● How to Create NTP Server Under No External Network Environment?

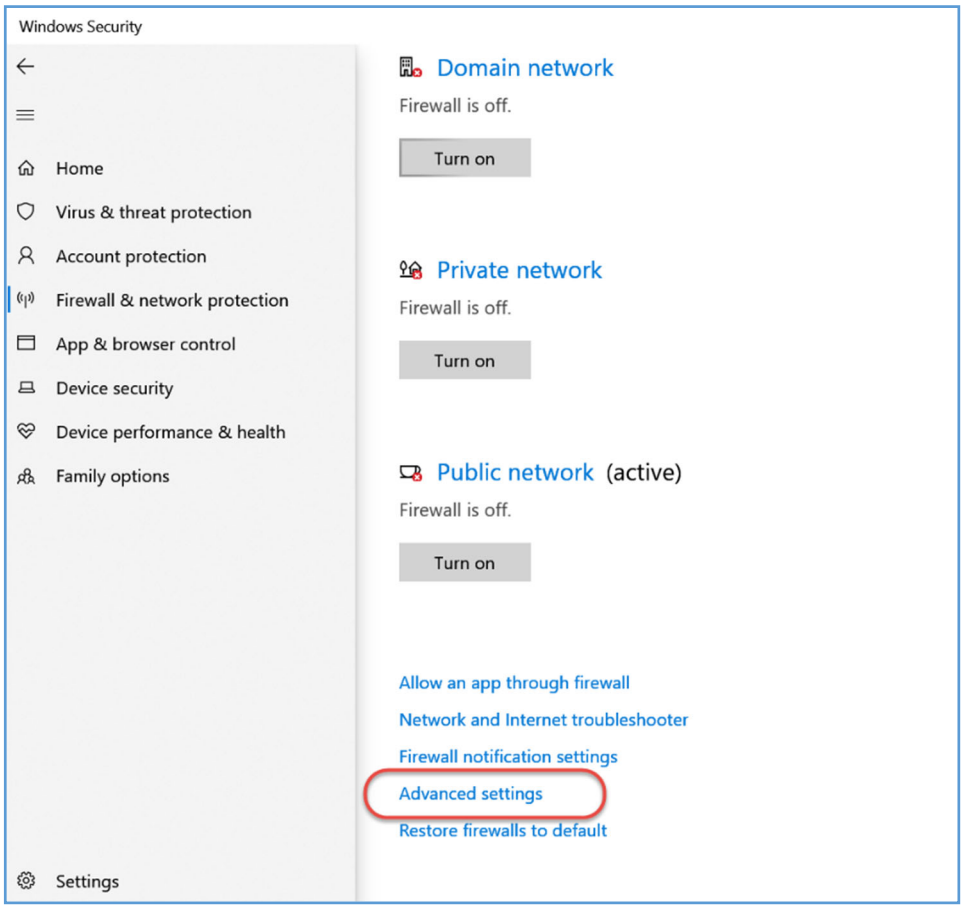
In a factory or special circumstances, the network are usually private and could not connect with external network. It is necessary to set up an NTP server to provide internal equipment time calibration to make sure that all devices have the same time. This article explains:

1. How to set up an NTP Server environment?
2. How to set the time of BRK products and NTP Server?
3. NTP stratum

〔This example operate under Windows 10 environment〕

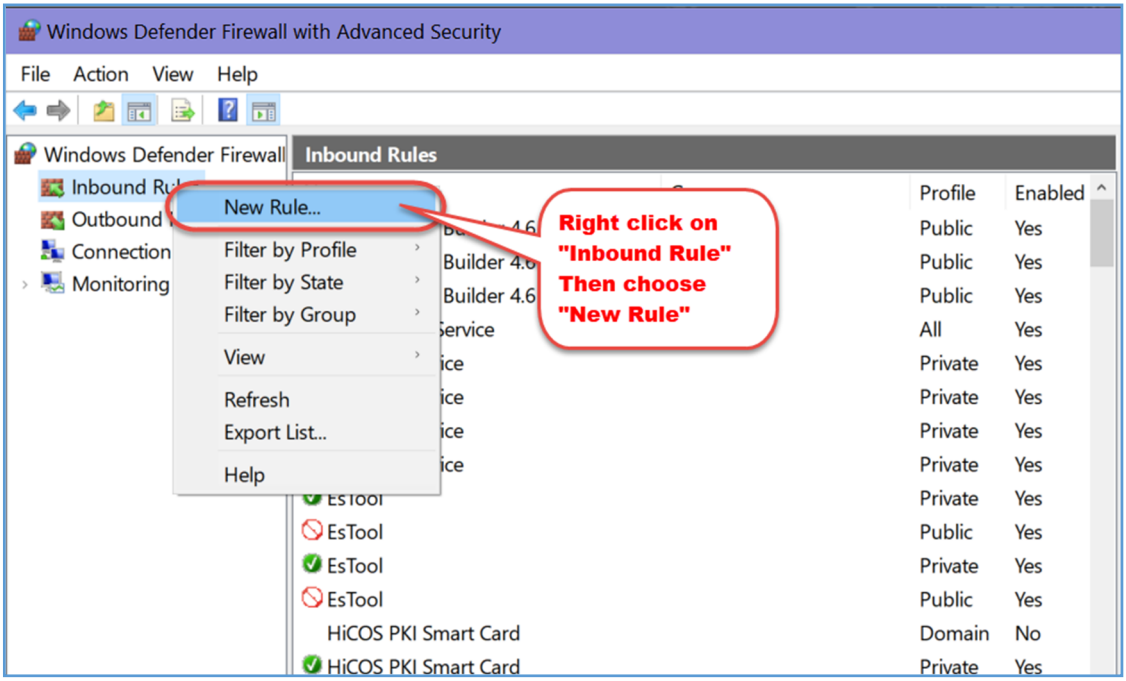
1. How to set up an NTP Server Environment?

