

Chapter 15

Upgrading 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 7.x or when the software becomes damaged. If you upgrade from 5.x to 7.x 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 “Reinstalling Software Using jinstall” on page 323.

jbundle—A package used to downgrade from Release 7.x. 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 7.x, see “Upgrading to Release 7.x from Release 5.x” on page 327.



NOTE: jbundle cannot be used to upgrade from JUNOS 5.x to JUNOS 7.x.

The J-series Services Routers use a new software bundle, junos-jseries, for software upgrades. You cannot install the jinstall or jbundle software bundles on the J-series routers. Similarly, you cannot install the junos-jseries bundle on M-series or T-series routing platforms.

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 command line interface (CLI).

This chapter discusses the following topics:

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Upgrading Individual Software Packages on page 319

Copying a Configuration to a PC Card or LS-120 Floppy Disk on page 321

Upgrading 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 validate
/var/tmp/jinstall-7.x-package-name-signed.tgz
Checking compatibility with configuration Initializing...
Using jbase-7.x-package-name
Using /var/tmp/jinstall-7.x-package-name.signed.tgz
Verified jinstall-7.x-package-name.tgz signed by
PackageDevelopment_0 Using
/var/validate/tmp/jinstall-signed/jinstall-7.x-package-name.tgz
Using /var/validate/tmp/jinstall/jbundle-7.x-package-name.tgz
Checking jbundle requirements on /
Using /var/validate/tmp/jbundle/jbase-7.x-package-name.tgz
Using /var/validate/tmp/jbundle/jkernel-7.x-package-name.tgz
Using /var/validate/tmp/jbundle/jcrypto-7.x-package-name.tgz
Using /var/validate/tmp/jbundle/jpfe-7.x-package-name.tgz
Using /var/validate/tmp/jbundle/jdocs-7.x-package-name.tgz
Using /var/validate/tmp/jbundle/jroute-7.x-package-name.tgz
Validating against /config/juniper.conf.gz
mgd: commit complete
Validation succeeded
Installing package
'/var/tmp/jinstall-7.x-package-name-signed.tgz' ...
Verified jinstall-7.x-package-name-signed.tgz signed by
PackageDevelopment_0
Pre-checking requirements for jinstall...
Auto-deleting old jinstall...
Deleting saved config files ...
Deleting bootstrap installer ...
Adding jinstall...

WARNING: This package will load JUNOS 7.x software.
WARNING: It will save JUNOS configuration files, and SSH keys
WARNING: (if configured), but erase all other files and information
WARNING: stored on this machine. It will attempt to preserve dumps
WARNING: and log files, but this can not be guaranteed. This is the
WARNING: pre-installation stage and all the software is loaded when
WARNING: you reboot the system.
Saving the config files ...
Installing the bootstrap installer ...

WARNING: A REBOOT IS REQUIRED TO LOAD THIS SOFTWARE CORRECTLY.
Use the
WARNING: 'request system reboot' command when software installation is
WARNING: complete. To abort the installation, do not reboot your system,
WARNING: instead use the 'request system software delete jinstall'
WARNING: command as soon as this operation completes.

Saving package file in
/var/sw/pkg/jinstall-7.x-package-name-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, 7.0 R1.



NOTE: When you upgrade or downgrade JUNOS software, we recommend that you include the `validate` option to the `request system software add` command to check that the candidate software is compatible with the current configuration. By default, when you add a package with a different release number, the validation check is done automatically.

We do not recommend using the `no-validate` option to suppress validation. For more information about this command, see the *JUNOS Protocols, Class of Service, and System Basics 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.



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.

Upgrading 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>.



NOTE: 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.



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. 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.



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.

Copying a Configuration to a PC Card or LS-120 Floppy Disk

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

To copy a router configuration to a PC card or an LS-120 floppy disk, follow these steps:

1. Insert the PC card or LS-120 floppy disk into a workstation that supports a “DOS/FAT” file system.
2. Mount the PC card or LS-120 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-120 floppy disk as `juniper.conf` (or `juniper.conf.gz`, if the configuration is in a compressed format).
4. Unmount the PC card or LS-120 floppy disk from your UNIX workstation. (This is not necessary for a Windows workstation.)
5. Remove the PC card or LS-120 floppy disk.

For information about how to load a configuration from a PC card or LS-120 floppy disk, see, “Reinstalling the JUNOS Software” on page 312.

