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Configure iptables to Allow Access to Common Services on Linux

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## **Purpose**

This article gives the steps to open firewall ports on CentOS 6.x in Iptables IPv4.

## **Basics**

* Iptables rules can be changed on the fly by using the **iptables** binary.
* The rules that are set using iptables command are in memory only and will vanish when the daemon is restarted.
* The firewall rules added on the fly can be saved to the configuration file easily in CentOS/RHEL with the command **service iptables save**
  + This is no need to edit the configuration file unless you really want to.
* The following examples are aimed at hardening the inbound traffic, but allowing all outbound traffic.
  + You can completely lock down all inbound, outbound and forwarded traffic if needed. It generally just causes a lot more administration and usually isn't necessary.

## **Basic Commands**

* **iptables --flush** delete all firewall rules from memory.
* **iptables --list** List current firewall policies
* **service iptables save** (CentOS/RHEL) save current rules in memory to configuration file (/etc/sysconfig/iptables)
* **service iptables restart** restart iptables daemon and load firewall rules from configuration file.
* **iptables-save > /root/firwallrules.fw** save firewall rules in memory to a specific configuration file.
* **iptables-restore > /root/firwallrules.fw** restore firewall rules from a specific configuration file to memory.

## **Basic iptables Command Parameters**

* **-A** append to policy chain
* **INPUT | OUTPUT | FORWARD** policy chain identifiers
* **-p** protocol
* **-m** match
* **-s** source
* **--dport** destination port
* **--state** connection state
* **-j** jump target **ACCEPT | DROP**

## **Backup Current Iptables Configuration to File**

Before you begin, it is recommended to backup your current firewall rules.

iptables-save > /path/to/somewhere/filename

**Example:**

iptables-save > /home/user1/iptable-rules-25NOV2020.fw

## **Remove All Current Rules**

iptables --flush

## **Set Policy Chains Default Rule**

iptables -P INPUT DROP

iptables -P OUTPUT ACCEPT

iptables -P FORWARD ACCEPT

## **Allow Loopback**

iptables -A INPUT -i lo -j ACCEPT

## **Allow All Established and Related Connections**

iptables -A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT

## **Allow ICMP "ping" from LAN (TCP Port 22)**

iptables -A INPUT -p icmp -m icmp -s 192.168.0.0/24 --icmp-type echo-request -j ACCEPT

## **Allow SSH from LAN (TCP Port 22)**

iptables -A INPUT -p tcp -m tcp -s 192.168.0.0/24 --dport 22 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Allow RSYNC from LAN (TCP Port 873)**

iptables -A INPUT -p tcp -m tcp -s 192.168.0.0/24 --dport 873 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Allow HTTP (TCP Port 80)**

iptables -A INPUT -p tcp -m tcp --dport 80 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Allow HTTPS (TCP Port 443)**

iptables -A INPUT -p tcp -m tcp --dport 443 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Allow MySQL Server Access from LAN (TCP Port 3306)**

iptables -A INPUT -p tcp -m tcp -s 192.168.0.0/24 --dport 3306 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Allow Nagios NRPE Client Access from Nagios Server (TCP Port 5666)**

iptables -A INPUT -s 192.168.0.100 -p tcp -m tcp --dport 5666 -m state --state NEW,ESTABLISHED -j ACCEPT

## **Save Current Rules in Memory to Configuration File**

*## Prevent HTTP DoS Attack*

*#> -m limit: This uses the limit iptables extension*

*#> --limit 25/minute: This limits only maximum of 25 connection per minute. Change this value based on your specific requirement*

*#> --limit-burst 100: This value indicates that the limit/minute will be enforced only after the total number of connection have reached the limit-burst level.*

iptables -A INPUT -p tcp --dport 80 -m limit --limit 25/minute --limit-burst 100 -j ACCEPT

## **Save Current Rules in Memory to Configuration File**

service iptables save

## **Restart Service**

service iptables restart

## **Script**

I create a BASH script to rewrite the firewall rules how I prefer. Then run the script and test. If everything tests good, then I save the configuration.

**Assumes all commands are executed with suitable privilege**

**Example:**

*#!/bin/sh*

*# Delete All Existing Rules for a fresh start, but you might want to backup the existing rules to be safe.*

*# Backup first*

Iptables-save >/some.file

iptables --flush

*# Set Default Chain Policies*

iptables -P INPUT DROP

iptables -P OUTPUT ACCEPT

iptables -P FORWARD ACCEPT

*## Allow Loopback*

iptables -A INPUT -i lo -j ACCEPT

*## Allow Established and Related Connections*

iptables -A INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT

*## Allow SSH (From LAN)*

iptables -A INPUT -s 192.168.0.0/24 -p tcp -m tcp --dport 22 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Allow ICMP "ping" (From LAN)*

iptables -A INPUT -s 192.168.0.0/24 -p icmp -m icmp --icmp-type echo-request -j ACCEPT

*## Allow RSYNC (From LAN)*

iptables -A INPUT -s 192.168.0.0/24 -p tcp -m tcp --dport 873 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Allow HTTP*

iptables -A INPUT -p tcp -m tcp --dport 80 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Allow HTTPS*

iptables -A INPUT -p tcp -m tcp --dport 443 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Allow MySQL (From LAN)*

iptables -A INPUT -s 192.168.0.0/24 -p tcp -m tcp --dport 3306 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Allow NRPE Client Access (From Nagios Server)*

iptables -A INPUT -s 192.168.0.100 -p tcp -m tcp --dport 5666 -m state --state NEW,ESTABLISHED -j ACCEPT

*## Prevent HTTP DoS Attack*

*#> -m limit: This uses the limit iptables extension*

*#> --limit 25/minute: This limits only maximum of 25 connection per minute. Change this value based on your specific requirement*

*#> --limit-burst 100: This value indicates that the limit/minute will be enforced only after the total number of connection have reached the limit-burst level.*

iptables -A INPUT -p tcp --dport 80 -m limit --limit 25/minute --limit-burst 100 -j ACCEPT

## **Restore Iptables Rules from Backup File**

If you made a backup file or pulling a copy of rules from another system and wish to restore/replace the rules then use the following command.

iptables-restore < /path/to/somewhere/filename

**Example:**

iptables-restore < /home/user1/iptable-rules-25NOV2020.fw

## **Restart Service**

service iptables restart

## **Sources**

* <http://www.thegeekstuff.com/2011/06/iptables-rules-examples/>
* <http://www.cyberciti.biz/tips/linux-iptables-how-to-specify-a-range-of-ip-addresses-or-ports.html>