

Advanced Time Synchronizer

*Version 4.2
Online Manual*

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Introduction

Advanced Time Synchronizer is a powerful and easy-to-use PC clock synchronizer working with time servers via the Internet, supporting three time synchronization protocols, proxy servers and having a lot of other useful features. Advanced Time Synchronizer connects to all the servers in the list one by one until either the time is successfully synchronized or the list is over. Advanced Time Synchronizer can update the system time at certain intervals from one second to few months. It samples each time server multiple times and uses timestamp from the fastest sample to synchronize clock. This feature may be useful, because the network delays are often greater on the first sample and less on next samples. So this allows increasing accuracy of time synchronization by choosing a timestamp that is received with less network delays.

If you connect to the Internet using a dial-up connection, you can configure Advanced Time Synchronizer to update the time only if a dial-up connection is established. If there is no connection, Advanced Time Synchronizer can wait till it is established and update the time after the connection is established. Advanced Time Synchronizer can synchronize the PC clock with Internet time servers and function as a time server for your local area network using three time synchronization protocols for that: Simple Network Time Protocol (SNTP), Time Protocol and Daytime Protocol.

If you use a proxy server, you can configure Advanced Time Synchronizer to work through a HTTP, SOCKS4, SOCKS4A or SOCKS5 proxy server.

Advanced Time Synchronizer can be launched from the command line or from batch files, it can be launched as a Windows Service and start working even before the user logs onto the system.

To install Advanced Time Synchronizer, you will need a computer working under the operating systems Microsoft Windows 2000 / XP / Server 2003 / Server 2008 / Vista / Server 2012 / 7 / 8 Desktop 32 or 64-bit and connected to the Internet.

Features

- Keeps your PC clock in synchronization with exactest time servers in Internet;
- Supports three network time synchronization protocols: Simple Network Time Protocol (SNTP), Time Protocol and Daytime Protocol;
- Easy to configure. Windows Windows 2000 / XP / Server 2003 / Server 2008 / Vista / Server 2012 / 7 / 8 Desktop 32 and 64-bit compatible;
- Keeps the computer clocks of your whole network synchronized. The workstations don't need access to the Internet or any other time sources;
- Synchronizes PC clock automatically connecting all servers in the list one by one until either the time is successfully synchronized or the list is over;
- Can be launched as a Windows Service and start working even before the user logs onto the system;
- Unlimited number of servers in the list and the easily configured each server in the list;
- Automatically synchronizes time at startup or at certain intervals from one second to few months;
- Waits for an established dial-up connection to synchronize the time;
- Automatically establishes and terminates a dial-up connection;

- Supports HTTP, SOCKS4, SOCKS4A and SOCKS5 proxy servers;
- Includes command line tool that can be launched from the command line or from batch files;
- Contains a large list of pre-defined time servers;
- Works as a time server in the local area network;
- Accessible over system tray;
- Shows balloon tool tips when time synchronized;
- Keeps statistics of all time synchronization attempts performed;
- Calculates average clock drift from time synchronization corrections;
- Full [rfc2030](#), [rfc868](#) and [rfc867](#) compliant;
- Multi-language interface;
- Compatible with all modern 32 and 64 bit Windows operating systems;
- Free support and upgrades to registered users.

System requirements

Operating Systems	Processors	Disk Space	RAM	Graphics
Windows 8.1 Windows 8 Windows Server 2012 Windows 7 Windows Vista Windows Server 2008 Windows Server 2003 Windows XP Windows 2000	Any Intel or AMD x86 processor Any Intel® EM64T or AMD64 processor	Under 10 MB	Minimum required by operating system	No specific graphics card is required

Installation

How to Install Advanced Time Synchronizer:

- 1) Download the latest version of Advanced Time Synchronizer from our site;
- 2) Run the installation program. The installer will guide you through the installation process;
- 3) After installation, Advanced Time Synchronizer will initially execute with the default settings. The default settings are enough to realize the basic functions of time synchronizing.

Updating and reinstalling Advanced Time Synchronizer:

If you want to upgrade your Advanced Time Synchronizer version, download the latest version from our site and start the installation program. During the installation process all system changes will be made automatically. Program will be upgraded but all your settings and registration information will be kept.

Uninstalling Advanced Time Synchronizer:

If you want to uninstall Advanced Time Synchronizer, open **Uninstall or change a program** section from your Control Panel, select **Advanced Time Synchronizer** item and click **Uninstall** or **Remove** button.

Registration

Advanced Time Synchronizer is shareware. This means that we have made the software available to you for free evaluation. You are entitled to evaluate the software for up to 30 days without obligation to pay. After 30 days, if you decide to keep the software, you must register your copy with us.

