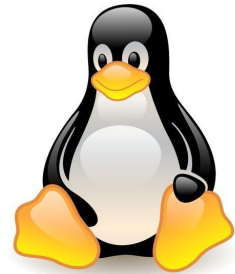




Linux Plus for AWS and DevOps



CLARUSWAY
WAY TO REINVENT YOURSELF



Managing Users and Groups



CLARUSWAY
WAY TO REINVENT YOURSELF

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Identity & Access Management





Break
return @ 9pm

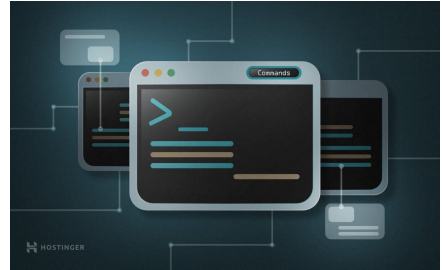
Identity & Access Management - Overview

- Every operating system needs a way to **authenticate** and **authorize** users
 - authenticate = verify **who** the user is
 - authorize = **what** resources they can access
- Following constructs facilitate this:
 - **Users / passwords** - support authentication
 - **Permissions** - support authorization
 - **Groups** - facilitate easy ways to manage authorization



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Basic User Commands



Basic User Commands

whoami

display one-line manual page descriptions.

whoami

```
clarusway@DESKTOP-UN6T2ES:~$ whoami
clarusway
clarusway@DESKTOP-UN6T2ES:~$
```



Basic User Commands

who

provide with details about who is logged on the system.

who

```
clarusway@DESKTOP-UN6T2ES:~$ who
root pts/0 2019-11-10 23:07 (10.104.33.101)
james pts/1 2019-11-10 23:30 (10.104.33.101)
john pts/2 2019-11-10 23:34 (10.104.33.96)
clarusway pts/3 2019-11-10 23:39 (10.104.33.91)
clarusway@DESKTOP-UN6T2ES:~$
```



Basic User Commands

w

inform who is logged on and what they are doing.

w

```
clarusway@DESKTOP-UN6T2ES:~$ w
14:22:38 up 1:52, 0 users, load average: 0.52, 0.58, 0.59
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root pts/0 14:07 15.00s 0.01s 0.01s top
clarusway@DESKTOP-UN6T2ES:~$
```



Basic User Commands

id

Display user id, your primary group id, and a list of the groups you belong to.

id [username]

```
clarusway@DESKTOP-UN6T2ES:~$ id
uid=1000(clarusway) gid=1000(clarusway) groups=1000(clarusway)
```



Basic User Commands

su

enables a shell to be run as another user.

su [username]

```
clarusway@DESKTOP-UN6T2ES:~$ su oliver
Password:
oliver@DESKTOP-UN6T2ES:/home/clarusway$ _
```



Basic User Commands

su -

To become another user and also get the environment of the target user.

su - [username]

```
clarusway@DESKTOP-UN6T2ES:~$ su - oliver
Password:
oliver@DESKTOP-UN6T2ES:~$ _
```



Basic User Commands

sudo su

The root user does not have a password set on some Linux systems like Ubuntu and Xubuntu. On these Linux systems, You can become root user via sudo su command.

sudo su
sudo su -

```
clarusway@DESKTOP-UN6T2ES:~$ sudo su
root@DESKTOP-UN6T2ES:/home/clarusway#
```



User management

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User management

etc/passwd

On Linux, the local user database is /etc/passwd.

```
clarusway@DESKTOP-UN6T2ES:~$ tail -5 /etc/passwd
clarusway:x:1000:1000:,,,:/home/clarusway:/bin/bash
john:x:1002:1002:john,room,work,home,other:/home/john:/bin/bash
oliver:x:1003:1003:oliver,room_1,work_1,home_1:/home/oliver:/bin/bash
aaron:x:1001:1001:aaron,,,:/home/aaron:/bin/bash
james:x:1005:1009:james,,,:/home/james:/bin/bash
clarusway@DESKTOP-UN6T2ES:~$
```

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User management

useradd

useradd command is used for creating a new user.

useradd [username]

```
root@DESKTOP-UN6T2ES:~# useradd -m -d /home/walter -c "walter clarus" walter
root@DESKTOP-UN6T2ES:~# tail -1 /etc/passwd
walter:x:1006:1006:walter clarus:/home/walter:/bin/sh
root@DESKTOP-UN6T2ES:~# _
```

- m is used for forcing the creation of the home directory
- d is used for setting the name of the home directory
- c is used for setting a description



User management

adduser

adduser is not a standard Linux command. It's basically a Perl script that uses the useradd command in the background. This is more effective at creating new users on Linux.

adduser [username]

```
root@DESKTOP-UN6T2ES:~# adduser raymond
Adding user `raymond' ...
Adding new group `raymond' (1004) ...
Adding new user `raymond' (1004) with group `raymond' ...
Creating home directory `/home/raymond' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for raymond
Enter the new value, or press ENTER for the default
  Full Name []: Raymond Clarus
   Room Number []: it
   Work Phone []: 12345
   Home Phone []: 12345
    Other []: -
Is the information correct? [Y/n] y
root@DESKTOP-UN6T2ES:~#
```



User management

userdel

Delete a user. `userdel` command will not remove the user's home directory from the file system. If you want to remove the home directory, you need to use the `-r` in the command line.

