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Lecture 1

Linux RedHat 2010

Linux Usage Basics

Upon completion of this unit, you should be able to:
- Log into a Red Hat Enterprise Linux system
- Change your password
- Understand the nature of root privileges
- Elevate your privileges
- Edit plain text files

Linux

Logging in to a Linux System

- Login using username and password
- Two types of login screens: text-based and graphical
  - Text-based login leaves you at a *shell prompt*
  - Graphical login starts a *desktop environment*
- Each user has a home directory for personal file storage
  - User-specific configuration data is often kept there as well

```
Red Hat Enterprise Linux Server release 5.4 (Tikanga)
Kernel 2.6.18-164.el5 on an i686

SRV2-DRCS-TRC01 login: vsobennikov
Password: _
```
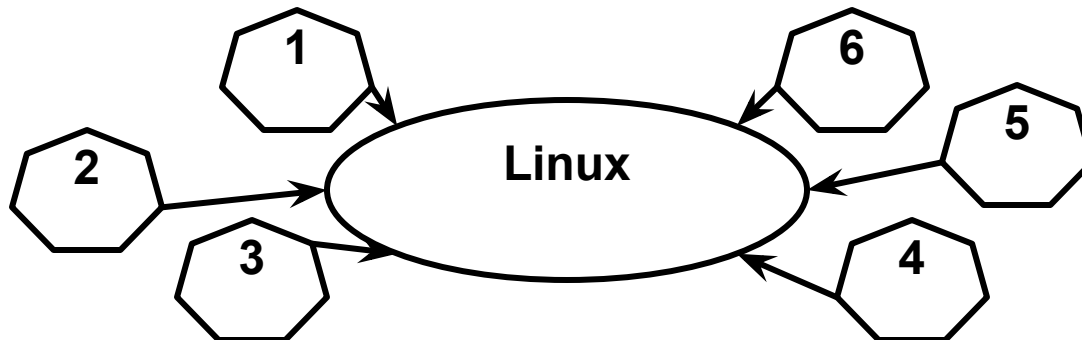
Linux

Connecting to a Linux System with Putty
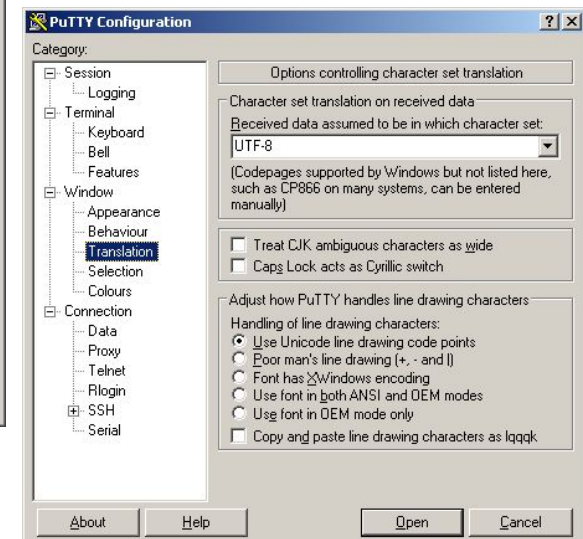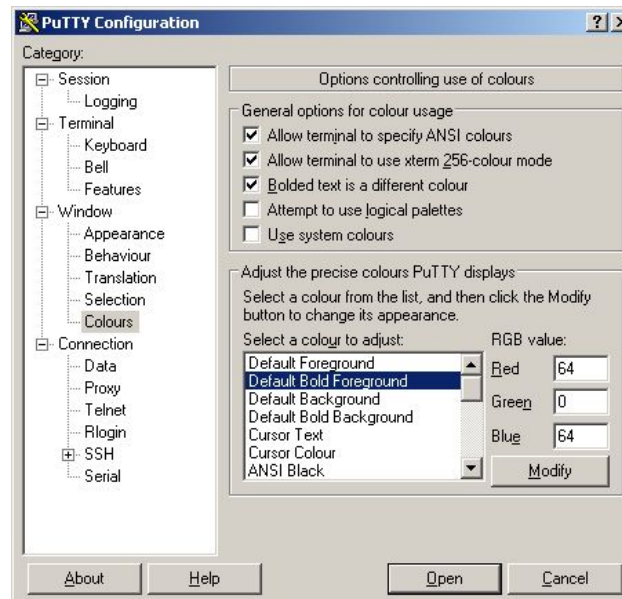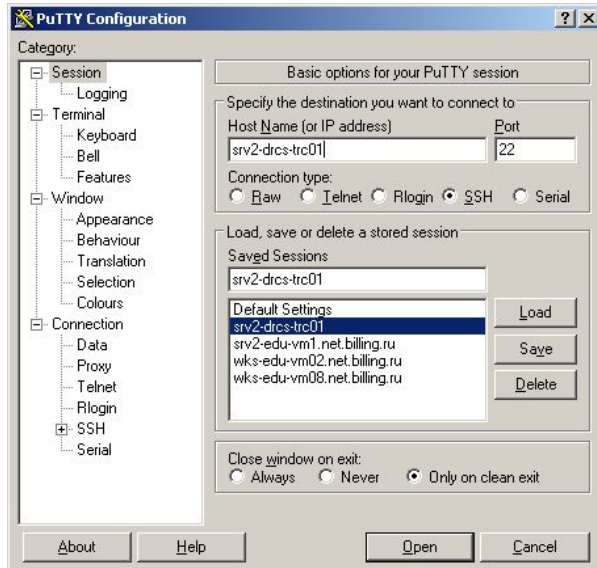
Switching between virtual consoles and the graphical environment