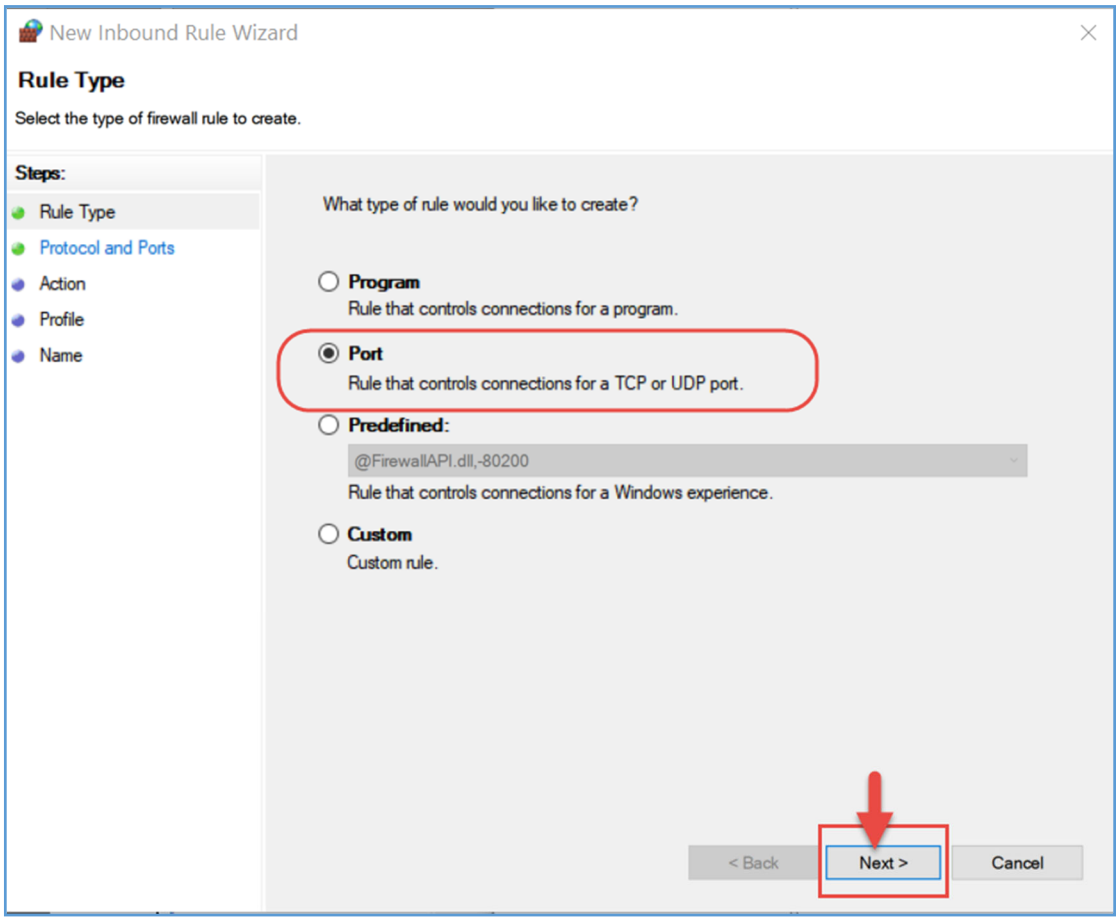
Set up Firewall.



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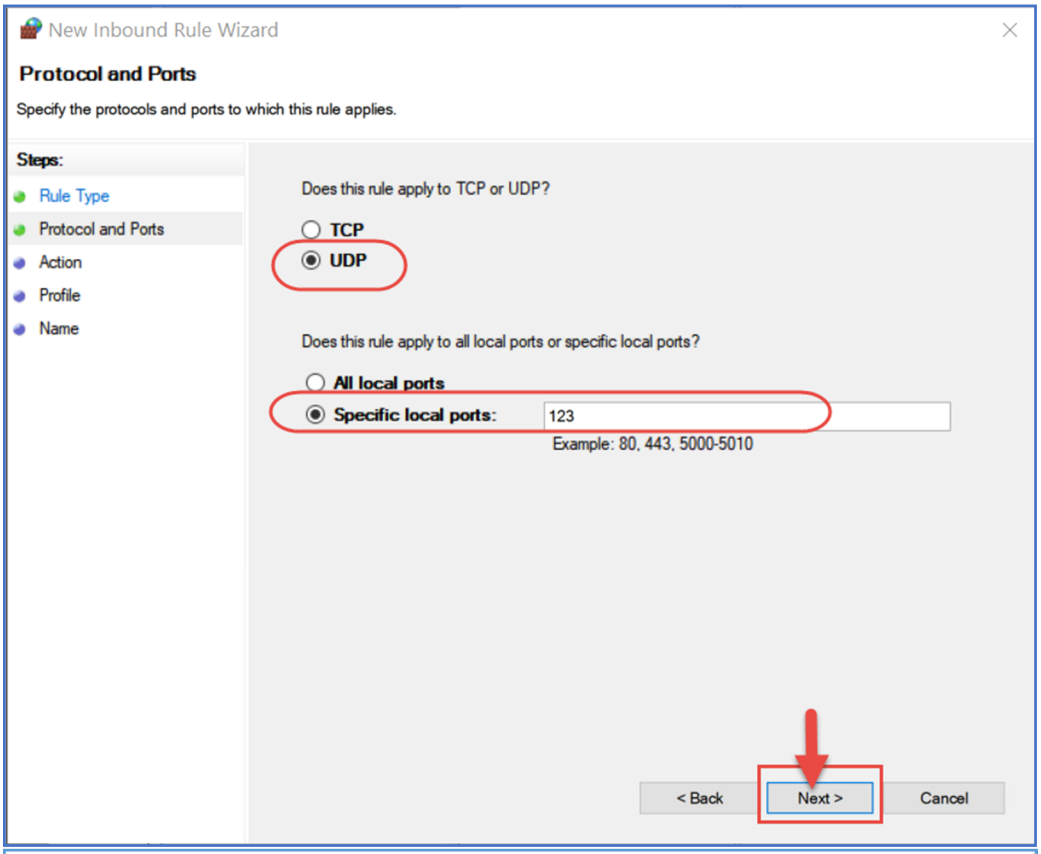
Right click on [Inbound Rules] and then choose [New Rule]

