

NTP Configuration Commands

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CHAPTER 1 NTP CONFIGURATION COMMANDS

1.1. ntp master

Syntax

ntp master primary command is used to set the device as the original NTP server (stratum=1)

ntp master secondary command is used to set the device as the secondary NTP server

no ntp master command is used to disable NTP server

Parameter

None

Default

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

ntp authentication enable command

no ntp authentication enable

To enable NTP identity authentication, run the above command. To return to the default setting, use the no form of this command.

Parameter

None

Default

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 Commands**ntp authentication key****ntp authentication trusted-key****1.3. ntp authentication key****Syntax****ntp authentication key *keyid md5 password*****no ntp authentication key *keyid***

To set NTP identity authentication key, run the first one of the above commands. To return to the default setting, use the no form of this command.

Parameter

Parameter	Description
<i>keyid</i>	The serial number of the authentication key. The value ranges from 1 to 4294967295.
<i>password</i>	The key of keyed. The length ranges from 1 to 50.

Default

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 Commands

ntp authentication enable

ntp authentication trusted-key

1.4. ntp authentication trusted-key

Syntax

ntp authentication trusted-key *keyid*

no ntp authentication trusted-key *keyid*

To set the created key as the trusted key, run the first one of the above commands. To return to the default setting, use the no form of this command.

Parameter

Parameter	Description
<i>keyid</i>	The serial number of the trusted key. The value ranges from 1 to 4294967295.

Default

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 Commands

ntp authentication enable
ntp authentication key

1.5. ntp server

Syntax

```
ntp server ip-address [version number | key keyid ]*  
no ntp server ip-address
```

To set NTP server, run the first one of the above commands. To return to the default setting, use the no form of this command.

Parameter

Parameter	Description
<i>ip-address</i>	NTP Server IP address
<i>number</i>	NTP version number, the value ranges from: <1-4>, the default value is 4.
<i>keyid</i>	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

None

Command Mode

Global Configuration Mode

Usage Guidelines

After setting the NTP server, the device can time synchronize with the server, but the time of the server will not synchronize to the device.

The command can be used to set multiple ntp server commands. If the NTP server in the public network is applied, at least 4 different NTP servers need to be configured (in order to exclude the wrong clock source).

Example

```
Switch_config#ntp server 1.1.1.1 version 4 key 5
```

Related Commands

ntp authentication enable
ntp authentication key
ntp authentication trusted-key

1.6. ntp peer

Syntax

ntp peer *ip-address* [**version** *number* | **key** *keyid*]*
no ntp peer *ip-address*

To designate the NTP peer for the device, run the first one of the above commands. To return to the default setting, use the no form of this command.

Parameter

Parameter	Description
<i>ip-address</i>	NTP peer IP address
<i>number</i>	NTP version number. The value ranges from 1 to 4. The default value is 4.
<i>keyid</i>	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 versa.

Default

None

Command Mode

Global Configuration Mode

Usage Guidelines

Designate the NTP peer and the device can time synchronize with the peer in condition that it has synchronized. The command is usually used for mutual backup of the NTP server, not applicable for the client. To designate the NTP server, run the command **ntp server**.

Example

```
Switch_config#ntp peer 1.1.1.2 version 3 key 5
```

Related Commands

ntp authentication enable
ntp authentication key

ntp authentication trusted-key

1.7. show ntp

Syntax

show ntp [status]

To show NTP current status, run the above command.

show ntp associations [detail]

To show NTP association status, run the above command.

show ntp timers

To show NTP timer status, run the above command.

Parameter

None

Default

None

Command Mode

EXEC

Usage Guidelines

Show NTP relevant information

Example

```
Switch#show ntp
Time-zone: GMT+8:00, Shanghai
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**Syntax****debug ntp packet**

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

debug ntp event

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

debug ntp error

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

debug ntp all

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

no debug ntp

To disable all debug switches, run the above command.

Parameter

None

Default

None

Command Mode

EXEC

Usage Guidelines

Check NTP running process by debug information.

Example

None

Related Command

None

1.9. time-zone**Syntax**

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

no time-zone

To enable time zone function, run the first one of the above commands.

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

Parameter

Parameter	Description
<i>name</i>	Name of the time zone
<i>offset-hour</i>	Hour off-set of local time to UTC time (-12~12)
<i>offset-minute</i>	Minute offset of local time to UTC time (0~59); the default value is 0.

Default

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