Network Time Protocol and Meinberg NTP Time Server Monitor ~ Installation Guide

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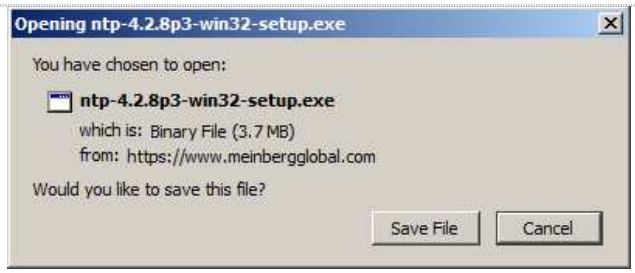
1. Introduction

This installation guide provides step-by-step instructions for installing the Network Time Protocol (NTP) and an NTP monitoring program called *Meinberg NTP Time Server Monitor*, both on a Windows PC. An additional guide is available that provides detailed setup and use of the monitor program; see the ***Meinberg NTP Time Server Monitor Guide*** {ReeveMon}. For a general discussion of time-keeping on a Windows PC, see {ReeveTime}.

Note: References in brackets [ ] and internet links in braces { } are provided in **section 4**.

2. NTP Installation

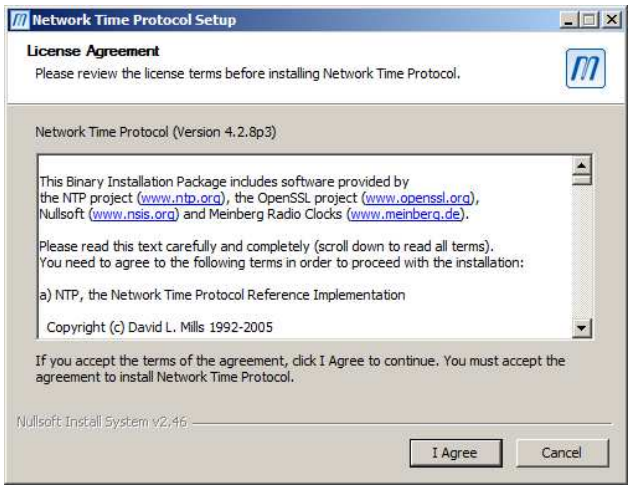
The NTP installation file for Windows is produced by Meinberg as a compilation of the protocol and setup procedures. Before installing NTP, disable and uninstall any other time keeping software on your PC (Windows Time service cannot be uninstalled but its *Internet Time* function should be disabled; see ***Appendix***).These other programs most likely will interfere with the proper operation of NTP after it has been installed. The installation requires a few minutes and a few decisions as described following:



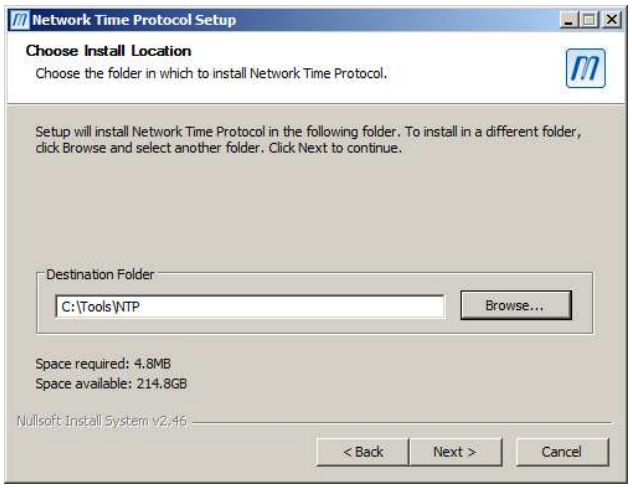
Download the NTP installation program from {NTP}. Select the link *NTP for Windows XP and newer, with IPv6 support*. Save the file to a convenient location, for example your Desktop or C:\Tools\NTP. Note: The version of NTP setup program may be later than shown left.

After downloading, open the file and click Run.

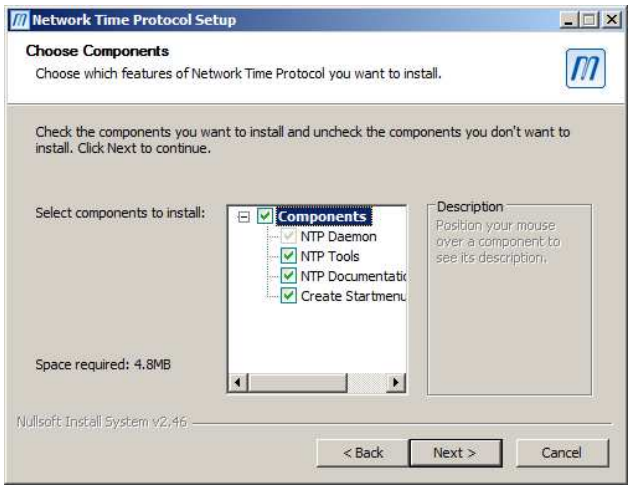
If you already had installed the Meinberg NTP Time Server Monitor and it is open, you will see a warning. Close the monitor and click OK. Otherwise, you will not see this warning.



