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## **Configure Linux** iptables Firewall for MongoDB

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## Configure Linux iptables Firewall for MongoDB

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On contemporary Linux systems, the iptables program provides methods for managing the Linux Kernel's netfilter or network packet filtering capabilities. These firewall rules make it possible for administrators to control what hosts can connect to the system, and limit risk exposure by limiting the hosts that can connect to a system.

This document outlines basic firewall configurations for iptables firewalls on Linux. Use these approaches as a starting point for your larger networking organization. For a detailed overview of security practices and risk management for MongoDB, see Security.

## Overview

Rules in iptables configurations fall into chains, which describe the process for filtering and processing specific streams of traffic. Chains have an order, and packets must pass through earlier rules in a chain to reach later rules. This document addresses only the following two chains:

## INPUT

Controls all incoming traffic.

#### OUTPUT

Controls all outgoing traffic.

Given the default ports of all MongoDB processes, you must configure networking rules that permit only required communication between your application and the appropriate mongod and mongos instances.

Be aware that, by default, the default policy of iptables is to allow all connections and traffic unless explicitly disabled. The configuration changes outlined in this document will create rules that explicitly allow traffic from specific addresses and on specific ports, using a default policy that drops all traffic that is not

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Manage and Maintain iptables Configuration explicitly allowed. When you have properly configured your iptables rules to allow only the traffic that you want to permit, you can Change Default Policy to DROP.

## Share Feed atterns

This section contains a number of patterns and examples for configuring iptables for use with MongoDB deployments. If you have configured different ports using the port configuration setting, you will need to modify the rules accordingly.

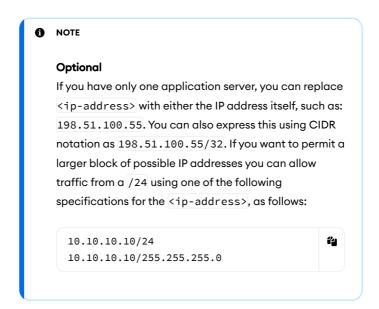
### Traffic to and from mongod Instances

This pattern is applicable to all mongod instances running as standalone instances or as part of a replica set.

The goal of this pattern is to explicitly allow traffic to the mongod instance from the application server. In the following examples, replace <ip-address> with the IP address of the application server:

```
iptables -A INPUT -s <ip-address> -p tcp --destina iptables -A OUTPUT -d <ip-address> -p tcp --source
```

The first rule allows all incoming traffic from <ip-address> on port 27017, which allows the application server to connect to the mongod instance. The second rule, allows outgoing traffic from the mongod to reach the application server.



## Traffic to and from mongos Instances

mongos instances provide query routing for sharded clusters.

Clients connect to mongos instances, which behave from the client's perspective as mongod instances. In turn, the mongos connects to all mongod instances that are components of the sharded cluster.

Use the same iptables command to allow traffic to and from these instances as you would from the mongod instances that are members of the replica set. Take the configuration outlined in the Traffic to and from mongod Instances section as an example.

#### **Share Feedback**

## Traffic to and from a MongoDB Config Server

Config servers host the config database that stores metadata for sharded clusters. Config servers listen for connections on port 27019. As a result, add the following iptables rules to the config server to allow incoming and outgoing connection on port 27019, for connection to the other config servers.

```
iptables -A INPUT -s <ip-address> -p tcp --destina iptables -A OUTPUT -d <ip-address> -p tcp --source
```

Replace <ip-address> with the address or address space of *all* the mongod that provide config servers.

Additionally, config servers need to allow incoming connections from all of the mongos instances in the cluster *and* all mongod instances in the cluster. Add rules that resemble the following:

```
iptables -A INPUT -s <ip-address> -p tcp --destina
```

Replace <ip-address> with the address of the mongos instances and the shard mongod instances.

## Traffic to and from a MongoDB Shard Server

Shard servers default to port number 27018. You must configure the following iptables rules to allow traffic to and from each shard:

```
iptables -A INPUT -s <ip-address> -p tcp --destina iptables -A OUTPUT -d <ip-address> -p tcp --source
```

Replace the <ip-address> specification with the IP address of all mongod. This allows you to permit incoming and outgoing traffic between all shards including constituent replica set members, to:

- all mongod instances in the shard's replica sets.
- all mongod instances in other shards. [1]

Furthermore, shards need to be able make outgoing connections to:

• all mongod instances in the config servers.

Create a rule that resembles the following, and replace the <ip-address> with the address of the config servers and the mongos instances:

Share FeedBatables -A OUTPUT -d <ip-address> -p tcp --source

[]] All shards in a cluster need to be able to communicate with all other shards to facilitate chunk and balancing operations.

## **Provide Access For Monitoring Systems**

The mongostat diagnostic tool, when running with the --discover needs to be able to reach all components of a cluster, including the config servers, the shard servers, and the mongos instances.

Changed in version 3.6: MongoDB 3.6 removes the deprecated HTTP interface and REST API to MongoDB.

## Change Default Policy to DROP

The default policy for iptables chains is to allow all traffic. After completing all iptables configuration changes, you *must* change the default policy to DROP so that all traffic that isn't explicitly allowed as above will not be able to reach components of the MongoDB deployment. Issue the following commands to change this policy:

iptables -P INPUT DROP

iptables -P OUTPUT DROP

# Manage and Maintain iptables Configuration

This section contains a number of basic operations for managing and using iptables. There are various front end tools that automate some aspects of iptables configuration, but at the core all iptables front ends provide the same basic functionality:

## Make all iptables Rules Persistent

By default all <code>iptables</code> rules are only stored in memory. When your system restarts, your firewall rules will revert to their defaults. When you have tested a rule set and have guaranteed that it effectively controls traffic you can use the following operations to you should make the rule set persistent.

On Red Hat Enterprise Linux, Fedora Linux, and related distributions you can issue the following command:

service iptables save

On Debian, Ubuntu, and related distributions, you can use the following command to dump the <a href="iptables">iptables</a> rules to the <a href="//etc/iptables.conf">/etc/iptables.conf</a> file:

Share Feed bada bles-save > /etc/iptables.conf

Run the following operation to restore the network rules:

iptables-restore < /etc/iptables.conf</pre>

Place this command in your rc.local file, or in the /etc/network/if-up.d/iptables file with other similar operations.

## List all iptables Rules

To list all of currently applied iptables rules, use the following operation at the system shell.



## Flush all iptables Rules

If you make a configuration mistake when entering iptables rules or simply need to revert to the default rule set, you can use the following operation at the system shell to flush all rules:



If you've already made your <a href="iptables">iptables</a> rules persistent, you will need to repeat the appropriate procedure in the Make all iptables Rules Persistent section.

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