

Computer Clock Accuracy

My name is John and I am the holder of the callsigns GM4DKO (Scotland) and 4F3EW (Philippines).

I use a telephone land-line to connect the computer to the internet and on the PC I have Windows 7 installed and I switch the PC off when not being used.

Computer accuracy: Our computer system clock can deviate from the correct time depending on the computer system hardware, what software is being run or if the CMOS battery is failing.....

Amateur radio logging software, I wanted to keep the qso and contest time entries accurate which meant having a accurate PC clock which in turn meant synchronizing my PC clock with a internet time server, at that time I was using Windows XP and its built in software for synchronizing the computer clock and found it wasn't flexible or reliable enough so I used a free time synchronizing program.

The built in Windows 7 Time Service synchronization program, updates once a week, has default time servers and doesn't start at Windows startup, these can be changed via the Registry Editor (regedit) making the Windows 7 built in time synchronization not very suitable or flexible enough for radio amateurs using digital modes or for recording more accurate qso or contest times.

Digital modes such as WSPR and JT65A are time-synchronous and require the computer clock to be accurate to within a second. New users frequently don't realize this and find that they aren't decoding any signals....

Your clock must be synchronized or you will not make contacts at all....The computer's clock must be as accurate as possible and within 2 seconds of other stations....A means for synchronizing the computer clock to UTC within ± 1 second. Just let it adjust your clock every few minutes and everything is ok.

I decided to update my present computer clock time synchronization program and looked for a free alternative to use with say JT65A and found popular with radio amateurs these free programs....

NetTime - Network Time Synchronization Tool (Page3), Dimension 4 (Page 5) and Meinberg NTP.

Note : For the latest addition to this article (Page 8) Time-Sync.

I downloaded NetTime, Dimension 4 and Meinberg NTP, with NetTime and Dimension 4 I could install, setup and synchronize with internet time servers however after more than several failed attempts I couldn't get Meinberg NTP to install/work on my PC so I gave up trying. It goes without saying you may have no problems installing Meinberg NTP on your PC.

For PC clock synchronization accuracy, it is better to find time servers near you to avoid network latencies also keeping the PC clock accurate will depend on how often are the time intervals that the PC clock with an internet time server.

In the Philippines we can access the PAGASA NTP server at ntp.pagasa.dost.gov.ph

The University of the Philippines Diliman NTP time server is at time.upd.edu.ph and from the Philippines we can also access the pool.ntp.org project.

For the pool.ntp.org project visit :

www.pool.ntp.org/en/ and for the sub-zone Asia servers at www.pool.ntp.org/zone/asia

What is the Network Time Protocol?

The pool.ntp.org project is a big virtual cluster of timeservers providing reliable easy to use NTP service for millions of clients.

NTP is intended to synchronize all participating computers to within a few milliseconds of Coordinated Universal Time (UTC). The NTP Pool DNS system automatically picks time servers which are geographically close for you, but if you want to choose explicitly, there are sub-zones of pool.ntp.org.

NTP Pool (Number of active servers) Feb 2017

Global — pool.ntp.org (3816)

Africa — africa.pool.ntp.org (33)

Antarctica — antarctica.pool.ntp.org (0)

Asia — asia.pool.ntp.org (275)

Europe — europe.pool.ntp.org (2725)

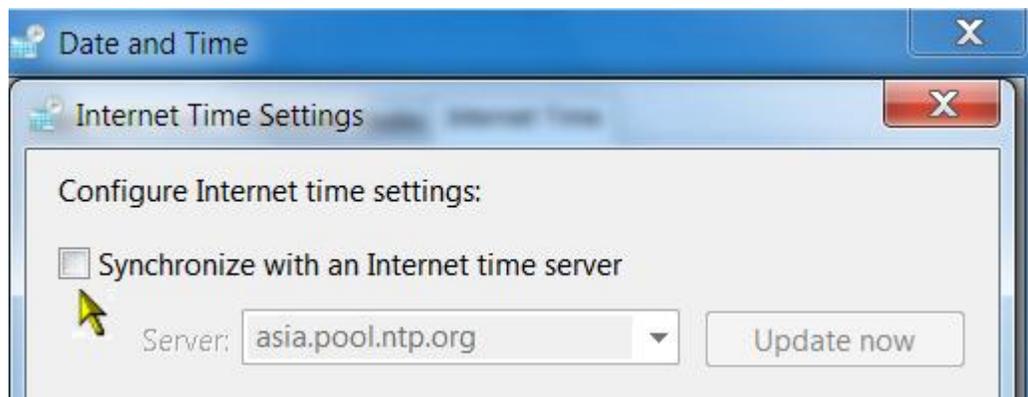
North America — north-america.pool.ntp.org (903)