- A typical Linux system will run six virtual consoles and one graphical console
  - Server systems often have only virtual consoles
  - Desktops and workstations typically have both
- If graphical console is inactive, it may be started manually
  - The X server must be pre-configured by the system administrator
  - Log into a virtual console and run **startx**
- Switch among virtual consoles by typing: *Ctrl-Alt-F [2 - 7]*
- Access the graphical console by typing *Ctrl-Alt-F1*

Linux

gnome-terminal

- Applications->Accessories->Terminal
- Graphical terminal emulator that supports multiple "tabbed" shells
  - *Ctrl-Shift-t* creates a new tab-создает новую вкладку
  - *Ctrl-PgUp/PgDn* switches to next/prev tab- переключается на след/ пред вкладку
  - *Ctrl-Shift-c* copies selected text-копирует выделенный текст
  - *Ctrl-Shift-v* pastes text to the prompt-вставляет текст в приглашение
  - *Shift-PgUp/PgDn* scrolls up and down a screen at a time-прокручивает вверх и вниз по экрану

Changing Your Password

- Passwords control access to the system

- General guidelines for best security:
  - Change the password the first time you log in
  - Change it regularly thereafter
  - Select a password that is hard to guess

- To change your password:

- GUI: System->Preferences->About Me and then click **Change Password**

- CLI: **passwd**

Linux

The *root* user

- The *root* user: a special administrative account
  - Also called the `superuser`
  - `root` has near complete control over the system
    - ...and a nearly unlimited capacity to damage it!
- Do not login as root unless necessary
  - Normal (*unprivileged*) users' potential to do damage is more limited

Linux

Changing Identities

- **su -** creates new shell as root
- **sudo** command runs `command` as root
  - Requires prior configuration by a system-administrator
- **id** shows information on the current user

Command Line Shortcuts
The *Tab* Key

- Type `Tab` to complete command lines:
  - For the command name, it will complete a command name
  - For an argument, it will complete a file name
- Examples:

  ```
  $ xte<Tab>
  $ xterm
  $ ls myf<Tab>
  $ ls myfile.txt
  ```

Linux

Command Line Shortcuts
History

- **bash** stores a history of commands executed in file `~/.bash_history` name of file is in env. variable `HISTFILE`
- **history** lists all commands
- **history** *N* lists the last *N* commands

```
$   history  4
15   ls -l
16   cd
17   cp   /etc/passwd   .
18 vi passwd

$ history !!,
$ history !300,
$ history !string
```

Linux

More History Tricks

- Use the *up* and *down* keys to scroll through previous commands
- Type *Ctrl-r* to search for a command in command history.
    - (reverse-i-search)":
- To recall last argument from previous command:
    - `Esc,.` (the escape key followed by a period)
    - `Alt-.` (hold down the alt key while pressing the period)
    - Can be pressed multiple times
    - `!$` (only valid for the last command)
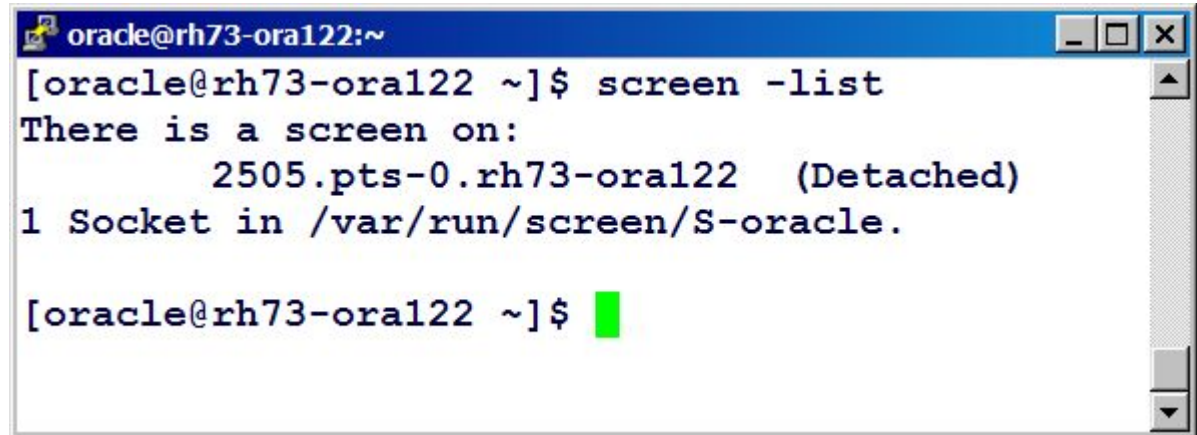