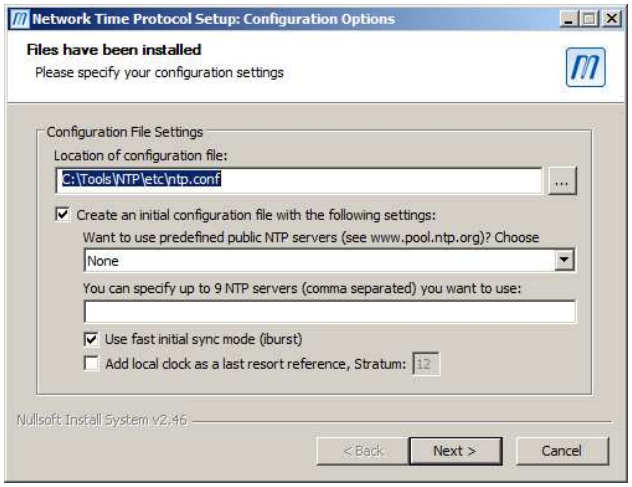
The License Agreement specifies the terms of use. If agreeable, click I Agree. If you click Cancel the NTP daemon will not be installed.



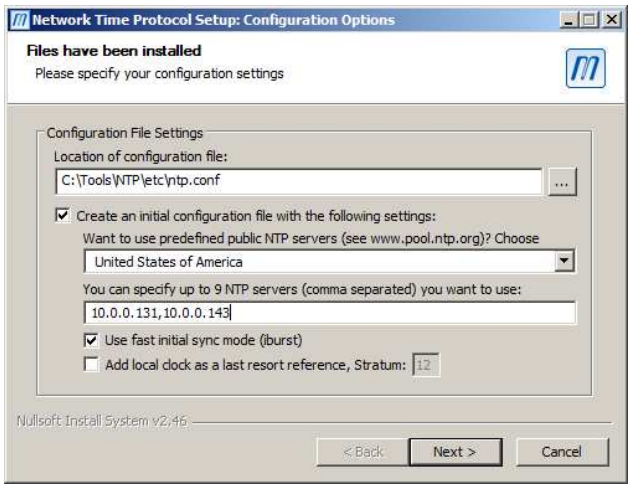
In this window, specify a Destination folder for the program. Do not use the default Program Files folder especially in Windows 7 and later. Instead, click Browse... and select the desired folder. In this example, I previously created the C:\Tools\NTP folder. Click Next >.



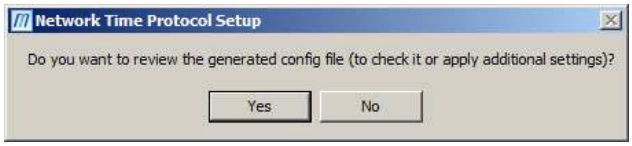
By default, all NTP components will be installed. There is no reason to change this. Click Next >



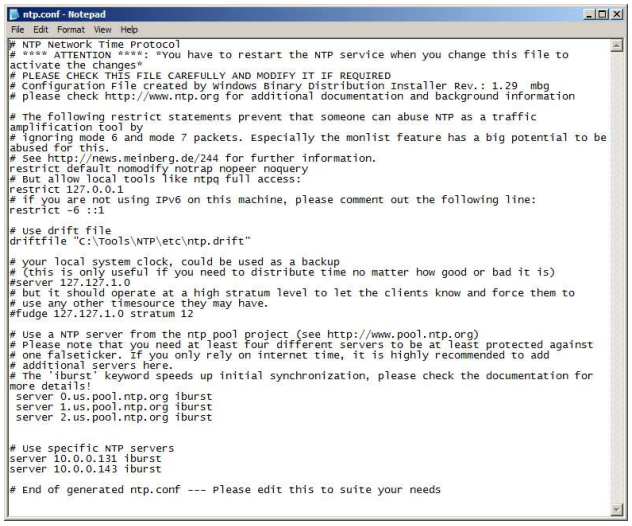
After the files have been installed, you will be able to setup the time servers in your part of the world. By default, no servers are selected, indicated by None as shown left. Click the drop-down arrow on the right to select a time server pool in or near your country. You also can specify external (non-pool) servers such as a local GpsNtp-Pi (see next screen).



