

System and Chassis Information

System Information

- `show system alarms`
- `show system boot-messages`
- `show system certificate`
- `show system commit`
- `show system connections`
- `show system information`
- `show system login lockout`
- `show system memory`
- `show system reboot`
- `show system rollback`
- `show system statistics`
- `show system storage`
- `show system uptime`
- `show system users`

Chassis Information

- `show chassis alarms`
- `show chassis environment`
- `show chassis hardware`
- `show chassis routing-engine`

Interface Monitoring

Interface Monitoring

- `show interfaces`
- `show interfaces terse`
- `show interfaces detail`
- `show interfaces extensive`
- `monitor interface traffic`
- `monitor interface interface-name`

Network Utilities

- `telnet` (default port 23)
- `ssh`
- `ping`
- `traceroute` (use to look hops between device and remote)
- `ftp`

```
root@SRX> ?
Possible completions:
  clear          Clear PPM related statistics information
  configure      Manipulate software configuration information
  file           Perform file operations
  help           Provide help information
  load           Load information from file
  monitor        Show real-time debugging information
  mtrace         Trace multicast path from source to receiver
  op             Invoke an operation script
  ping           Ping remote target
  quit           Exit the management session
  request        Make system-level requests
  restart        Restart software process
  set            Set CLI properties, date/time, craft interface message
  show           Show system information
  ssh            Start secure shell on another host
  start          Start shell
  telnet         Telnet to another host
  test           Perform diagnostic debugging
  traceroute     Trace route to remote host
[root@SRX>
```

Junos Naming Convention

- prior 15.1 it is package-release-version
- starting 15.1 it is prefix-architecture-ABI-release-version
- prefix-media-architecture-ABI-release-version

Prefix

- name of the junos package
- example junos-install-srx5600

Media

- only used when the image is not for the use with **request system software add** command
- values include **usb** for images installed from a USB driver, OR, **net** for images installed from the loader prompt (usually used to recover corrupted image)

```
Hit [Enter] to boot immediately, or space bar for command prompt.  
Booting [kernel] in 9 seconds...
```

Loader>

- **junos-install-media-usb-srx5600-x86-64-17.3R1.9.img.gz**

Architecture

- indicates the CPU architecture of the platform
- value can be **x86** for intel based platform and **arm** for advanced RISC Machines based platform.

ABI (Application Binary Interface)

- indicates the word length of CPU architecture (max bits that CPU can process at the time)
- values can be 32 or 64 for 32 bits architecture or 64 bits architecture

Release

- includes major and minor release number, release type (R, B, or I), build number and spin number
- R stands for released software
- B stands for beta-level software
- I stands for internal
- S is reserved for software releases

Edition

- null (empty) or limit
- null stands for standard domestic versions - these support strong encryption capabilities

- **limited** stands for version build for jurisdictions with limits on dataplane encryption.

- **junos-install-srx5600-x86-64-17.3R1.9.tgz**
- **junos-install-srx5600-x86-64-17.3R1.9-limited.tgz**

- FIPS exists that provides advanced network security for customers who must comply with and operate in a federal information processing standards (FIPS) 140-2 environment.
- **Starting with Junos 15.1 FIPS is packaged in the domestic version, users can flip between FIPS and regular image.**

Examples

- **junos-install-srx5600-x86-64-17.3R1.9.tgz**
 - prefix – junos-install-srx5600
 - architecture – x86
 - ABI - 64
 - release – 17.3R1.9
 - major version – 17, minor version– 3
 - R – released software
 - build – 1
 - spin – 9
 - edition – domestic

- **junos-install-media-usb-srx5600-x86-64-17.3R1.9-limited.img.gz**
 - prefix – junos-install-srx5600
 - media – usb
 - architecture – x86
 - ABI – 64
 - release – 17.3R1.9
 - major version – 17, minor version – 3
 - R – released software
 - build – 1
 - spin – 9
 - edition – limited

Snapshots

- When Junos installed, all files except juniper.conf and SSH files are removed
- Creating a snapshot will back up your current configuration