Oceania — oceania.pool.ntp.org (103)

South America — south-america.pool.ntp.org (42)

There are also non NTP pool project servers to choose from.

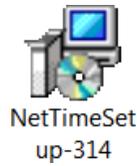
When using alternative time synchronizing programs.....Ensure that the "Windows Time Service" is disabled by "un-ticking" Synchronize with internet time server box otherwise it is possible that conflicts could occur.



To access. Left click Start Button/Control Panel/Language and Region/Date and Time/Internet Time / Change Settings.

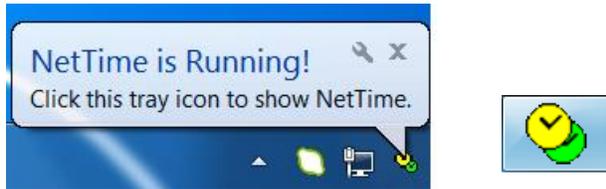
or

Left click the Date and Time icon in the Taskbar/Change Date and Time settings/Internet Time/Change Settings.

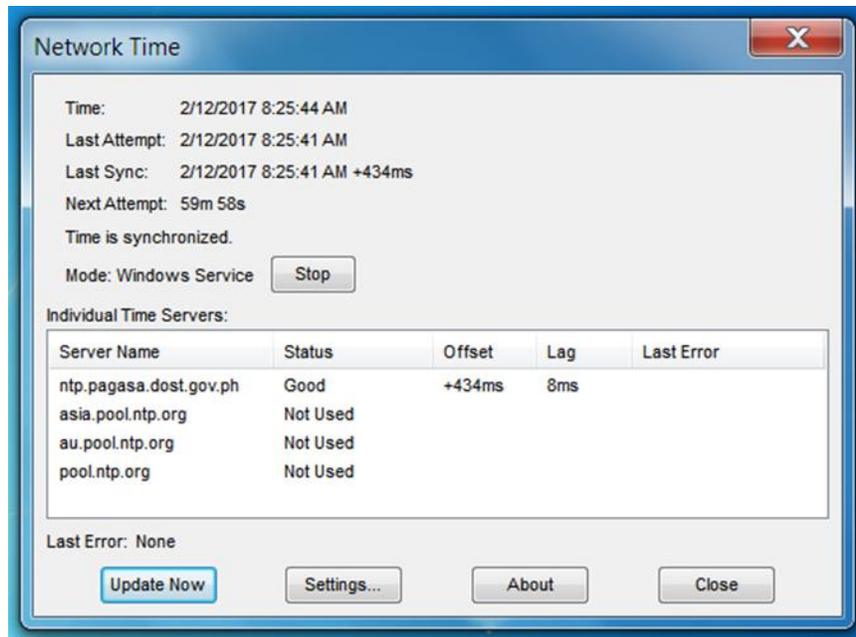


NetTime - Network Time Synchronization Tool is a free open source Simple Network Time Protocol (SNTP) client which can be downloaded from www.timesynctool.com/ where information can also be found.

After having installed NetTime, click the small NetTime icon on the taskbar in order to show the NetWork Time facia, click the settings button to change the settings.



Clicking on the Update Down button will allow NetTime to manually update between the automatic selected time intervals.



Clicking on the Settings button will take the user to the Network Options facia where adjustments can be made.

On the NetTime Options facia, the user can change the default Time Servers by highlighting the Host or IP address and replace, I could have used non NTP pool project servers but used these NTP servers.

