GNU Screen

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What Is It?

GNU Screen, or just "screen", is a tool which gives you multiple virtual windows in a single terminal window.

Why Do I Want to Use It?

- Reduce Window Switching

- Multiple Activities on a Remote System with a Single Connection

- Disconnect/Reconnect Session

- Multiple Connections to the Same Set of Terminal Windows

- Add Features to Existing Terminal Emulator

- Works on most flavors of Unix, Linux, BSD

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Getting Started

`screen`	start a new session with a shell window
`<Control-A><Control-C>`	create a second shell window
`<Control-A><Control-A>`	switch back to last window
`<Control-A><Control-N>`	switch to next window
`<Control-A><Control-P>`	switch to previous window
`screen {program} {arg1} ...`	run "`program`" in a window

Getting Started (cont)

- "`<Control-A><Question-Mark>`" to get other key bindings

    - all prefixed with "`<Control-A>`"

- "`<Control-A><Colon>`" to enter text commands

    - e.g., "`<Control-A><Colon>screen bash`"

- Default commands in `~/.screenrc` file

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Managing Windows

`<Control-A><W>`	list windows in status bar
`<Control-A><[0-9]>`	switch to a window with a single-digit number
`<Control-A><Double-Quote>`	get a window selection page
`<Control-A><Single-Quote> {windownum|windowid}<Enter>`	switch to a window with a longer number, or with part of a window title
`<Control-A><Shift-A>`	retitle a window

Managing Windows (cont)

`<Control-A><Colon>number {windownum}<Enter>`	set the number of the current window
`screen -t title ...`	start a window with the given title

- e.g., `"screen -t filename.txt vi filename.txt"`

The Window Environment

- Emulated VT100 Terminal

    - Even if you have a weird terminal, screen fixes it for you

    - $TERM="screen" by default, which can confuse some operating systems

    - Use "`screen -T vt100 ...`" or "`term vt100`" in `~/.screenrc` to work around the problem

- Terminal scrollbar doesn't work right with screen - use Copy Mode

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Copy Mode

- "<Control-A><Escape>" or "<Control-A><Left-Bracket>" to start
- vi-like key movements around any screen, including screen history [1]
- "<Slash>{text}<Enter>" to search forwards [2]
- "<Question-Mark>{text}<Enter>" to search backwards [2]
- "<Escape>" or other undefined key to leave copy mode

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Copy Mode (cont)

- "<Enter>" or "<Space>" in Copy Mode to mark start of copy
- Use vi-like movement keys, then "<Enter>" or "<Space>" to mark end of area to copy
- Leaves copy mode after marking end
- "<Control-A><Right-Bracket>" to paste copy buffer to any window as if typed

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Detach / Attach

- "`<Control-A><Control-D>`" to detach a session [3]
- "`screen -ls`" to list existing screen sessions
- "`screen -r sessionid`" to attach to the existing session
- "`screen -x sessionid`" to attach to a non-detached screen [4]

Custom Keys

- "<Control-A><Colon>bind {char} {command} {arg1} ..." to set a binding for the current session

- Add "bind {char} {command} {arg1} ..." to ~/.screenrc to get the bindings after a restart

- char can be a single character or a caret (^) followed by another character for control keys

- command can be anything that works with <Control-A><Colon>

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Monitoring Activity

- Bell notification in status window
- Monitor for activity with "`<Control-A><Shift-M>`", again to stop
- Monitor for silence with "`<Control-A><Underscore>`", again to stop
- Log screen activity to a file with "`<Control-A><Shift-H>`", again to stop
- Dump current screen to a file with "`<Control-A><H>`"

Shell Support - tcsh

```
# add to .cshrc, .login, etc.
setenv VIM_NO_X -X
alias svi '(set files=(\!*) ; \
            screen -t "${files:gt}" vi '${VIM_NO_X}' $files)'
alias sview '(set files=(\!*) ; \
              screen -t "${files:gt}" less $files)'
alias sman 'screen -t "man \!*" man \!*'
alias sssh 'screen -t "\!*" ssh \!*'
```

Shell Support - bash

```
# add to .bash_profile, .bashrc, etc.
VIM_NO_X=-X
svi () { screen -t "$*" vi '${VIM_NO_X}' $*; }
sview () { screen -t "$*" less $*; }
sman () { screen -t "man $*" man $*; }
sssh () { screen -t "$*" ssh $*; }
```

Scripting Screen Startup

Run after starting screen:

```
#!/usr/local/bin/tcsh

alias sdir '(cd \!\!:1 ; screen -t \!\!:2)'
alias srenum 'screen -p \!\!:1 -X number \!\!:2'
alias sdirnum 'sdir \!\!:1 \!\!:2 ; srenum \!\!:2 \!\!:3'

sdirnum $repodir source 20
sdirnum $testdir test 21
svi NOTES; srenum NOTES 30
screen -X screen 30 python
screen -X select .
```

My .screenrc

```
bind W windowlist -b
bind s screen -t su sudo su -
bind S screen saidar -d 4 -c
bind ^h screen htop
deflogin off
defscrollback 2000
defutf8 on
vbell on
```

Split Screen

- "`<Control-A><Colon>split`" for horizontal split
- "`<Control-A><Colon>split -v`" for vertical split
- "`<Control-A><Tab>`" to switch split region
- "`<Control-A><Shift-X>`" to remove current split region
- "`<Control-A><Shift-Q>`" to make the current split region the only split region

Zombie Mode

- "<Control-A><Colon>zombie QR"
- Windows no longer close on exit
- "Q" to quit, "R" to restart
- Useful for daemon screens
- Applies to all windows in a screen session

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Weird Stuff

`screen /dev/ttyS0`	Open a window connected to a serial port
`screen //telnet {hostname} [{port}]`	Open a window running a built-in telnet (optional)
`<Control-A><Colon>zmodem catch`	Support zmodem transfers with connected screen (experimental)

Pitfalls

- Environment is from session creation

    - DISPLAY, DBUS_SESSION_BUS_ADDRESS, et al., may not be correct

    - "`<Control-A><Colon>setenv {var} {val}`" works for new windows, but not existing ones

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Moving Forward

- "man screen" has all the details you need
- GNU Screen Web Site

Questions?

That's All Folks

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End Matter

1	"defscrollback {lines}" in ~/.screenrc sets how much history to keep
2(1, 2)	Plain-text search, not regex
3	Or close the terminal, log out of X, lose the remote login connection, ...
4	Same windows from multiple locations!

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