Simple Network Time Protocol

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Simple Network Time Protocol (SNTP) is a simplified version of Network Time Protocol(NTP). This module describes how to configure Simple Network Time Protocol on Cisco devices.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Restrictions for Simple Network Time Protocol

- Simple Network Time Protocol(SNTP) and Network Time Protocol(NTP) cannot coexist on the same machine as they use the same port. This means that these two services cannot be configured on the system at the same time.
- Support for IPv6 addresses is available only if the image supports IPv6 addressing.

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Information About Network Time Protocol

Simple Network Time Protocol

Simple Network Time Protocol (SNTP) is a simplified, client-only version of NTP. SNTP can receive only the time from NTP servers; it cannot be used to provide time services to other systems.

SNTP typically provides time within 100 milliseconds of the accurate time, but it does not provide the complex filtering and statistical mechanisms of NTP. In addition, SNTP does not authenticate traffic, although you can configure extended access lists to provide some protection. An SNTP client is more vulnerable to servers that have unexpected behavior than an NTP client, and should be used only in situations where strong authentication is not required.

You can configure SNTP to request and accept packets from configured servers or to accept NTP broadcast packets from any source. When multiple sources are sending NTP packets, the server with the best stratum is selected. (See the *Network Time Protocol* section on page 3 for a description of strata.) If multiple servers are at the same stratum, a configured server is preferred over a broadcast server. If multiple servers pass both tests, the first one to send a time packet is selected. SNTP will choose a new server only if it stops receiving packets from the currently selected server, or if a better server (according to the criteria described) is discovered.

How to Configure Network Time Protocol

Configuring Simple Network Time Protocol

Simple Network Time Protocol (SNTP) is a simplified version of Network Time Protocol (SNTP). This module describes how to configure SNTP on Cisco devices.

Configuring Simple Network Time Protocol(SNTP) Authentication

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. s**ntp authenticate**
4. s**ntp authentication-key** *number* **md5** *key*
5. **sntp authentication-key** *number* **md5** *key*
6. **sntp authentication-key** *number* **md5** *key*
7. **sntp trusted-key** *key-number* [**-** *end-key*]
8. **sntp server** *ip-address* **key** *key-id*
9. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	s**ntp authenticate** **Example:** `Device(config)# sntp authenticate`	Enables the SNTP Authentication feature.
Step 4	s**ntp authentication-key** *number* **md5** *key* **Example:** `Device(config)# sntp authentication-key 1 md5 key1`	Defines authentication keys. • Each key has a key number, a type, and a value.

	Command or Action	Purpose
Step 5	**sntp authentication-key** *number* **md5** *key* **Example:** `Device(config)# sntp authentication-key 2 md5 key2`	Defines authentication keys.
Step 6	**sntp authentication-key** *number* **md5** *key* **Example:** `Device(config)# sntp authentication-key 3 md5 key3`	Defines authentication keys.
Step 7	**sntp trusted-key** *key-number* [**-** *end-key*] **Example:** `Device(config)# sntp trusted-key 1 - 3`	Defines trusted authentication keys. • If a key is trusted, this device will be ready to synchronize to a system that uses this key in its SNTP packets.
Step 8	**sntp server** *ip-address* **key** *key-id* **Example:** `Device(config)# sntp server 172.16.22.44 key 2`	Allows the software clock to be synchronized by an SNTP time server.
Step 9	**end** **Example:** `Device(config)# end`	Exits global configuration mode and returns to privileged EXEC mode.

Verifying Simple Network Time Protocol

To verify information about the Simple Network Time Protocol, perform the following command.

SUMMARY STEPS

1. **show sntp**

DETAILED STEPS

show sntp

Example:

```
Device# show sntp

SNTP server     Stratum   Version    Last Receive
172.168.10.1      16        1        never
Broadcast client mode is enabled.
Multicast client 224.0.1.1 is enabled.
```

This command displays information about SNTP available in Cisco devices.

Troubleshooting Simple Network Time Protocol

To troubleshoot simple network time protocol, perform the following command.

SUMMARY STEPS

1. **debug sntp packets** [**detail**]
2. **debug sntp select**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**debug sntp packets** [**detail**] **Example:** `Device> debug sntp packets`	Displays the NTP packet sent and received along with the SNTP packet fields.
Step 2	**debug sntp select** **Example:** `Device> debug sntp select`	Displays the SNTP server selection for IPv4 and IPv6 servers.

Configuration Examples for Network Time Protocol

- Example: Configuring Simple Network Time Protocol, page 5

Example: Configuring Simple Network Time Protocol

```
clock timezone PST -8
clock summer-time PDT recurring
sntp update-calendar
sntp server 192.168.13.57
sntp server 192.168.11.58
interface Ethernet 0/0
```

```
sntp broadcast
```

Additional References for Simple Network Time Protocol

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Commands List, All Releases*
Basic System Management commands	*Basic System Management Command Reference*
NTP4 in IPv6	*Cisco IOS Basic System Management Guide*
IP extended access lists	*Cisco IOS IP Addressing Configuration Guide*
IPX extended access lists	*Novell IPX Configuration Guide*
NTP package vulnerability	*Network Time Protocol Package Remote Message Loop Denial of Service Vulnerability*
Cisco IOS and NX-OS software releases	*'White Paper: Cisco IOS and NX-OS Software Reference Guide*

Standards and RFCs

Standard/RFCs	Title
RFC 1305	*Network Time Protocol (Version 3) Specification, Implementation and Analysis*

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Simple Network Time Protocol

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software

release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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Table 1 Feature Information for Simple Network Time Protocol

Feature Name	Releases	Feature Information
Simple Network Time Protocol	Cisco IOS 15.3(2)T Cisco IOS 15.3(2)S Cisco IOS XE 3.9.0 S	Simple Network Time Protocol (SNTP) is a simplified, client-only version of Network Time Protocol(SNTP) The following commands were introduced or modified: **sntp server**,**sntp authenticate**, **sntp authentication-key**, **sntp multicast**,**sntp trusted-key**.