To order Advanced Time Synchronizer, please use the following link:

<http://www.advtimesync.com/purchase.html>

After the order is accepted by our sales agent, you'll be sent an e-mail receipt with important order and customer service information. An activation code will be e-mailed to you within 24 hours, which you will use to activate the software by entering it into the activation dialog exactly as shown in the registration e-mail. It is important to remember that character case, punctuation, and spaces are significant. We suggest that you copy and paste the code directly from your registration e-mail to the activation dialog.

- You can use one copy of the software on only a single computer at any one time. You can activate your software as many times as you want on the same computer (with the same hardware fingerprint).
- Activation is based on the hardware configuration of your computer. If you upgrade some significant parts on your computer, reactivation might be required. In that case please contact our [Support Service](#).
- You will be able to reactivate your software on a system with different hardware fingerprint automatically in 6 months after last activation.
- Money-back guarantee: If for any reason you're not happy with Advanced Time Synchronizer, simply let us know within the first 30 days and we'll give you the full, prompt refund. No questions asked!

Contact

Thank you for trying Advanced Time Synchronizer. We hope you'll enjoy using this software.

Please feel free to contact us with any your questions, suggestions and bug reports by following addresses:

support@southsoftware.com

Please read the [FAQ](#) and write if you have additional questions or problems.

sales@southsoftware.com

If you haven't received your activation code in a timely manner, or if you've lost it, please let us know. Please include your name, address, email address, and order confirmation number (if you have it). We will be happy to help you.

translation@southsoftware.com

If you want to translate this program on your language please feel free to contact us. In return for the translation we don't yet have, we are offering you a free license of Advanced Time Synchronizer.

You can read more how to translate Advanced Time Synchronizer in the [Translation](#) topic.

Homepage: <http://www.southsoftware.com>
<http://www.advtimesync.com>

Translation

If you want to translate Advanced Time Synchronizer to your language, you only need to translate a single file that contains all text strings that are used in Advanced Time Synchronizer. To read translation instructions, please follow this link:

<http://www.advtimesync.com/morelanguages.html>

In return for the translation that we don't yet have, we are offering you a free license of Advanced Time Synchronizer. Please send us your translation to the following email address: translation@southsoftware.com or contact our [Support Service](#).

Hints and Tips

The "Tip of the Day" dialog box is normally displayed when you start Advanced Time Synchronizer. You can turn "Tip of the Day" off by the check box bellow and later want see the tips, select **Tip of the Day** from the **Help** pull-down menu.

Advanced Time Synchronizer can synchronize the time automatically at certain intervals. You can select an interval for automatic time synchronization on the **Scheduling** tab in the **Settings** dialog.

For your convenience Advanced Time Synchronizer documentation is available online. You can read it at any time [here](#). If you wish to read documentation offline, you can download it in PDF format [here](#).

To configure Advanced Time Synchronizer to start time synchronization when it starts, select **Synchronize time when program started** option on the **Run** tab of **Settings** dialog.

Advanced Time Synchronizer samples each time server multiple times and uses timestamp from the fastest sample to synchronize clock. This feature may be useful, because the network delays are often greater on the first sample and less on next samples. You can set number of samples on the **Operation** tab in the **Settings** dialog. Set this value to 1, if you want Advanced Time Synchronizer to sample a time server only once.

For answers to Frequently Asked Questions (FAQs), select **Frequently Asked Questions** from the Advanced Time Synchronizer **Help** pull-down menu or click [here](#) now.

Starting from Windows XP Advanced Time Synchronizer can show balloon tool tip near its icon in the system tray when the system time is adjusted. To enable balloon tool tips select **Show balloon tool tip when time adjusted** option in the **Operation** tab of **Settings** dialog.

Total number of time synchronizations made by Advanced Time Synchronizer you can always find in **Statistics** tab of **Settings** dialog.

When Advanced Time Synchronizer is minimized to an icon in the system tray, its icon may be added to the Alt-Tab dialog by **Add icon to Alt-Tab dialog when minimized** option on the **Run** tab of **Settings** dialog.

Advanced Time Synchronizer can play sound when time server is connected and when system time is adjusted. You can allow these options and customize sounds on the **Sounds** tab of **Settings** dialog.

For a complete Tip of the Day list, select **Hints and Tips** from the Advanced Time Synchronizer **Help** pull-down menu.

Advanced Time Synchronizer window does not close by **X** button on its caption. It just minimizes to the system tray icon. To close Advanced Time Synchronizer, select **Exit Advanced Time Synchronizer** command from window menu, which appears by mouse click on the icon in the left side of window caption, or by Alt-Space keystroke.