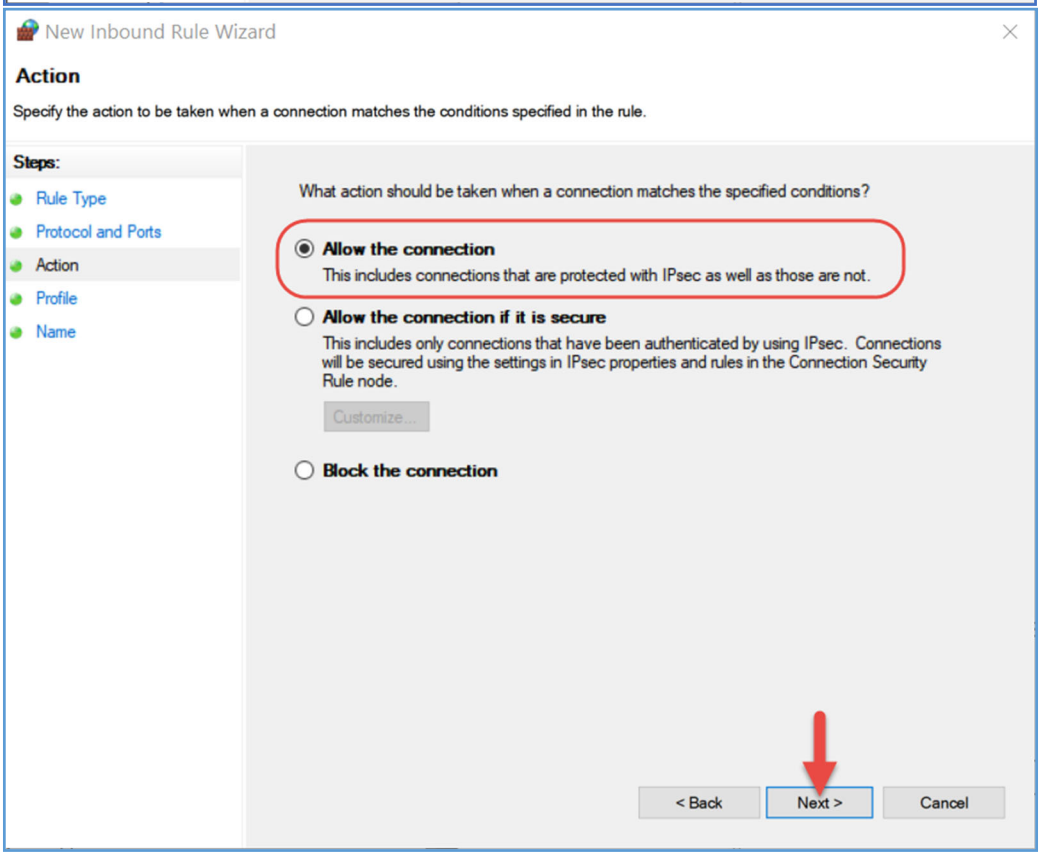




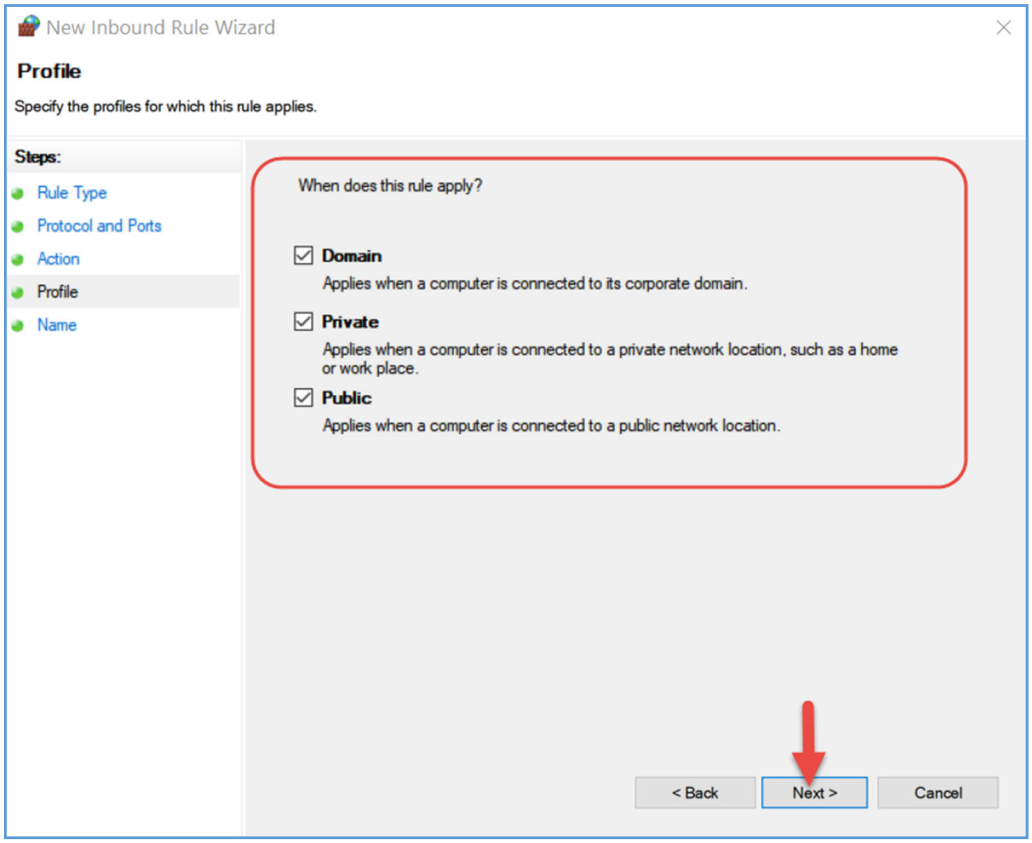
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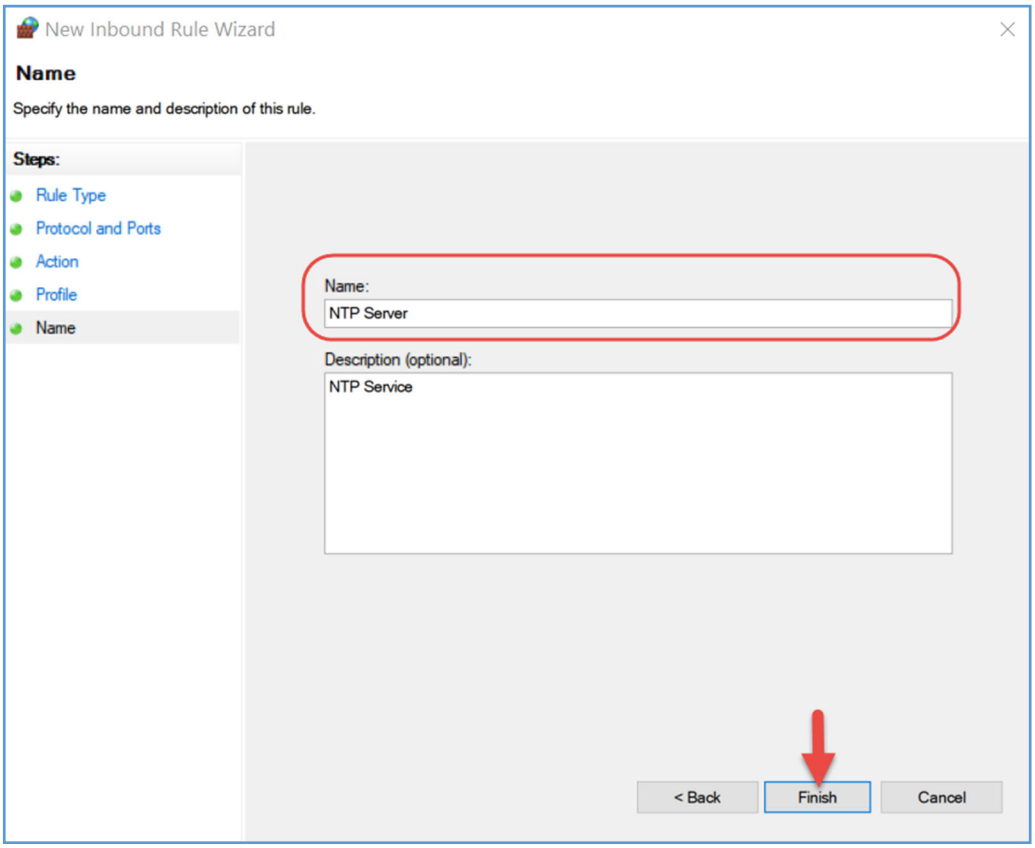
Choose [UDP], [Specific local ports]: 123





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