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* {<u>ReeveMon</u>}. For a general discussion of time-keeping on a Windows PC, see {<u>ReeveTime</u>}.

<u>Note</u>: 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 <u>Appendix</u>). 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:

Opening ntp-4.2.8p3-win32-setup.exe X You have chosen to open: Image: mtp-4.2.8p3-win32-setup.exe which is: Binary File (3.7 MB) from: https://www.meinbergglobal.com Would you like to save this file? Save File Cancel Save File	Download the NTP installation program from {NTP}. Select the link <i>NTP for Windows XP and newer, with</i> <i>IPv6 support</i> . 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.
Open File - Security Warning X Do you want to run this file? Image: ntp-4.2.8p3-win32-setup.exe Publisher: Meinberg Funkuhren GmbH und Co. KG Type: Application From: C:\Documents and Settings\Whitham Reeve\My Do Run Cancel Image: Always ask before opening this file Image: While files from the Internet can be useful, this file type can potentially harm your computer. Only run software from publishers you trust. What's the risk?	After downloading, open the file and click Run.
Network Time Protocol Setup Image: Server Monitor is running. Please dose it and select OK to go on or CANCEL to abort installation. OK Cancel	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.





	Do this step only if you decide to add a fourth pool
Intp.conf - Notepad	server (see previous screen).
# but it should operate at a high stratum level to let the client # use any other timesource they may have.	
#Tudge 12/.12/.1.0 stratum 12 # Use a NTP server from the ntp pool project (see http://www.pool	Scroll down until you see the server list and add a
<pre># Please note that you need at least four different servers to be # one falseticker. If you only rely on internet time, it is highl # additional converse here</pre>	fourth line as shown here. This example shows the US
# The 'iburst' keyword speeds up initial synchronization, please	pool. If you use a different pool, add server 4 for that
server 0.us.pool.ntp.org iburst server 1.us.pool.ntp.org iburst server 2.us.pool.ntp.org iburst	location:
server 3.us.pool.ntp.org iburst	server 0.us.pool.ntp.org iburst
# server 10.0.0.131 iburst # server 10.0.0.143 iburst	server 3.us.pool.ntp.org iburst
# End of generated ntp.conf Please edit this to suite your ne	server 4.us.pool.ntp.org iburst
######################################	When finished click File Save and then Exit the
	when misned, click file – save and then exit the
	eaitor.
Network Time Protocol Setup: NTP Service Options	
Setting up NTP service Please specify your service settings	
NTP Service Settings	Additional NTP configuration file settings can be made
C Use existing account	Additional NTP configuration file settings can be made
 Use SYSTEM account (not recommended) 	nere. The top radio button is set to its default: <i>Create</i>
I Start NTP service automatically	and use a special NTP account (recommended); do not
Start NTP service right after installation	change. The other checkboxes also should be left at
 ✓ Allow big initial timestep (>1000 secs) ✓ Enable Multimedia Timer at startup 	their default settings. Click Next >.
Check Firewall Settings	
Nullsoft Install System v2,46	
< Back Next > Cancel	
M Network Time Protocol Setup: NTP Service Account	If you selected the recommended <i>Create and use a</i>
Setting up NTP service	special NTP account in the previous screen, you
Enter the user ID and password used for running the service	must enter a name and password. The default name
NTP Service Account	for the account is <i>ntp</i> and should not be changed.
Enter a name for the new NTPD account:	Enter your desired password in the next two lines.
j πψ Enter a password for the new account:	During ordinary use you will not need to invoke this
	security feature but he sure to write down the name
Confirm the password:	and password just in case you peed it later. Click Next
	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
Nullsoft Install System v2:46	will be shown. Starting NTP will take a moment. If not
< Back Next > Cancel	successful, there will be a warning popup window (see
	Troubleshooting).



<u>Troubleshooting</u>: 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*.

e <u>A</u> ction <u>View</u> <u>H</u> elp								
Computer Management (Local)	🔕 Services						Actions	
1001s	Network Time Protocol Daemon	Name +	Description	Status	Startup Type	Log On A 🔺	Services	
Figure 1		🛸 Net.Tcp Listener Adapter	Receives a		Disabled	Local Ser	More	5
Shared Folders	Stop the service	强 Net. Tcp Port Sharing Service	Provides a		Disabled	Local Ser		_
🗄 🌺 Local Users and Groups	Restart the service	😪 Netlogon	Maintains a		Manual	Local Sys	Network T.	
		Setwork Access Protection Agent	The Netwo		Manual	Network	More	-
A Device Manager	Description:	Setwork Connections	Manages o	Started	Manual	Local Sys	More	4
🚰 Storage	reference time source and (eventually)	😪 Network List Service	Identifies t	Started	Manual	Local Ser		
Disk Management	provide this time to NTP and/or SNTP	Network Location Awareness	Collects an	Started	Automatic	Network		
Services and Applications	dients	🔍 Network Store Interface Service	This servic	Started	Automatic	Local Ser		
Services		Network Time Protocol Daemon	Synchroniz	Started	Automatic	. Vntp		
WMI Control		Source Engine	Saves inst		Manual	Local Sys		
		Gffice Software Protection Plat	Enables th	Started	Automatic	Network		
		🔍 Offline Files	The Offline	Started	Automatic	Local Sys		
		😘 On Screen Display		Started	Automatic	Local Sys		
		Revental Controls	This servic		Manual	Local Ser		
		Reer Name Resolution Protocol	Enables se	Started	Manual	Local Ser		
		Reer Networking Grouping	Enables mu	Started	Manual	Local Ser		
		Reer Networking Identity Mana	Provides id	Started	Manual	Local Ser		
		Rerformance Counter DLL Host	Enables re		Manual	Local Ser 🚽		
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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.

ieneral Log On Reco	overy Dependencies	
log on as:		
C Local System accou	int interact with desktop	
• This account:	.\ntp	Browse
Password:	•••••	
Confirm password:	•••••	-
Help me configure user	account log on options.	
neip me conniqure user.	account log on options.	

