

Labs

During the Red Hat exams, the tasks will be presented electronically. Therefore, this book presents most of the labs electronically as well. For more information, see the “Lab Questions” section toward the end of Chapter 7.

Lab 1

This lab assumes you’ve completed Lab 2 in Chapter 1. Although it’s best to have a working network connection to that system, it’s certainly possible to set it up on the same system as was done in the lab, as long as the associated server is operational. In either case, you may need to make sure any firewall is not running (or preferably, is properly configured per Chapter 4). Hint: based on Chapter 1, Lab 2, you’ll be connecting to an FTP server-based repository on IP address **192.168.122.1**.

You’ll configure yum to install packages from the repo that you made available in Chapter 1 on your master server. Create a **file.repo** file in the **/etc/yum.repos.d** directory. It’s okay to use any existing files in that directory as a model. Use **[inst]** as the ID, and install for the name of the repository. For reference, the installation files created in that lab were copied to the **pub/inst/** subdirectory. Make sure the local system is actually looking for the repository and is using the correct file for verification.

Lab 2

In this lab, you’ll be identifying a potential security problem. You’ve been given a tip by security staff that the problem is related to a binary file that starts a server.

In this lab, you’ll use a script in the **Chapter7/** directory of the DVD included with the book. The script is called **Ch7Lab2**. You’ll need to copy the script to the **server1.example.com** test system created in Chapter 2. The following steps assume the system is on a KVM-based virtual machine.

1. Open Virtual Machine Manager from a GUI command line with the **virt-manager** command.
2. Connect to the **localhost (QEMU)** system.

3. Double-click the virtual machine with the **server1.example.com** system. In the window that appears, click View | Details.
4. Insert the DVD for the book. Use the options that appear to connect the CD/DVD drive to the virtual machine. Return to the console for the virtual machine by clicking View | Console.
5. Boot the **server1.example.com** system. Mount the book's DVD with the **mount /dev/cdrom /media** command.
6. Log in to the root administrative account.
7. Make sure you're in the **/root** directory with the **cd /root** command. Copy the noted script (and associated test file) from the DVD to the root user's home directory with the **cp /media/Chapter7/Ch7Lab2 ~** command.
8. Make sure the script is executable; run the **chmod u+x Ch7Lab2** command.
9. As the root user, execute the script with the **./Ch7Lab2** command. Now you can start the actual work of the lab.

As suggested earlier, the problem relates to a binary file associated with a server. Identify the binary file that has been changed and should, therefore, be regarded with suspicion. Look in the **/usr/sbin** directory. Address the problem. Uninstall and reinstall the associated package. Don't lose any changes made to the configuration file. If one or more of the steps required in this lab take time, use that time to start work on Lab 3.

Lab 3

This lab may not be possible unless updates are available from RHSM (or if you're using a rebuild of RHEL 7, a remote repository with updates, configured in files in the **/etc/yum.repos.d** directory). In this lab, you'll examine what happens when you run an update to upgrade to newer versions of packages available for new features, to address security issues, and more. Before you start, run the following command to clear the cache, to enable the full set of messages:

```
# yum clean all
```

Run the following command and review the output:

```
# yum update
```

If a lot of updates are available, this process may take some time. If you want to download and install the updates, use the **-y** switch, which answers “yes” to all prompts. Save the output to a file. The complete command becomes

```
# yum update -y > update.txt
```

After the download and installation is complete, review the `update.txt` file. Note the first messages about how plugins are loaded from the `/etc/yum/pluginconf.d` directory. Note how it loads information from the repositories, downloads headers, and resolves dependencies.

Once dependencies are resolved, examine where the downloads come from. Note how some packages are installed and how others are updated.

Lab 4

In this lab, you’ll create a job that automatically checks for security updates on the local system, on an hourly basis. Although it’s possible to set up such a job using the cron daemon, that’s a topic for Chapter 9.

Lab 5

In this lab, you’ll examine what happens when you update a kernel RPM by installing it side by side with an existing kernel. If a newer kernel is not available, use an older kernel available on the book’s DVD, in the **Chapter 7/** subdirectory. Two kernels are available for this purpose in that directory, both for 64-bit systems:

```
kernel-3.10.0-123.el7.x86_64.rpm  
kernel-3.10.0-229.el7.x86_64.rpm
```

The associated `linux-firmware` package is also included in the **Chapter7/** directory, as it is a dependency of the kernel. Just remember, if you don’t want the kernel that you install during this lab, make sure to remove the package properly after the lab is complete.

1. Make a copy of the existing GRUB 2 configuration file, `/boot/grub2/grub.conf`. Print it out or copy it to your home directory.
2. Make a copy of the current file list in the `/boot` directory. For example, run the `ls /boot > bootlist` command, which writes the file list to the `bootlist` file.

3. If a newer kernel is available, and you're connected to the RHSM or another appropriate repository, run the following command:

```
# yum install kernel
```

Another alternative is to download and install the RPM with the **yumdownloader** command.

4. Check the results in the GRUB 2 configuration file, **/boot/grub2/grub.conf**. Observe the differences versus the old GRUB 2 configuration file, which you saved in Step 1. What is the default kernel? If you happened to install an older kernel, is the default what you expected?
5. Check the results in the **/boot** directory. Observe the differences with the original list of files in the **/boot** directory. Test the result with a reboot.

Lab 6

In this lab, you'll use both the **yum** command and GNOME Software tool to install packages from the Remote Desktop Clients package group. At this point, multiple virtual machines should be available. Be sure to install all packages from the Remote Desktop Clients package group on both the **server1.example.com** and **tester1.example.com** systems. On one system, use the GNOME Software tool. On the second system, use the **yum** command.

The Remote Desktop Clients package group can be found in the Desktop category in the GNOME Software tool. You could also use a certain **yum** command for that purpose. Make sure every package named in the group is installed on both systems.