

Synchronizing and Coordinating Time Distribution Using NTP

Using NTP to synchronize and coordinate time distribution in a large network involves these tasks:

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Configuring NTP

To configure NTP on the router or switch, include the `ntp` statement at the `[edit system]` hierarchy level:

```
[edit system]
ntp {
  authentication-key number type type value password;
  boot-server address;
  broadcast <address> <key key-number> <version value> <ttl value>;
  broadcast-client;
  multicast-client <address>;
  peer address <key key-number> <version value> <prefer>;
  server address <key key-number> <version value> <prefer>;
  source-address source-address;
  trusted-key [ key-numbers ];
}
```

Configuring the NTP Boot Server

When you boot the router or switch, it issues an `ntpdate` request, which polls a network server to determine the local date and time. You need to configure a server that the router or switch uses to determine the time when the router or switch boots. Otherwise, NTP will not be able to synchronize to a time server if the server's time appears to be very far off of the local router's or switch's time.

To configure the NTP boot server, include the `boot-server` statement at the `[edit system ntp]` hierarchy level:

```
[edit system ntp]
boot-server address;
```

Specify the address of the network server. You must specify an address, not a hostname.

Specifying a Source Address for an NTP Server

For IP version 4 (IPv4), you can specify that if the NTP server configured at the `[edit system ntp]` hierarchy level is contacted on one of the loopback interface addresses, the reply always uses a specific source address. This is useful for controlling which source address NTP will use to access your network when it is either responding

to an NTP client request from your network or when it itself is sending NTP requests to your network.

To configure the specific source address that the reply will always use, and the source address that requests initiated by NTP server will use, include the `source-address` statement at the `[edit system ntp]` hierarchy level:

```
[edit system ntp]
source-address source-address;
```

`source-address` is a valid IP address configured on one of the router or switch interfaces.



NOTE: If a firewall filter is applied on the loopback interface, ensure that the `source-address` specified for the NTP server at the `[edit system ntp]` hierarchy level is explicitly included as one of the match criteria in the firewall filter. This enables the JUNOS Software to accept traffic on the loopback interface from the specified source address.

The following example shows a firewall filter with the source address `10.0.10.100` specified in the `from` statement included at the `[edit firewall filter firewall-filter-name]` hierarchy:

```
[edit firewall filter Loopback-Interface-Firewall-Filter]
term Allow-NTP {
  from {
    source-address {
      172.17.27.46/32; // IP address of the NTP server
      10.0.10.100/32; // Source address specified for the NTP server
    }
  }
  then accept;
}
```

If no `source-address` is configured for the NTP server, include the primary address of the loopback interface in the firewall filter.

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- Related Topics**
- NTP Overview
 - NTP Time Server and Time Services Overview
 - Example: Configuring NTP as a Single Time Source for Router Clock Synchronization

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