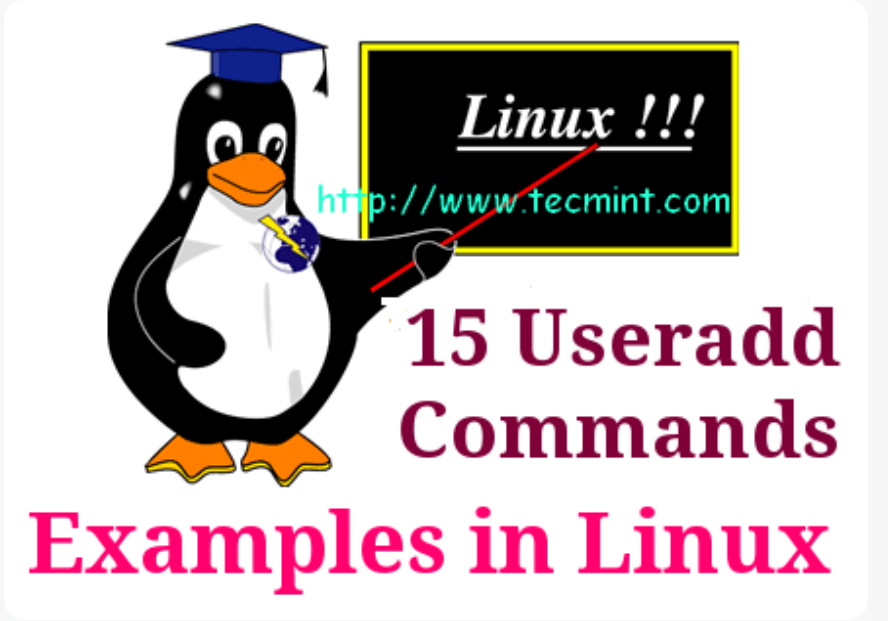
The Complete Guide to “useradd” Command in Linux – 15 Practical Examples

Ravi Saive | Last Updated: June 7, 2019 | Linux Commands | 119 Comments

We all are aware about the most popular command called ‘useradd‘ or ‘adduser‘ in Linux. There are times when a Linux System Administrator asked to create user accounts on Linux with some specific properties, limitations or comments.

In Linux, a ‘useradd‘ command is a low-level utility that is used for adding/creating user accounts in Linux and other Unix-like operating systems. The ‘adduser‘ is much similar to useradd command, because it is just a symbolic link to it.



useradd command examples

In some other Linux distributions, useradd command may comes with lightly difference version. I suggest you to read your documentation, before using our instructions to create new user accounts in Linux.

When we run 'useradd' command in Linux terminal, it performs following major things:

- It edits /etc/passwd, /etc/shadow, /etc/group and /etc/gshadow files for the newly created User account.
- Creates and populate a home directory for the new user.
- Sets permissions and ownerships to home directory.

Basic syntax of command is:

```
useradd [options] username
```

In this article we will show you the most used 15 useradd commands with their practical examples in Linux. We have divided the section into two parts from Basic to Advance usage of command.

- Part I: Basic usage with 10 examples

- Part II: Advance usage with 5 examples

Part I – 10 Basic Usage of useradd Commands

1. How to Add a New User in Linux

Only one user can be added and that username must be unique (different from other username already exists on the system).

For example, to add a new user called 'tecmint', use the following command.

```
[root@tecmint ~]# useradd tecmint
```

When we add a new user in Linux with 'useradd' command it gets created in locked state and to unlock that user account, we need to set a password for that account with 'passwd' command.

```
[root@tecmint ~]# passwd tecmint
Changing password for user tecmint.
New UNIX password:
Retype new UNIX password:
passwd: all authentication tokens updated successfully.
```

Once a new user created, it's entry automatically added to the '/etc/passwd' file. The file is used to store users information and the entry should be.

```
tecmint:x:504:504:tecmint:/home/tecmint:/bin/bash
```

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:

- Username: User login name used to login into system. It should be between 1 to 32 charcters long.
- Password: User password (or x character) stored in /etc/shadow file in encrypted format.
- 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.
- Group ID (GID): The primary Group ID (GID) Group Identification Number stored in /etc/group file.
- 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.
- Home Directory: The absolute location of user's home directory.
- Shell: The absolute location of a user's shell i.e. /bin/bash.