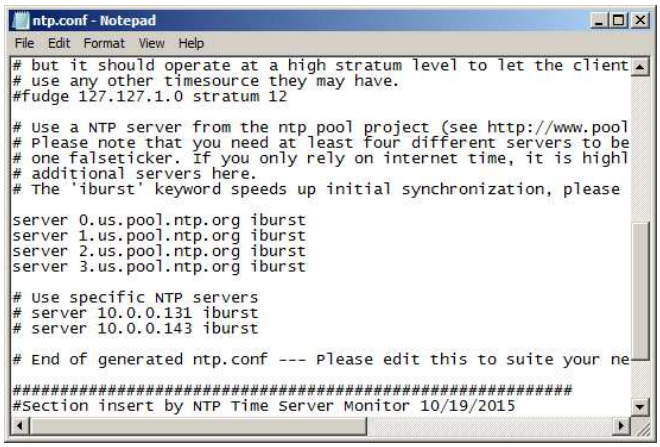
Here, the time server pool in the United States has been selected, and I also have specified the IP addresses for two local GpsNtp-Pi time servers. Do not change any of the checkboxes. Click Next >



The NTP installation program will setup the NTP configuration file. You can review it by clicking Yes (next screen) or No.



If you clicked Yes in the previous window, the installation wizard opens the NTP configuration file in Notepad (or your default text editor) and it can be reviewed and edited if desired. If this is a first-time setup and you plan to use a server pool, you should follow Meinberg's advice (see comments in the configuration file immediately above the server pool list) and add a fourth server as shown in the next screen. Otherwise, a first-time user should not change anything. When finished Exit the editor.

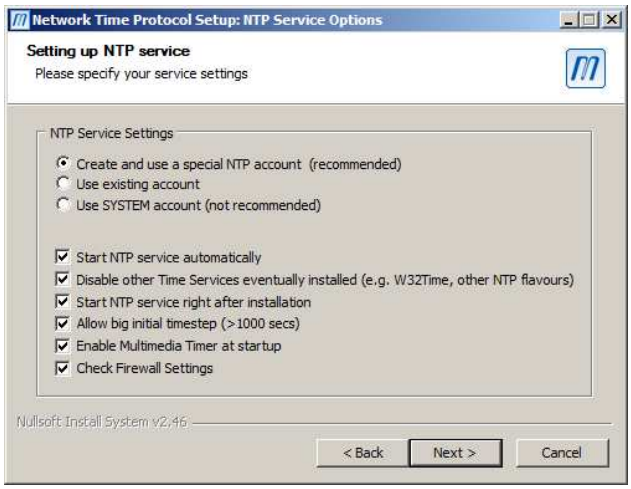


Do this step only if you decide to add a fourth pool server (see previous screen).

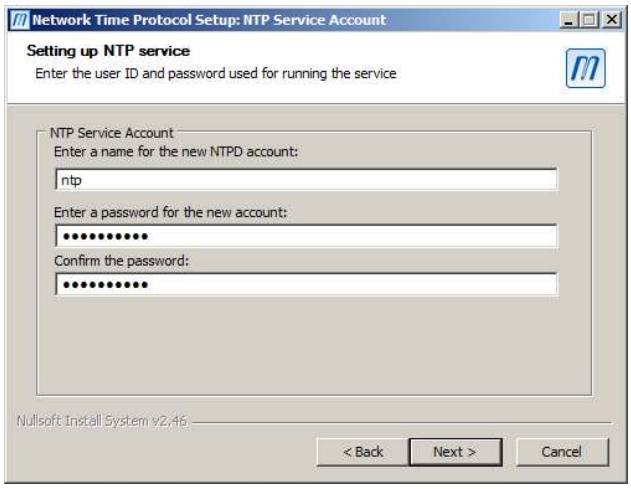
Scroll down until you see the server list and add a fourth line as shown here. This example shows the US pool. If you use a different pool, add server 4 for that location:

```
server 0.us.pool.ntp.org iburst
server 1.us.pool.ntp.org iburst
server 3.us.pool.ntp.org iburst
server 4.us.pool.ntp.org iburst
```

When finished, click File – Save and then Exit the editor.



Additional NTP configuration file settings can be made here. The top radio button is set to its default: *Create and use a special NTP account (recommended)*; do not change. The other checkboxes also should be left at their default settings. Click Next >.

