

Chapter 4

Stop and Start JUNOS Software

This chapter describes how to stop and start the JUNOS software after it has been installed. (See Table 16.)

Table 16: Checklist for Stopping and Starting the JUNOS Software

Stop and Start JUNOS Software Tasks	Command or Action
1. Stop the JUNOS Software on page 38	request system halt
2. Reboot the JUNOS Software on page 39	request system reboot
Restart a JUNOS Software Process on page 40	
1. Display Information about Software Processes on page 40	show system processes extensive
2. Restart a JUNOS Software Process on page 41	restart (class-of-service interface-control mib-process network-access-service remote-operations routing sampling snmp) <gracefully> <immediately> <soft>
3. Check That the Process Has Restarted on page 42	show system processes extensive

Stop the JUNOS Software

Purpose To avoid damage to the file system, gracefully shut down the JUNOS software before powering down the router. If you have configured a backup Routing Engine, it must be shut down before the master Routing Engine.

Action To stop the JUNOS software, use the following JUNOS command-line interface (CLI) operational mode command:

```
user@host> request system halt
```

Sample Output

```
user@host> request system halt
Halt the system ? [yes,no] (no) yes
shutdown: [pid 3110]
Shutdown NOW!

*** FINAL System shutdown message from root@host ***
System going down IMMEDIATELY

user@host> Dec 17 17:28:40 init: syslogd (PID 2514) exited with status=0 Normal
Exit
Waiting (max 60 seconds) for system process `bufdaemon' to stop...stopped
Waiting (max 60 seconds) for system process `syncer' to stop...stopped
syncing disks... 4
done
Uptime: 3h31m41s
ata0: resetting devices .. done
The operating system has halted.
Please press any key to reboot.
```

What It Means The sample output shows that all system process have stopped and the operating system was halted immediately. For more detailed information on the **request system halt** command, see the *JUNOS System Basics and Services Command Reference*.

Reboot the JUNOS Software

Purpose Reboot JUNOS software after a software upgrade and occasionally to recover from an error condition.

Action To reboot the JUNOS software, use the following JUNOS CLI operational mode command:

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

Sample Output

```
user@host> request system reboot
Reboot the system ? [yes,no] (no) yes
shutdown: [pid 845]
Shutdown NOW!

*** FINAL System shutdown message from root@host ***
System going down IMMEDIATELY

user@host> Dec 17 17:34:20 init: syslogd (PID 409) exited with status=0 Normal
Exit
Waiting (max 60 seconds) for system process `bufdaemon' to stop...stopped
Waiting (max 60 seconds) for system process `syncer' to stop...stopped
syncing disks... 10 6
done
Uptime: 2m45s
ata0: resetting devices .. done
Rebooting...
```

What It Means The sample output shows the final stages of the system shutdown and the execution of the reboot. Reboot requests are recorded to the system log files, which you can view with the `show log messages` command. You can view the process names with the `show system processes` command. For more information about the `show system processes` command, see “Check That the Process Has Restarted” on page 42. For more detailed information about rebooting your system, see the *JUNOS System Basics and Services Command Reference*.

Restart a JUNOS Software Process

Purpose Restart a JUNOS software process when you need to recover from an error condition



NOTE: Never restart any of the software processes unless instructed to do so by a customer support engineer.

Steps To Take To restart a JUNOS software process, follow these steps:

1. Display Information about Software Processes on page 40
2. Restart a JUNOS Software Process on page 41
3. Check That the Process Has Restarted on page 42

Step 1: Display Information about Software Processes

Purpose Display information about software processes to begin diagnosing an error condition.

Action To display information about the software processes that are running on the router, use the following JUNOS CLI operational mode command:

```
user@host> show system processes extensive
```

Sample Output

```
user@host> show system processes extensive
last pid: 750; load averages: 0.00, 0.00, 0.00 up 0+00:58:50 18:34:17
52 processes: 1 running, 51 sleeping
Mem: 50M Active, 19M Inact, 38M Wired, 264K Cache, 86M Buf, 642M Free
Swap: 768M Total, 768M Free
```