2. Create a User with Different Home Directory

By default 'useradd' command creates a user's home directory under /home directory with username. Thus, for example, we've seen above the default home directory for the user 'tecmint' is '/home/tecmint'.

However, this action can be changed by using '-d' option along with the location of new home directory (i.e. /data/projects). For example, the following command will create a user 'anusha' with a home directory '/data/projects'.

```
[root@tecmint ~]# useradd -d /data/projects anusha
```

You can see the user home directory and other user related information like user id, group id, shell and comments.

```
[root@tecmint ~]# cat /etc/passwd | grep anusha

anusha:x:505:505::/data/projects:/bin/bash
```

3. Create a User with Specific User ID

In Linux, every user has its own UID (Unique Identification Number). By default, whenever we create a new user accounts in Linux, it assigns userid 500, 501, 502 and so on...

But, we can create user's with custom userid with '-u' option. For example, the following command will create a user 'navin' with custom userid '999'.

```
[root@tecmint ~]# useradd -u 999 navin
```

Now, let's verify that the user created with a defined userid (999) using following command.

```
[root@tecmint ~]# cat /etc/passwd | grep navin

navin:x:999:999::/home/navin:/bin/bash
```

NOTE: Make sure the value of a user ID must be unique from any other already created users on the system.

4. Create a User with Specific Group ID

Similarly, every user has its own GID (Group Identification Number). We can create users with specific group ID's as well with -g option.

Here in this example, we will add a user 'tarunika' with a specific UID and GID simultaneously with the help of '-u' and '-g' options.

```
[root@tecmint ~]# useradd -u 1000 -g 500 tarunika
```

Now, see the assigned user id and group id in '/etc/passwd' file.

```
[root@tecmint ~]# cat /etc/passwd | grep tarunika

tarunika:x:1000:500::/home/tarunika:/bin/bash
```

5. Add a User to Multiple Groups

The '-G' option is used to add a user to additional groups. Each group name is separated by a comma, with no intervening spaces.

Here in this example, we are adding a user 'tecmint' into multiple groups like admins, webadmin and developer.

```
[root@tecmint ~]# useradd -G admins,webadmin,developers tecmint
```

Next, verify that the multiple groups assigned to the user with id command.

```
[root@tecmint ~]# id tecmint

uid=1001(tecmint) gid=1001(tecmint)
groups=1001(tecmint),500(admins),501(webadmin),502(developers)
context=root:system_r:unconfined_t:SystemLow-SystemHigh
```

6. Add a User without Home Directory

In some situations, where we don't want to assign a home directories for a user's, due to some security reasons. In such situation, when a user logs into a system that has just restarted, its home directory will be root. When such user uses su command, its login directory will be the previous user home directory.

To create user's without their home directories, '-M' is used. For example, the following command will create a user 'shilpi' without a home directory.

```
[root@tecmint ~]# useradd -M shilpi
```

Now, let's verify that the user is created without home directory, using ls command.

```
[root@tecmint ~]# ls -l /home/shilpi

ls: cannot access /home/shilpi: No such file or directory
```

7. Create a User with Account Expiry Date

By default, when we add user's with 'useradd' command user account never get expires i.e their expiry date is set to 0 (means never expired).

However, we can set the expiry date using '-e' option, that sets date in YYYY-MM-DD format. This is helpful for creating temporary accounts for a specific period of time.

Here in this example, we create a user 'aparna' with account expiry date i.e. 27th April 2014 in YYYY-MM-DD format.

```
[root@tecmint ~]# useradd -e 2014-03-27 aparna
```

Next, verify the age of account and password with 'chage' command for user 'aparna' after setting account expiry date.

```
[root@tecmint ~]# chage -l aparna

Last password change                                    : Mar 28, 201
Password expires                                        : never
Password inactive                                       : never
Account expires                                         : Mar 27, 201
Minimum number of days between password change          : 0
Maximum number of days between password change          : 99999
Number of days of warning before password expires       : 7
```

8. Create a User with Password Expiry Date

The '-f' argument is used to define the number of days after a password expires. A value of 0 inactive the user account as soon as the password has expired. By default, the password expiry value set to -1 means never expire.

Here in this example, we will set a account password expiry date i.e. 45 days on a user 'tecmint' using '-e' and '-f' options.

```
[root@tecmint ~]# useradd -e 2014-04-27 -f 45 tecmint
```

9. Add a User with Custom Comments

The '-c' option allows you to add custom comments, such as user's full name, phone number, etc to /etc/passwd file. The comment can be added as a single line without any spaces.

