Chapter 10  Common Administrative Tasks

Hands-On Projects

These projects should be completed in the order given. The hands-on projects presented in this chapter should take a total of three hours to complete. The requirements for this lab include:

- A computer with Fedora 13 installed according to Hands-On Project 2-2

Project 10-1

In this hands-on project, you create a local printer using the Printer Configuration tool.

1. Turn on your computer. After your Linux system has been loaded, log in to the GNOME Desktop Environment as user1.
2. After the GNOME desktop has loaded, navigate to the System menu, Administration, Printing.
3. Create a new printer by clicking the Add button. Supply the root user password of secret when prompted and click Authenticate (you will be prompted twice).
4. Click Forward at the Add a new print queue screen.
5. Ensure that Other is selected in the left pane, type parallel:/dev/null in the Enter Device URI dialog box, and click Forward.

The special device /dev/null represents nothing; any print jobs sent to this device will be discarded.

6. At the Choose Driver screen, ensure that Generic is selected and click Forward. Ensure that text-only printer is highlighted in the left pane and click Forward.
7. At the Describe Printer screen, type pl in the Printer Name dialog box and click Apply. Supply the root user password of secret when prompted and click Authenticate. If prompted for the root password again, type secret and click OK. If prompted to print a test page, click NO.
8. Close the Printer Configuration tool and log out of the GNOME desktop.

Project 10-2

In this hands-on project, you view your printer configuration, control the print process, create print jobs, and manage jobs in the print queue.

1. Switch to a command-line terminal (try2) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of root and the password of secret.
2. At the terminal screen prompt, type cat /etc/cups/printers.conf and press Enter. Compare the entries in this file for your printer with the settings you specified in Project 10-1.
3. At the command prompt, type lpsstat -t and press Enter. Is the cups daemon running? Is spooling and printing enabled for pl?
4. At the command prompt, type cupsdisable -r "To pause print jobs in the print queue" pl and press Enter to prevent printing for the pl printer.
5. At the command prompt, type `lpsstat -t` and press Enter. Verify that spooling is enabled but printing is disabled for p1.
6. Next, type `lp -n 2 -d p1 /etc/hosts` at the command prompt and press Enter to print two copies of `/etc/hosts` to p1. What print job ID do you receive?
7. At the command prompt, type `lpsstat` and press Enter. Is your print job in the queue?
8. At the command prompt, type `sort /etc/hosts | lp` and press Enter to sort the file `/etc/hosts` and send the output to p1. Note that you did not need the `-d` option to the `lp` command because it was the default printer. What print job ID did you receive?
9. At the command prompt, type `lpsstat` and press Enter. Verify that both print jobs are in the print queue.
10. At the command prompt, type `cancel pl-1 pl-2` (or the numbers of the print jobs on your screen if they are different) to remove both print jobs from the queue. Type `lpsstat` and press Enter to verify that they were removed.
11. At the command prompt, type `lpadmin -u allow:all -u deny:user1 -d pl` and press Enter to allow all users to print to p1 except user1.
12. Press Ctrl+Alt+F3 to switch to tty3 and log in as `user1` using the password secret. Type `lp -d p1 /etc/hosts`. Was user1 allowed to print to p1? Type `exit` to log out of the tty3 terminal.
13. Press Ctrl+Alt+F2 to switch back to tty2, type `cancel -a` and press Enter to remove any print jobs from the queue.
14. Type `exit` and press Enter to log out of your shell.

**Project 10-3**

In this hands-on project, you view the configuration of the System Log Daemon and the logrotate utility.