- ntp.pagasa.dost.gov.ph
- asia.pool.ntp.org
- au.pool.ntp.org
- pool.ntp.org

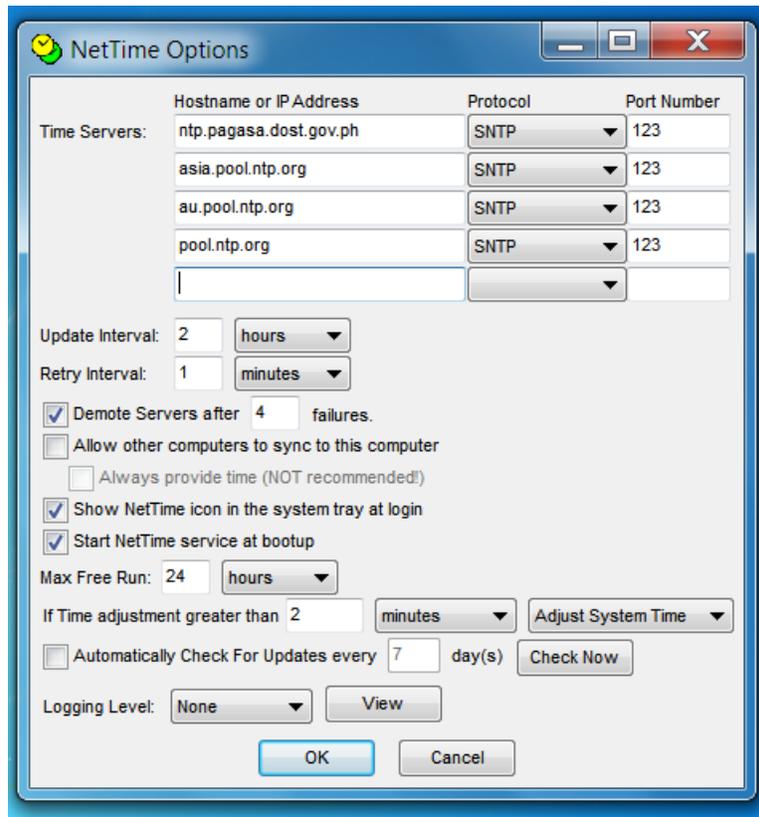
There is the provision for a fifth server, enter the server Hostname or IP address, select SNTP as the Protocol and Port Number 123 if using a NTP pool server.

On the NetTime Options facia, the program can be selected to start to synchronize at Windows bootup, if NetTime cannot sync with the 1st Time Server on the list, NetTime will try the 2nd Time Server etc and the automatic update time interval can be adjusted from a minimum of 15 minutes** and upwards. Other adjustments can also be made on the NetTime Options facia.

When synchronizing at the chosen Update Interval or manually using the Update Now button, NetTime will start with the first Time Server on the list.

**Mark Griffiths who made the updated version of NetTime wrote....

You can set the update interval as low as every minute, but only if you're not using any of the NTP Pool project servers.

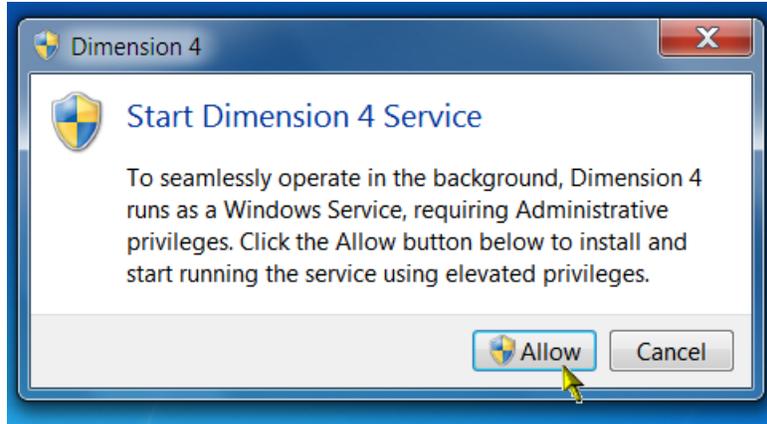


<http://www.timesynctool.com/>



Dimension 4 is free time synchronizing software which can be downloaded from www.thinkman.com/dimension4/ where information can also be found.