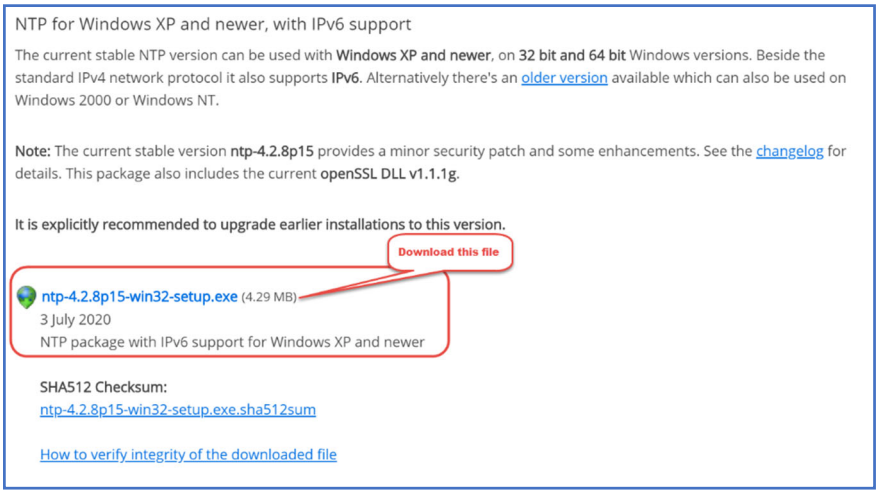


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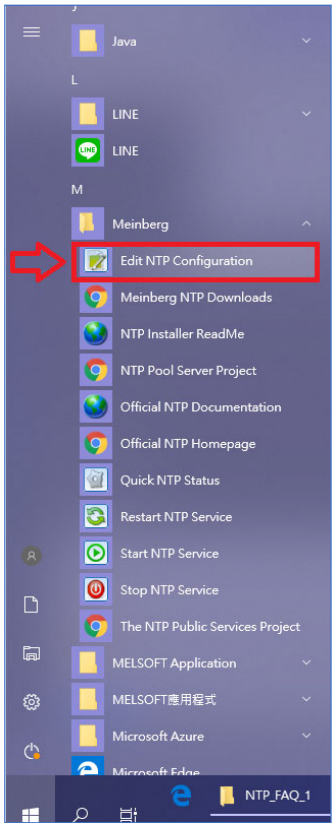
Download and Install NTP Packages

Linkage: https://www.meinbergglobal.com/english/sw/ntp.htm

(ntp-4.2.8p15-win32-setup.exe)