If Advanced Time Synchronizer receives time that much differs with system clock, it can accept this time, do not accept this time, or show question message. These options may be customized in **Check time adjustment** group on **Operation** tab of **Settings** dialog.

Advanced Time Synchronizer calculates average drift of your computer clock per day. You can view your computer's clock drift on **Average drift** tab of **Settings** dialog.

All access to local time servers saves into the log file, which can be viewed on **Local server** tab of **Settings** dialog.

Advanced Time Synchronizer can start automatically on system startup. Select **Auto start the program** option on the **Run** tab of **Settings** dialog to set Advanced Time Synchronizer to start on system startup.

Advanced Time Synchronizer can start as Windows NT service on system startup. Click the **Install service** button on the **Service** tab of **Settings** dialog to set Advanced Time Synchronizer Service to start.

Advanced Time Synchronizer's main window can be restored by pressing the hotkey selected in the **Run** tab of the **Settings** dialog. Advanced Time Synchronizer's main window will appear when you press the hotkey even when you are working in another application.

If you use a dial-up connection to the Internet, you can set the **Wait Dial-up connected** option on the **Scheduling** tab in the **Settings** dialog. Advanced Time Synchronizer will attempt to synchronize the time automatically at the specified interval, but if no dial-up connection is established, Advanced Time Synchronizer will wait till one is established and perform synchronization after that.

For Advanced Time Synchronizer to establish a dial-up connection automatically before synchronizing the time, open the **Dial-up** tab in the **Settings** dialog and check the **Auto-dial network connection** option, select a phone book entry and specify the username and password for it. If you want Advanced Time Synchronizer to disconnect after synchronization, check the **Automatically disconnect** option.

You can view detailed information on all time synchronizations performed by the program on the **Statistics** tab in the **Settings** dialog. If you want to stop saving statistics, check the **Do not save statistic information** option. You can also clear the list by clicking the **Clear** button.

You can quickly open **Settings** dialog on required tab by a command from **Options** pull-down menu.

To start automatic time synchronization, click **Synchronize** command from **Actions** pull-down menu. In automatic mode Advanced Time Synchronizer connects to all the servers in the list one by one until either the time is successfully synchronized or the list is over.

If you are behind a firewall, Advanced Time Synchronizer can support HTTP, SOCKS4, SOCKS4A and SOCKS5 proxy servers. Proxy servers may be customized on **Proxy** tab of the **Settings** dialog.

Getting started

Time synchronization

With the Internet, it became possible to synchronize the time, which resulted in the development of quite a few protocols for time synchronization allowing individual computers to regularly get the current time from a computer with a highly accurate clock and adjust their local clocks.

Daytime protocol

The **DAYTIME** service is an Internet protocol defined in [RFC 867](#). It is intended for testing and measurement purposes in computer networks.

A host may connect to a server that supports the DAYTIME protocol, on either TCP or UDP port 13. The server then returns the current date and time as an ASCII string with an unspecified format.

References:

DAYTIME. (2007, September 21). In Wikipedia, The Free Encyclopedia. Retrieved December 22, 2007, from <http://en.wikipedia.org/wiki/DAYTIME>.

Time protocol

The **TIME** service is an Internet protocol defined in [RFC 868](#). Its purpose is to provide a site-independent, machine readable date and time.

TIME can operate over either TCP or UDP. When operating over TCP, a host connects to a server that supports the TIME protocol on TCP port 37. The server then sends the time as a 32-bit unsigned binary number in network byte order representing a number of seconds since 00:00 (midnight) 1 January, 1900 GMT and closes the connection. The host receives the time and closes the connection.

When operating over UDP, the client sends a (typically empty) datagram to UDP port 37. The server responds with a single datagram of length 4 containing the time. There is no connection setup or teardown.

Time Protocol uses TCP/IP connection and has resolution of 1 second. This protocol limited by range from 0h 0m 0s UTC on January 1, 1900 to 6h 28m 16s UTC on 7 February 2036.

The TIME protocol has been superseded by the [Network Time Protocol](#) (NTP).

References:

TIME protocol. (2007, November 5). In Wikipedia, The Free Encyclopedia. Retrieved December 22, 2007, from http://en.wikipedia.org/wiki/TIME_protocol.

Simple Network Time Protocol

The **Network Time Protocol (NTP)** is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. NTP uses UDP port 123 as its transport layer. It is designed particularly to resist the effects of variable latency (jitter).

NTP is one of the oldest Internet protocols still in use (since before 1985). NTP was originally designed by Dave Mills of the University of Delaware, who still maintains it, along with a team of volunteers.