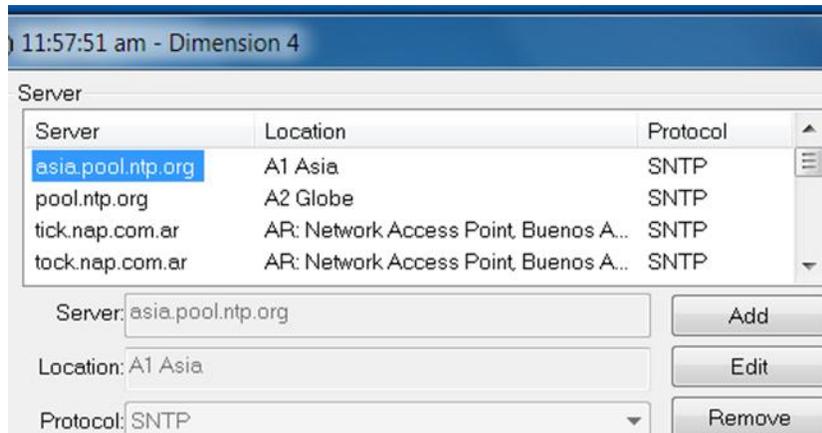
After installing, D4 can be found by clicking Start / All Programs / Dimension 4, in my case clicking on Dimension 4 resulted in this "one time only" facia being shown on my desktop, click on Allow.



To access Dimension 4 from the desktop, revisit Start / All Programs, right click Dimension 4 and send to Desktop (create shortcut).



Dimension 4 can be selected to synchronize at Windows startup, time servers can be added and the automatic update time interval can be adjusted to seconds, minutes or hours.



To add say asia.pool.ntp.pool and pool.ntp.org servers to the top of the D4 server list.

I clicked Add and added

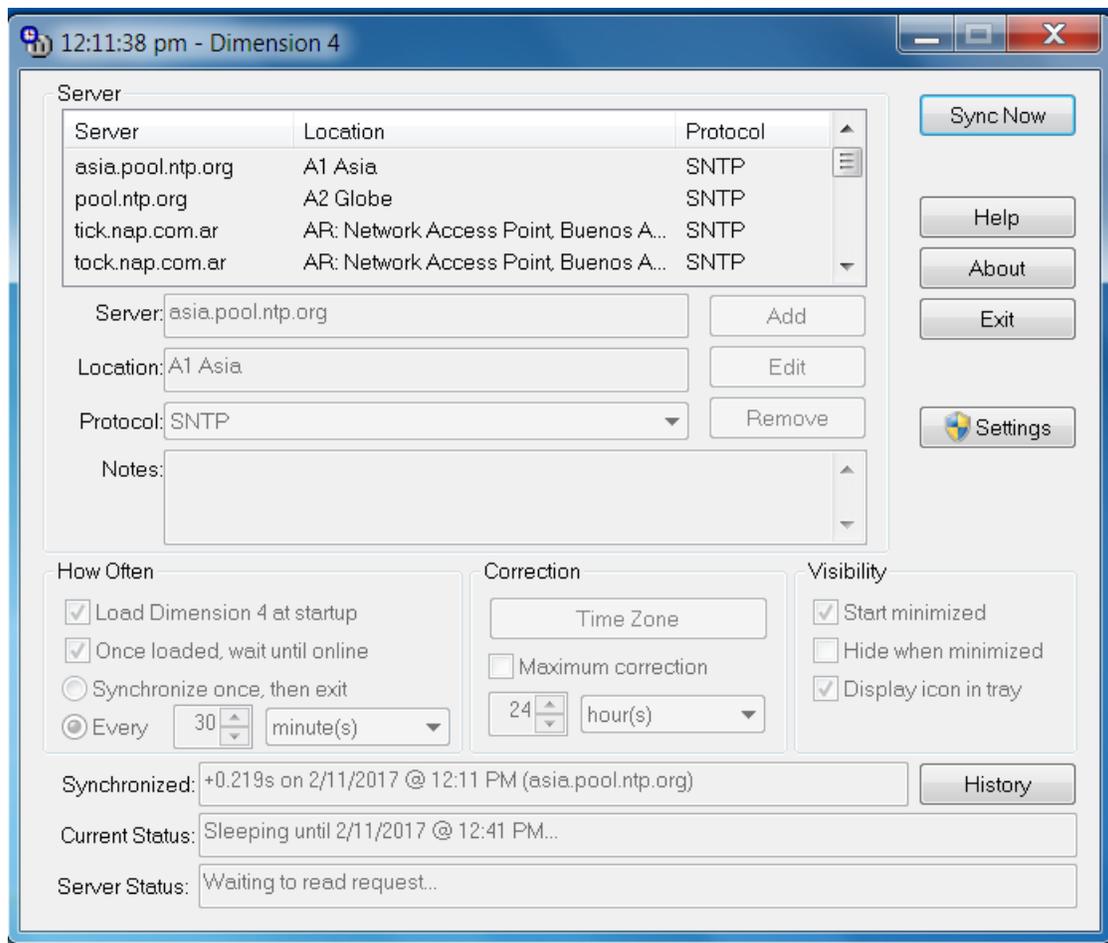
Server asia.pool.ntp.org
Location A1 Asia