After installation, Execute [Edit NTP Configuration]



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After deleting all the contents in the file, copy and paste the following contents and save them.

```
# NTP Network Time Protocol
# **** ATTENTION ****: *You have to restart the NTP service when you change this file to activate the changes*
# PLEASE CHECK THIS FILE CAREFULLY AND MODIFY IT IF REQUIRED
# Configuration File created by Windows Binary Distribution Installer Rev.: 1.27   mbg
# please check http://www.ntp.org for additional documentation and background information
# restrict access to avoid abuse of NTP for traffic amplification attacks
# see http://news.meinberg.de/244 for details
restrict default noquery nopeer nomodify notrap
restrict -6 default noquery nopeer nomodify notrap

# allow status queries and everything else from localhost
restrict 127.0.0.1
restrict -6 ::1

# if you need to allow access from a remote host, you can add lines like this:
# restrict <IP OF REMOTE HOST>

# Use drift file
driftfile "C:\Program Files (x86)\NTP\etc\ntp.drift"

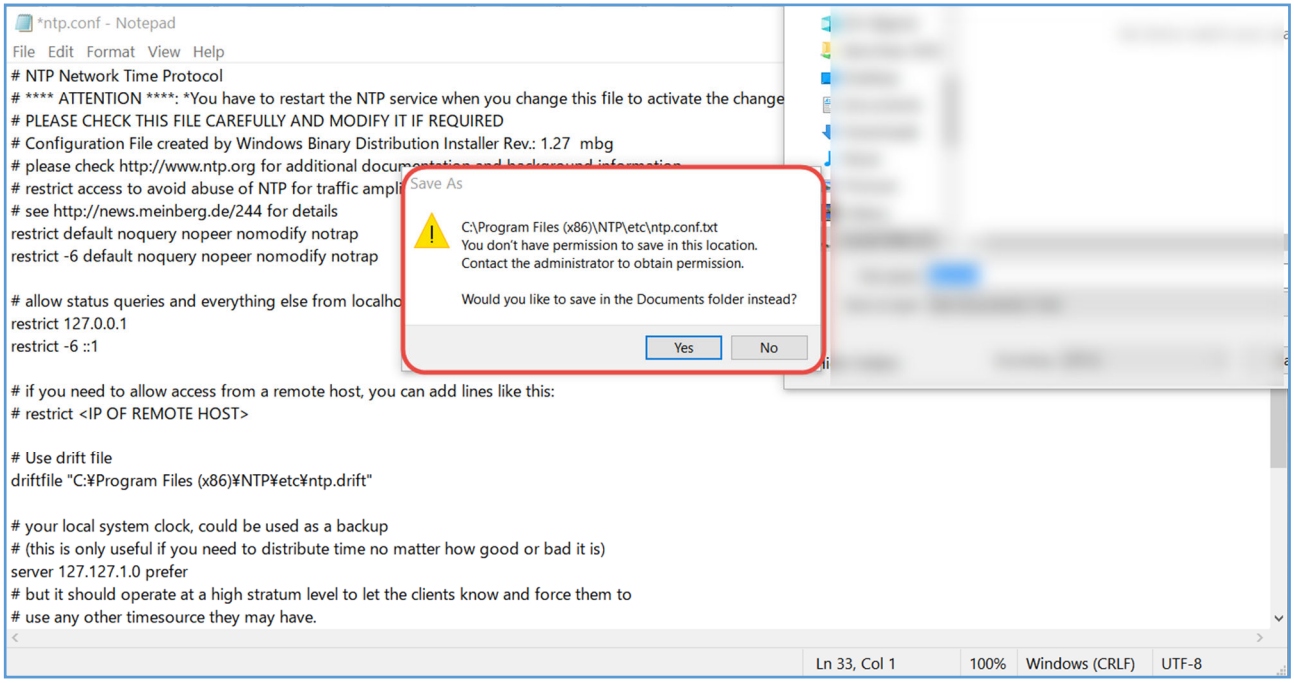
# your local system clock, could be used as a backup
# (this is only useful if you need to distribute time no matter how good or bad it is)
server 127.127.1.0 prefer
# but it should operate at a high stratum level to let the clients know and force them to
# use any other timesource they may have.
fudge 127.127.1.0 stratum 3

# Use specific NTP servers
#server tw.pool.ntp.org iburst minpoll 6 maxpoll 7
#server time.google.com iburst minpoll 6 maxpoll 7

# End of generated ntp.conf --- Please edit this to suite your needs
```

