

Intro to Linux Administration



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So what in the motherfuck is this linux stuff anyway?

GNU/Linux is an operating system created to provide and **extend** the functionality of the **grand-daddy of operating systems, UNIX**.

It is one of many UNIX-like operating systems out in the wild, and very widely used in industry, knowledge of GNU/Linux and GNU/Linux Systems administration is desired in many computing jobs.

It is made up of the Linux kernel and GNU userland, hence GNU/Linux.



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Eh, and Administration?

System administrator - A person employed or **enslaved** to maintain and operate a computer system and/or network.

A **real** life Sys Admin



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Combined...

In this talk we will cover the basics of

- Shells and useful commands
- The FHS
- Error resolving
- Task Automation

Your shell.



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What is a shell?

A shell provides a user interface to the operating system

- zergless@azazel:~\$
- bash, zsh, tcsh, ksh, csh



**Your shell is your best &
most powerful friend.**



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What type of things can I do from my shell?

- What **can't** you do from your shell.
- Useful commands:

man - man is your second most best friend

cd

ls

mv

cat

rm

echo

touch

cp

awk

w



What type of things can I do from my shell?

- More useful commands:

grep

find

lsuf

- So, we have this list of commands. How do I figure out what they do?
- Ok now lets try some of them out quickly.



FHS

Filesystem Hierarchy Standard



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FHS? Isn't that a lads mag?

- The FHS is the **filesystem hierarchy standard**
- It defines how a file system **should be laid out and what goes where** in UNIX-like operating systems
- Can't be sticking things where they don't belong, like



So what does it look like?

It all starts at the root `/`. Everything is laid out relative to this.

`/bin` - Essential system binaries

`/boot` - Boot files, your bootloader, kernel, initrd etc.

`/dev` - Devices directory

`/etc` - This is where you configuration files live

`/home` - Users home directories

`/lib` - Essential libraries for binaries in `/bin` and `/sbin`

`/opt` - Optional package data

`/proc` - A special pseudo file system showing you current kernel configuration and process information

`/root` - Home directory of the root user

`/sbin` - Essential superuser binaries

`/tmp` - Temporary files, not preserved between reboots

`/usr` - Secondary hierarchy. Most non-essential binaries live here

`/var` - Variable files



Error: Resolving



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HALP!! Everything is breaking...

- Logs to the rescue!
 - Logs are stored in `/var/log/` - in many cases each service has its own subdirectory
- Okay, I'm looking at the right log file, but what am I looking for?
 - Error messages
 - Keywords such as "error, warning, critical"
 - Read from the **last line upwards** (logs are in chronological order)
 - Check timestamps (many services prefix the line with the time of the error)
- Google **is** your friend, and a friend that'll let you take credit for his hard work.



No, really. Shit has seriously hit the fan... wtf do I do?!

- Check for hardware errors

- **Blinking lights on the** server
- **High** temperatures - can cause servers to reset
- Management card **health check** - DRAC, ILOM, ALOM
- Boot messages - Syslog, dmesg
- Disk errors - fsck, RAID controller reports

- Ask someone!

- **IRC** - #rbadmin, freenode, quakenet
- Communities / Mailing lists - admin-discuss, ILUG, LinuxQuestions.org
- Lecturers
- Associates - Past members in the industry / presenters



Task Automation



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Cronic Wit

- You're hilarious, but what is Cron?
 - Cron is a time based job scheduler.
 - It can be used to automated tasks which need to run at regular intervals. (Eg. Backup Job).
- How does it work?
 - A **cron daemon** (**background process that is always running**) reads crontabs from specific locations. These **crontabs** contain information on what tasks or scripts to run and how often.
- Are there different types of crontabs?
 - **crontabs** can be stored in a number of different locations and are usually used for different purposes.
 - User Crontab - **`/var/spool/cron/crontabs`**
 - System Crontab - **`/etc/cron.*`**



Crontab Syntax

- User crontab edited by typing:
 - `crontab -e`
- Each line looks like this:
 - `1 0 * * * backup_script.sh`
- This means
 - at the first minute,
 - of the zeroth hour (midnight),
 - of every day,
 - of every month,
 - every day of the week,
 - run `backup_script.sh`



la fin ;)



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