PID	USERNAME	PRI	NICE	SIZE	RES	STATE	TIME	WCPU	CPU	COMMAND
546	root	10	0	9096K	1720K	nanslp	0:21	0.00%	0.00%	chassisd
685	root	2	0	12716K	3840K	kqread	0:01	0.00%	0.00%	rpdd
553	root	2	0	8792K	1544K	select	0:01	0.00%	0.00%	mib2d
552	root	2	0	8632K	1556K	select	0:01	0.00%	0.00%	snmpd
563	root	2	0	9316K	1564K	select	0:00	0.00%	0.00%	kmd
564	root	2	0	7736K	948K	select	0:00	0.00%	0.00%	fud
131	root	10	0	770M	25568K	mfsidl	0:00	0.00%	0.00%	newfs
547	root	2	0	7732K	888K	select	0:00	0.00%	0.00%	alarmd
545	root	2	0	10292K	2268K	select	0:00	0.00%	0.00%	dcd
550	root	2	-12	1308K	692K	select	0:00	0.00%	0.00%	ntpd
1	root	10	0	816K	520K	wait	0:00	0.00%	0.00%	init
750	root	32	0	21716K	828K	RUN	0:00	0.00%	0.00%	top
560	root	2	0	8208K	1088K	select	0:00	0.00%	0.00%	rmopd
561	root	2	0	8188K	1156K	select	0:00	0.00%	0.00%	cosd
559	root	2	0	1632K	840K	select	0:00	0.00%	0.00%	ilmid

What It Means The sample output shows the central processing unit (CPU) utilization and lists the processes in order of CPU utilization.

Table 17 lists and describes the output fields included in the sample output for the `show processes extensive` command. The fields are listed in alphabetical order.

Table 17: Show System Processes Extensive Output Fields

Field	Description
COMMAND	Command that is running.
CPU	Raw (unweighted) CPU usage. The value of this field is used to sort the processes in the output.
last pid	Last process identifier assigned to the process.
load averages	Three load averages, followed by the current time.
Mem	Information about physical and virtual memory allocation.
NICE	UNIX “nice” value. The nice value allows a process to change its final scheduling priority.
PID	Process identifier.
PRI	Current kernel scheduling priority of the process. A lower number indicates a higher priority.
processes	Number of existing processes and the number of processes in each state (sleeping, running, starting, zombies, and stopped).
RES	Current amount of resident memory, in KB.
SIZE	Total size of the process (text, data, and stack), in KB.
STATE	Current state of the process (sleep, wait, run, idle, zombi, or stop).
Swap	Information about physical and virtual memory allocation.
USERNAME	Owner of the process.
WCPU	Weighted CPU usage.

For more details, see “Verify the Routing Engine CPU Memory” on page 179, and the *JUNOS Internet Software Protocols, Class of Service, Chassis, and Management Command Reference*.

Step 2: Restart a JUNOS Software Process

Action To restart a JUNOS software process, use the following JUNOS CLI operational mode command and include the process you wish to restart. For example:

```
user@host> restart routing
```

Sample Output user@host> restart routing
Routing protocol daemon started, pid 751

What It Means The sample output shows that the routing protocol daemon was restarted and the process identification (PID) was changed from 685 in the previous sample output to 751.

Table 18 lists and describes the options available for the **restart** command.

Table 18: Options to Restart a JUNOS Software Process

Option	Description
class-of-service	Restart the class-of-service process, which controls the router's class-of-service configuration.
gracefully	Restart the software process by sending the equivalent of a UNIX SIGTERM signal.
immediately	Immediately restart the process by sending the equivalent of a UNIX SIGKILL signal.
interface-control	Restart the interface process, which controls the router's physical interface devices and logical interfaces.
mib-process	Restart the Management Information Base (MIB) II process, which provides the router's MIB II agent.
network-access-service	Restart the network access process, which provides the router's Challenge Handshake Authentication Process (CHAP) authentication service.
remote-operations	Restart the remote operations process, which provides the ping and traceroute MIBs.
routing	Restart the routing protocol process, which controls the routing protocols that run on the router and maintains the routing tables.
sampling	Restart the sampling process, which performs packet sampling and cflowd export.
snmp	Restart the Simple Network Management Process (SNMP) process, which provides the router's SNMP master agent.
soft	Reread and reactivate the configuration without completely restarting the software processes. For example, Border Gateway Protocol (BGP) peers stay up and the routing table stays constant. This option is the equivalent of a UNIX SIGHUP signal; omitting this option is the equivalent of a UNIX SIGTERM (kill) operation.

Step 3: Check That the Process Has Restarted

Purpose After you have entered the `restart` command to restart a process, make sure that the process is up and running.