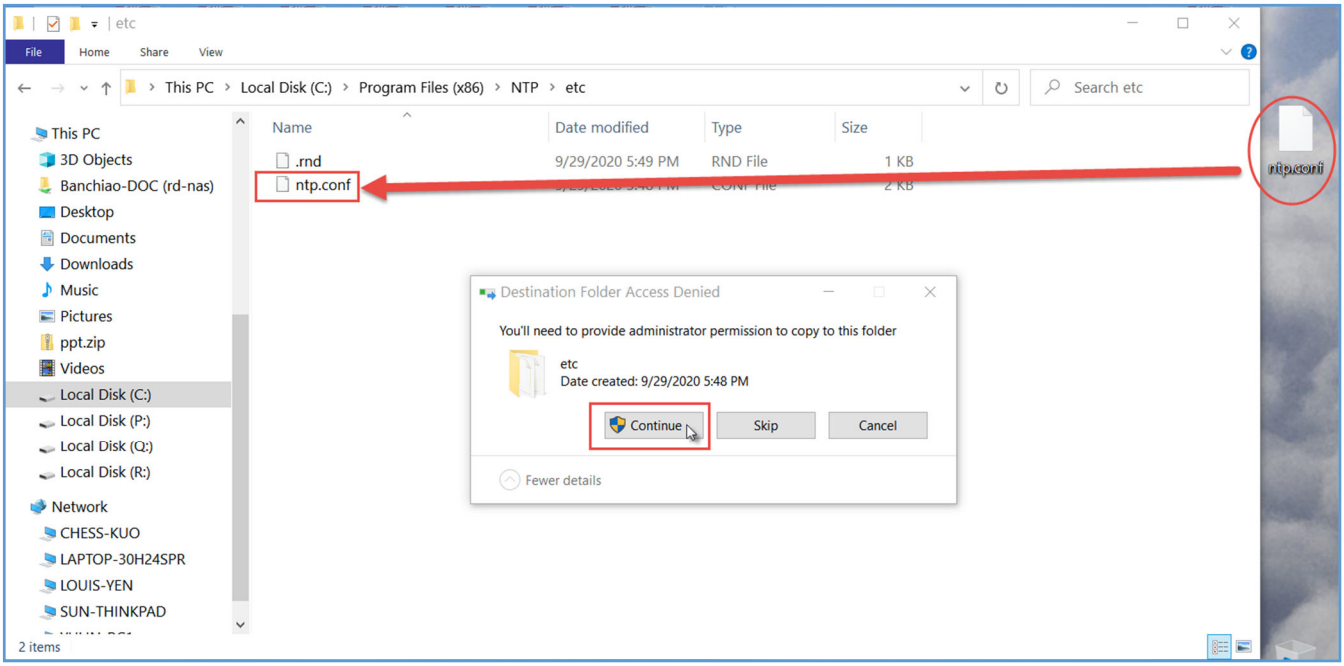

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While have no permission to save this file, please save this txt file into another location.



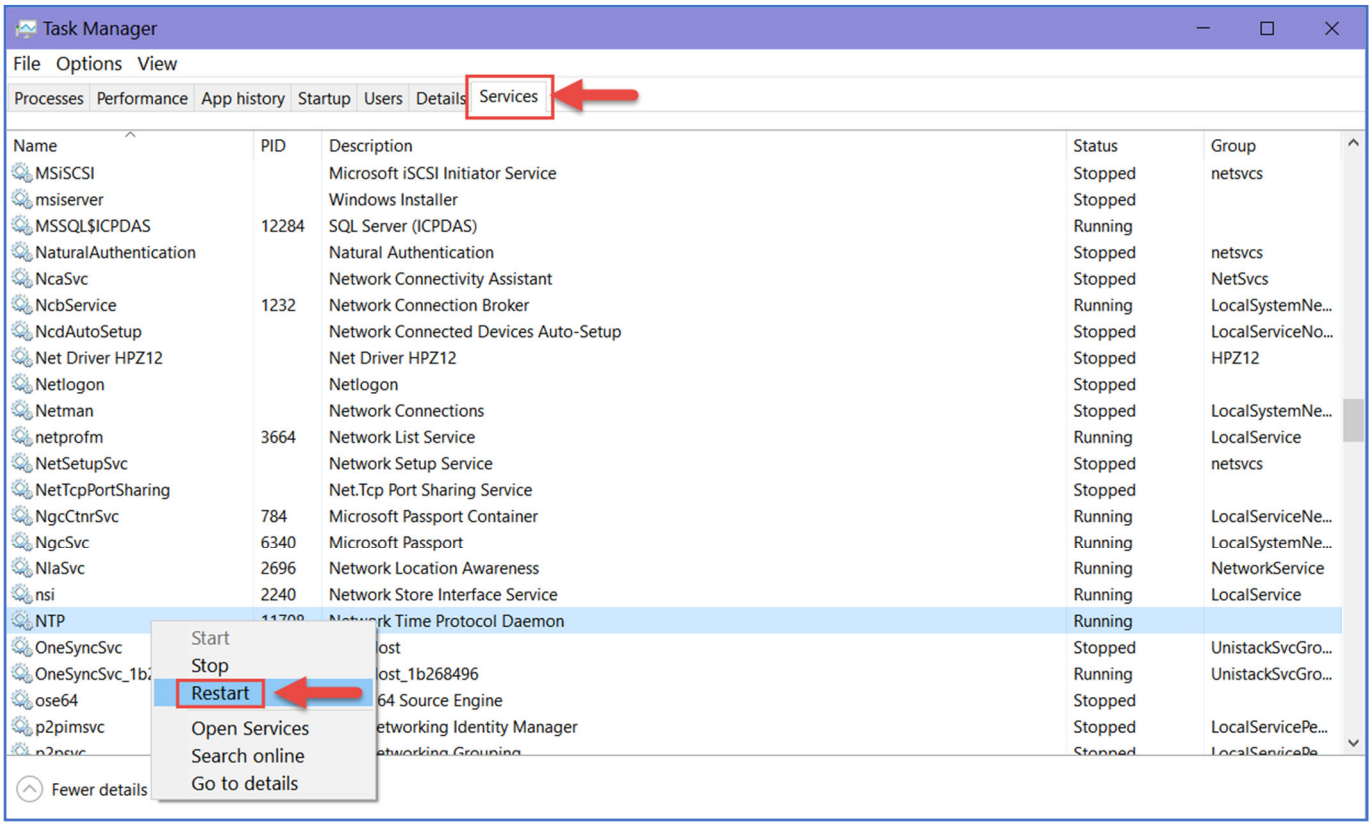
Replace the previous ntp.conf file with new saved one.