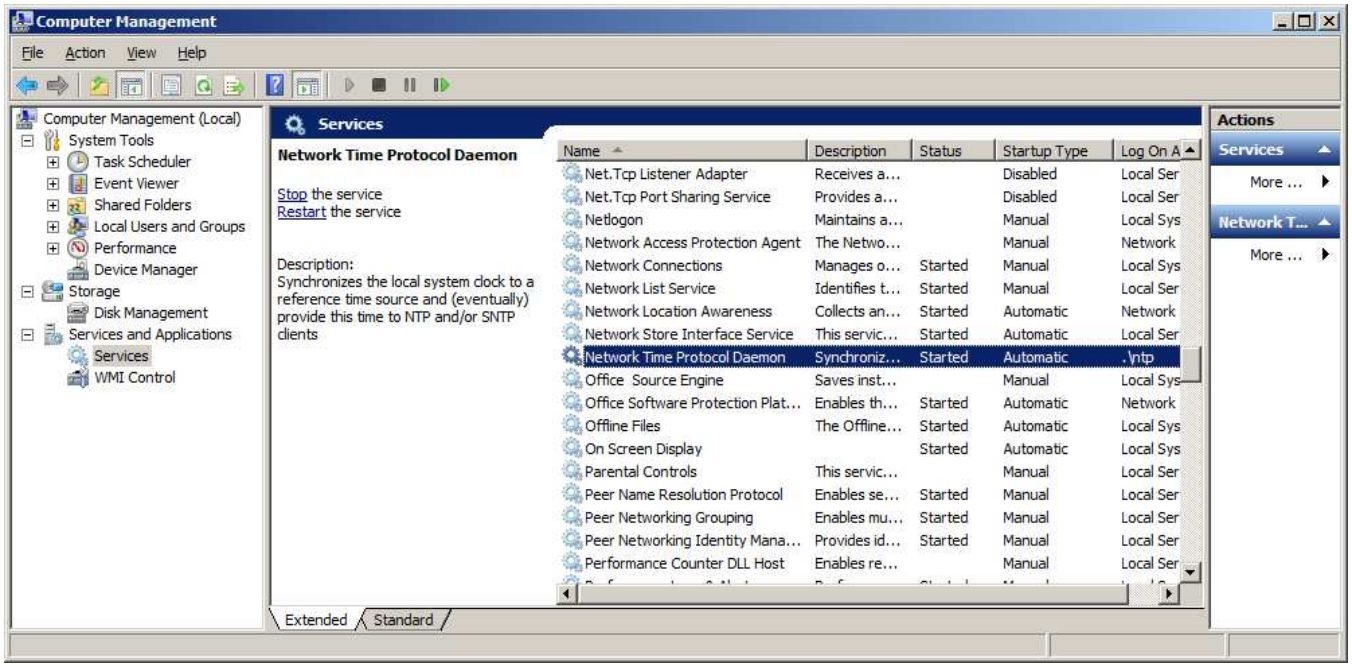


If you selected the recommended *Create and use a special NTP account ...* in the previous screen, you must enter a name and password. The default name for the account is *ntp* and should not be changed. Enter your desired password in the next two lines. During ordinary use you will not need to invoke this security feature but be sure to write down the name and password just in case you need it later. Click Next >. At this time, the installation wizard will attempt to start the NTP service. If successful, the finish screen will be shown. Starting NTP will take a moment. If not successful, there will be a warning popup window (see Troubleshooting).

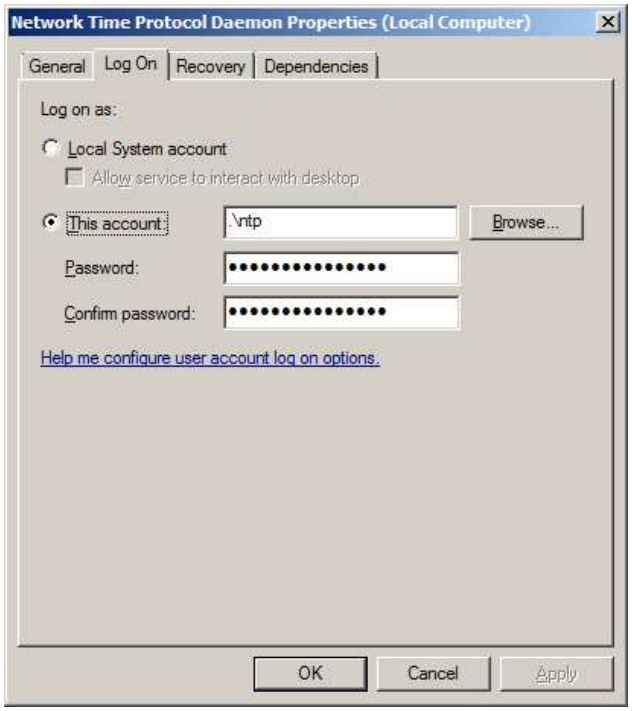
If NTP was successfully started, the wizard complete screen will be seen. Click Finish.

NTP is now controlling the PC clock and no user intervention is required. To monitor NTP operation, install the Meinberg NTP Time Server Monitor as described in the next section.

Troubleshooting: If the NTP installation wizard could not start the NTP service, a window will appear warning that the start was unsuccessful. Assuming all installation steps completed without problems, the most likely cause is an NTP login problem. In this case, right-click My Computer and select Manage (or, click Start – Run... – Open: services.msc). When the Services window opens, scroll down and right-click *Network Time Protocol Daemon* (below). Select *Properties*.



