Chapter 7
Upgrade Software Packages

Each JUNOS software release consists of the following software packages:

jkernel—Operating system package

jbase—Additions to the operating system

jroute—Software that runs on the Routing Engine

jpfe—Software that runs on the Packet Forwarding Engine

jdocs—Documentation for the software

jcrypto—Encryption software (in domestic software only)

The JUNOS software contains two additional packages: jbundle and jinstall. These packages contain the complete JUNOS software.

jinstall—A package used to upgrade from JUNOS Release 5.x to 6.0 or when the software becomes damaged. After you upgrade to 6.0 using jinstall, use jbundle for subsequent upgrades or downgrades. The jinstall package completely reinstalls the software. It rebuilds the JUNOS file system only, but retains configuration, log files, and similar information from the previous version. For more information about how to use jinstall when the software becomes damaged, see “Reinstall Software using jinstall” on page 115.

jbundle—A package used to downgrade from release 6.0. jbundle is also used to upgrade or downgrade between minor versions of the JUNOS software. jbundle modifies the smallest set of files needed to change to the new software version. For more information about how to upgrade from Release 5.x to 6.0 or downgrade from Release 6.0 to 5.*x*, see “Upgrade to Release 6.0 or Downgrade from Release 6.0” on page 119.

jbundle cannot be used to upgrade from JUNOS 5.x to JUNOS 6.0.

To determine which packages are running on the router and to get information about these packages, use the show version command at the top level of the CLI.

This chapter discusses the following topics:

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Upgrade All Software Packages

To upgrade all software packages, follow these steps:

1. Download the software packages you need from the Juniper Networks Support Web site, http://www.juniper.net/support/. Choose either Canada and U.S. Version or Worldwide Version.

   To download the software packages, you must have a service contract and an access account. If you do not have an access account, complete the registration form at the Juniper Networks web site, https://www.juniper.net/registration/Register.jsp.

   
   Note

   We recommend that you upgrade all software packages out-of-band using the console because in-band connections can be lost during the upgrade process.

2. Back up the currently running and active file system so that you can recover to a known, stable environment in case something goes wrong with the upgrade:

   ```
   user@host> request system snapshot
   ```

   The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard disk.

   
   Note

   After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

3. Copy each software package to the router. We recommend that you copy them to the /var/tmp directory, which is on the rotating medium (hard disk) and is a large file system.

   ```
   user@host> file copy ftp://username:prompt@ftp.hostname.net/
     filename /var/tmp/filename
   ```

4. Add the new software package:

```
user@host> request system software add /var/tmp/jbundle-release-signed.tgz
validate
34744651 bytes transferred in 37.7 seconds (900.50 kBps)
Package contains jbundle-release_xyz-domestic-signed.tgz ; renaming ...
Checking compatibility with configuration
Initializing...
Using jbase-release_xyz
Using /var/tmp/jbundle-release_xyzdomestic-signed.tgz
Verified MD5 checksum of /var/validate/tmp/jbundle/jbundle-release_xyzdomestic.tgz
Using /var/validate/tmp/jbundle-signed/jbundle-release_xyz-domestic.tgz
Using /var/validate/tmp/jbundle/jbase-release_xyz.tgz
Using /var/validate/tmp/jbundle/jkernel-release_xyz.tgz
Using /var/validate/tmp/jbundle/jcrypto-release_xyz.tgz
Using /var/validate/tmp/jbundle/jpfe-release_xyz.tgz
Using /var/validate/tmp/jbundle/jdocs-release_xyz.tgz
Using /var/validate/tmp/jbundle/jroute-release_xyz.tgz
Validating against /config/juniper.conf
mgd: commit complete
Validation succeeded
Installing package '/var/tmp/jbundle-release_xyz-domestic-signed.tgz' ...
Verified MD5 checksum of jbundle-release_xyz-domestic.tgz
Adding jbundle...
Verified MD5 checksum of jbase-release_xyz.tgz
Verified MD5 checksum of jboot-release_xyz
Verified MD5 checksum of jcrypto-release_xyz.tgz
Verified MD5 checksum of jdocs-release_xyz.tgz
Verified MD5 checksum of jkernel-release_xyz.tgz
Verified MD5 checksum of jpfe-release_xyz.tgz
Verified MD5 checksum of jroute-release_xyz.tgz
Auto-deleting old jroute...
Auto-deleting old jdocs...
Auto-deleting old jpfe...
Auto-deleting old jcrypto...
Auto-deleting old jkernel...
Adding jkernel...
Restarting bootpd ...
Restarting xntpd ...
Restarting tnetd ...
Restarting tnp.sntpd ...
WARNING: Daemons will be restarted when the jroute package is installed
Restarting watchdog ...
Adding jcrypto...
Adding jpfe...
Adding jdocs...
Adding jroute...
Reloading /config/juniper.conf ...
Activating /config/juniper.conf ...
mgd: commit complete
Restarting mgd ...
Restarting rpd ...
Restarting ppmd ...
Restarting lmpd ...
Restarting aprobed ...
Saving package file in /var/sw/pkg/jbundle-release_xyz-domestic-signed.tgz ...
Saving state for rollback ...
```

package-name is the full URL to the file. *release-number* is the major software release number; for example, 5.7 R1.