NTP is not related to the much simpler [DAYTIME \(RFC 867\)](#) and [TIME \(RFC 868\)](#) protocols.

NTP uses Marzullo's algorithm with the UTC time scale, including support for features such as leap seconds. NTPv4 can usually maintain time to within 10 milliseconds (1/100 s) over the public Internet, and can achieve accuracies of 200 microseconds (1/5000 s) or better in local area networks under ideal conditions.

A less complex form of NTP that does not require storing information about previous communications is known as the **Simple Network Time Protocol** or **SNTP**. It is used in some embedded devices and in applications where high accuracy timing is not required. See [RFC 1361](#), [RFC 1769](#), [RFC 2030](#), and [RFC 4330](#).

References:

Network Time Protocol. (2007, December 13). In Wikipedia, The Free Encyclopedia. Retrieved December 22, 2007, from http://en.wikipedia.org/wiki/Network_Time_Protocol.

Accuracy

The accuracy of Advanced Time Synchronizer depends on the accuracy of the selected time protocol and network delays:

- The most accurate SNTP protocol is 200-picoseconds accurate and takes network delays. The actual accuracy of this protocol is about 1/10 of a second, and the faster your Internet connection is the higher is its accuracy.
- The accuracy of the DAYTIME protocol depends on the syntax of the string the time on the server is presented in. Most servers are 1-second accurate, but the protocol standard does not define any definite accuracy, thus, the sent string can contain additional data making it possible to improve the accuracy. Servers using the syntax of the string proposed by NIST send such data. Such servers have better than 1-second accuracy.
- The Time protocol is about 1-second accurate and does not provide any opportunities to improve its accuracy.

Setting the current time zone

Advanced Time Synchronizer uses the time zone configured in Windows. If you find that Advanced Time Synchronizer is not setting your clock to the correct time, check that your Windows settings are correct using the **Date/Time** panel of the Windows Control Panel.

If you are finding that the Windows time zone settings aren't correct, you can download [Tzedit](#), a free program that allows you to edit the time zone settings.

Reference

Main window

The main Advanced Time Synchronizer window contains three control groups:

- Time server
- Local time
- Control buttons

In the **Time server** group you can specify the time server name and choose the time server protocol.

For begin connecting to the time server, select the time server from the combo box and click the **Check** button. While Advanced Time Synchronizer is establishing a connection to the server, you can see the status of this connection in the **Connection** box. After the connection is established and the timestamp from the server is received, the **Connection** box will contain the time on the server and the **Difference** box will contain the difference between the server time and the time on your PC. Now click **Adjust** button to synchronize the time on your PC clock with the time on the Internet time server.

Local time and **Time zone** boxes contain your local computer time and time zone information.

If option **Minimize instead of close** on the **Run** tab of the **Settings** dialog box is checked, Advanced Time Synchronizer main window will not be closed by **×** button on its caption or by ALT-F4 keystroke. It just minimizes to the system tray icon. To close Advanced Time Synchronizer, select **Exit Advanced Time Synchronizer** command from window menu, which appears by mouse click on the icon in the left side of window caption, or by ALT-SPACE keystroke.

Actions

Check

This command starts the manual time synchronization. Advanced Time Synchronizer will try to connect to the selected time server. When a timestamp is received, you can click the **Adjust** button to adjust your clock.

Adjust

This command adjusts computer's clock with time server. It becomes available only after you connected a time server and received a timestamp. When Advanced Time Synchronizer operates in automatic time synchronization mode, this command is implemented automatically when time correction is received from a time server.

Synchronize

This command starts the automatic time synchronization. Advanced Time Synchronizer will connect to all the servers in the list one by one until either the time is successfully synchronized or the list is over. If option **Auto-dial network connection** on the **Dial-up** tab of the **Settings** dialog is checked, Advanced Time Synchronizer will try to establish Dial-up network connection by dialing with parameters from that dialog.

Settings

Run

Language

Language group allows you to change language interface of the program. If you want to translate this program on your language please feel free to contact us by email translation@southsoftware.com! In return for the translation we don't yet have, we are offering you a free license of Advanced Time Synchronizer.

Startup

Auto start the program causes Advanced Time Synchronizer to start when you log on to the system.

Windows XP/Vista


Show balloon tool tip when time adjusted. Advanced Time Synchronizer can show balloon tool tip near its icon in the system tray when the system time is adjusted.

Hot key

Advanced Time Synchronizer's main window can be restored by pressing the selected hotkey. Select this option and in the hotkey entry field press the hotkey, which you will use for restoring Advanced Time Synchronizer. Advanced Time Synchronizer's main window will appear when you press the hotkey even when you are working in another application.