Command **request system snapshot**

- The snapshot is stored on the internal media or to a USB storage device
- The snapshot can be used as boot information for Junos
- Junos recommends that for media redundancy a secondary storage medium should always be attached to the SRX device.

```
[root@SRX] show log messages | last
May 12 13:05:48 SRX clear-log[2377]: logfile cleared
May 12 13:05:51 SRX /kernel: umass1: Kingston DataTraveler G3, rev 2.00/1.10, addr 4
May 12 13:05:52 SRX /kernel: da1 at umass-sim1 bus 1 target 0 lun 0
May 12 13:05:52 SRX /kernel: da1: <Kingston DataTraveler G3 PMAP> Removable Direct Access SCSI-0 device
May 12 13:05:52 SRX /kernel: da1: 40.000MB/s transfers
May 12 13:05:52 SRX /kernel: da1: 3813MB (7809024 512 byte sectors: 255H 63S/T 486C)
May 12 14:06:50 SRX sshd[2479]: Accepted keyboard-interactive/pam for root from 192.168.1.50 port 51473 ssh2

[root@SRX] request system snapshot ?
Possible completions:
<[Enter]>          Execute this command
factory              Include only files shipped from factory in snapshot
media                Media to snapshot to
partition            Partition the media
slice                Write snapshot to specified partition
|                   Pipe through a command
[root@SRX] request system snapshot media ?
Possible completions:
internal             Write snapshot to internal flash
usb                 Write snapshot to device connected to USB port
root@SRX] request system snapshot media usb ?
Possible completions:
<[Enter]>          Execute this command
factory              Include only files shipped from factory in snapshot
partition            Partition the media
|                   Pipe through a command
[root@SRX] request system snapshot media usb
Clearing current label...
Partitioning usb media (/dev/da1) ...
Partitions on snapshot:

      Partition  Mountpoint  Size  Snapshot argument
        s1a       /           1.2G   none
        s2a     /altroot     1.2G   none
        s3e     /config       92M   none
        s3f      /var         1.1G   none
        s4a   /recovery/software 116M none
        s4e   /recovery/state 7.6M none
Copying '/dev/da0s1a' to '/dev/da1s1a' ... (this may take a few minutes)
Copying '/dev/da0s2a' to '/dev/da1s2a' ... (this may take a few minutes)
Copying '/dev/da0s3e' to '/dev/da1s3e' ... (this may take a few minutes)
Copying '/dev/da0s3f' to '/dev/da1s3f' ... (this may take a few minutes)
Copying '/dev/da0s4e' to '/dev/da1s4e' ... (this may take a few minutes)
Copying '/dev/da0s4a' to '/dev/da1s4a' ... (this may take a few minutes)
The following filesystems were archived: / /altroot /config /var /recovery/state /recovery/software

[root@SRX] show system snapshot media usb
Information for snapshot on      usb (/dev/da1s1a) (primary)
Creation date: May 12 14:27:46 2020
JUNOS version on snapshot:
  junos : 12.1X46-D30.2-domestic
Information for snapshot on      usb (/dev/da1s2a) (backup)
Creation date: May 12 14:29:05 2020
JUNOS version on snapshot:
  junos : 12.1X46-D30.2-domestic
```

Reboot from Snapshots

```
[root@SRX> request system reboot media usb  
[Reboot the system ? [yes,no] (no) yes
```

```
Shutdown NOW!  
[pid 3127]
```

```
root@SRX>  
*** FINAL System shutdown message from root@SRX ***  
  
System going down IMMEDIATELY
```

Upgrade Junos

1. Connect to console port
2. Backup the active file system using Snapshots
3. Determine the Junos version by `show version`
4. Download the install package from Juniper's website
5. copy package to `/var/tmp`
6. verify the data integrity by checksum, file checksum md5 `/var/tmp/file.txt`
7. upgrade using cmd **`request system software add /var/tmp/pakcageName`**
8. Reboot by **`request system reboot`**

- When upgrading, by default Junos validates the software package against the current configuration
- This validation ensures that the device can reboot successfully after the software package is installed

Clean up storage

```
[root]> show system storage
Filesystem          Size    Used   Avail Capacity Mounted on
/dev/gpt/junos     13G    891M   11G    7%   /.mount
tmpfs              1.2G    56K    1.2G   0%   /.mount/tmp
tmpfs              639M   916K   638M   0%   /.mount/mfs

[root]> request system storage ?
Possible completions:
  cleanup           Clean up temporary files and rotate logs
[root]> request system storage cleanup ?
Possible completions:
  <[Enter]>        Execute this command
  dry-run          Only list the cleanup candidates, do not remove them
  no-confirm       Do not ask for confirmation
  |                Pipe through a command
[root]> request system storage cleanup dry-run
```

