



Activate NTP server on MS Windows

Application Note

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1 Introduction

1.1 Purpose of this document

The purpose of this document is to explain how to configure a Microsoft Windows PC which can behave as a NTP server.

That implies to configure the service [W32Time](#) (just a few modifications in Windows registry).

1.2 Compatibility

- Windows 7
- Windows 8
- Windows 10
- Windows Server 2008
- Windows Server 2012

2 Preliminary modifications on the Windows PC

The Windows PC which is going to be the NTP server may need some preliminary modifications.

2.1 IP address

Please note your Windows PC (future NTP server) IP address which will be used as NTP server address:

- Press "Windows key" + "r"
 - Type "ipconfig"

Ex: 192.168.1.17

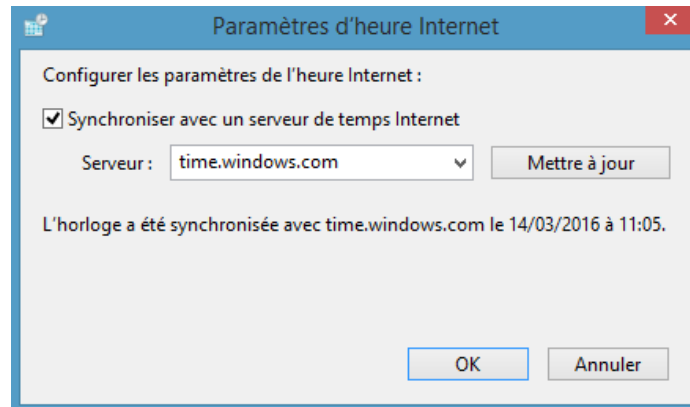
2.2 Internet time parameters

In order to be able to behave as a NTP server, the Windows PC has to be connected to internet to fetch regularly the internet clock:

- Click on time&date widget at the bottom right corner of Windows desktop,



- Select [modify the time&date settings](#)
 - In [Internet Time](#), select [Modify](#)
 - Choose the internet time server
 - Ex: *time.windows.com*



3 Save/restore Windows Registry

3.1 Saving Windows registry

Before doing any modification in Windows Registry, it could be important for the user to save Windows registry in case this one needed to be restored for any reason:

- Press "Windows key" + "r"
 - Type "regedit"
- In the "**File**" menu, select **Export**
 - Choose a new file name, and a directory to save Windows registry
 - Select "**All the registry**", and validate

3.2 Restoring the registry

In case the user is facing some problem with the next modification, it is possible to restore Windows registry saved just before:

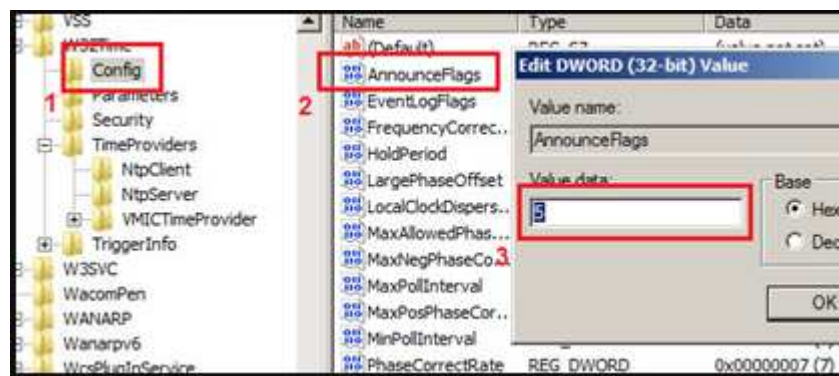
- Press "Windows key" + "r"
 - Type "regedit"
- In the "**File**" menu, select "**Import**"
 - Select the previously Windows registry saved just before.

4 NTP server activation

4.1 Allow NTP server selection by the remote client ("Config")

This setting ensures that the NTP server will not be ignored by the remote clients (they will consider it as reliable).