File route: C:\Program Files (x86)\NTP\etc



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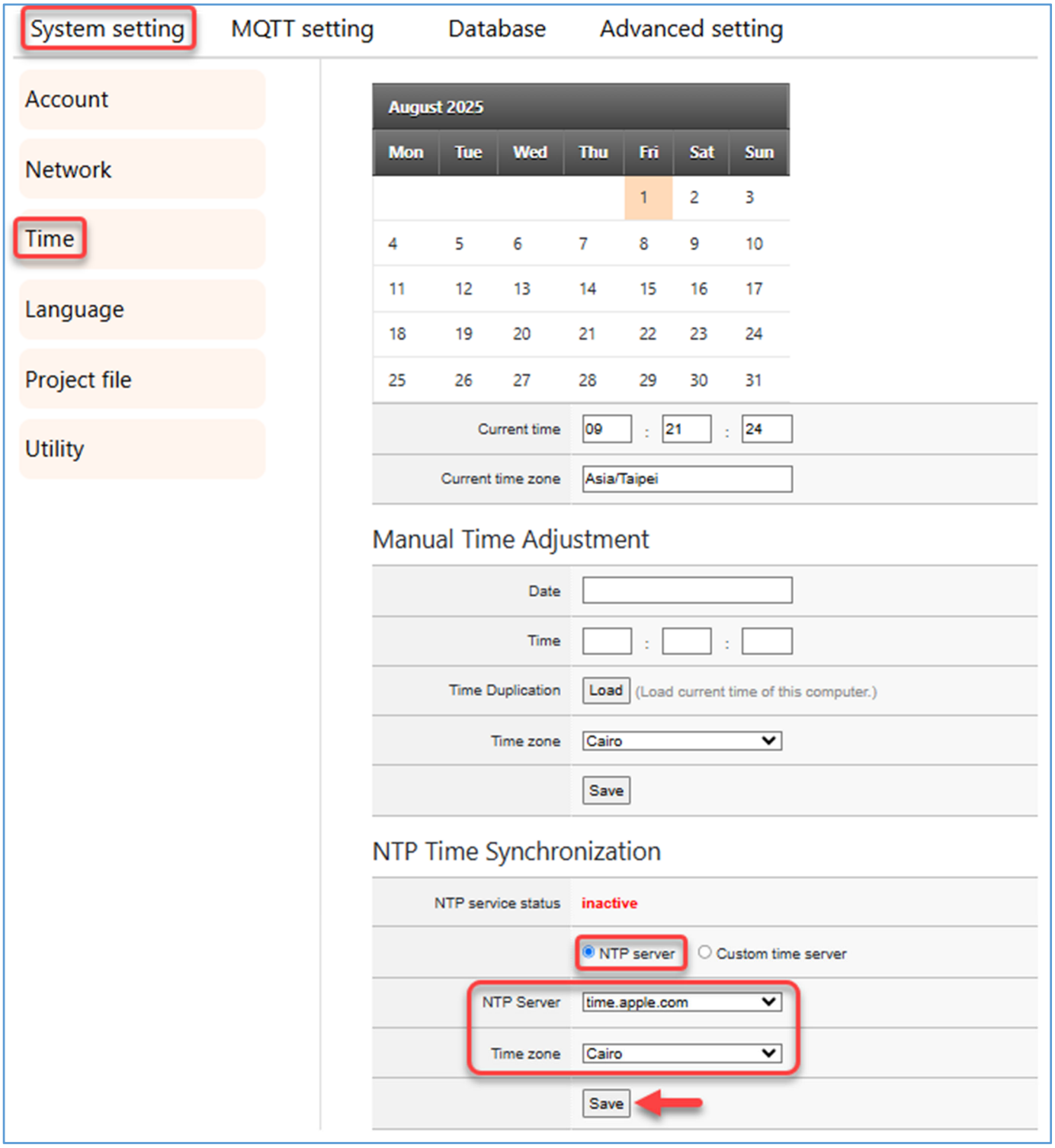
Open Task Manager by press Ctrl+Alt+Del, and then choose [Services], right click to NTP and select [Restart]



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2. How to set the time of BRK products and NTP Server?

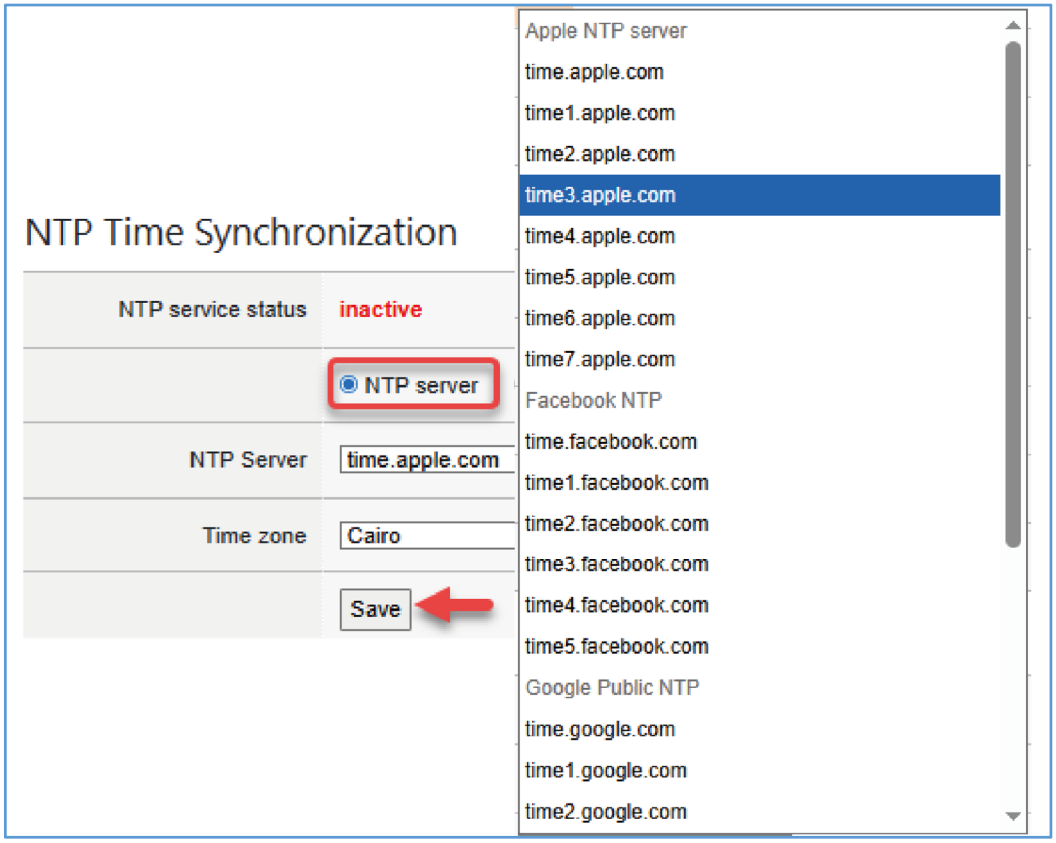
Login BRK Web UI, click [System Setting] > choose [Time Setting], click [NTP Server] and select NTP Server and Time Zone, press [Save].



