RHSA1

Red Hat System Administration I

Day 3

Day 3 Contents

- User and group administration.
- Permissions.
- Switching to other accounts.
- Shutting down the system.

Red Hat

Listing Directory Contents

- ls -l dir1

```
-rwxr-xr-x 2 root   root    20 512 May 21 16:06 file1
drwxr-xr-x 2 fatma fatma 20 512 May 21 16:06 dir2
```

Permission Owner Group

Red Hat

User Accounts

- Root user (Adminstrator).
- Normal user.
- Service user.

Users and Groups

- The /etc/passwd file

  login-name:x:uid:gid:comment:home-directory:login-shell

- Included fields are:
  - Login name.
  - Encrypted password.
  - User Id (uid).
  - Group Id (gid).
  - Comment about the user.
  - Home Directory.
  - Login shell.

Users and Groups

```
root:x:0:0:root:/root:/bin/bash
 1   2 3 4  5     6      7

 1.root: username
 2.x: password (saved in /etc/shadow in encrypted form)
 3.0: UID (0 is for root)
 4.0: GID (0 is for root)
 5.root: comments
 6./root: Home directory
 7./bin/bash: Login Shell
```

Users and Groups

- The /etc/shadow file

  username:encrypted passwd:last changed:min:max:warn:inactive:
  expire:future-use

- Included fields are:
  - Login name.
  - Encrypted password.
  - Days since Jan 1, 1970 that password was last changed.
  - Days before password may not be changed.
  - Days after which password must be changed.
  - Days before password is to expire that user is warned.
  - Days after password expires that account is disabled.
  - Days since Jan 1, 1970 that account is disabled.

Users and Groups

- The /etc/group file

  groupname:x:gid:comma-separated list of group members

- The /etc/gshadow file???

Adding New User

- useradd [options] username
- passwd username
  - The useradd command populates user home directories from the /etc/skel directory.
  - To view and modify default setting:
    useradd -D
  - Adding multiple user accounts:
    newusers filename

Red Hat

Creating New Group

- groupadd [options] groupname
  - Linux users can be a member of two different kinds of groups.

Primary group	Secondary group

  - Every user must be a member of only one "private" primary group.
  - This primary group has the same name as the user's username.
  - Every user can be a member of one or more secondary groups.
  - Use the -r option to the groupadd command avoids using a GID within the range typically assigned to users and their private groups.

Adding New User

Example

```
useradd -u 1003 -g 1003 -c “comment” -md /home/user1  -s /bin/bash user1
```

```
passwd user1
```

```
id ???
```

```
groups ???
```

Red Hat

Modifying User Accounts

- To change a user's account information, you can:
  - Edit the /etc/passwd or /etc/shadow files manually.
  - Use the usermod or chage commands.

Modifying User Accounts

- The usermod command can be used to set all properties of users as stored in /etc/passwd and /etc/shadow, plus some additional tasks, such as managing group membership.
- There is just one task it does not do well: setting passwords.

Modifying User Accounts

- **usermod [options] username**

  Options

  - **To change the login name use -l <login name>**
  - **To lock the password use -L**
  - **To unlock the password use -U**
  - **To add new secondary group use -aG**

Modifying an Existing Group

- groupmod [options] groupname
  - The groupmod command can be used to change the name or group ID of the group, but it does not allow you to add group members.

  Options
  - To changes the groupname use -n
  - To changes group ID use -g

Group membership

- **groupmems -g group1 -l**
  - **The groupmems command can be used to see which users are a member of group1 .**

Deleting A User Accounts

- To delete a user account, you can:
  - Manually remove the user from:
  - /etc/passwd file.
  - /etc/shadow files.
  - /etc/group file.
  - remove the user's home directory (/home/username).
  - and mail spool file (/var/spool/mail/username).

Deleting A User Accounts

- To delete a user account, you can:
  - userdel -r username

Options

- -r: It will remove user's home directory and the user's mail spool. Files located in other file systems will have to be searched for and deleted.

