How to Configure Firewalld to be Port Forwarding?

written by sysadmin | 21 June 2025

Port forwarding is a networking technique used to redirect communication requests from one port number to another port number, typically across a network boundary such as a router or firewall. This technique can be used with Firewalld, available in RockyLinux, or derivative distros from RHEL such as AlmaLinux, CentOS, and others.

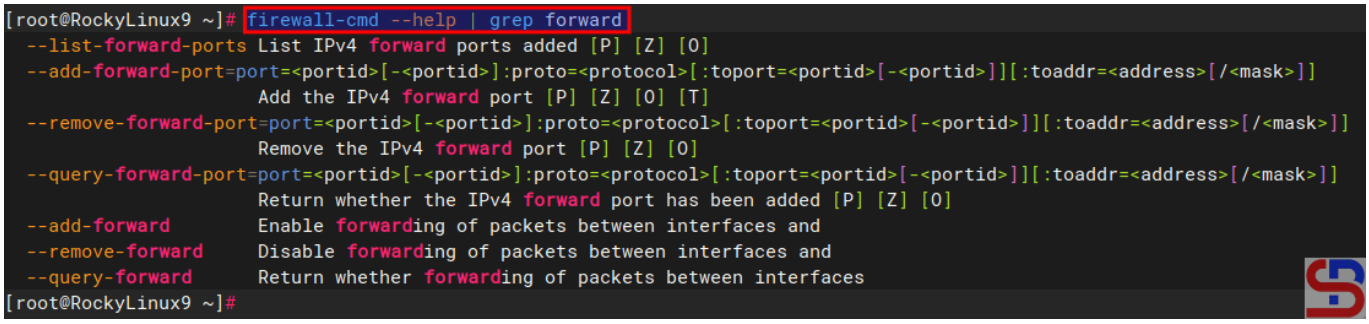
Problem

How to configure Firewalld to be port forwarding?

Solution

If you want to see the command in firewalls to run port forwarding, type the below command:

```
firewall-cmd --help | grep forward
```



The commands in firewalld for port forwarding

There are 2 methods of port forwarding: forward the connection of a port to one IP/device and forward the connection of a port to a different IP/device.

A. Forward to the same IP/device

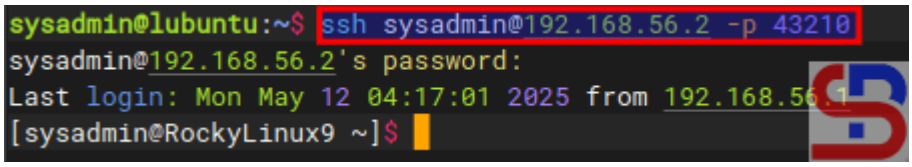
By default, you must use the format below to forward a port

in a device:

```
firewall-cmd --add-forward-port=port=port-number:proto=tcp|udp|sctp|dccp:toport=port-number
```

You can add an option **--permanent** if you want the rule to remain after reloading or rebooting the system. For example, you have a server with IP 192.168.56.2 where port 22 on the server is closed so to access the server via SSH must use port 43210. If you follow this article, then you must type the command below to access the server:

```
ssh sysadmin@192.168.56.2 -p 43210
```



Access the server via SSH using the port

However, by implementing a port forwarding you can access the server without typing the port. Let's say, the firewalld is in the device, then on the device open port 43210 using the command:

```
sudo firewall-cmd --add-port=43210/tcp --permanent
sudo firewall-cmd --reload
```

In the file **/etc/sshd/sshd_config**, change the port to be as below:

