

Using 'screen' for Fun and Profit

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What is 'screen'?

- screen - screen manager with VT100/ANSI terminal emulation
- `man screen` - Screen is a full-screen window manager that **multiplexes a physical terminal** between several processes (typically interactive shells).
- There is a scrollback history buffer for each virtual terminal and a copy-and-paste mechanism that allows moving text regions between **windows**

screen Experience

- Heard of it?
- Used it (which platforms? How/Why?)?
- Multiple windows?
- Named windows/screens?
- Passwords?
- Multiple-user permissions?
- Christer Edwards from Root Certified (favorite uses?)
- Other?

Why use screen?

- Lets you reconnect to a process
- Lets remote commands survive bad connections
- Lets you share a terminal with another user
- Benefits of multiple windows/workspaces in terminals
- Works with any remote-access method (SSH, VNC, X, RDP, etc.)

Cross-Platform, FOSS

- ✓ Command line
- ✓ Works on Linux, Unix, Mac, out of the box

The background of the slide is a vibrant blue color, overlaid with a pattern of numerous thin, light blue diagonal lines that create a sense of motion and depth. The lines are most densely packed on the right side and become more sparse towards the left.

How Can screen Be Used

Common screen Usage

A method of reconnecting to processes

- ✓ Normally backgrounding a process and closing the terminal from which the process was backgrounded makes foregrounding impossible.
- ✓ Even if you do foreground a process from the same terminal output must either be redirected away (losing it), written to a file (harder to find), or already in your terminal when you do not want it there.

Common screen Usage

A method of reconnecting to processes, cont.:

- ✓ Jobs are not lost due to bad connections, remote system crashes, or anything else that doesn't actually kill the job or its parent process(es)

Common screen Usage

Sharing a window

- ✓ See what coworkers or others are doing as they do it, even when neither of you are at the box or the same location
- ✓ Watch others for training, multiple individuals during a single change control window, troubleshooting (watch for control as well as learning), etc.

Common screen Usage

Same processes regularly used

- ✓ Just like having your favorite windows open on the desktop
- ✓ Have monitoring processes run constantly and connect to them to see what is happening after a condition is met or your interest has reached a peak

screen Terminology

- ✓ screen – executable and program name
- ✓ Window – single view within screen composed of a shell's process (bash)
- ✓ Session – A single instance of the 'screen' command
- ✓ Key Binding – C-a keystroke combination set (by default) to prefix session commands

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X and screen

Reconnecting to the GUI



It usually doesn't take long before this is tried.

Can a GUI application be launched from within screen?

---Yes

Can you (re)connect to a GUI application started in screen like you can a terminal application?

---No

screen Commands and Keystrokes

Start, Disconnect, Resume

#Note that 'C-a d' means Control + a followed by 'd'

screen #start screen

screen -q #start screen sans splash screen

C-a d #disconnect from screen

screen -r #resume detached screen (single-user)

screen -x #resume attached screen (multi-user)

List user's available sessions

```
`screen -ls` or `screen -list`
```

```
No Sockets found in /var/run/screens/S-ab.
```

```
--- or ---
```

```
There is a screen on:
```

```
3691.pts-4.mybox0 (Detached)
```

```
3724.pts-4.mybox0 (Attached)
```

```
1 Socket in /var/run/screens/S-ab.
```

Start while naming the session 'special'

Giving a session a name means you can connect by that name when there are multiple options available... easier for those of us who are lazy

```
screen -S special      #start a new session named 'special'
screen -r special      #reconnect to session named 'special'

                        #reconnect to session without a name
                        #shows PID, terminal, and machine
screen -r 3481.pts-4.mybox0
```

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Behind the Scenes: What's going on??

Running screen: pstree output

Notice that screen is owned by init and other shells (in this first case just one) are children of screen

init-

```
├──screen───bash
```

More excitement below:

```
├──screen├──bash───pstree
│       ├──bash───top
│       ├──bash───watch───sh───netstat
│       └──3*[bash───tail]
```

Running screen: filesystem objects

But how does it know which screens I have?

✓ /var/run/screens/S-<username> #SLE 11

✓ /var/run/uscreens/S-<username> #SLE 10

A socket file is contained in this directory (user-specific) for every session loaded.

```
ab@mybox0:> ll /var/run/uscreens/S-ab/*
```

```
prw----- 1 ab users 0 2009-10-07 00:20 /var/run/uscreens/S-ab/30138.default
```

Running screen: Permissions

How does screen (if setup properly) access these files and (if desired) allow users to share screens?

- ✓ `-r-sr-xr-x 1 root root 359736 2009-02-20 19:15 /usr/bin/screen`
- ✓ SUID; screen loads with, then drops, root privs
- ✓ screen can also be used without SUID though it means users cannot, securely, share sessions with other users

Windows Management

Multiple Windows in one Session

Advantages:

- More real estate within the same session
- Quick switching within the session
- Copying/Pasting within the session (no mouse required)
- No need for multiple xterms, SSH connections, etc.
- Normal windows alongside password-protected windows

Multiple Windows in one Session

C-a A	#Rename the current window
C-a c	#Create a new window
C-a w	#See list of windows
C-a l	#Fully refresh the current window
C-a p	#Switch to the previous window
C-a n	#Switch to the next window
C-a t	#Show system information
C-a x	#Lock the terminal (see man page!!)

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screen In Real Life

screen's Own Command Line

- **C-a** : #Go into the customization mode
- From the prompt a lot of things can happen:
- password #Password-protect screen from root, etc.
 - password none #End password protection
- multiuser on #Enable multi-user mode so other users can join your user's screen
- screen even lets permissions be set per user so niceguy can read/write to your session (see and execute commands) while meanguy can just read or not have access at all

screen's Initialization File

- `~/.screenrc` #Start screen the way you want it every time, or create a new one for special occasions and refer to it when loading screen

```
screen -t top top -d1
```

```
screen -t messagesmon sudo tail -f /var/log/messages | grep -v 'STATS:'
```

```
screen -t spacemon /home/ab/bin/spacemon.sh
```

```
screen -t pinggoog ping google.com
```

```
screen -t fwmon sudo tail -f /var/log/firewall
```

```
screen -t edirmon sudo tail -f /var/opt/novell/eDirectory/mytree0/myserver0-a/log/ndsd.log
```

Demo/QA/Heckling

- Whatever you want to see (wrt 'screen'), let's do it.
- Thoughts on ways to improve overall?
- Alternative applications or uses dreamed up?

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