- *HISTCONTROL=ignoreboth*

Linux

Editing text files

- The nano editor
  - Easy to learn, easy to use
  - Not as feature-packed as some advanced editors
- Other editors:
  - **vi, vim**, an advanced, full feature editor
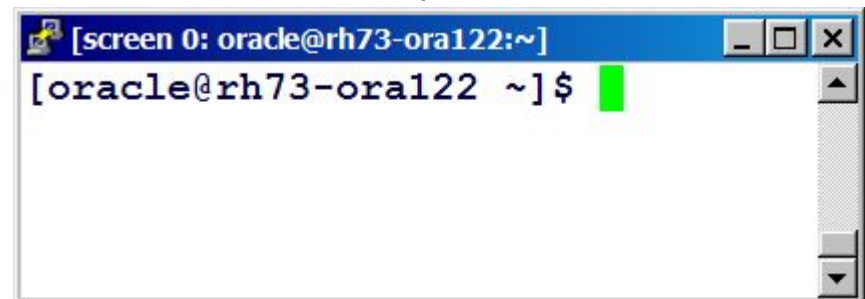 - **gvim**, a graphical version of the vim editor

`screen command`


```
oracle@rh73-ora122:~
[oracle@rh73-ora122 ~]$ screen -list
There is a screen on:
        2505.pts-0.rh73-ora122   (Detached)
1 Socket in /var/run/screen/S-oracle.


[oracle@rh73-ora122 ~]$
```
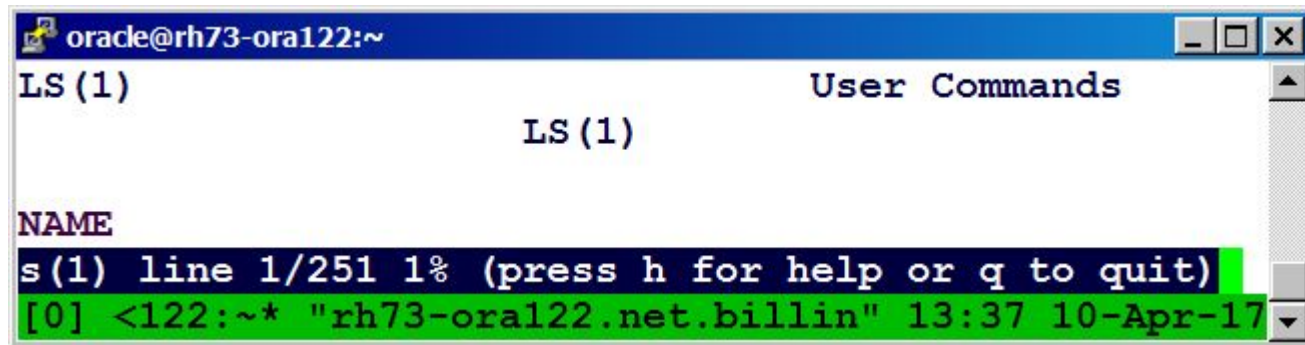
- screen
  - `Ctrl+a ?` help
  - `Ctrl+a d` detach
  - Ctrl+a N

- `screen ping 8.8.8.8`

- `screen -list` list of screen's sessions

- `screen -r [[pid.]tty[.host]]` connect to this screen (when it detached)

- `screen -S download` create name *download* for screen

- `screen -x PID:download` connect to this screen (if user disconnected when attached)


```
[screen 0: oracle@rh73-ora122:~]
[oracle@rh73-ora122 ~]$
```

`tmux` command

- `tmux new`   create new screen
- `tmux attach`   connect to existing tmux
  - `Ctrl+b n`   switch to next window
  - `Ctrl+b p`   switch to previous window
  - `Ctrl+b c`   create new window
  - `Ctrl+b &`   close window (`exit`)

```
oracle@rh73-ora122:~

LS(1)                              User Commands
                        LS(1)


NAME
s(1) line 1/251 1% (press h for help or q to quit)
[0] <122:~* "rh73-ora122.net.billin" 13:37 10-Apr-17
```

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End of Lecture 1

- Questions and Answers Summary
- Login name and password
  - **startx**
  - **gnome-terminal**
  - **passwd**
  - **su**
  - **nano**

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