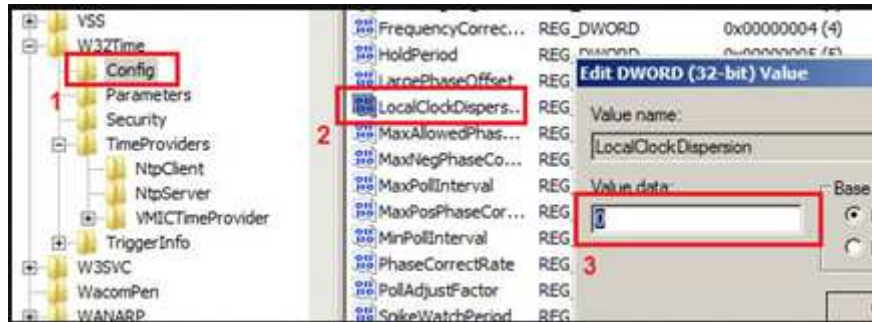
- Press "Windows key" + "r"
 - Type "regedit"
- Expand the following branch:
 - [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\](#)
- Click on "**Config**".
 - Set the "[AnnounceFlags](#)" key to 5 instead of default value 10 (or 0xa in hexa)



4.2 Disable clock dispersion ("Config")

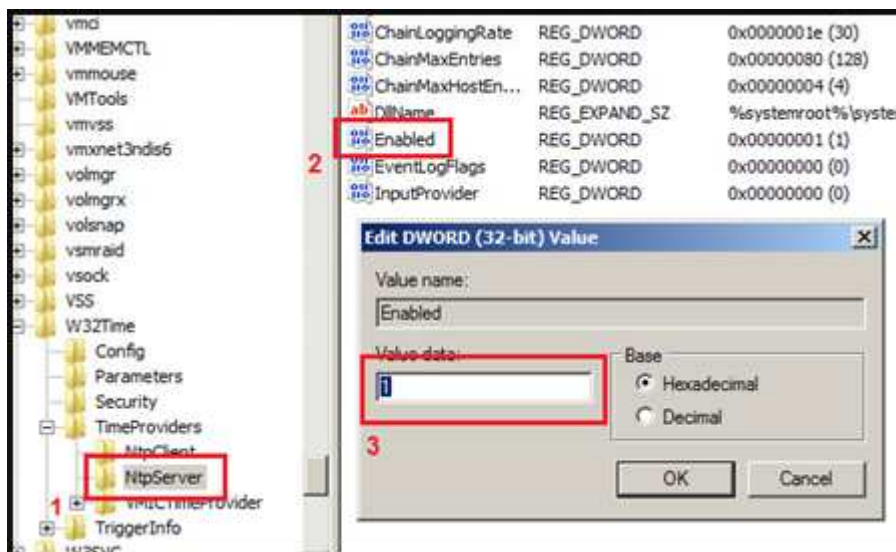
The setting disables the constant added to the root dispersion parameter provided to the remote clients when the internal CMOS clock is used as reference clock by the NTP server

- Press "Windows key" + "r"
 - Type "regedit"
- Expand the following branch:
 - [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\](#)
- Click on "**Config**".
 - Set the [LocalClockDispersion](#) key to 0 instead of default value 10 (or 0xa in hexa)



4.3 Enable the NTP server ("Timeproviders/NtpServer")

- Press "Windows key" + "r"
 - Type "regedit"
- Expand the following branch:
 - `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\`
- Click on "**Timeproviders/NtpServer**".
 - Set the "**Enabled**" key to 1 (default value 0)



4.4 Modify the NTP client synchronize time ("Timeproviders/NtpClient")

Important: When the NTP client is performing its synchronization on the PC (e.g. once a day or once a week), the root distance and dispersion provided to the remote clients may be degraded for a variable period of time. As a consequence, the remote clients (players) reject the time provided by the server during this period.

Two options are available to avoid or decrease the side effects of the disruption.

Note: After performing the modification, the NTP client parameters can be checked with the method described in chapter 2.2 Internet time parameters.

4.4.1 Option 1*: modify NTP client poll interval

**Recommended by Innes for the NTP synchronization*

The NTP client poll interval can be modified so that the poll occurs when the remote clients do not need frequent synchronization with the server. If the desired value of the NTP client poll interval is once a week (604800 seconds):

- Press "Windows key" + "r"
 - Type "regedit"
- Expand the following branch:
 - [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\](#)
- Click on "**Timeproviders/NtpClient**".
 - Set the "**SpecialPollInterval**" key to 604800

Close the registry editor.

