



**DIGISOL<sup>®</sup>**

## NTP Configuration

As our products undergo continuous development the specifications are subject to change without prior notice.

## Table of Contents

|                                                        |   |
|--------------------------------------------------------|---|
| Chapter 1 Overview .....                               | 1 |
| 1.1 Stipulation .....                                  | 1 |
| 1.1.1 Format Stipulation in the Command Line .....     | 1 |
| Chapter 2 NTP Configuration .....                      | 2 |
| 1.2 Overview .....                                     | 2 |
| 1.3 NTP Configuration .....                            | 2 |
| 1.3.1 Configuring the Equipment As an NTP Server ..... | 2 |
| 1.3.2 Configuring NTP Authentication Function .....    | 2 |
| 1.3.3 Configuring NTP Association .....                | 3 |



# Chapter 1 Overview

## 1.1 Stipulation

### 1.1.1 Format Stipulation in the Command Line

| Syntax            | Meaning                                                                                                                                                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bold</b>       | 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.                     |
| < <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 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 has 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.                                                                                       |



## Chapter 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 Configuring the Equipment As an NTP Server

Configuration mode: Global

| Command                     | Purpose                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ntp master primary</b>   | In the event that the equipment does not have an upper-level NTP server, configure the equipment as the original NTP server (stratum = 1).                                                                                                                                                                                       |
| <b>ntp master secondary</b> | In the event that the equipment has an upper-level NTP server, configure the equipment as the secondary NTP server.<br><br>(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 Configuring NTP Authentication Function

Configuration mode: Global

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



### 2.2.3 Configuring NTP Association

Configuration mode: Global

| Command                                                                           | Purpose                                                                         |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>ntp server</b> <i>ip-address</i> [ <b>version number</b>   <b>key keyid</b> ]* | Configure the IP address of NTP server; the version number, key number.         |
| <b>ntp peer</b> <i>ip-address</i> [ <b>version number</b>   <b>key keyid</b> ]*   | Configure the IP address of equipment NTP peer; the version number, 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.

