Processes

Every running program is called a *process*. A vim that you are running, a shell that you are running, a daemon that is waiting for ssh connections are examples of processes.

All Unix systems can run several processes simultaneously.

Listing processes – ps

There are two versions of ps on babbage — /usr/ucb/ps and /bin/ps (also installed as /usr/bin/ps). Most important /usr/ucb/ps options:

-a	include processes owned by others
-l	long listing
-u	user-oriented listing
-w	wide output (132 columns rather than 80)
-ww	arbitrarily wide output
-x	include processes with no controlling terminal
nn	list information on process *nn*

Shell startup

bash reads:
at login: ~/.bash_profile, or else ~/.bash_login, or else ~/.profile
when interactive: ~/.bashrc
non-interactive: $ENV

tcsh reads: ~/.tcshrc, or else ~/.cshrc
and at login: ~/.login

Interesting variables

Environment: PATH, TERM
bash: PS1, HISTSIZE
tcsh: prompt, rprompt, history, savehist, correct, autologout

Creating new processes

fork creates a duplicate (a *child*) of a current process. *exec* replaces the existing process with a new one (the PID stays the same).

Normal execution of a command from shell: fork–exec–wait. *command* & executes the *command* in background: fork–exec.

Suspend key (usually Ctrl-Z, changed by stty utility) suspends a running process.

jobs lists the suspended and background jobs (–l option gives process IDs), fg %*nn* brings job *nn* into foreground and bg %*nn* brings job *nn* into background (useful for suspended jobs).

kill –*signal* %*nn* sends a *signal* to job *nn* and kill –*signal* *pid* send a *signal* to process *pid*.

Useful signals: HUP (hang-up), KILL and TERM (terminate). By default, kill sends a TERM signal.

Aliases

	bash	tcsh
List all aliases	alias	alias
List a single alias	alias *name*	alias *name*
Set an alias	alias *name=value*	alias *name value*
Delete an alias	unalias	unalias

Passing arguments into an alias (tcsh)

!*n*	*n*th argument
!~	same as !1
!*	all arguments
!$	the last argument
!*m-n*	range of arguments