NTP Configuration Commands

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Chapter 1 NTP Configuration Commands

1.1 ntp master

Syntax

To set the device as the original NTP server (stratum=1), run the following command.

ntp master primary

To set the device as the secondary NTP server, run the following command.

ntp master secondary

To disable NTP server, run the following command.

no ntp master

Parameters

None

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

If the device is not configured with NTP server (ntp server command is not configured), ntp master primary command must be configured. Or the switch cannot provide time synchronization service. ntp master secondary command must be run when the switch configures NTP server. Moreover, the switch can provide time synchronization service to the NTP client in condition its own time synchronization is realized.

Example

Switch_config#ntp master primary
Switch_config#ntp master secondary
Switch_config#no ntp master

Related Command

ntp server

ntp peer

1.2 ntp authentication enable

Syntax

To enable NTP identity authentication, run the following command.

ntp authentication enable

To return to the default setting, use the no form of this command.

no ntp authentication enable

Parameters

None

Default Value

Disabled

Command Mode

Global configuration mode

Usage Guidelines

For a secure network, NTP identity authentication must be enabled when operating NTP protocol. The identity authentication ensures that the client only realize time synchronization with the server which passes the identity authentication. Thus, the client will not obtain error time information from the illegal server.

Example

Switch_config#ntp authentication enable

Related Command

ntp authentication key

ntp authentication trusted-key

1.3 ntp authentication key

To set NTP identity authentication key, run the first one of the following commands.

ntp authentication key *keyid* **md5** *password*

To return to the default setting, use the no form of this command.

no ntp authentication key *keyid*

Parameters

Parameters	Description
keyid	The serial number of the authentication key. The value ranges from 1 to 4294967295.
password	The key of keyed. The length ranges from 1 to 50.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

The command is used to set identity authentication key. The client and the server must set the same key serial number and key value, or they cannot realize time synchronization.

After set NTP authentication key, Set the key as the trusted key by command ntp authentication trusted-key. The trusted key will automatically disappear from the trusted key list when it is deleted. There is no need to run command “no ntp authentication trusted-key”.

The command can set multiple ntp authentication key commands.

Example

Switch_config#ntp authentication key 5 md5 abc123
Switch_config#no ntp authentication key 5

Related Command

ntp authentication enable

ntp authentication trusted-key

1.4 ntp authentication trusted-key

To set the created key as the trusted key, run the first one of the following commands.

ntp authentication trusted-key *keyid*

To return to the default setting, use the no form of this command.

no ntp authentication trusted-key *keyid*

Parameters

Parameters	Description
keyid	The serial number of the authentication key. The value ranges from 1 to 4294967295.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

Enable the identity authentication function, the client can only time synchronize with the server providing the trusted key. If the key provided by the server is not trusted, the client cannot synchronize to the NTP server.

The command must be configured after the key is set. The trusted key will automatically disappear from the trusted key list when it is deleted. There is no need to run command “no ntp authentication trusted-key”.

Example

Switch_config#ntp authentication trusted-key 5
Switch_config#no ntp authentication trusted-key 5

Related Command

ntp authentication enable

ntp authentication key

1.5 ntp server

Parameters

To set NTP server, run the following command.

ntp server *ip-address* [**version** *number* | **key** *keyid*]*

To return to the default setting, use the no form of this command.

no ntp server *ip-address*

Parameters

Parameters	Description
ip-address	NTP Server IP address
number	NTP version number, the value ranges from: <1-4>, the default value is 4.
keyid	When sending NTP packets to the NTP server, calculate the packet information abstract with the key corresponds to the keyid. The value ranges from 1 to 4294967295. If the parameter is not set, the device will not authenticate the identity of the server, or vice verse.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

After a NTP server is set, the device can time synchronize with the server, but the server time will not synchronize to the device.

Multiple ntp server commands can be configured. If using the NTP server on the public network, you have to configured at least 4 different NTP severs, so that the error clock source can be expelled.