When the NTPD *Properties* window opens, click on the Log On tab (see below). The radio button for *This account* should be selected and it will show the path *.\ntp* in the adjacent field. The password will be the password you entered during NTP installation and you should try re-entering it. If re-entering the password here does not help, then try selecting the *Local System account* radio button. When done, click OK. I had to do this on one Windows XP installation but it I have no idea why it was required.



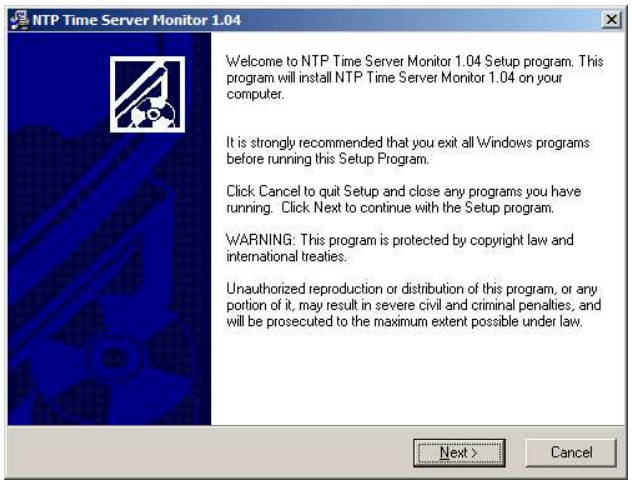
At this time, NTP may start or it may be necessary to right-click the Network Time Protocol Daemon service in the Services window and select *Start* or *Restart*.

3. Meinberg NTP Time Server Monitor Installation

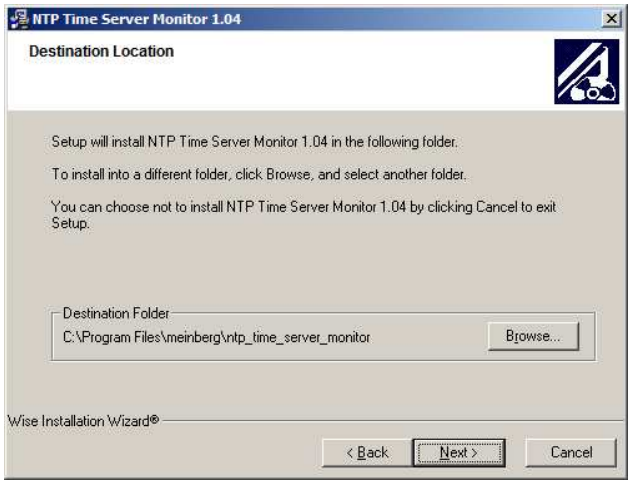
The Meinberg NTP Time Server Monitor is a free application program that allows the user to monitor, configure and operate the Network Time Protocol on a PC. The Meinberg monitor is not required to run NTP, but on a Windows PC it is much easier than using the Command Line Interface to monitor NTP operation and to view the various logs produced by NTP.

Download the installation program from {NTPMon}. Save the file to a convenient location, for example your Desktop or C:\Tools\NTP. Note: The version of the monitor program may be different than shown left.

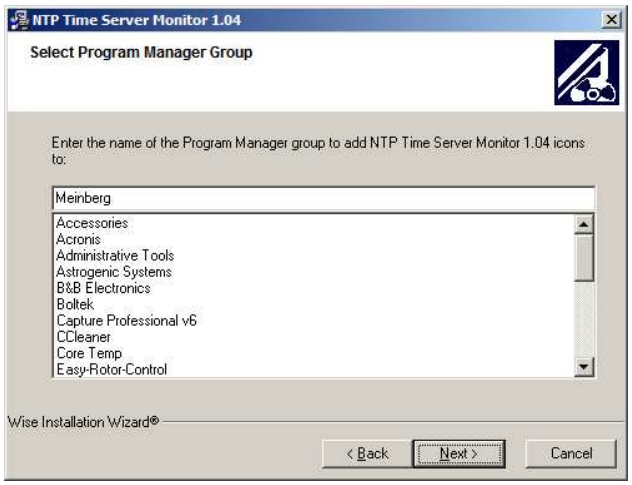
After saving the file, open it and click Run.