Note: It is also possible to define a recurrent time and date creating a task with the Windows task scheduler and use this task to trigger the NTP client synchronization.

4.4.2 Option 2: disable NTP client

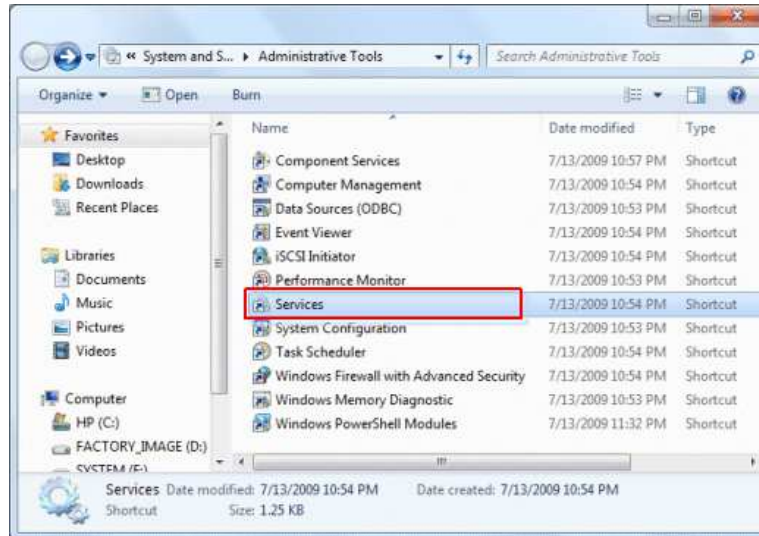
The NTP client can be completely disabled. The clock of the PC will then freely drift depending on its oscillator accuracy. This drift will be fed back to the remote clients.

- Press "Windows key" + "r"
 - Type "regedit"
- Expand the following branch:
 - [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\](#)
- Click on "**Timeproviders/NtpClient**".
 - Set the "**Enabled**" key to 0 (default value is 1).

Close the registry editor.

4.5 Restart the "W32Time" service

- In the [configuration panel](#),
 - (Select [System and Security](#), then)
 - Select [Administrative Tools](#) (or "[Outils d'Administration](#)" (FR))
 - Select [Services](#)