List of files to delete:

Size	Date	Name
11B	May 30 12:59	/var/jail/tmp/alarmd.ts
117B	May 30 13:23	/var/log/messages.0.gz
142B	May 30 13:01	/var/log/messages.1.gz
27B	May 30 13:01	/var/log/wtmp.0.gz
27B	May 30 12:57	/var/log/wtmp.1.gz
27B	May 24 2019	/var/log/wtmp.2.gz
45B	May 30 12:58	/var/preserve/jdhcp_client_data
45B	May 24 2019	/var/preserve/jdhcp_client_data_bkp
1161B	May 30 12:58	/var/tmp/appidd_trace_debug
0B	May 30 12:58	/var/tmp/eedebbug_bin_file
70B	May 30 12:57	/var/tmp/kmdchk.log
57B	May 30 12:58	/var/tmp/krt_rpf_filter.txt
42B	May 24 2019	/var/tmp/pfe_debug_commands
0B	May 24 2019	/var/tmp/pkg_cleanup.log.err
30B	May 30 12:58	/var/tmp/policy_status
0B	May 30 12:58	/var/tmp/rtsdb/if-rtsdb
2879B	May 24 2019	/var/tmp/xen-debug.log

```
root> █
```

Downgrading Junos

- When the software is upgraded, Junos creates a backup image of the software that was previously installed in addition to installing the requested software upgrade
- The backup image can be used to downgrade only to the software release that was installed on the device before the current release
- Use the command `request system software rollback`

Unified ISSU

United In-Service Software upgrade allows you to upgrade your device between two different Junos releases **with no disruption on the control plane and with minimal destruction of traffic**

Unified ISSU is only supported on dual Routing Engine platforms

Prerequisites

- Graceful Routing Engine Switchover (GRES) and Nonstop Active Routing (NSR) must be enabled to perform Unified ISSU.
- To perform Unified ISSU, the master and backup Routing Engines must be running the same software version
- Advantages of Unified ISSU eliminates network downtime during software images upgrades

Graceful Routing Engine Switchover (GRES)

- GRES enables a device with redundant Routing Engines to continue forwarding packets even if one Routing Engine fails.
- With GRES, the PFE disconnects from the old master RE and reconnects to the new master RE
- **SO Traffic is not interrupted, and the device is not rebooted.**
- Mastership switches to the backup Routing Engine if:
 - the master RE kernel stop operating
 - the master RE experiences hardware failure
 - the administrator initiates a manual switchover
 - **GRES preserves interface and kernel related information**
 - **However the control plane is not preserved causing routing to be impacted**
 - To preserve routing during a switchover, GRES may be combined with **Nonstop active routing (NSR)**

Nonstop active routing (NSR)

- With NSR enabled, the Junos device saves routing protocol information during a switchover
- This is done by running the routing protocol daemon (rpd) on the backup Routing Engine
- As a result the routing platform does not need to rely on other routers to restore routing protocol information

Upgrade Type	Considerations
Dual Routing Engines only	<ul style="list-style-type: none"> Physical interfaces will be taken offline Packet forwarding engines will restart Backup Routing Engine restarts the routing protocol process (rpd) New master Routing Engine discovers all hardware and interfaces Switchover takes several minutes When switchover is completed, routing information converges, and traffic is resumed
With GRES enabled	<ul style="list-style-type: none"> Interface and kernel information is preserved, but control plane is not The new master RE restarts the routing protocol process (rpd) Switchover is faster because PFEs are not restarted
With GRES and NSR enabled	<ul style="list-style-type: none"> Interface and kernel information is preserved Routing protocol information is saved during the switchover Traffic is not interrupted during the switchover

Root Password Recovery

1. Connect using the console port and reboot the device
2. As the system boots, press Spacebar when prompted
3. At the `loader>` prompt, enter the command `boot -s` to boot into single-user mode
4. Enter `recovery` when prompted
5. At the operational mode prompt, type `configure` to enter configuration mode
6. Use `set system root-authentication plain-text-password` to set the root password
7. Commit and reboot