1. Switch to a command-line terminal (tty2) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of `root` and the password of `secret`.
2. At the command prompt, type `ls -l /dev/log` and press Enter. What is the file type? Which daemon uses this file, and what is its purpose?
3. At the command prompt, type `less /etc/rsyslog.conf` and press Enter to view the configuration file for the System Log Daemon. Observe the entries. To which file does all information from the cron daemon get logged? Why? Press q when finished to quit the less utility.
4. At the command prompt, type `tail /var/log/cron` and observe the entries. Write down the last few entries that you see in this file.
5. At the command prompt, type `killall -9 cron` and press Enter to stop the cron daemon.
6. At the command prompt, type `crond` and press Enter to start the cron daemon.
7. At the command prompt, type `tail /var/log/cron` and observe the entries. Compare the output from Step 4 with the output on your terminal screen. What are the last few entries? Why?
8. At the command prompt, type `cat /etc/cron.daily/logrotate` and press Enter to observe the logrotate command that is run each day.
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9. At the command prompt, type `less /etc/logrotate.conf` and press Enter to view the configuration file for the `logrotate` command. When are log files rotated by default? How many copies of old log files are kept by default? When finished, press `q` to quit the less utility.

10. At the command prompt, type `ls /etc/logrotate.d` and press Enter. How many files are in this directory? Will entries in these files override the same entries in `/etc/logrotate.conf`?

11. At the command prompt, type `cat /etc/logrotate.d/pacct` and press Enter. How many copies of old log files are kept for this log file?

12. At the command prompt, type `ls /var/log` and press Enter. How many log files are present? What do the subdirectories represent? Are there any old log files?

13. Type `exit` and press Enter to log out of your shell.

Project 10-4

In this hands-on project, you observe user account databases and create a user account using command-line utilities.

1. Switch to a command-line terminal (try `try2`) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of root and the password of `secret`.

2. At the command prompt, type `less /etc/passwd` and press Enter. Where is the line that describes the root user located in this file? Where is the line that describes the user `user1` user in this file? How many daemon accounts are present? What is in the password field for all accounts? When finished, press the `q` key to quit the less utility.

3. At the command prompt, type `ls -l /etc/passwd` and press Enter. Who is the owner and group owner of this file? Who has permission to read this file?

4. At the command prompt, type `less /etc/shadow` and press Enter. What is in the password field for the root user and user `user1` user accounts? What is in the password field for most daemon accounts? Press the `q` key to quit the less utility.

5. At the command prompt, type `ls -l /etc/shadow` and press Enter. Who is the owner and group owner of this file? Who has permission to read this file? Compare the permissions for `/etc/shadow` with those of `/etc/passwd` obtained in Step 3 and explain the difference.

6. At the command prompt, type `pwunconv` and press Enter. Next, type `less /etc/shadow` at the command prompt and press Enter. What error message do you receive? Why?

7. At the command prompt, type `less /etc/passwd` and press Enter. What is in the password field for all accounts? Why? When finished, press the `q` key to quit the less utility.

8. At the command prompt, type `pwconv` and press Enter. What does the `pwconv` command do?

9. Next, type `less /etc/shadow` at the command prompt and press Enter. Verify that the file has contents, and press `q` when finished. Next, type `less /etc/passwd` at the command prompt and press Enter. Verify that the file has contents, and press `q` when finished.
10. At the command prompt, type `cat /etc/default/useradd` and press Enter. What is the default shell used when creating users? What is the default location of the `/skel` directory used when creating users? Where are user home directories created by default?

11. At the command prompt, type `ls -a /etc/skel` and press Enter. What files are stored in this directory? What is the purpose of this directory when creating users?

12. At the command prompt, type `cp /etc/inittab /etc/skel` and press Enter to create a copy of the init table in the `/etc/skel` directory.

13. At the command prompt, type `useradd -m bozo` and press Enter. What does the `-m` option specify? From where is the default shell, home directory information taken?

14. At the command prompt, type `less /etc/login.defs` and press Enter. Observe the entries and descriptive comments. Did you need to specify the `-m` option to the `useradd` command in Step 13? Explain. Press the `q` key to quit the less utility.

15. At the command prompt, type `cat /etc/passwd` and press Enter. What shell and home directory does bozo have? What is bozo’s UID?

16. At the command prompt, type `cat /etc/shadow` and press Enter. Does bozo have a password? Can bozo log in to the system?

17. At the command prompt, type `passwd bozo` and press Enter. Enter the password of `secret` and press Enter. Enter the password of `secret` again to confirm and press Enter.

18. At the command prompt, type `ls -a /home/bozo` and press Enter. How many files are in this directory? Compare this list with the one obtained in Step 11. Is the `inittab` file present?