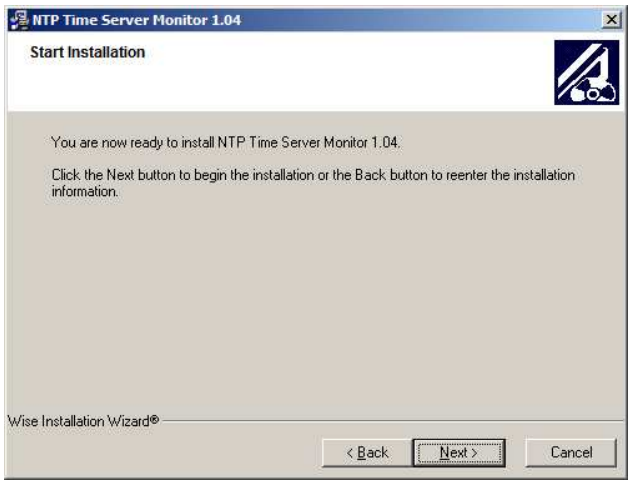
Read the information and click Next >.



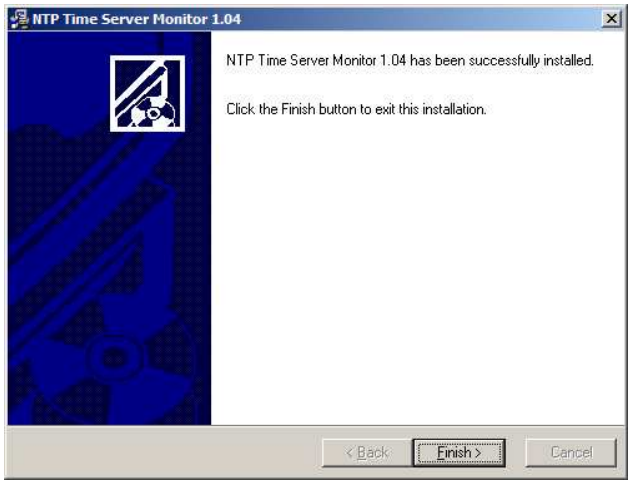
The installation wizard installs the monitor in the C:\Program Files\ folder by default as shown here. Do not use the Program Files folder especially in Windows 7 or later. Instead, click Browse... and select the desired folder, for example the previously created C:\Tools\ folder. Click Next >.



A program group called Meinberg will be created. This program group also will provide access to NTPD and its associated documentation. Click Next >.

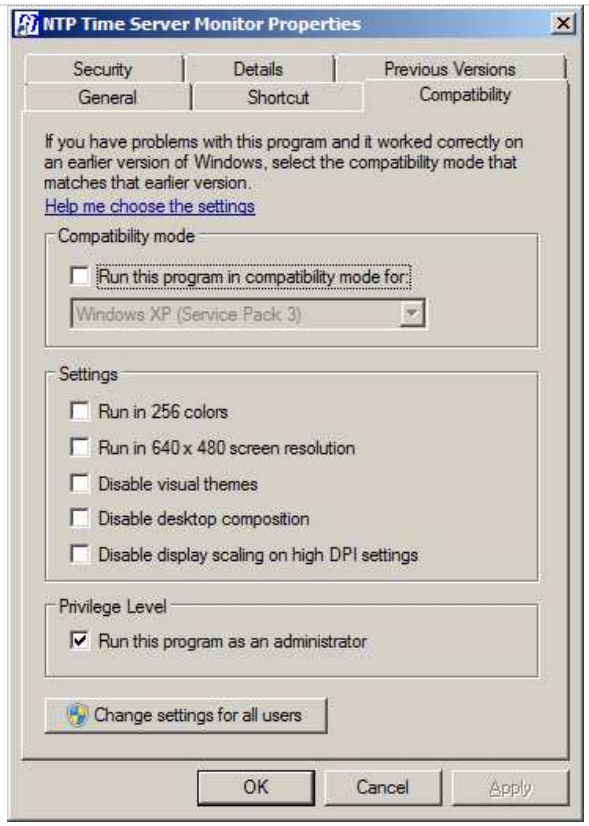


Now that the installation has been configured, click Next > to install the program.



The finish screen will appear after the monitor program has been successfully installed. Click Finish.