Action To check that a process has restarted, use the following JUNOS CLI operational mode command:

```
user@host> show system processes extensive
```

Sample Output 1

```
user@host> show system processes extensive
last pid: 750; load averages: 0.00, 0.00, 0.00 up 0+00:58:50 18:34:17
52 processes: 1 running, 51 sleeping
Mem: 50M Active, 19M Inact, 38M Wired, 264K Cache, 86M Buf, 642M Free
Swap: 768M Total, 768M Free

PID USERNAME PRI NICE  SIZE  RES STATE  TIME  WCPU   CPU COMMAND
546 root      10  0   9096K 1720K nanslp 0:21 0.00% 0.00% chassisd
685 root       2  0  12716K 3840K kqread 0:01 0.00% 0.00% rpd
553 root       2  0   8792K 1544K select 0:01 0.00% 0.00% mib2d
552 root       2  0   8632K 1556K select 0:01 0.00% 0.00% snmpd
563 root       2  0   9316K 1564K select 0:00 0.00% 0.00% kmd
```

```

564 root      2   0   7736K   948K select 0:00 0.00% 0.00% fud
131 root     10   0    770M 25568K mfsidl 0:00 0.00% 0.00% newfs
547 root      2   0   7732K   888K select 0:00 0.00% 0.00% alarmd
545 root      2   0  10292K  2268K select 0:00 0.00% 0.00% dcd
550 root      2 -12  1308K   692K select 0:00 0.00% 0.00% ntpd
  1 root     10   0    816K   520K wait  0:00 0.00% 0.00% init
750 root     32   0  21716K   828K RUN   0:00 0.00% 0.00% top
560 root      2   0   8208K  1088K select 0:00 0.00% 0.00% rmopd
561 root      2   0   8188K  1156K select 0:00 0.00% 0.00% cosd
559 root      2   0   1632K   840K select 0:00 0.00% 0.00% ilmid

```

Sample Output 2 user@host> **show system processes extensive**
last pid: 758; load averages: 0.00, 0.00, 0.00 up 0+01:01:48 18:37:15
52 processes: 1 running, 51 sleeping
Mem: 51M Active, 19M Inact, 38M Wired, 156K Cache, 86M Buf, 642M Free
Swap: 768M Total, 768M Free

PID	USERNAME	PRI	NICE	SIZE	RES	STATE	TIME	WCPU	CPU	COMMAND
546	root	10	0	9096K	1720K	nanslp	0:22	0.05%	0.05%	chassisd
553	root	2	0	8792K	1544K	select	0:01	0.00%	0.00%	mib2d
552	root	2	0	8632K	1556K	select	0:01	0.00%	0.00%	snmpd
563	root	2	0	9316K	1564K	select	0:00	0.00%	0.00%	kmd
564	root	2	0	7736K	948K	select	0:00	0.00%	0.00%	fud
131	root	10	0	770M	25568K	mfsidl	0:00	0.00%	0.00%	newfs
547	root	2	0	7732K	888K	select	0:00	0.00%	0.00%	alarmd
545	root	2	0	10292K	2268K	select	0:00	0.00%	0.00%	dcd
1	root	10	0	816K	520K	wait	0:00	0.00%	0.00%	init
550	root	2	-12	1308K	692K	select	0:00	0.00%	0.00%	ntpd
758	root	32	0	21716K	832K	RUN	0:00	0.00%	0.00%	top
560	root	2	0	8208K	1088K	select	0:00	0.00%	0.00%	rmopd
561	root	2	0	8188K	1156K	select	0:00	0.00%	0.00%	cosd
559	root	2	0	1632K	840K	select	0:00	0.00%	0.00%	ilmid
573	lab	2	0	7480K	2580K	select	0:00	0.00%	0.00%	cli
751	root	2	0	12716K	3944K	kqread	0:00	0.00%	0.00%	rpd
558	root	2	20	8708K	1880K	select	0:00	0.00%	0.00%	sampled
555	root	2	0	1856K	932K	select	0:00	0.00%	0.00%	vrpd
686	root	2	0	7808K	940K	select	0:00	0.00%	0.00%	apspd

What It Means The sample output shows that the routing protocol process (rpd) was restarted because the process identifier (PID) of the process was renamed from 685, as shown in the Sample Output 1, to 751 as shown in Sample Output 2.

