7.3.2 Managing Groups

Click one of the buttons to take you to that part of the video.

Manage Groups 0:00-0:12

In this demonstration, we are going to spend some time talking about how to manage groups on a Linux system. We will talk about how to add a group, modify a group, and remove a group.

Add Groups 0:13-6:15

Let's begin by adding a new group to the system. Let's say we want to add a new group to the system named Development. We do this using the groupadd command. We enter 'groupadd', space, and then the name of the group that we want to add.

Before we do that, notice that I am currently logged in as the rtracy user. Regular users, standard users, on the system are not allowed to add other users or groups, so we have to elevate privileges to the root account. Now we can manage groups on the system.

Before we add a new group to the system, I do need to point out that there are several default parameters that are automatically assigned to a new group when it's created. These defaults are stored in '/etc/login.defs' file. There are actually not very many; they are right here.

First of all, the group ID number that's automatically assigned when the group is created is defined here. They will begin at 1000 on this system, so the first group created will have a group ID of 1000. The next one will be 1001, the next one 1002, and so on. Likewise, if we were to create a system group on the system, the group ID numbering would begin at 201.

With that in mind, let's go ahead and create a new group on the system. Let's look at the 'man' page for 'groupadd' so we can see what the options are. There really aren't that many.

One of them is the -g option, which allows you to override the default group ID number assignment and manually specify a custom group ID number. Frankly, I don't think I have ever done this, but there may be situations where you need to.

If you do, be aware that that group ID number has to be unique, as noted right here. Meaning that no other group can already have that number that you want to assign. Every group has to have its own unique number.

One option that I do use from time to time that's fairly useful is the -r option, which allows you to create a system group. We are not going to do that here. All we want to do is just create a standard, regular old user group. So let's use 'groupadd' and then specify the name of the group, 'Development'.

If we use the 'tail' command to view the '/etc/group' file, where our group accounts are stored, we see that we have a new group defined. Its name is Development. The X here tells us that it's using the gshadow password file if passwords were assigned, which we have not done.

Here is the group ID number that has been assigned to that group, but notice over here that there are no members of that group yet. We have created a group but it is empty--there are no members. We need to fix that.

In order to add members to a group, you have to modify the group, but the actual command you use will vary based upon what distribution you are using. A few distributions will use the groupmod command to modify a group and add users to it.

The command is 'groupmod -a', to add users. However, if we do the 'man groupmod' command here, we will see that this distribution does not include the -a parameter. We can't actually use groupmod to change group membership on this distribution, others you can.

What we can do with groupmod, however, is change the group ID number. I have never actually done that, but you can if you need to. The more useful option that I do use from time to time is this one right here, -n, which allows us to rename the group to something else.

Let's go ahead and do that. Notice here that we used a capital D in the name of our group. All the other groups in the group file are all lowercase. Let's make it match by modifying the group name: 'groupmod -n'.

And now we specify the new group name that we want to use 'development' and then we specify the name of the existing group that we want to modify 'Development', Enter. Oops, I forgot to put the mod on the end--my mistake. Try again, that worked a little better.

Let's view the end of the group file and now we see that the group has been renamed. We know that that is the same group and not a new one because of the group ID number which uniquely identifies that group. The group number is the same. We can see right here just the name has been modified.

On other distributions, such as this one, to add users to a group you actually have to use the 'usermod' command. Basically, we are coming at it from a different direction. Instead of modifying the group and adding users to it, we are going to modify a particular user and tell it that it is now a member of this group.

We are accomplishing the same task, just from a different direction. Let's go ahead and view the 'man' page for 'usermod'. As we scroll down we should see the -g options, lowercase -g and uppercase -G.

The dash lowercase -g option right here is used to modify the user's primary group, the default group. Remember that every user account on the Linux system has one, and only one, primary group associated with it. That's its initial login group, as identified right here.

If you want to change the default group for a user account, we use the lowercase -g option. Also remember that a Linux user can be a member of many other groups as well; these are our supplementary groups. If we want to add a user as a member of a supplementary group, we use the uppercase -G option instead.

Here is a very important thing that you have to remember--and it trips up a lot of new Linux administrators--that is if you specify the usermod command and use the capital -G option followed by the name of a group, whatever you specify with the -G option will overwrite whatever group memberships that user already has.

If I have a user that is a member of three different groups already and I go ahead and use the -G option with the usermod command and specify an additional group that I want to make the user a member of, what actually happens is the existing group memberships are removed and replaced with the one group membership that I specify.

If you want to add an additional group membership and not replace existing group memberships, you need to use the -G option along with the -a option. The -a option appends the new group to the list of group memberships instead of replacing them.

Edit a Group 6:16-6:50

Let's go ahead and add 'development' as a supplementary group to my rtracy user account. To do this, I type 'usermod -G' followed by the name of the group that I want to add: 'development'. Then I specify '-a' to indicate that I don't want to remove any other group memberships already in place, but I just want to add this as a new group membership.

And then the name of the user account that I want to add the membership to: 'rtracy'. If we 'tail' the group file again we can see that the rtracy user account is now a member of the development group.

Remove a Group 6:51-7:28

To this point, we have talked about how to add a new group, and we have talked about how to modify a group. Let's end this demonstration now by discussing how to remove a group from the system.

This is done using the groupdel command. You enter 'groupdel', followed by the name of the group that you want to remove. Let's go ahead and look at the man page. I don't believe that there are very many options you can use with groupdel.

As you can see, there really aren't very many useful options that you can use with groupdel. Let's suppose for some reason we've decided to remove the development group from the system. All I have to do is type 'groupdel development'. If we 'tail' the group file, we see that the development group is gone.

Summary 7:29-7:42

That's it for this demonstration. In this demo we talked about how to manage Linux groups from the command line. We talked about how to add a group with the groupadd command. We talked about how to modify a group with the groupmod and usermod commands. Then we ended this demonstration by talking about how to remove a group with the groupdel command.