`userdel [username]`

```
root@DESKTOP-UN6T2ES:~# userdel -r raymond
```



User management

usermod

Modify a user's properties. The example below modifies the description of the user `walter`.

`usermod -[option] [value] [username]`

```
root@DESKTOP-UN6T2ES:~# tail -1 /etc/passwd
walter:x:1004:1004:walter clarus:/home/walter:/bin/sh
root@DESKTOP-UN6T2ES:~# usermod -c 'aws solution architect' walter
root@DESKTOP-UN6T2ES:~# tail -1 /etc/passwd
walter:x:1004:1004:aws solution architect:/home/walter:/bin/sh
root@DESKTOP-UN6T2ES:~#
```



User Passwords

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User Passwords

passwd

User passwords can be set with the passwd command.

passwd [username]

```
oliver@DESKTOP-UN6T2ES:~$ passwd
Changing password for oliver.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
Bad: new password is too simple
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
oliver@DESKTOP-UN6T2ES:~$
```



User Passwords

etc/shadow

User passwords are encrypted and stored in /etc/shadow file.
The /etc/shadow file is only read and can be accessed by root only.

```
clarusway@DESKTOP-UN6T2ES:~$ tail -4 /etc/shadow
tail: cannot open '/etc/shadow' for reading: Permission denied
clarusway@DESKTOP-UN6T2ES:~$ sudo su -
root@DESKTOP-UN6T2ES:~# tail -4 /etc/shadow
clarusway:$6$c2IXDMI2$B9GP0jcYyGLctUmTDP7tfNEBIXGo2YAUf
/Y5NNIDkumJuP5uyxW1xHDMobWPFx0wf0h1C4iBj9PvP4XnP/Uv10:18323:0
:99999:7:::
john:$6$ITd.yBmK$MxMz9wm7.1DxdQx7At.0VB6ch1XU22BMXhTbPkWjdk0B
.SmnwjYR922DmCeAzP8WFyIhGoHP10Dqt6MO7rxON0:18333:0:99999:7:::
oliver:$6$tTRbLfc5$j1NMBc9tvBotwCtFMt0Qq2K0nbQW2zBv
/zwufBwOnhUs7UMoczD.m/5Tnz1uCKymhIS0SszZbdSCRKkLF.wSD00:18333:0
:99999:7:::
walter:$6$aMR4T5iB$7ZJzyv2VCEa0nPZIbaofUSLQp
.aeIOCZgDeNug5hWcIkSnAjA6n6V.tR3IAJY5IScImcn15K/ZMFug1D2gK6L
/:18333:0:99999:7:::
root@DESKTOP-UN6T2ES:~#
```



User Passwords

etc/login.defs

The /etc/login.defs file includes some default user password settings, such as password aging and length settings.

```
clarusway@DESKTOP-UN6T2ES:~$ grep ^PASS /etc/login.defs
PASS_MAX_DAYS    99999
PASS_MIN_DAYS    0
PASS_WARN_AGE    7
clarusway@DESKTOP-UN6T2ES:~$
```



Exercise

Create a user named **devops**
Set **devops** user password as **clarusway**
Change devops user description as **the best cloud engineer**
Switch to **devops** user
Display information of **devops** user
Go back to previous user
Delete **devops** user with home directory



Group Management

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Group Management

etc/group

Users can belong to several groups. Group membership is specified via the /etc/group file.

```
root@DESKTOP-UN6T2ES:/home/clarusway# tail -3 /etc/group
linux:x:1006:john,james,aaron
aws:x:1007:walter
python:x:1008:oliver
root@DESKTOP-UN6T2ES:/home/clarusway#
```



Group Management

groups

groups command is used to display a list of groups to which the user belongs.

groups [username]

```
john@DESKTOP-UN6T2ES:~$ groups
john linux
john@DESKTOP-UN6T2ES:~$
```



Group Management

groupadd

groupadd command is used to create a new group.

groupadd [groupname]

```
root@DESKTOP-UN6T2ES:~# groupadd linux
root@DESKTOP-UN6T2ES:~# groupadd aws
root@DESKTOP-UN6T2ES:~# groupadd python
```



Group Management

usermod

You can change group membership with the usermod command.