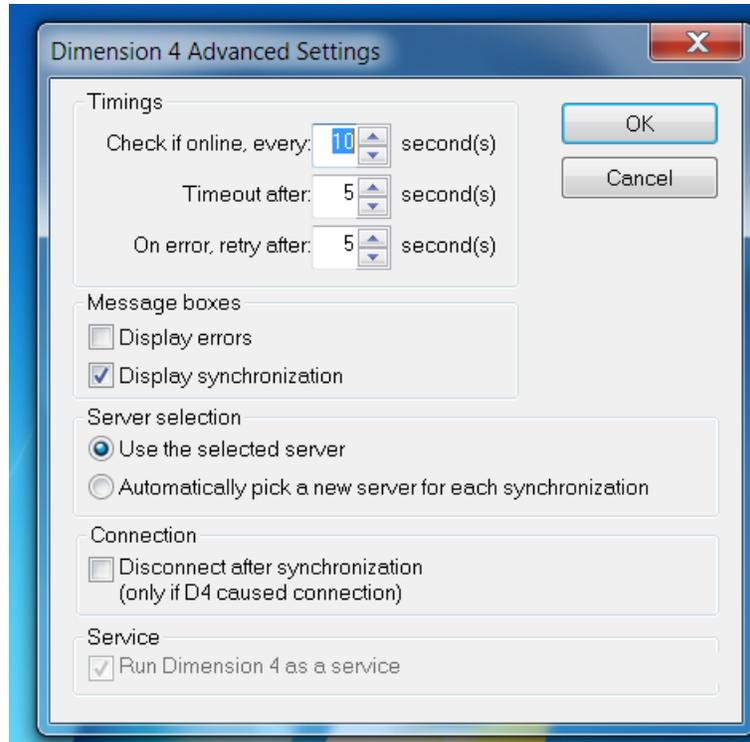
Server pool.ntp.org
Location A2 Globe

Select asia.pool.ntp.org or whatever and click OK, this selected server will be the one used whenever D4 synchronizes.

The user can select load Dimension 4 at startup.

Select to Synchronize Everyminimize to taskbar, D4 is now up and running.





<http://www.thinkman.com/dimension4/>

Misc Notes:-

Check that the time zone configuration of your computer is correct.

NTP is implemented via UDP over port 123 to allow packets containing the time information through.

Before downloading any software program check that the software is compatible with your installed Windows program.

No internet access at home or operating /portable consider using a GPS dongle to keep your PC/Laptop clock accurate or a GPS Receiver to synchronize a PC Clock.

I have modified the above article which I first submitted to the PARA website in March 2017 and now also include another synchronizing program which is worth considering called Time-Sync, See Page 8



Time-Sync which can be found and download from <https://www.speed-soft.de/index.php?language=en>

Time-Sync.....Freeware-Software to synchronize your system time. The software supports multiple time protocols, a client & server version and is suitable for home users or system administrators.

Up to five redundant time servers can be configured, that means if a time server is not available the next one will be used automatically.

Visit the Time-Sync webpage and download the latest version Version 1.82. Revised 2016/10/31 once downloaded, click the setup_timesync_182 icon to install the program.