Example

Switch_config#ntp server 1.1.1.1 version 4 key 5

Related Command

ntp authentication enable

ntp authentication key

ntp authentication trusted-key

1.6 ntp peer

To set a NTP peer for the device, run the following command.

ntp peer *ip-address* [**version** *number* | **key** *keyid*]*

To return to the default setting, use the no form of this command.

no ntp peer *ip-address*

Parameters

Parameters	Description
ip-address	NTP peer IP address
number	NTP version number, the value ranges from: <1-4>, the default value is 4.
keyid	When sending NTP packets to the NTP peer, calculate the packet information abstract with the key corresponds to the keyid. The value ranges from 1 to 4294967295. If the parameter is not set, the device will not authenticate the identity of the peer, or vice verse.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

The command is used to set the NTP peer and synchronize the time of the peer to the device provided that the peer time is synchronized. The command is often used as backup between the NTP servers. The device as the client is usually not configure the command. The command ntp server is used to set the NTP server.

Example

Switch_config#ntp peer 1.1.1.2 version 3 key 5

Related Command

ntp authentication enable

ntp authentication key

ntp authentication trusted-key

1.7 show ntp

To show NTP current status, run the following command.

show ntp [**status**]

To show NTP association status, run the following command.

show ntp associations [**detail**]

To show NTP timer status, run the following command.

show ntp timers

Parameters

None

Default Value

None

Command Mode

EXEC

Usage Guidelines

Show NTP relevant information

Example

Switch#**show ntp**

Time-zone: GMT+05:30, Kolkata
Current time: 2014-05-21 10:45:26

Clock Status: synchronized
Clock Stratum: 3
Leap Indicator: 0

Reference ID: 211.233.84.186
Clock Jitter: 0.004149
Clock Precision: -18
Clock Offset: 6.561 ms
Root Delay: 172.153 ms
Root Dispersion: 587.873 ms
Packets Sent: 30788
Packets Received: 27969 (bad version: 0)
Reference Time: 2014-05-21 10:41:37
Last Update Time: 2014-05-21 10:37:08

Switch#**show ntp associations**

ip address	reference clock	st	poll	reach	delay	offset	dispersion
61.110.197.50	204.123.2.5	2	64	377	59.99	0.96	2.7
27.114.150.12	193.190.230.65	2	64	377	489.97	-34.56	3.1
*211.233.84.186	204.123.2.5	2	64	377	19.99	9.15	3.0
198.55.111.50	216.229.0.50	3	64	377	229.98	-40.09	3.4
199.241.31.224	132.163.4.103	2	64	377	198.04	2.51	3.6
204.2.134.163	241.199.164.101	2	64	360	169.97	-17.16	942.8

Note: * system peer(master), poll(s), delay(ms), offset(ms), dispersion(ms)

Total Associations: 6

Related Command

None

1.8 debug ntp

To enable NTP packet debug switch, run the following command.

debug ntp packet

To enable NTP event debug switch, run the following command.

debug ntp event

To enable NTP error debug switch, run the following command.

debug ntp error

To enable NTP all debug switches, run the following command.

debug ntp all

To disable all debug switches, run the following command.

no debug ntp

Parameters

None

Default Value

None

Command Mode

EXEC

Usage Guidelines

Check NTP running process by debug information.

Example

None

Related Command

None

1.9 time-zone

To enable time zone function, run the following command.

time-zone *name offset-hour* [*offset-minute*]

To return to the default setting, use the no form of this command.

no time-zone

Parameters

Parameters	Description
name	Stands for the name of a time zone.
offset-hour	Hour off-set of local time to UTC time (-12~12)
offset-minute	Minute offset of local time to UTC time (0~59); the default value is 0.

Default Value

None

Command Mode

Global configuration mode

Usage Guidelines

The command is used to transfer UTC to the local time.

Example

Switch_config#time-zone Beijing 8

Related Command

None