For example, the following command will add a user 'mansi' and would insert that user's full name, Manis Khurana, into the comment field.

```
[root@tecmint ~]# useradd -c "Manis Khurana" mansi
```

You can see your comments in '/etc/passwd' file in comments section.

```
[root@tecmint ~]# tail -1 /etc/passwd

mansi:x:1006:1008:Manis Khurana:/home/mansi:/bin/sh
```

10. Change User Login Shell:

Sometimes, we add users which has nothing to do with login shell or sometimes we require to assign different shells to our users. We can assign different login shells to a each user with '-s' option.

Here in this example, will add a user 'tecmint' without login shell i.e. '/sbin/nologin' shell.

```
[root@tecmint ~]# useradd -s /sbin/nologin tecmint
```

You can check assigned shell to the user in '/etc/passwd' file.

```
[root@tecmint ~]# tail -1 /etc/passwd

tecmint:x:1002:1002::/home/tecmint:/sbin/nologin
```

Part II – 5 Advance Usage of useradd Commands

11. Add a User with Specific Home Directory, Default Shell and Custom Comment

The following command will create a user 'ravi' with home directory '/var/www/tecmint', default shell /bin/bash and adds extra information about user.

```
[root@tecmint ~]# useradd -m -d /var/www/ravi -s /bin/bash -c "TecMint Owner"
```

In the above command '-m -d' option creates a user with specified home directory and the '-s' option set the user's default shell i.e. /bin/bash. The '-c' option adds the extra information about user and '-U' argument create/adds a group with the same name as the user.

12. Add a User with Home Directory, Custom Shell, Custom Comment and UID/GID

The command is very similar to above, but here we defining shell as '/bin/zsh' and custom UID and GID to a user 'tarunika'. Where '-u' defines new user's UID (i.e. 1000) and whereas '-g' defines GID (i.e. 1000).

```
[root@tecmint ~]# useradd -m -d /var/www/tarunika -s /bin/zsh -c "TecMint Tec
```

13. Add a User with Home Directory, No Shell, Custom Comment and User ID

The following command is very much similar to above two commands, the only difference is here, that we disabling login shell to a user called ‘avishek‘ with custom User ID (i.e. 1019).

Here ‘-s‘ option adds the default shell /bin/bash, but in this case we set login to ‘/usr/sbin/nologin‘. That means user ‘avishek‘ will not able to login into the system.

```
[root@tecmint ~]# useradd -m -d /var/www/avishek -s /usr/sbin/nologin -c "Tec
```

14. Add a User with Home Directory, Shell, Custom Skell/Comment and User ID

The only change in this command is, we used ‘-k‘ option to set custom skeleton directory i.e. /etc/custom.skell, not the default one /etc/skel. We also used ‘-s‘ option to define different shell i.e. /bin/tcsh to user ‘navin‘.

```
[root@tecmint ~]# useradd -m -d /var/www/navin -k /etc/custom.skell -s /bin/t
```

15. Add a User without Home Directory, No Shell, No Group and Custom Comment

This following command is very different than the other commands explained above. Here we used ‘-M‘ option to create user without user’s home directory and ‘-N‘ argument is used that tells the system to only create username (without group). The ‘-r‘ arguments is for creating a system user.

```
[root@tecmint ~]# useradd -M -N -r -s /bin/false -c "Disabled TecMint Member"
```

For more information and options about useradd, run 'useradd' command on the terminal to see available options.

Read Also: 15 usermod Command Examples

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119 thoughts on “The Complete Guide to “useradd” Command in Linux – 15 Practical Examples”

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Praveen

December 7, 2020 at 11:24 am

Section 3. Create a User with Specific User ID – >

With reference to this statement – “By default, whenever we create a new user accounts in Linux, it assigns userid 500, 501, 502 and so on…”

Doesn’t Linux create a new user and assign UID to new users by default from – 1001, 1002, 1003 … onwards, instead of 500 ?

Reply

dragonmouth

December 8, 2020 at 6:07 pm

“Doesn’t Linux create a new user and assign UID to new users by default from – 1001, 1002, 1003 … onwards, instead of 500 ?”