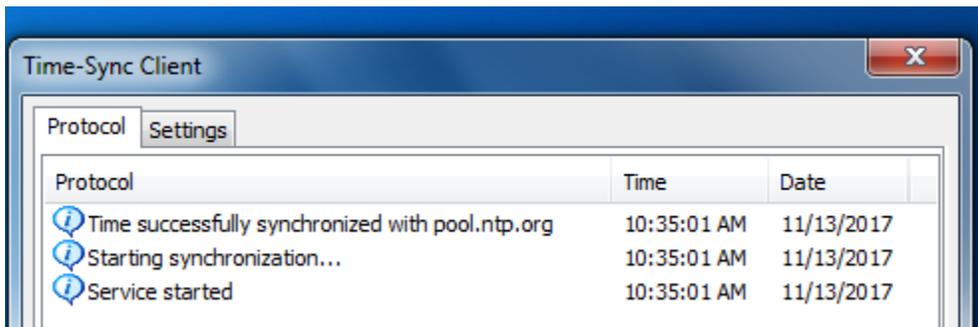
Go to the folder in which TS was installed, highlight TS application and create a short cut on the desktop

TimeSync	8/12/2015 3:03 AM	Compiled HTML ...	18 KB
TS TimeSync	10/31/2016 10:23 ...	Application	1,577 KB

Also in the folder is the Help file

TimeSync	8/12/2015 3:03 AM	Compiled HTML ...	18 KB
TS TimeSync	10/31/2016 10:23 ...	Application	1,577 KB

Click on the TS icon on the desktop, the TS splash screen will be shown for a few seconds and then show the following which shows TS has synchronized with the first default server.

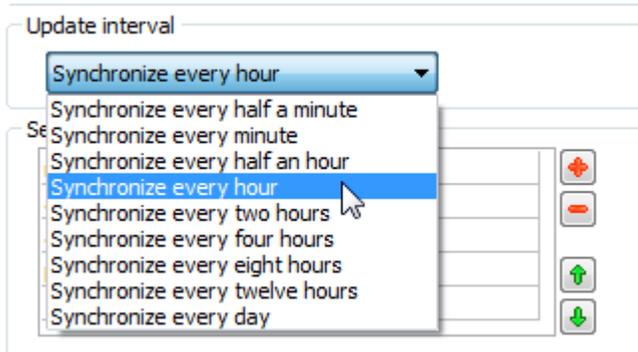


Click the OK button or Click Settings to add/remove servers and to set the update interval. I chose to remove the TS default servers and add NPT pool project servers

- ntp.pagasa.dost.gov.ph
- asia.pool.ntp.org
- au.pool.ntp.org
- pool.ntp.or



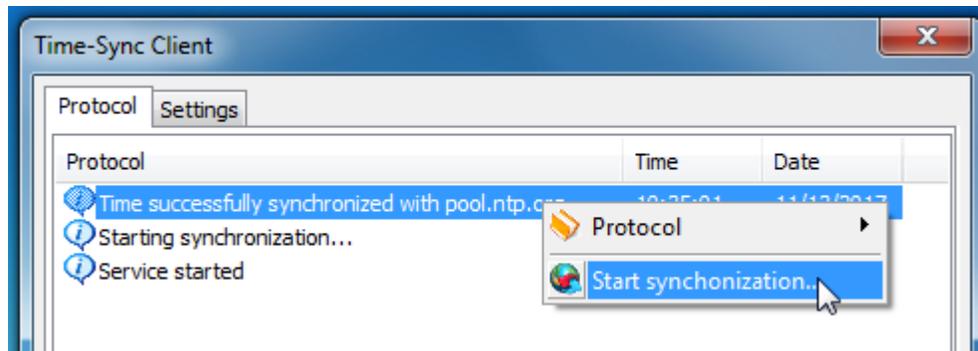
Then select the Update interval.



Click Save and OK.

The program is now up and running and will automatically synchronize at Windows start up and thereafter at the chosen update interval.

To synchronize between the update interval, click TS desktop icon, go to Protocol and highlight any of the entries to show Protocol and Start synchronization, click on Start synchronization, wait while synchronizing after which click OK button.



Download any of the above free time synchronizing programs and try them out, if found not suitable uninstall the program.

My get out clause, the above is a guide and the information is based on my observations and there could be errors and mistakes.

Lots of enjoyment with the hobby.

73 de om (age 75 years old) John GM4DKO/4F3EW - November 2017