19. Type `exit` and press Enter to log out of your shell.

**Project 10-5**

In this hands-on project, you modify user accounts using command-line utilities.

1. Switch to a command-line terminal (tty2) by pressing `Ctrl+Alt+F2` and log in to the terminal using the user name of `root` and the password of `secret`.

2. At the command prompt, type `cat /etc/passwd` and press Enter. Record the line used to describe the user bozo.

3. At the command prompt, type `cat /etc/shadow` and press Enter. Record the line used to describe the user bozo.

4. At the command prompt, type `usermod -l bozo2 bozo` and press Enter to change the login name for the user bozo to bozo2. Next, type `cat /etc/passwd` at the command prompt and press Enter. Was the login name changed from bozo to bozo2? Was the UID changed? Was the home directory changed?

5. At the command prompt, type `usermod -l bozo bozo2` and press Enter to change the login name for the user bozo2 back to bozo.

6. At the command prompt, type `usermod -u 666 bozo` and press Enter to change the UID of the user bozo to 666. Next, type `cat /etc/passwd` at the command prompt and press Enter. Was the UID changed?

7. At the command prompt, type `usermod -f 14 bozo` and press Enter to disable bozo’s user account 14 days after the password expires. Next, type `cat /etc/shadow` at the command prompt and press Enter. Which field was changed?
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8. At the command prompt, type `usermod -e "01/01/2020" bozo` and press Enter to expire bozo's user account on January 1, 2020. Next type `cat /etc/shadow` at the command prompt and press Enter. Which field was changed? What does the number represent in this field?

9. At the command prompt, type `chage -m 2 bozo` and press Enter to require that the user bozo wait at least two days before making password changes. Next, type `cat /etc/shadow` at the command prompt and press Enter. Which field was changed?

10. At the command prompt, type `chage -M 40 bozo` and press Enter to require that the user bozo change passwords every 40 days. Next, type `cat /etc/shadow` at the command prompt and press Enter. Which field was changed?

11. At the command prompt, type `chage -W 5 bozo` and press Enter to warn the user bozo five days in advance that a password change is required. Next, type `cat /etc/shadow` at the command prompt and press Enter. Which field was changed?

12. Type `exit` and press Enter to log out of your shell.

Project 10-6

In this hands-on project, you lock and unlock user accounts using command-line utilities.

1. Switch to a command-line terminal (try2) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of root and the password of secret.

2. At the command prompt, type `cat /etc/shadow` and press Enter. Record the encrypted password for bozo's user account.

3. At the command prompt, type `passwd -l bozo` and press Enter to lock bozo's user account.

4. At the command prompt, type `cat /etc/shadow` and press Enter. What has been changed regarding the original encrypted password recorded in Step 2?

5. Switch to a command-line terminal (try5) by pressing Ctrl+Alt+F5 and attempt to log in to the terminal using the user name of bozo and the password of secret. Were you successful?

6. Switch back to the command-line terminal (try2) by pressing Ctrl+Alt+F2.

7. At the command prompt, type `passwd -u bozo` and press Enter to unlock bozo's user account.

8. At the command prompt, type `cat /etc/shadow` and press Enter. Compare the encrypted password for bozo's user account with the one recorded in Step 2.

9. Switch to a command-line terminal (try5) by pressing Ctrl+Alt+F5 and attempt to log in to the terminal using the user name of bozo and the password of secret. Were you successful?

10. Type `exit` and press Enter to log out of your shell.

11. Switch back to the command-line terminal (try2) by pressing Ctrl+Alt+F2.

12. At the command prompt, type `chsh -s /bin/false bozo` and press Enter to change bozo's shell to /bin/false. What message did you receive? Was the shell changed? Type `cat /etc/passwd` at a command prompt to verify that the shell was changed to /bin/false for bozo's user account.
13. Switch to a command-line terminal (try5) by pressing Ctrl+Alt+F5 and attempt to log in to the terminal using the user name of bozo and the password of secret. Were you successful?

