

NTP Configuration

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1. Overview

1.1 Stipulation

1.1.1 Format Stipulation in the Command Line

Syntax	Meaning
Bold	Stands for the keyword in the command line, which stays unchanged and must be entered without any modification. It is presented as a bold in the command line.
<i>{italic}</i>	Stands for the parameter in the command line, which must be replaced by the actual value. It must be presented by the italic in the brace.
<italic>	Stands for the parameter in the command line, which must be replaced by the actual value. It must be presented by the italic in the point bracket.
[]	Stands for the optional parameter, which is in the square bracket.
{ x y ... }	Means that you can choose one option from two or more options.
[x y ...]	Means that you can choose one option or none from two or more options.
{ x y ... } *	Means that you have to choose at least one option from two or more options, or even choose all options.
[x y ...] *	Means that you can choose multiple options or none from two or more options.
&<1-n>	Means that the parameter before the "&" symbol can be entered 1~n times.
#	Means that the line starting with the "#" symbol is an explanation line.

2. NTP Configuration

2.1 Overview

Network Time Protocol (NTP) is a type of computer time synchronization protocol which can be used for time synchronization between distributed time servers and clients. It has highly accurate time correction function and can prevent malicious protocol attacks through encrypted authentication. Clients and servers communicate through the User Datagram Protocol (UDP), and the port number is 123.

2.2 NTP Configuration

2.2.1 Configure the Equipment as an NTP Server

Configuration mode: Global

Command	Purpose
ntp master primary	In the event that the equipment does not have an upper-level NTP server, configure the equipment as the original NTP server (stratum = 1).
ntp master secondary	In the event that the equipment has an upper-level NTP server, configure the equipment as the secondary NTP server. (In other words, the equipment cannot provide time synchronization service for NTP clients unless the "ntp server" command is configured and time synchronization is achieved in designated servers.)

2.2.2 Configure NTP Authentication Function

Configuration mode: Global

Command	Purpose
ntp authentication enable	Enable the authentication function (disabled by default).
ntp authentication key keyid md5 password	Configure NTP md5 authentication keyid and corresponding keys.
ntp authentication trusted-key keyid	Configure the keyid corresponding key as the trusted key.

2.2.3 Configure NTP Association

Configuration mode: Global

Command	Purpose
ntp server ip-address [version number key keyid]*	Configure the IP address of NTP server; the version number, key number, and the encryption key can be designated.
ntp peer ip-address [version number key keyid]*	The following command can be used to configure NTP peer IP address of the device, designated version number and key number.

Usage Guidelines:

- (1) Equipment can provide time services for NTP clients provided that the equipment has achieved time synchronization; otherwise the client device that employs the equipment as its server cannot achieve time synchronization.
- (2) To conduct NTP authentication, both parties must open the NTP authentication function simultaneously, configure the same keyid and key, and designate the keyid as trusted; otherwise time synchronization would fail.