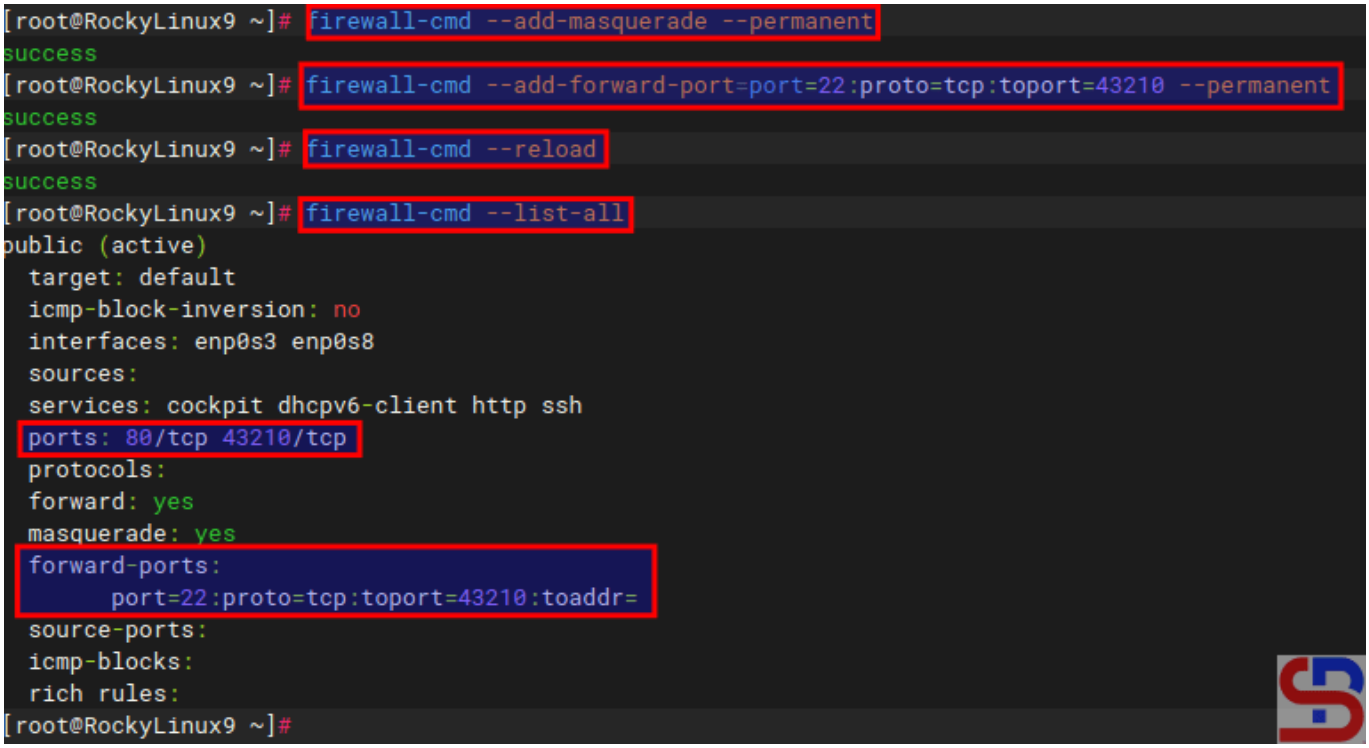
```
Port 43210
```

After that restart SSH by using the command:

```
sudo systemctl restart sshd
```

After that, type the commands below to configure the forwarding port in the firewalld:

```
firewall-cmd --add-masquerade --permanent
firewall-cmd --add-forward-port=port=22:proto=tcp:toport=43210 --permanent
firewall-cmd --reload
firewall-cmd --list-all
```

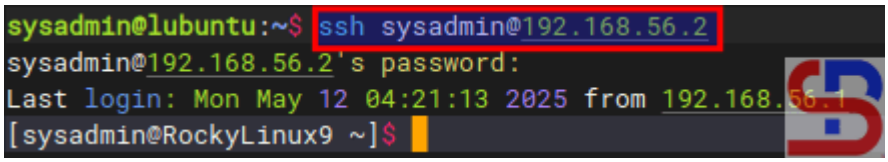


The commands to configure firewalld to be port forwarding

type the command below to access the server via SSH:

```
ssh sysadmin@192.168.56.2
```

You should be able to enter the server without having to type the 43210 port as shown below:



Access the server via SSH without writing the port

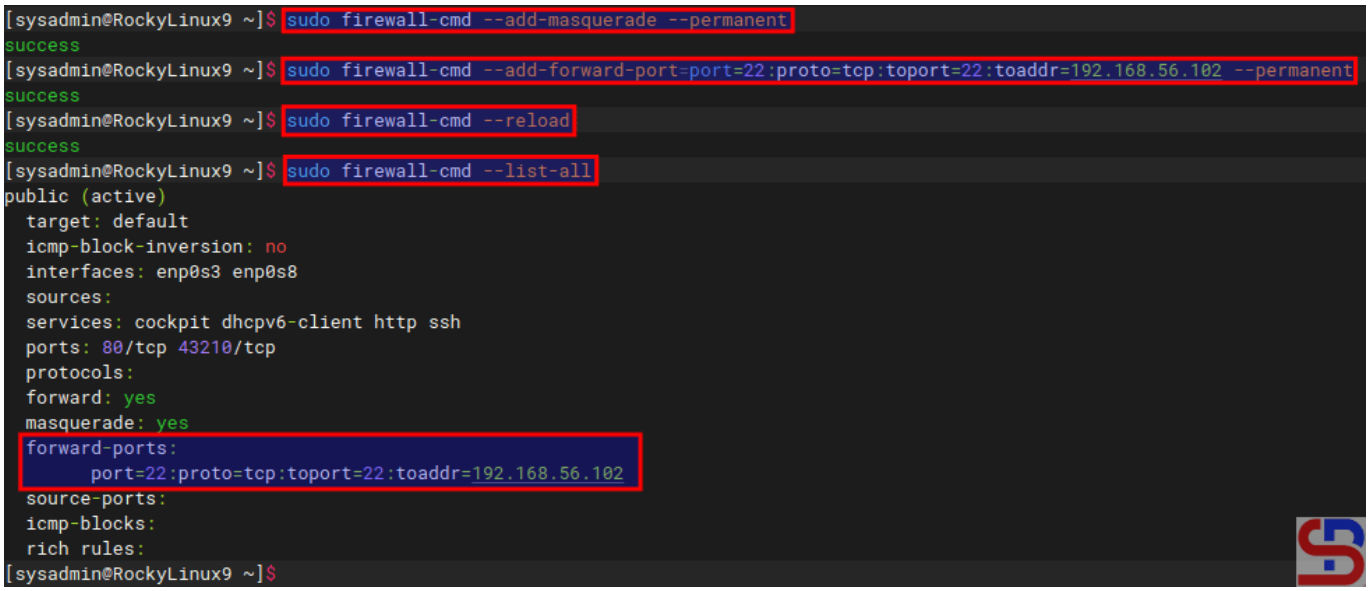
B. Forward to a different IP/device

By default, use the format below to forward a port to a different IP/device:

```
firewall-cmd --add-forward-port=port=port-
number:proto=tcp|udp|sctp|dccp:toport=port-number:toaddr=ip_address
```

If you want the rule to stay in place after a system reboot or reload, you can add a **--permanent** option. As an illustration, suppose you have a server with IP address 192.168.56.2 and port 22 is available. You would like users who access port 22 to forward to port 22 with IP address 192.168.56.102. Use the command below to configure firewalls:

```
firewall-cmd --add-masquerade --permanent
sudo firewall-cmd --add-forward-
port=port=22:proto=tcp:toport=22:toaddr=192.168.56.102 --permanent
firewall-cmd --reload
firewall-cmd --list-all
```



Add a forwarding port to a different IP in firewalld

If you type the command below:

```
ssh sysadmin@192.168.56.2
```

You will be forwarded to a server that uses IP 192.168.56.102 as shown below:

```
sysadmin@lubuntu:~$ ssh sysadmin@192.168.56.2
sysadmin@192.168.56.2's password:
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-58-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

Last login: Mon May 12 15:21:13 2025 from 192.168.56.2
sysadmin@Ubuntu2404:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:29:a3:f1 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
       valid_lft 53225sec preferred_lft 53225sec
    inet6 fe80::a00:27ff:fe29:a3f1/64 scope link
       valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:83:09:85 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.102/24 metric 100 brd 192.168.56.255 scope global dynamic enp0s8
       valid_lft 420sec preferred_lft 420sec
    inet6 fe80::a00:27ff:fe83:985/64 scope link
       valid_lft forever preferred_lft forever
sysadmin@Ubuntu2404:~$
```

Forward a port to another IP/device

Note

To see rule forwarding is in the rule in the firewall, besides being able to use the **firewall-cmd --list-all** command, you can also use the command below:

```
sudo firewall-cmd --list-forward-ports
```

then you will see the results as shown below:

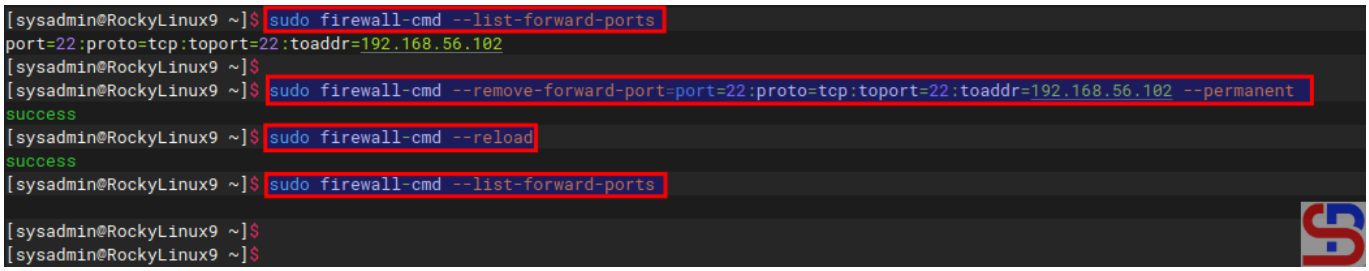
```
[sysadmin@RockyLinux9 ~]$ sudo firewall-cmd --list-forward-ports
port=22:proto=tcp:toport=22:toaddr=192.168.56.102
[sysadmin@RockyLinux9 ~]$
```

Using –list-forward-ports option

And if you want to delete a rule port forwarding in the firewall, then you can simply change the options **--add-forward-port** to **--remove-forward-port** so the command will

change like in the command below:

```
sudo firewall-cmd --add-forward-
port=port=22:proto=tcp:toport=22:toaddr=192.168.56.102 --permanent
```



Remove a forwarding port rule

References

docs.redhat.com
youtube.com
musaamin.web.id
faun.pub