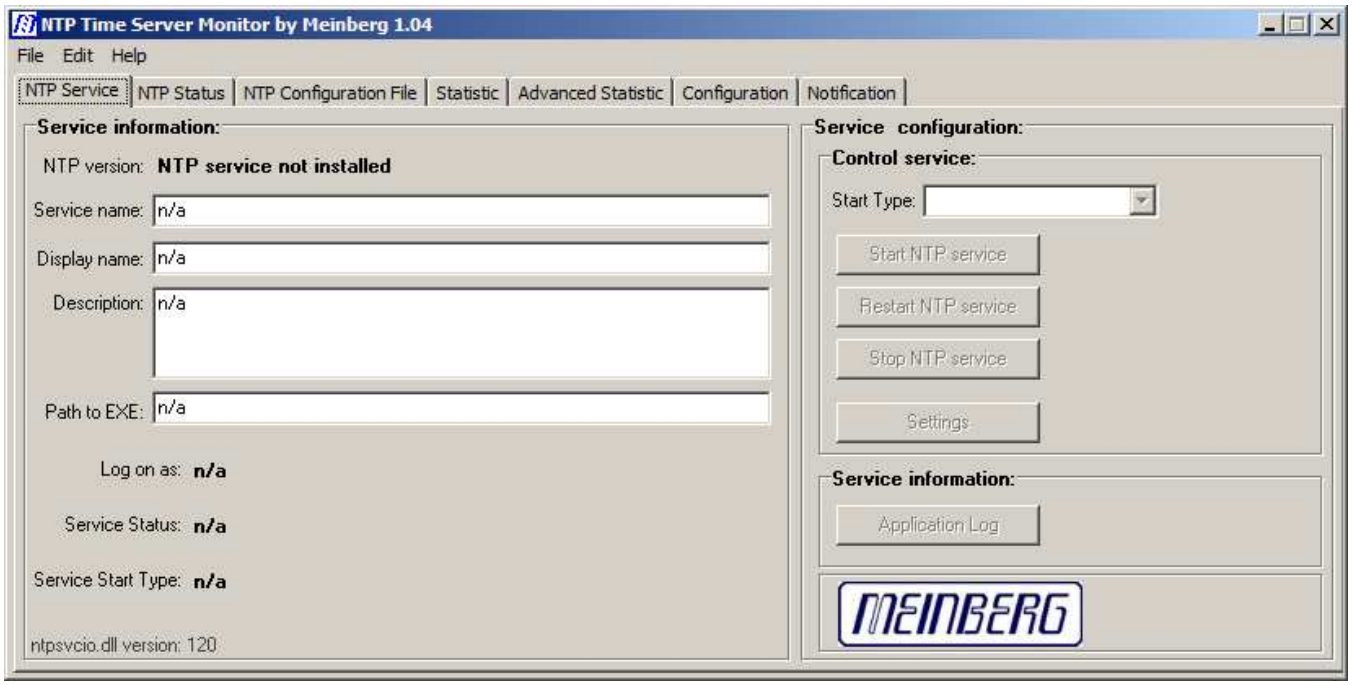
The installation wizard places a shortcut on the Desktop. In Windows 7, it is necessary to run the program as administrator. Right-click the icon and select Properties; see next screen.



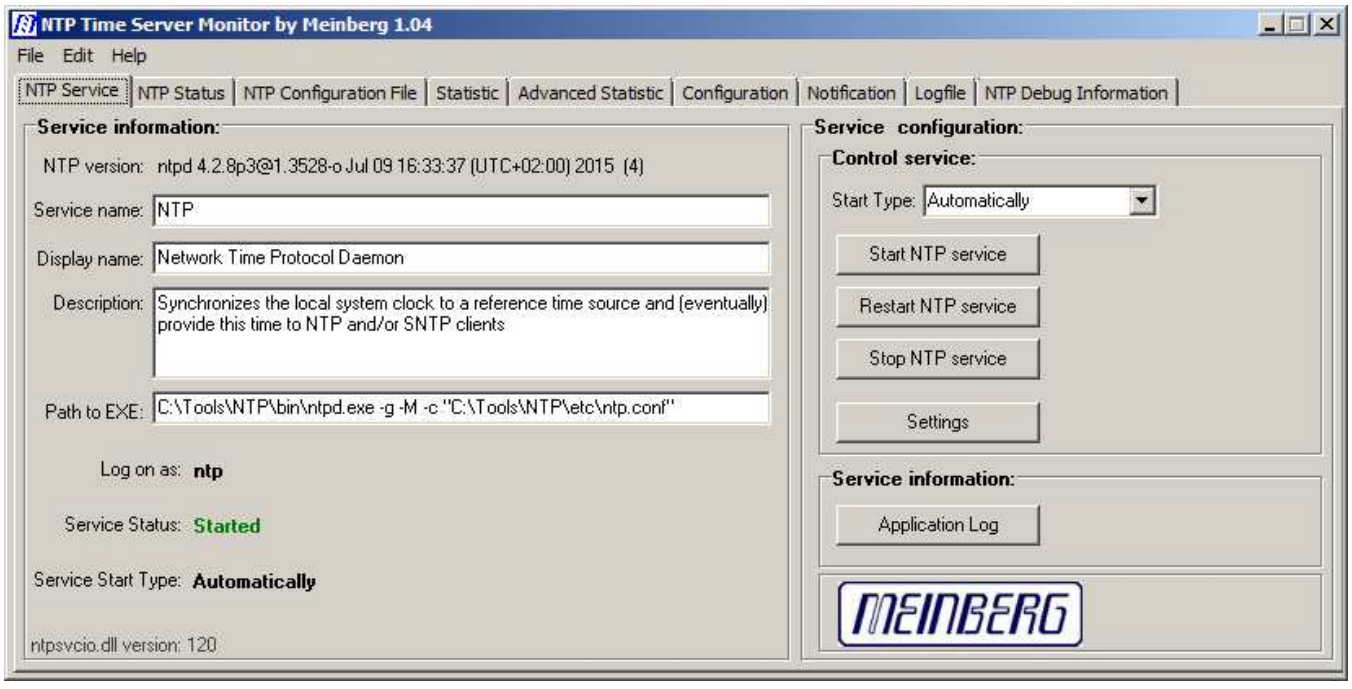
For Windows 7, in the *NTP Time Server Monitor Properties* window, select the *Compatibility* tab and then *Run this program as an administrator* near the bottom of the window. Click OK to close the window.