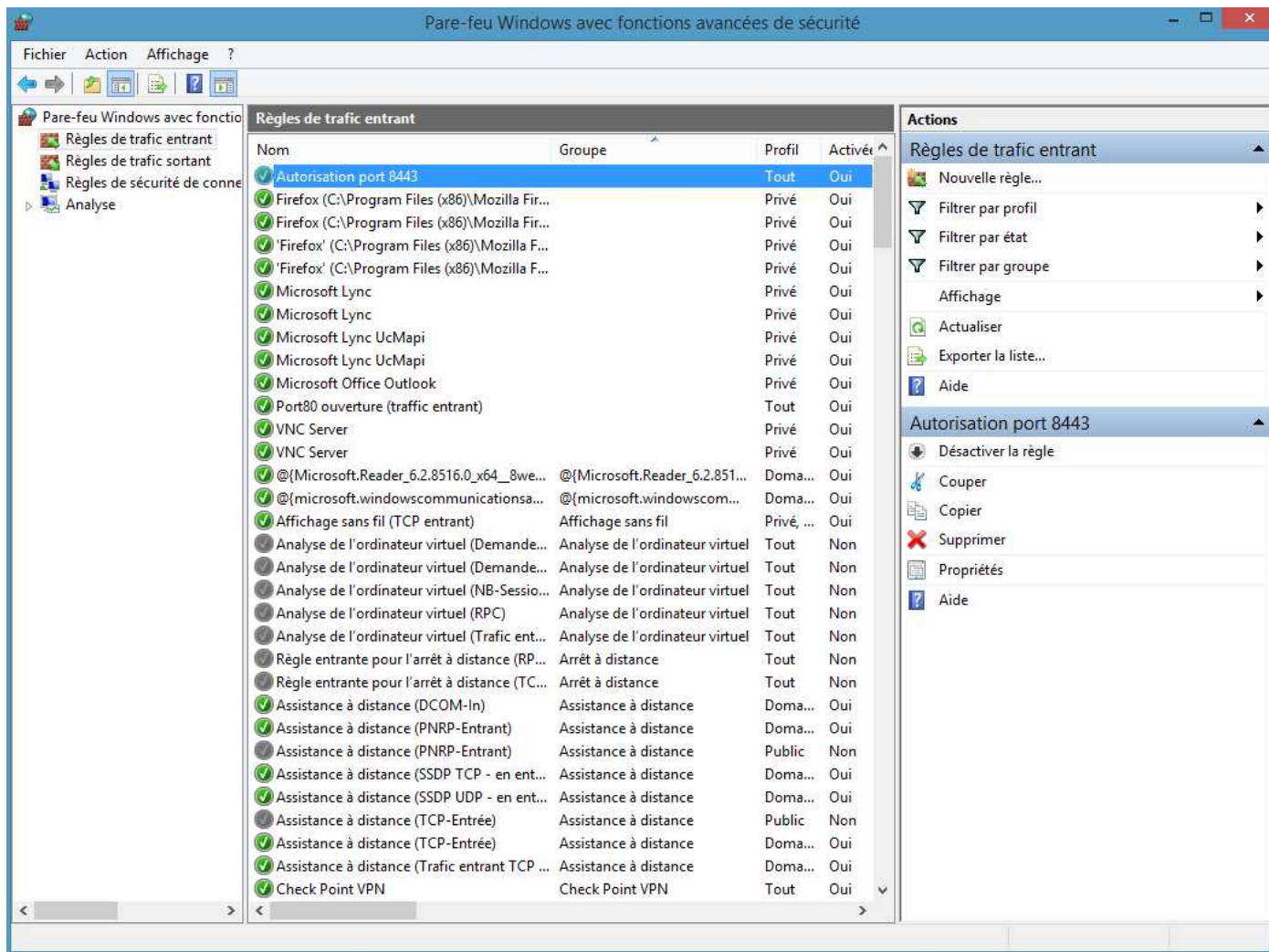


- Select [Windows Time](#) (or [Temps Windows](#) (FR)) in the services list.
- Press on "[Start](#)" to start the W32Time service
 - If the service was already started before, press on [Stop](#) then [Start](#))

4.6 Allow UDP port "123" on Windows firewall

The UDP port number 123 (used for NTP protocol) shall not be blocked by the firewall. The way to configure it depends on the firewall running on the machine.

- Example on Windows 8
 - Open [Windows Firewall](#) (pare-feu Windows (FR))
 - In [Windows Firewall with advanced security features](#) windows
 - Click on new input traffic rule
 - For the rule configuration
 - Select: UDP
 - Port number: 123



To check that your Windows PC is able to synchronize with an internet clock and deliver clock

- Press "Windows key" + "r"
 - Type "cmd"
 - `w32tm /resync`
 - `w32tm /query /status`

5 Player configuration with new NTP server

In order to use your NTP server, with INNES player,

- connect to player WebUI by typing player IP address in Web browser URL
 - choose [Administration Console](#)
 - Select [Servers](#)
 - Activate [NTP Time server](#)
 - Enter the IP address of your new Windows PC (NTP server)
 - Ex: 192.168.1.17
 - Validate and restart player



Configuration

- Administrator
- Lan
IP, netmask...
- WLAN
IP, netmask, security...
- WWAN
code pin, apn...
- Output
size, frequency...
- Servers**
media, dns, ntp...
- License
- Date and time
- Regional
language
- Variables
- Extension

Configuration / Server

Delivery, status and installation servers: [Modify](#)

Delivery server :

Status server : https://192.168.1.47/.frontals/.webdav/workspace_fred1/.device-status/ Heartbeat: 00h 01min

Softwares and configurations installation server : https://192.168.1.47/.frontals/.webdav/workspace_fred1/.setup/ Heartbeat: 00h 01min

DNS Servers:

☐ Obtain DNS server address automatically

☒ Use the following DNS server address:

Preferred DNS server:

Alternate DNS server:

Suffixes DNS :

☒ NTP time server

NTP Server:

Maximum number of tries:

Maximum waiting time for each try: seconds