14. Switch back to the command-line terminal (try2) by pressing Ctrl+Alt+F2.

15. At the command prompt, type `chsh -s /bin/bash bozo` and press Enter to change bozo's shell to /bin/bash.

16. Switch to a command-line terminal (try5) by pressing Ctrl+Alt+F5 and attempt to log in to the terminal using the user name of bozo and the password of secret. Were you successful?

17. Type `exit` and press Enter to log out of your shell.

18. Switch back to the command-line terminal (try2) by pressing Ctrl+Alt+F2.

19. Type `exit` and press Enter to log out of your shell.

**Project 10-7**

In this hands-on project, you remove a user account and create a new user account in its place using command-line utilities.

1. Switch to a command-line terminal (try2) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of root and the password of secret.

2. At the command prompt, type `ls -la /home/bozo` and press Enter. Who owns most files in this directory? Why?

3. At the command prompt, type `userdel bozo` and press Enter. Was the home directory removed for bozo as well?

4. At the command prompt, type `ls -la /home/bozo` and press Enter. Who owns most files in this directory? Why?

5. At the command prompt, type `useradd -m -u 666 bozoette` and press Enter. What do the `-m` and the `-u` options do in this command?

6. At the command prompt, type `password bozoette` and press Enter. Enter the password of secret and press Enter. Enter the password of secret again to confirm, and press Enter.

7. At the command prompt, type `cat /etc/passwd` and press Enter. What is bozoette's home directory? What is bozoette's UID?

8. At the command prompt, type `ls -la /home/bozo` and press Enter. Who owns most files in this directory? Why? Can bozoette manage these files?

9. Type `exit` and press Enter to log out of your shell.

**Project 10-8**

In this hands-on project, you create, use, and delete groups using command-line utilities.

1. Switch to a command-line terminal (try2) by pressing Ctrl+Alt+F2 and log in to the terminal using the user name of root and the password of secret.

2. At the command prompt, type `vi /etc/group` and press Enter to open the /etc/group file in the vi editor. Add a line to the bottom of this file that reads:
   
   `groups:x:1234:root,bozoette`
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This adds a group to the system with a GID of 1234 and the members root and bozoette.
When finished, save and quit the vi editor.

3. Switch to a command-line terminal (tty5) by pressing Ctrl+Alt+F5 and log in to the terminal using the user name of bozoette and the password of secret.

4. At the command prompt, type `groups` and press Enter. Of which groups is bozoette a member?

5. At the command prompt, type `id` and press Enter. Which group is the primary group for the user bozoette?

6. At the command prompt, type `touch file1` and press Enter to create a new file called file1 in the current directory.

7. At the command prompt, type `ls -l` and press Enter. Who is the owner and group owner of the file called file1? Why?

8. At the command prompt, type `newgrp groupies` and press Enter to temporarily change bozoette's primary group to groupies.

9. At the command prompt, type `touch file2` and press Enter to create a new file called file2 in the current directory.

10. At the command prompt, type `ls -l` and press Enter. Who is the owner and group owner of the file called file2? Why?

11. Type `exit` and press Enter to log out of your shell.

12. Switch back to the command-line terminal (tty2) by pressing Ctrl+Alt+F2.

13. At the command prompt, type `groupdel groupies` and press Enter to remove the group called groupies from the system. Which file is edited by the `groupdel` command?

14. Type `exit` and press Enter to log out of your shell.

Discovery Exercises

1. Which entry could you add to `/etc/syslog.conf` to ____________?
   a. log all critical messages from the kernel to `/var/log/alert`
   b. log all messages from the user processes to `/var/log/userlog`
   c. log all debug messages, as well as more serious ones, from the printing daemon to `/var/log/printer`
   d. log all messages except notices from the mail daemon to `/var/log/mailman`
   e. log all alerts and critical error messages to `/var/log/serious`
   f. log all warnings and errors from the kernel and the printing daemon to `/var/log/sharded`

2. Use the man or info pages to find a description of the `-D` option to the `useradd` command. What does this option do? What file does it edit? Use this option with the `useradd` command to set the date that all new user accounts will be disabled to March 5, 2055. What command did you use?