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.



Open File - Security Warning	
Run Cancel Aways ask before opening this file Image: The file does not have a valid digital signature that verifies its publisher. You should only run software from publishers you trust. How can I decide what software to run?	After saving the file, open it and click Run.
Image: NTP Time Server Monitor 1.04 Image: NTP Time Server Monitor 1.04 Setup program. This program will instal NTP Time Server Monitor 1.04 on your computer. Image: NTP Time Server Monitor 1.04 Setup program. This program will instal NTP Time Server Monitor 1.04 on your computer. Image: NTP Time Server Monitor 1.04 Setup program. This program will instal NTP Time Server Monitor 1.04 on your computer. Image: NTP Time Server Monitor 1.04 Setup program. Image: NTP Time Server Monitor 1.04 Setup program. Image: NTP Time Server Monitor 1.04 on your computer. Image: NTP Time Server Monitor 1.04 Setup program. Image: NTP Time Server Monitor 1.04 Setup program.	Read the information and click Next >.
WITP Time Server Monitor 1.04 X Destination Location Image: Comparison of the server Monitor 1.04 in the following folder. To install INTP Time Server Monitor 1.04 in the following folder. To install into a different folder, click Browse, and select another folder. You can choose not to install NTP Time Server Monitor 1.04 by clicking Cancel to exit Setup. Destination Folder Destination Folder E.\Program Files\meinberg\ntp_time_server_monitor Wise Installation Wizard® <a>Back <a>Destination Cancel	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 >.

WIPP Time Server Monitor 1.04 Select Program Manager Group Enter the name of the Program Manager group to add NTP Time Server Monitor 1.04 icons to: Meinberg Accessories Acronis Actoris Actoris Boltek Capture Professional v6 CDearer Core Temp Easy-Rotor-Control	A program group called Meinberg will be created. This program group also will provide access to NTPD and its associated documentation. Click Next >.
Start Installation You are now ready to install NTP Time Server Monitor 1.04. Click the Next button to begin the installation or the Back button to reenter the installation information. Wise Installation Wizard® < Back Next> Cancel	Now that the installation has been configured, click Next > to install the program.
ITP Time Server Monitor 1.04 ITP Time Server Monitor 1.04 has been successfully installed. Cick the Finish button to exit this installation.	The finish screen will appear after the monitor program has been successfully installed. Click Finish.
NTP Time Server Monitor	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.

Previous Versions	
ut Compatibility ram and it worked correctly on ect the compatibility mode that	
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ibility mode for:	
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	Properties
solution	then Run th
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Cancel Apply	

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.

Intervice not installed Exit program? Yes No Description	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.
---	--

TP Service N	ITP Status NTP Configuration File Statistic Advanced Statistic Configuration	Notification
Service info	rmation:	Service configuration:
NTP version:	NTP service not installed	Control service:
Service name:	n/a	Start Type:
Display name:	n/a	Start NTP service
Description:	n/a	Restart NTP service
		Stop NTP service
Path to EXE:	n/a	Settings
Log o	n as: n/a	Service information:
Service St	atus: n/a	Application Log
Service Start T	ype: n/a	

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**.

NTP Time Server Monitor by Meinberg 1.04	
File Edit Help	
NTP Service NTP Status NTP Configuration File Statistic Advanced Statistic Configuration	Notification Logfile NTP Debug Information
Service information: NTP version: ntpd 4.2.8p3@1.3528-o Jul 09 16:33:37 (UTC+02:00) 2015 (4)	Service configuration: Control service:
Service name: NTP	Start Type: Automatically
Display name: Network Time Protocol Daemon	Start NTP service
Description: Synchronizes the local system clock to a reference time source and (eventually) provide this time to NTP and/or SNTP clients	Restart NTP service Stop NTP service
Path to EXE: C:\Tools\NTP\bin\ntpd.exe -g -M -c "C:\Tools\NTP\etc\ntp.conf"	Settings
Log on as: ntp	Service information:
Service Status: Started	Application Log
Service Start Type: Automatically	[INFINBER6]
ntpsvcio.dll version: 120	

<u>Note</u>: 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.

	P	X	1
-			

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:

8:41 AM 11/3/2015	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.
Tuesday, November 03, 2015 Su November, 2015 Image: Colspan="2">Image: Colspan="2" Image: Colsp	When you click the clock in Windows 7, a calendar and clock will popup. Click on <i>Change date and time</i> <i>settings</i> at the bottom of the window.
Date and Time X Date and Time Additional Clocks Internet Time Date and Time Additional Clocks Internet Time Date: Tuesday, November 03, 2015 Time: 8:35:30 AM Image date and time Time zone (UTC-09:00) Alaska Change time zone Daylight Saving Time begins on Sunday, March 13, 2016 at 2:00 AM. The clock is set to go forward 1 hour at that time. Image Time zone information online How do I set the clock and time zone? OK Cancel	When the Date and Time window opens, select the <i>Internet Time</i> tab

🔮 Date and Time	
Date and Time Additional Clocks Internet Time This computer is not set to automatically synchronize with an Internet time server. Change settings What is Internet time synchronization? OK Cancel Apply	On the Internet Time tab, click on the <i>Change settings</i> button
Internet Time Settings Configure Internet time settings: Synchronize with an Internet time server Server: time-a.nist.gov OK Cancel	Uncheck the <i>Synchronize with an Internet time server</i> as shown, then click <i>Ok</i> twice to close the windows.

Document Information

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	1.3 (Added note at end, 13 Jul 2016)

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