Deleting A Certain Group

- To delete a certain group, you can:
  - groupdel groupname

- To List all file which are owned by groups not defined in /etc/group file
  - find / -nogroup

Password Aging Policies

- The chage command sets up password aging.
  - chage [options] username

Options

- To change the min number of days between password changes use -m
- To change the max number of days between password changes use -M
- To change the expiration date for the account use -E date
- To change the number of days to start warning before a password change will be required use -W
- To show password expiry information use -l

Password Aging Policies

- The passwd command updates authentication tokens.
  - passwd [options] username

Options

- To change the min number of days between password changes use -n
- To change the max number of days between password changes use -x
- To change the expiration date for the account use -i
- To change the number of days to start warning before a password change will be required use -w
- To lock the password use -l
- To unlock the password use -u

Switching Accounts

- **su [-] [username]**
- **su [-] [username] -c command**

The whoami Command

- After switching into several users, it is a sever issue to know your current (effective) user

- whoami

  root

The id Command

- Displays
  - Effective user id.
  - Effective user name.
  - Effective group id.
  - Effective group name.
- Example

```
id user1
uid=101(user1) gid=100(user1)groups=101(user1)
```

The who Command

- Who is on the system.
- Displays
  - User Login name .
  - Login device(tty).
  - Login date and time.
- Example

  who

The w Command

- The w command display a summary of the current activity on the system, including what each user is doing.
- W [user]
- Example

  w

Using sudo Command

Red Hat

Ownership and Permissions

- Every file and directory has both user and group ownership. A newly-created file will be owned by:
  - The user who creates it.
  - That user's primary group.

Ownership and Permissions

- File ownership can be changed using chown command.
- Example:

  chown user1 file1

  chown user1:group1 file1

  chown :group1 file1

  chown -R user2 dir1

Security Scheme

- Each file has an owner and assigned to a group.
- Linux allows users to set permissions on files and directories to protect them.
- Permissions are assigned to:
  - File owner.
  - Members of the group the file assigned to.
  - All other users.
- The most specific permissions apply.
- Permissions can only be changed by the owner and root.

Listing Directory Contents

- ls -l dir1

-rwxr-xr-x 2 root root 20 512 May 21 16:06 file1

drwxrwxrwx 2 fatma fatma 20 512 May 21 16:06 dir2

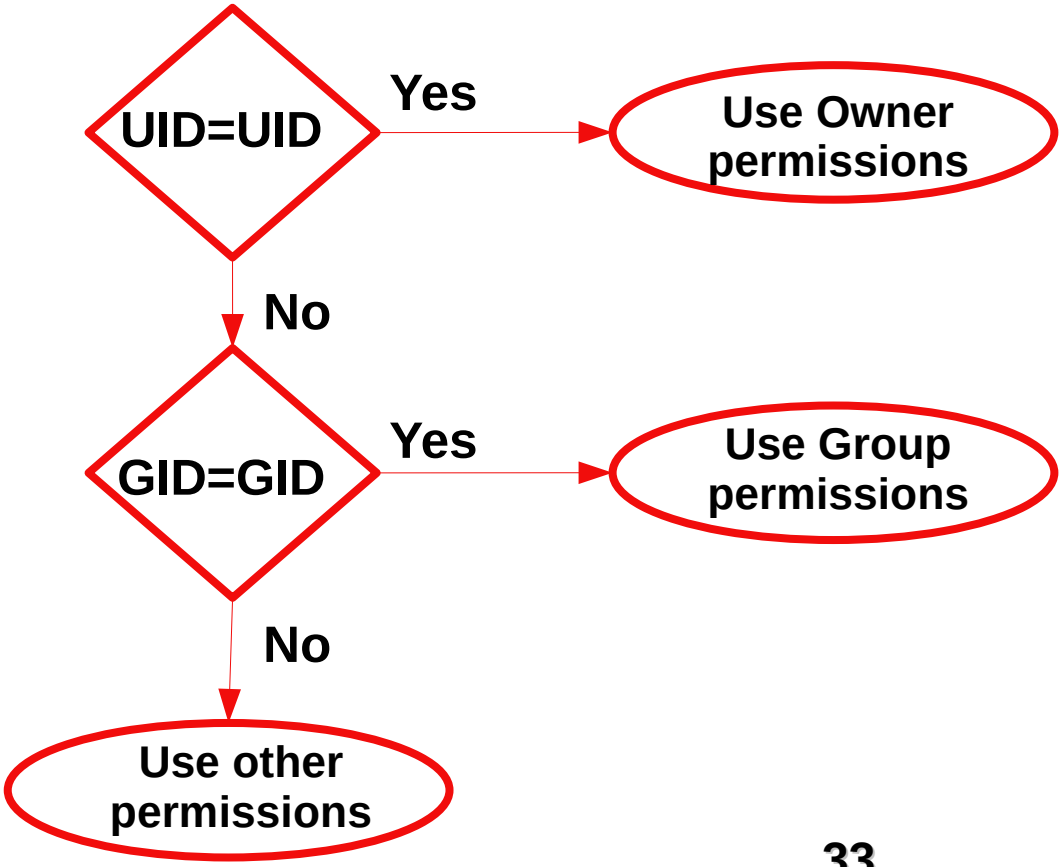
User Group others Owner Group
owner
Permission