After installation, the monitor program may be opened in the normal way. However, if NTP is not already installed, a warning window popup will appear asking to Exit (see below). If you click No, the monitor's main window will appear but there will be no information related to NTP. If you click Yes, the program will close. At this point you will need to install NTP as described in the previous section.

If the Network Time Protocol has not yet been installed, a warning window with appear. The Meinberg monitor can be started by clicking No. However, all Service Information fields will be marked *n/a* as seen in the screen below.



When the Meinberg monitor is opened after the Network Time Protocol has been installed, the NTP Service tab will show basic NTP information. The Service Status near the bottom-left corner should show **Started** and the Service Start Type should show **Automatically**.



Note: Do not click the X button in the upper-right corner of the window as this will Exit the Meinberg monitor program. Use the Minimize button instead.

4. References and Web Links

{NTP} https://www.meinbergglobal.com/english/sw/ntp.htm

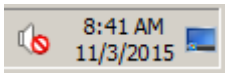
{NTPMon} https://www.meinbergglobal.com/english/sw/ntp-server-monitor.htm

{ReeveMon} Reeve, W., Meinberg NTP Time Server Monitor Guide, 2015, available here: http://www.reeve.com/Documents/Articles%20Papers/Reeve_MeinbergMonGuide.pdf

{ReeveTime} Reeve, W., Time Keeping, 2015, available here: http://www.reeve.com/Documents/Articles%20Papers/Reeve_TimeKeeping.pdf

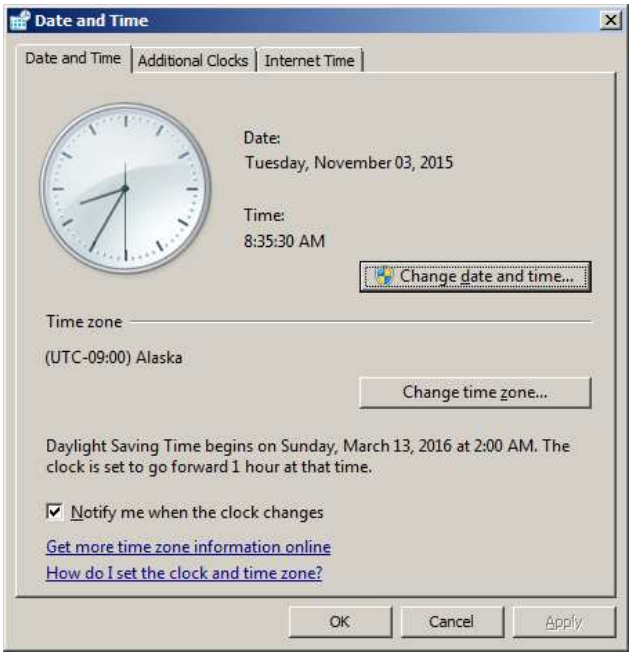
Appendix – Disable Windows Internet Time

To prevent conflicts between NTP and the Windows *Internet Time* function follow these steps:



In Windows 7, click the clock in the lower-right corner of the Desktop. In Windows XP, double-click the clock in the lower-right corner. Alternately, click Start – Control Panel – Date and Time. The following steps show Windows 7 but XP will be similar.

When you click the clock in Windows 7, a calendar and clock will popup. Click on *Change date and time settings...* at the bottom of the window.



When the Date and Time window opens, select the *Internet Time* tab

On the Internet Time tab, click on the *Change settings...* button

Uncheck the *Synchronize with an Internet time server* as shown, then click *Ok* twice to close the windows.

Document Information

Author: Whitham D. Reeve, Anchorage, Alaska USA

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0.1 (Major additions and for NTP and Meinberg, 18 Oct 2015)
0.2 (Split from Meinberg monitor application doc, 20 Oct 2015)
0.3 (Finished 1st draft, 26 Oct 2015)
0.4 (Added fourth pool server, minor cleanup, 29 Oct 2015)
1.0 (Distribution, 2 Nov 2015)
1.1 (Added Appendix, 3 Nov 2015)
1.2 (Coordination with other time docs, 24 Nov 2015)
1.3 (Added note at end, 13 Jul 2016)

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