Depends on the distro. Some start at 500. It is also possible to change the starting number to almost anything you please, as long as the user numbers do not conflict with preset root/system numbers.

Reply

Binh Thanh Nguyen

September 1, 2020 at 4:28 am

Thanks, nice tips

Reply

Yogesh Tiwari

August 26, 2020 at 7:20 pm

Hi,

Can you please tell us to how to create a user with password in single command line on Debian

Thank you.

Yogesh

Reply

Ravi Saive

August 27, 2020 at 9:32 am

@Yogesh,

I hope this following command will help you to add user and password with one single command.

```
$ sudo useradd username; echo password | passwd username --stdin
```

Reply

Ray

April 21, 2020 at 4:57 am

I cannot get the ‘adduser‘ or ‘useradd‘ commands to work. Whenever I try I get the prompt “bash: useradd: command not found”

Reply

Ravi Saive
April 21, 2020 at 10:42 am

@Ray,

First, locate the useradd location using:

```
# whereis useradd
```

Then, try adding /usr/sbin to your path.

Reply

Harry
January 31, 2020 at 7:14 am

Thanks again for your response.

Quick question- If the user joins signs in/out the following day, it will be the closet possible date of creation – correct?

e.g. I created user john on Jan 30 and the sign joins organization on Jan 31 and signs in/out, this is when .bash_logout will be created -correct?

Thanks

Reply

Harry

January 29, 2020 at 8:36 pm

I created a new user and it came up with some results, not so relevant to the user creation date. However, it seems like showing me authentication success or failure for the user.

Any further ideas?

Reply

Ravi Saive

January 30, 2020 at 11:50 am

@Harry,

To find out correct user creation date in Linux, you need to check the stats of `.bash_logout` file in your home directory.

```
$ stat /home/tecmint/.bash_logout
```

Sample Output

```
  File: /home/tecmint/.bash_logout
  Size: 220           Blocks: 8          IO Block: 4096   regular file
Device: 803h/2051d Inode: 6162417     Links: 1
Access: (0644/-rw-r--r--)  Uid: ( 1000/ tecmint)   Gid: ( 1000/ tecmint)
Access: 2020-01-02 12:16:13.475201521 +0530
Modify: 2019-02-15 17:23:35.675059936 +0530
Change: 2019-02-15 17:23:35.675059936 +0530
 Birth: -
```

In the output above highlighted, shows the correct user creation date..

Reply

Harry
January 28, 2020 at 8:18 pm

I installed and run without any luck. It returned no results. I double-checked `/etc/passwd` to confirm if the user I am testing with existed.

I checked the status and restarted the service auditd.

```
# systemctl status auditd
# systemctl restart auditd
```

Is there anything I am missing?

Thanks

Reply

Ravi Saive
January 29, 2020 at 10:38 am

@Harry,

You just installed auditd, so it will not track existing users. Try to create a new user and see..

Reply

harry

January 27, 2020 at 5:03 am

Hey,

How can I create a user which shows the date of creation (date stamp) so that IS security can audit it, down the road. It would be great if it is for RHEL or Ubuntu distros.

Thanks

Reply

Ravi Saive

January 27, 2020 at 2:03 pm

@Harry,

To Find Out When a User is Created in Linux, you can check the stat of `.bash_logout` file, as this file is created upon the user's first logout.

```
# stat /home/username/.bash_logout
```

Reply

Harry

January 27, 2020 at 8:05 pm

Thank you for your quick response.

At work, I have a scenario where we generally create a user a day in advance of his joining date. If I follow, what you said I can get approximation and not exact date as a user will log in and logout the following day. However, our IS security team wants to know the time stamp of user creation or their audit. Do you recommend any other way to know the creation date?

Reply

Ravi Saive
January 28, 2020 at 11:16 am

@Harry,

If you have auditd installed on the system, you can find out the user creation date and time.

```
# aureport --auth | grep username
```

Alternatively, you can find the user creation in /var/log/secure file..

Reply

SAURABH RAJPUT
January 15, 2020 at 10:03 am

I am not able to set a password for a new user, it shows heading New password but it does not type anything neither any alphabetical letter nor a number.

Please help me.

Reply

madhav

June 6, 2019 at 2:12 pm

Example 5)

if the user is already exit command should be:

```
# usermod -G admins,webadmin,developers tecmint
```

If you are adding the new user to additional groups then command:

```
# useradd -G
```

is correct...

Reply

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