Red Hat

Permission Notations

Permission	Access for a File	Access for a Directory
Read	You can display file contents and copy the file.	You can list the directory contents with the ls command.
Write	You can modify the file contents.	If you also have execute access, you can add and delete files in the directory.
Execute	You can execute the file if it is an executable. You can execute a shell script if you also have read and execute permissions.	You can use the cd command to access the directory. If you also have read access, you can run the ls -l command on the directory to list contents.

Determining Permissions



Red Hat

Changing Permissions

- **chmod permission filename**

- **Permissions are specified in either**
  Symbolic mode

Who	Operator	Permissions
◆ u: Owner permissions ◆ g: Group permissions ◆ o: Other permissions ◆ a: all permissions	◆ + Add permissions ◆ - Remove permissions ◆ = Assign permissions absolutely	◆ r: read ◆ w: write ◆ x: execute

To change the file permissions for an existing file or directory.
chmod u=symbolic_value,g+symbolic_value,o-symbolic_value filename

Changing Permissions

- **chmod permission filename**

- **Example:**
  Change the permissions of oldpasswd file to give owner read and write permissions and for group read ,write and execute and execute only for the others.

Changing Permissions

- **chmod permission filename**

- **Example:**
  Change the permissions of oldpasswd file to give owner read and execute permissions and add read permission to group and remove execute permission for the others.

Changing Permissions

- **chmod permission filename**

- **Permissions are specified in either**
  Octal mode

  - **4 read**
  - **2 write**
  - **1 execute**

To change the file permissions for an existing file or directory.
chmod octal_value filename

Examples

- **ls -l file1**

  -rw-r--r-- 1 user1 staff 1319 Mar 22 14:51 file1
- **chmod o-r file1**
- **ls -l file1**

  -rw-r----- 1 user1 staff 1319 Mar 22 14:52 file1
- **chmod g-r file1**
- **ls -l file1**

  -rw------- 1 user1 staff 1319 Mar 22 14:53 file1

Examples

- chmod u+x,go+r file1
- ls -l file1

  -rwxr--r-- 1 user1 staff 1319 Mar 22 14:54 file1
- chmod a=rw file1
- ls -l file1

  -rw-rw-rw- 1 user1 staff 1319 Mar 22 14:55 file1
- chmod 555 file1
- ls -l file1

  -r-xr-xr-x 1 user1 staff 1319 Mar 22 14:56 file1

Examples

- **chmod 775 file1**
- **ls -l file1**

  -rwxrwxr-x 1 user1 staff 1319 Mar 22 14:54 file1
- **chmod 755 file1**
- **ls -l file1**

  -rwxr-xr-x 1 user1 staff 1319 Mar 22 14:55 file1

Default Permissions

- **The umask command sets the default permissions for files and directories.**

Example:

```
umask 002
umask
002
```

System Shutdown

- It only requires reboot or shutdown when you need to
  - Add or remove hardware
  - Upgrade to a new version of Ubuntu
  - Or upgrade your kernel
  - shutdown –k now
    - # doesn't really shutdown only send the warning messages and disable logins.
  - shutdown -h time # Halt after shutdown
  - poweroff
  - init 0

Red Hat