usermod -a -G [groupname][username]

```
root@DESKTOP-UN6T2ES:~# usermod -a -G linux james
root@DESKTOP-UN6T2ES:~# usermod -a -G linux aaron
```

- By default, if the group is not specified in the command, the usermod command **will remove the user from any group!**
- Using the **-a** (append) option **prevents this behaviour.**



Group Management

groupmod

groupmod command can be used to change the group name.

groupmod -n [newname][oldname]

```
root@DESKTOP-UN6T2ES:~# groupmod -n ubuntu linux
root@DESKTOP-UN6T2ES:~# tail -3 /etc/group
aws:x:1007:walter
python:x:1008:oliver
ubuntu:x:1006:john,james,aaron
root@DESKTOP-UN6T2ES:~#
```



Group Management

groupdel

groupdel command is used to delete a group.

groupdel [groupname]

```
root@DESKTOP-UN6T2ES:~# groupdel ubuntu
root@DESKTOP-UN6T2ES:~#
```




Group Management

gpasswd

With the gpasswd command, we can add a user to a group and to remove a user from a group. In the example below:

- We add john to aws group with gpasswd -a command.
- We remove walter from aws group with gpasswd -d command.

gpasswd -[option][username][groupname]

```
root@DESKTOP-UN6T2ES:~# gpasswd -a john aws
Adding user john to group aws
root@DESKTOP-UN6T2ES:~# gpasswd -d walter aws
Removing user walter from group aws
root@DESKTOP-UN6T2ES:~#
```



Exercise

- Create a user named **devops**
- Create two groups named **cloud** and **aws**
- Add **devops** user to the group **cloud**
- Display **groups** that **devops** user belongs to
- Add **devops** user to the group **aws**
- Remove **devops** user from **cloud** group
- Delete **cloud** group
- Rename **aws** group name as **aws-cloud**
- Display **groups** that **devops** user belongs to



Exercise

Create users: **Jason, Bruce, Victor, Mark, Jack, Tyler, Tomy, Edward, Eric**

Create groups: **Asia, Europe, America, Africa**

Add users: **Jason, Bruce, Victor** to the **Asia** group

Add users: **Jason, Mark, Jack, Tyler** to the **Europe** group

Add users: **Jason, Tomy, Edward** to the **America** group

Add users: **Jason, Bruce, Mark, Edward, Jack, Tyler, Eric** to the **Africa** group

Display groups that **Jason** belongs to;

Display groups that **Edward** belongs to

Remove **Bruce** from **Africa** group;

Remove **Jason** from **all** groups

Delete **Europe** group

Rename **Africa** group as **Australia**





Summary of User Commands

Command	Description	Basic Syntax
whoami	Display current user	> whoami
who	Displays details of users currently logged in	> who
w	Displays details of current user activity	> w
id	Displays user id, group id and group membership	> id [username]
su	Run as a different user	> su [username]
su -	Run as different user <i>with</i> users environment	> su - [username]
sudo su	Run as root user	> sudo su
sudo su -	Run as root user <i>with</i> root environment	> sudo su -



Summary of User Management Commands

Command	Description	Basic Syntax
cat /etc/passwd	Display current user database	> cat /etc/passwd
useradd	Create a new user	> useradd [flags] [username]
adduser	Perl script to add user - uses useradd	> adduser [username]
userdel	Delete user	> userdel [username]
usermod	Modify user properties	> usermod [option] [value] [username]
passwd	Set user password	> passwd [username]
cat /etc/shadow	Accessible only by root, contains hashed passwords	> cat /etc/shadow
cat /etc/login.defs	Display system password options	> cat /etc/login.defs



Summary of Group Mgmt. Commands

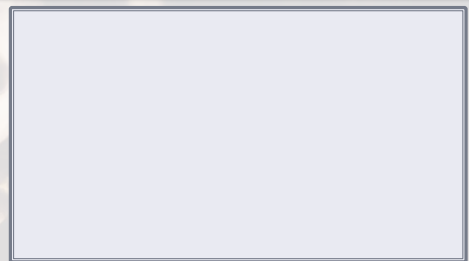
Command	Description	Basic Syntax
cat /etc/group	Display group membership for all users	> cat /etc/group
groups	Display list of groups user belongs to	> groups [username]
groupadd	Create a new group	> groupadd [groupname]
usermod -a -G	Modify user group membership	> usermod -a -G [groupname] [username]
groupmod	Change the group name	> groupmod -n [newname] [oldname]
groupdel	Delete a group	> groupdel [groupname]
gpasswd	Add user to a group (-a option) Delete user from group (-d option)	> gpasswd -[option] [username] [groupname]



A solid purple triangle pointing to the right, located on the left side of the slide.

Kahoot!

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Break
return @ 9:05pm



THANKS!

Any questions?