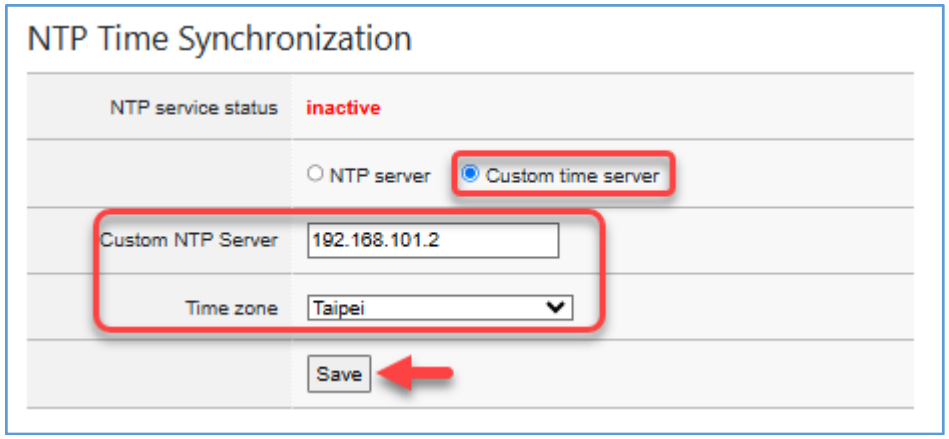
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<NOTE>

If you choose NTP Time Synchronization function, the manual Time Adjustment setting will be overwritten.



✦By default, BRK provides a list of NTP servers. You can click [NTP server], select NTP Server and time zone, and press [Save].



✦If you want to use a specific server, you can click [Custom time server], enter the Custom NTP Server IP, and select time zone, then press [Save].

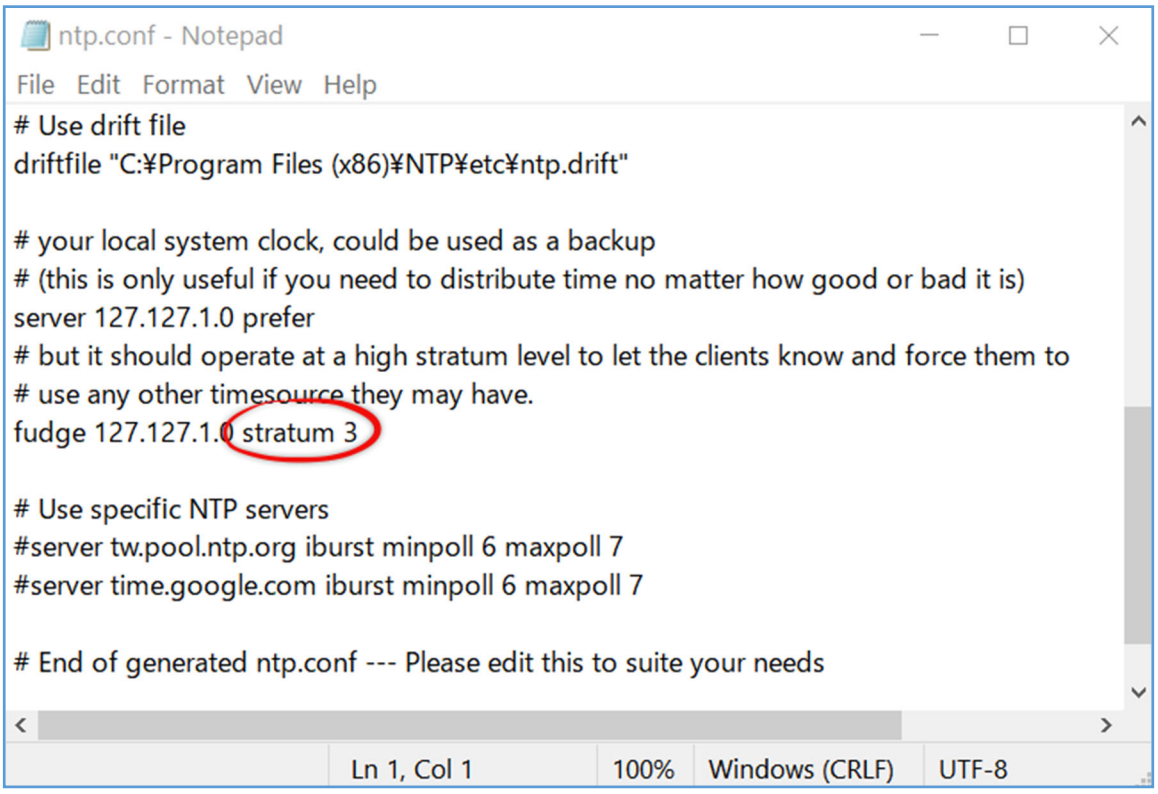
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3. NTP stratum

The range of NTP hierarchy that can synchronize is from 0 to 15, if it exceeds the range, it cannot be synchronized.

When installing the NTP Server file < ntp-4.2.8p15-win32-setup.exe >, the value we currently set in ntp.conf is 3.

If you need to adjust the stratum value, all devices must be within this range, and then refer to Chapter 1 in this document to restart the NTP settings in [Task Manager].



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