Fundamentals of sed

Andrew Mallett

@theurbanpenguin | www.theurbanpenguin.com

Danny has started using sed over SSH to edit files on remote servers

Using sed to Reduce Administration Time

To become like Danny we need to learn a little sed

Print

Substitute

Append \ Insert \ Delete

Multiple statements sed files

In-place edits

Culminating in remote edits over SSH

```
$ sed ' p ' /etc/passwd
$ sed -n ' p ' /etc/passwd
$ sed -n '1,3 p ' /etc/passwd
$ sed -n '/^root/ p ' /etc/passwd
```

Using the sed **PRINT** command

The command **p** will print the pattern space (matched lines)

The **-n** option supresses standard output so only matched lines display

Adding a **range** will print **only** those matched lines

Demo Time: Getting to Know sed

```
$ sed ' [range] s/<string>/<replacement>/ ' /etc/passwd
$ sed ' /^gretchen/ s@/bin/bash@/bin/sh@ ' /etc/passwd
```

Using the sed **SUBSTITUTE** command

The substitute command in sed is your **search and replace** tool

The first character following the **s** represents the delimiters, often the **/** is used

Replacing the default shell of the user gretchen from /bin/bash to /bin/sh

Add the **g** option should more than one replacement be required per line

Demo Time: Using sed substitute

```
$ sed ' /^server 3/ a server ntp.example.com' /etc/ntp.conf
$ sed ' /^server 0/ i server ntp.example.com' /etc/ntp.conf
$ sed ' /^server\s[0-9]\.ubuntu/ d' /etc/ntp.conf
```

Using the sed **APPEND \ INSERT \ DELETE** commands

Append a new line after a line

Insert a new line before a line

Delete lines from a file

Demo Time: Using sed with insert, append, and delete

```
$ sed ' {
  /^server 0/ i ntp.example.com
  /^server\s[0-9]\.ubuntu/ d
} ' /etc/ntp.conf
```

Multiple sed **expressions**

Multiple expressions can be written on the command line by including brace brackets within the quoted sed instructions

```
$ cat ntp.sed
/^server 0/ i ntp.example.com
/^server\s[0-9]\.ubuntu/ d
$ sed -f ntp.sed /etc/ntp.conf
```

For **code-reuse** implement sed files

The sed file can be referenced with the **-f** option

Nothing is written to the file
unless the -i option is used.
With -i.bak a backup file is
created prior to the edit

Demo Time: Multiple sed Expressions

Assigns a TTY allowing for sudo password

Creates backup with .bak etxension

Sed file on the remote server

```
$ ssh -t user@server sudo sed -i.bak -f /tmp/ntp.sed
/etc/ntp.conf
```

Putting it all together with remote edits using SSH

Danny can effectively update the **ntp.conf** files on multiple servers quickly and easily

Demo Time: The Finale "**Remote Edits**"

Summary

- Danny has shared some of his knowledge

- We have learned some basic sed techniques

- Print \ Substitute \ Append \ Insert \ Delete

- Multiple expression with { } or sed files

- Enabling remote edits using SSH

Next up: substitution grouping with sed