The request system software add *package-name* validate command validates *package-name* against the current configuration as a prerequisite to adding the software. For more information about this command, see the *JUNOS Internet Software Guide*: *Operational Mode Command Reference*.

The request system software *package-name* validate command validates candidate software against the current configuration of the router. For more information about this command, see the *JUNOS Internet Software Guide*: *Operational Mode Command Reference*.

5. Reboot the router to start the new software:

```
user@host> request system reboot
```

6. After you have upgraded or downgraded the software and are satisfied that the new software is successfully running, issue the request system snapshot command to back up the new software:

```
user@host> request system snapshot
```

The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard disk.

After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

Upgrade Individual Software Packages

To upgrade an individual JUNOS software package, follow these steps:

1. Download the software packages you need from the Juniper Networks Support Web site, http://www.juniper.net/support/. Choose either Canada and U.S. Version or Worldwide Version.

   To download the software packages, you must have a service contract and an access account. If you need help obtaining an account, complete the registration form at the Juniper Networks Web site, https://www.juniper.net/registration/Register.jsp.

   

   We recommend that you upgrade all individual software packages out-of-band using the console or fxp0 interface because in-band connections can be lost during the upgrade process.

2. Back up the currently running and active file system so that you can recover to a known, stable environment in case something goes wrong with the upgrade:

   ```
   user@host> request system snapshot
   ```

   The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard disk.

   

   After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

3. Copy each software package to the router. You might want to copy them to the /var/tmp directory, which is on the rotating media (hard disk) and is a large file system.

   ```
   user@host> file copy ftp://username:prompt@ftp.hostname.net/
     filename /var/tmp/filename
   ```

4. Add the new software package:

   ```
   user@host> request system software add /var/tmp/package-name-signed.tgz
   Checking available free disk space...11200k available, 6076k suggested.
   ```

   package-name is the full URL to the file.

   The system might display the following message:

   ```
   pkg_delete: couldn't entirely delete package
   ```

   This message indicates that someone manually deleted or changed an item that was in a package. You do not need to take any action; the package is still properly deleted.

If you are upgrading more than one package at the same time, add jbase first and the routing software package jroute last. If you are using this procedure to upgrade all packages at once, add them in the following order:

```
user@host> request system software add /var/tmp/jbase-release-signed.tgz
user@host> request system software add /var/tmp/jkernel-release-signed.tgz
user@host> request system software add /var/tmp/jpfe-release-signed.tgz
user@host> request system software add /var/tmp/jdocs-release-signed.tgz
user@host> request system software add /var/tmp/jroute-release-signed.tgz
user@host> request system software add /var/tmp/jcrypto-release-signed.tgz
```

5. Reboot the router to start the new software:

```
user@host> request system reboot
```

6. After you have upgraded or downgraded the software and are satisfied that the new software is successfully running, issue the request system snapshot command to back up the new software.

```
user@host> request system snapshot
```

The root file system is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard disk.

After you issue the request system snapshot command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

Copy a Configuration to a PC Card or LS-120MB Floppy Disk

You can copy a router configuration to a PC Card or LS-120MB floppy disk from a workstation and then load it onto a router.

To copy a router configuration onto a PC Card or LS-120MB floppy disk, do the following:

1. Insert the PC Card or LS-120MB floppy disk into a workstation that supports a "DOS/FAT" file system.

2. Mount the PC Card or LS-120MB floppy disk DOS partition on your UNIX workstation. (This is not necessary for a Windows workstation.)

3. Copy the desired router configuration to the PC Card or LS-120MB floppy disk as juniper.conf (or juniper.conf.gz, the configuration is in a compressed format).

4. Unmount the PC Card or LS-120MB floppy disk from your UNIX workstation. (This is not necessary for a Windows workstation.)

5. Remove the PC Card or LS-120MB floppy disk.

For information about how to load a configuration from a PC Card or LS-120MB floppy disk, see, "Reinstall the JUNOS Software" on page 105.