are partial.	

02 // STORAGE + ACCESS712 + 713.1-2 / W16

DISKS + FILESYSTEMS // 712.1-3 / W5	
LABELS	fdisk handles partition or slice tables; disklabel handles BSD partitions. Names and nesting vary by BSD and architecture.
CREATE	newfs creates UFS; fsck checks UFS. zpool manages pools; zfs manages datasets and snapshots where available.
CHECK	df reports filesystem space; du totals a directory tree; zpool status checks pool health.
MOUNT	mount and umount change runtime state; /etc/fstab controls boot mounts.
- For a mount failure, check device, filesystem type, options, mount point, and consistency state.	
PERMISSIONS + LINKS // 712.4-5 / W4	
MODE	rxw = 4/2/1. Examples: chmod 640 file; chmod u=rw,g=r,o= file.
SPECIAL	SUID 4000, SGID 2000, sticky 1000. Directory SGID inherits group; sticky restricts deletion.
DEFAULT	umask removes bits from the requested mode; 022 commonly yields files 644 and directories 755.
OWNER	chown user:group path; chgrp group path.
LINK	A hard link shares an inode and filesystem. A symbolic link stores a path and can cross filesystems.
LAYOUT + FIND // 712.6 / W2	
HIER	hier(7): /etc config, /var changing data, /usr base/userland; third-party files usually use /usr/local or NetBSD /usr/pkg.
LOOKUP	which searches PATH; whereis checks standard locations; whatis searches man descriptions; locate uses a database.
FIND	find /var -type f -mtime -1 -size +10M. Also know -name, -user, -group, and -perm.
DB	locate.updatedb refreshes the locate database, usually through a privileged scheduled job.
USERS + SCHEDULING // 713.1-2 / W5	
COMMON	adduser, passwd, chpass/chsh/chfn, vipw, id, groups, su; templates in /usr/share/skel.
FREEBSD	pw useradd / usermod / userdel; rmuser.
NET/OPEN	useradd, usermod, userinfo, userdel; OpenBSD also provides rmuser.
CRON	min hour day-of-month month day-of-week command. System crontab adds a user field; user crontabs do not.
ACCESS	/var/cron/allow and /var/cron/deny control crontab access.
PERIODIC	FreeBSD periodic + periodic.conf; NetBSD daily/weekly/monthly/security.conf; OpenBSD daily, weekly, monthly.

03 // OPERATIONS + NETWORK713.3-7 + 714 / W16

TIME + LOGS // 713.3-4 / W3	
TIME	date and ntpd. FreeBSD/NetBSD use /etc/ntp.conf and ntpq; OpenBSD uses /etc/ntpd.conf.
READ	tail -f follows logs; grep searches; zgrep, zless, zmore read compressed logs; dmesg shows kernel messages.
ROTATE	newsyslog and /etc/newsyslog.conf rotate by time or size; /etc/syslog.conf routes facilities and priorities.
MAIL + PRINT + SESSIONS // 713.5-7 / W3	
ALIASES	/etc/mail/aliases then newaliases. mbox is one mailbox file; Maildir uses one file per message.
QUEUE	mailq on FreeBSD/NetBSD; postqueue on NetBSD; smtpctl on OpenBSD. mailer.conf selects MTA wrappers.
PRINT	/etc/printcap describes queues; lpq views, lprm removes, and lpc controls jobs or printers.
LOGIN	who, w, users show current sessions; last shows history; lastlogin exists where provided.
IP + INTERFACES // 714.1-2 / W5	
CIDR	IPv4 network = address AND mask; broadcast = network OR inverse mask. IPv6 uses prefix + interface ID and has no broadcast.
PROTO	TCP supplies connections and reliability; UDP supplies datagrams; ICMP carries errors and diagnostics.
RUNTIME	ifconfig, route, hostname; dhclient uses /etc/dhclient.conf and /var/db/dhclient.leases.
FREEBSD	Persist host, interfaces, aliases, and default route in /etc/rc.conf.
NETBSD	/etc/ifconfig.if, /etc/ifaliases, and /etc/rc.conf.
OPENBSD	/etc/hostname.if, /etc/myname, /etc/mygate; netstart applies configuration.
IPV6	Know interface aliases and the roles of SLAAC versus DHCPv6.
TROUBLESHOOT + DNS // 714.3-4 / W5	
PATH	ifconfig -> route/netstat -> ping/ping6 -> traceroute -> nc or telnet. /etc/services maps names to ports.
SOCKETS	netstat is common; sockstat is named for FreeBSD/NetBSD; nmap probes listening or reachable ports.
RESOLVE	/etc/resolv.conf selects recursive resolvers; /etc/hosts maps locally; nsswitch.conf orders sources on FreeBSD/NetBSD.
QUERY	host is common; drill on FreeBSD; dig/nslookup on NetBSD/OpenBSD. Test forward and reverse records.

04 // UNIX TOOLBOX715 / W14

SHELL + MANPAGES // 715.1 / W2	
SHELLS	sh is Bourne/POSIX-style; csh and tcsh use different syntax and history. Do not mix script syntax.
I/O	< input; > replace; >> append; 2> stderr in sh; pipeline; tee writes file and stdout. csh uses >& and &.
GLOB	* any string, ? one character, [...] class. The shell expands globs before the command; regex is different.
MAN	Sections: 1 commands, 5 file formats, 7 miscellany, 8 administration. Example: man 5 rc.conf; intro(n) introduces a section.
TOOLS	env shows or sets environment; aliases change lookup; xargs builds argument lists from standard input.
FILES + PROCESSES // 715.2-3 / W6	
FILES	cp -R, mv, rm -r, mkdir, rmdir, touch, file. Confirm recursive and destructive targets.
ARCHIVE	tar, pax, cpio archive trees; dd copies byte or block streams and can overwrite devices.
LOAD	uptime and w show 1, 5, 15 minute load averages; top, ps, pgrep inspect processes.
MEMORY	vmstat, pstat, systat, and swapctl expose VM, paging, or swap state.
SIGNAL	TERM requests cleanup; KILL cannot be caught. kill/pkill signal processes; nice/renice adjust priority.
JOBS	cmd &, Ctrl-Z, jobs, bg, fg. kill is also a shell built-in; FreeBSD killall is OS-specific.
REGEX + VI // 715.4-5 / W4	
REGEX	^/\$ anchors, . any, [a-z] class, [^...] inverse, * repeats. grep uses BRE; grep -E ERE; grep -F literals.
VI	i/a insert, I/A line edges, x delete char, dd delete line, Y yank line, p/P put, / search.
WRITE	:w, :wq or ZZ save; :q! discards; :w! attempts a forced write; :set number; :set list.
SH SCRIPTING + TRAPS // 715.6 / W2	
START	#!/bin/sh, # comment, chmod +x script. Use sh for portable BSD scripts.
PARAM	\$0 script, \$1... args, \$# count, \$@ argument list, \$? status, \$\$ PID. Quote "\$@".
QUOTE	Single quotes are literal; double quotes expand; backslash escapes.
FLOW	if/then/fi, for/do/done, while/do/done, case/esac; exec replaces the current process.
- Runtime configuration is not persistence; package upgrade is not an operating-system upgrade.	
- BSD and GNU options differ. Read the target system's manpage when the question names an OS.	