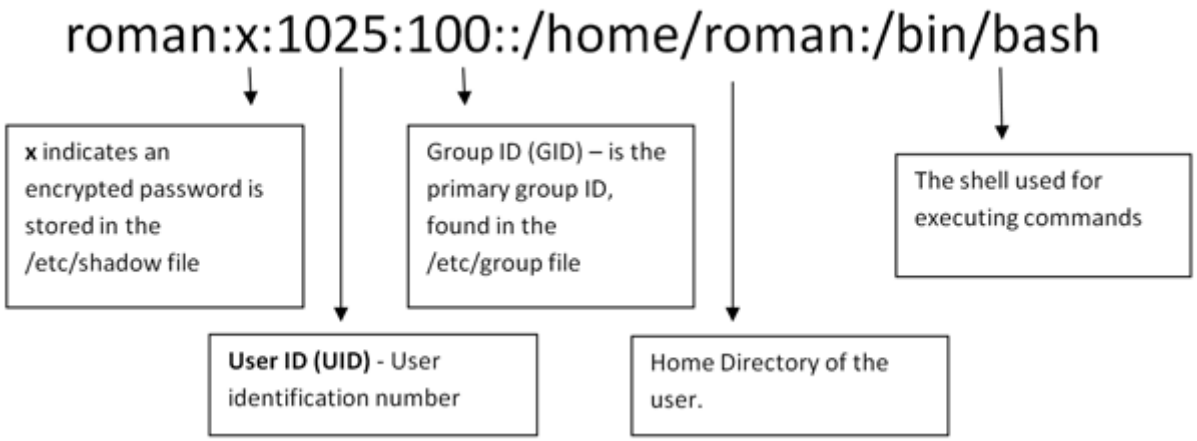
User and group management in Linux

There are two important files in Linux that holding information about users and groups. The first one is /etc/passwd, and the next is /etc/groups. If these files are deleted or damaged, your next logging into system would be impossible unless you repair or restore them. Therefore before editing any of these files its a good idea to make a back-up.

Example: **head /etc/passwd**

Each line of '/etc/passwd' file is about a user's information.



The above entry contains a set of seven colon-separated fields, each field has it's own meaning. Let's see what are these fields:

1. **Username**: User login name used to login into system. It should be between 1 to 32 charcters long.
2. **Password**: User password (or x character) stored in /etc/shadow file in encrypted format.
3. **User ID (UID)**: Every user must have a User ID (UID) User Identification Number. By default UID 0 is reserved for root user and UID's ranging from 1-99 are reserved for other predefined accounts. Further UID's ranging from 100-999 are reserved for system accounts and groups.
4. **Group ID (GID)**: The primary Group ID (GID) Group Identification Number stored in /etc/group file.
5. **User Info**: This field is optional and allow you to define extra information about the user. For example, user full name. This field is filled by 'finger' command.
6. **Home Directory**: The absolute location of user's home directory.
7. **Shell**: The absolute location of a user's shell i.e. /bin/bash.

It is recommended to user command line to manage users rather than editing the above file directly. Especially if you are a beginner to Linux system.

Remember the command you can use to switch between users is 'su', then later when you want to return to your original user just type 'exit' follow by pressing Enter.

The most common ways to create users is using 'useradd' command.

To create a user 'useradd <username>'
example: **useradd Tim**

This example will add a user 'Tim' with a default group 'Tim'. In reality a user must be belong to a group. If you don't set a group for the new user, Linux system automatically will create a default group with the same name as the user.

You can test the new user creation in two ways:
a) by looking at the last line of /etc/passwd
b) by switching to the newly created user by using 'su <username>' command.

If you want to access to a user account including login profile use 'su - <username>'. To switch to a new user you may need to setup a password for the user using 'passwd' command.

'sudo passwd <username>'
example: **sudo passwd Tim**

With the above example, you can only create a user without home directory and other user profile details.

'-m'	To create a home directory
'-d'	To set a home directory addressed
'-c'	To set a user description

Example: sudo useradd -m -d /home/Timoty -c “Tim the student” Tim

Examples:

Set a password for rima:

```
passwd rima
```

You can set date for the account to be disabled in the format YYYY-MM-DD with -e option while creating account itself:

```
useradd -e {yyyy-mm-dd} {username}
useradd -e 2008-12-31 jerry
```

```
The -f {days} option set number of days after the password expires
until the account is disabled. (If 0 is specified, the account is
disabled immediately after the password expires. If -1 is
specified, the account is not be disabled after the password
expires.)
```

```
useradd -f {days} {username}
useradd -e 2009-12-31 -f 30 jerry
```

Creating a user with specific userID:

```
useradd -u 999 mei
```

Creating a user with specific groupID:

```
useradd -u 1000 -g 500 john
```

Adding a user to multiple groups:

```
useradd -G admins,webadmin,developers hector
```

Adding a user without home directory:

```
useradd -M jill
```

To change user shell:

```
useradd -s /sbin/nologin hector
```

To add a user with default home directory and user shell:

```
useradd -m -d /var/www/laura -s /bin/bash -c "teacher" -U laura
```

To add user with custom home directory, shell, UID, GID:

```
useradd -m -d /var/www/hector -s /bin/zsh -c "TecMint Technical Writer" -u 1000
-g 1000 hector
```

gpasswd:

gpasswd is used to administer **/etc/group** and **/etc/gshadow**.

/etc/group contains group information, and **/etc/gshadow** contains secure group information.

```
gpasswd [option] group
```

Options

(Except for the **-A** and **-M** options, the following options cannot be combined.)

-a, **--add** *user*	Add *user* to the named group.
-d, **--delete** *user*	Remove *user* from the named group.
-h, **--help**	Display help message and exit.
-Q, **--root** *CHROOT_DIR*	Apply changes in the *CHROOT_DIR* directory and use the configuration files from the *CHROOT_DIR* directory.
-r, **--remove-password** *group*	Remove the password from the named *group*. The group password will be empty. Only group members will be allowed to use **newgrp** to join the named group.
-R, **--restrict** *group*	Restrict the access to the named *group*. The group password is set to "**!**". Only group members with a password will be allowed to use **newgrp** to join the named group.
-A, **--administrators** *user,...*	Set the list of administrative users.
-M, **--members** *user,...*	Set the list of group members.

gpasswd examples

```
gpasswd -a mozart musicians
```

Adds the user **mozart** to the group **musicians**.

```
gpasswd -A georg mathematicians
```

Give user **georg** administrative rights to the group **mathematicians**.

gpasswd -d arod yankees

Remove user **arod** from the group **yankees**.

Related commands

newgrp — Log into a new group.
groupadd — Add a group to the system.
groupdel— Remove a group from the system.
groupmod — Modify a group definition.