6.1.7 RPM Facts

The Red Hat Package Manager (RPM) is a utility that installs application packages.

This lesson covers the following topics:

- RPM functions
- RPM naming convention
- Common commands

RPM Functions

RPM performs various functions as part of package installation.

RPM:

- Is used as the package manager on many distributions, such as openSUSE, Red Hat, and Fedora.
- Installs and configures pre-compiled, pre-configured applications, and services on the system.
- Accesses a library containing thousands of packages where the source code is built, compiled, and ready to be installed on a supported Linux architecture or distribution.
- Installs, updates, verifies, queries, and uninstalls packages.
- Uses a database stored at **/var/lib/rpm** that keeps track of all installed packages, their current status, and available updates.
- Checks for dependencies on other packages and prompts to install these packages, if necessary. A *dependency* is an application's reliance on another package to perform correctly.

This lesson covers the following topics:

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RPM Naming Convention

RPM uses a standard naming convention. Be aware of the following naming convention details:

- The syntax is *packagename-version-release.architecture.rpm*.
- Release numbers might contain distribution data:
  - **fcx** is for Fedora
  - **rhlx** is for Red Hat
  - **suse***xxx* is for version *xxx* of SUSE
- The architecture type specifies the processor:
  - **i386** is for any Intel 80386 or newer processor.
  - **i586** is for any Intel Pentium I or newer processor.
  - **i686** is for any Intel Pentium II or newer processor.
  - **x86_64** is for 64-bit Intel or AMD CPUs
  - **noarch** is for any architecture (not architecture specific)

    Typically, i386, i586, and i686 packages will run on equivalent AMD processors as well.

- For example, **acroread-8.1.3-51.6.i586.rpm** means the following:

Package Name	Version Number	Release	Architecture
acroread	8.1.3	51.6	i586

Common Commands

The following table lists and describes several common commands for managing RPM packages:

Command	Function	Examples
rpm	Uses the Red Hat Package Manager (RPM) to manage packages. Package options are: - **--rebuilddb** rebuilds the database indices from the installed package headers. - **--initdb** creates a new database.	**rpm --checksig acroread** checks the authenticity of the acroread package. **rpm -i BackupPC-3.1.0-3.fc9.src.rpm** installs the BackupPC package. **rpm -ihv http://rpm.sh-linux.org/rpm-fc9/target-SRPMS/BackupPC-3.1.0-3.fc9.src.rpm** installs the specified package

	▪ **--checksig** checks the authenticity of the package. The option checks the package's digital signing key against the package to ensure it has not been altered. ▪ **-i** installs a package. Use the entire package filename when installing. ▪ **-h** prints hash marks as the package archive is unpacked. ▪ **-v** displays a verbose version of the installation. ▪ **--test** tests a package for uninstalled dependencies without actually installing it. ▪ **--nodeps** installs the package without checking for dependencies. This is not recommended. ▪ **--force** installs the package regardless of whether, a newer version of the package is already installed, package files overwrite files from previously installed packages, or if the package replaces other installed packages. ▪ **-e** uninstalls (e.g., erases) a package. To uninstall a package, use the package name, not the file name. If dependencies exist, the dependent packages must first be removed. ▪ **-U** updates an installed package to the newest version. ▪ **-F** upgrades the package, but only if an earlier version currently exists on the system. ▪ **-q** queries the computer for information about installed packages. Use this with **-a** to list all packages and **-l** to show the files associated with the package. ▪ **-V** verifies that packages are free from errors by performing an MD5 checksum on the package. RPM only gives output when packages have errors. If errors are present, the command displays the error code and the file name. The error codes are: ▪ S indicates a problem in the size of a file. ▪ M indicates a problem with a file's mode. ▪ 5 indicates a problem with the MD5 checksum of a file. ▪ D indicates a problem with a file's revision numbers. ▪ L indicates a problem with a file's symbolic link. ▪ U indicates a problem with a file's ownership. ▪ G indicates a problem with a file's group. ▪ T indicates a problem with the modification time of a file. ▪ c indicates the specified file is a configuration file. ▪ '.' in place of a code letter indicates that no error is present in that area.	directly from the Internet. **rpm -i --test dbus-python-0.83.0-2.fc9.src.rpm** tests the computer for uninstalled dependencies for the dbus-python package. **rpm -i --nodeps dbus-python-0.83.0-2.fc9.src.rpm** installs the package but does not check for missing dependencies. **rpm -i --force dbus-python-0.83.0-2.fc9.src.rpm** installs the package regardless of effects on other packages. **rpm -e dbus-python** removes the package from the computer. **rpm -e --nodeps dbus-python** removes the package from the computer but does not check for dependent packages. **rpm -U dbus-python-0.83.0-2.fc9.src.rpm** removes any version older than the specified version and installs the specified package. **rpm -U --replacepkgs dbus-python-0.83.0-2.fc9.src.rpm** reinstalls the dbus-python package. This option is for fixing errors. **rpm -qa** displays a list of all installed packages. **rpm -qi BackupPC** shows all available information about the BackupPC package. **rpm -q --whatrequires gmp** lists the packages that are dependent on the gmp package. **rpm -ql metacity** shows the files associated with the metacity package. **rpm -q --provides gmp** lists the functions that the gmp package provides. **rpm -q --requires gmp** lists the functions that the gmp package requires. **rpm -q --whatprovides /usr/lib/libstlport_gcc.so** shows the package that provides the libstlport_gcc.so file. **rpm -V BackupPC** verifies the BackupPC package. **rpm -Va** verifies all installed packages.
rpm2cpio	Converts RPM packages into a cpio archive. This is useful for extracting files from an RPM package without installing and searching for the specific files.	**rpm2cpio logrotate-1.0-1.i386.rpm > logrotate.cpio** converts the files from the **logrotate** package into a cpio archive.