Options

Synchronize time when program started causes Advanced Time Synchronizer to start time automatic synchronization when it is started.

Minimize to system tray instead of close. If this option is checked, the  button on the caption of window and ALT-F4 keystroke will minimize main window to the system tray.

Add icon to Alt-tab dialog when minimized. Normally, windows that are minimized to system tray do not appear in the dialog window, which appears when you press Alt-Tab, and they cannot be opened without the mouse. If this option is selected, the Advanced Time Synchronizer icon will be added to the Alt-Tab dialog even when the program is minimized to system tray.

Ask before exit Advanced Time Synchronizer. With this option selected, Advanced Time Synchronizer asks for confirmation before the closing.

Hide window after time correction causes Advanced Time Synchronizer main window to be hidden when system time is updated. This option takes effect only when automatic time synchronization performs.

Hide even if attempt fails causes Advanced Time Synchronizer main window to be hidden even when system time is update failed. This option takes effect only when automatic time synchronization performs.

Close window after time correction causes Advanced Time Synchronizer main window to be closed when system time is updated. This option takes effect only when automatic time synchronization performs.

Close even if attempt fails causes Advanced Time Synchronizer main window to be closed even when system time is update failed. This option takes effect only when automatic time synchronization performs.

Operation

Timeout

Timeout value, through which time server request will be canceled if there is no answer from the server.

Sample

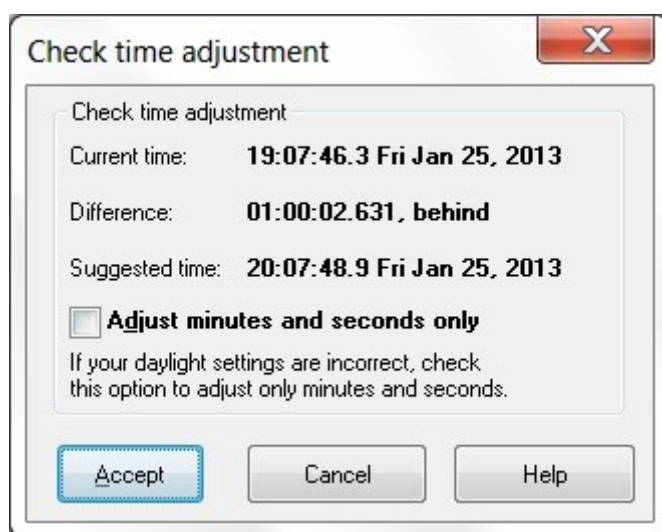
Advanced Time Synchronizer samples each time server multiple times and uses timestamp from the fastest sample to synchronize clock. This feature may be useful, because the network delays are often greater on the first sample and less on next samples. So this allows increasing accuracy of time synchronization by choosing a timestamp that is received with less network delays.

Log file

Option **Write time server connection log** allows Advanced Time Synchronizer to save all operations performed with time servers to the log file. You can view or clear this log by **View log** and **Clear log** buttons.

Check time adjustment

If a difference between computer's clock and time server is more that specified in this group. Advanced Time Synchronizer will consider that received time is probably incorrect. On the same settings dialog, you can set behavior of Advanced Time Synchronizer in this situation. You can set it to automatically accept this timestamp, not accept this timestamp or alert **Check Time Adjustment** window like this:



Check Time Adjustment window displays extended information and allows you to decide accept this timestamp or not. Additionally this window has an options for adjust only minutes and seconds. This option is useful if your time zone or daylight settings are incorrect. For more information about time zone settings please see [Setting the current time zone](#) topic.

Service

Install service

Click the **Install service** button to install Advanced Time Synchronizer Service. When Advanced Time Synchronizer is started as service it loads settings from the folder specified in the **Service settings** section. Click **Change settings** button to change location of the settings folder.

Uninstall service

Click the **Uninstall service** button to uninstall Advanced Time Synchronizer Service.

Service settings

In this section you can configure the Advanced Time Synchronizer Service.

Allow time synchronization from non-administrator accounts

When this option is enabled, any user of this computer will be able to use Advanced Time Synchronizer to synchronize computer clock.

Enable time synchronization from service

When this option is enabled, service loads settings from the specified directory and performs all operations that are due in case of a normal launch, such as scheduling automatic time synchronization and functioning as a time server for your local area network.

Service specific INI-files

Location of the settings files which are used by service.

Edit service settings

Click this button to change service specific settings. Administrator privileges are required.

Advanced Time Synchronizer as a service can be also controlled using the Services section in the Control Panel.

If you experiencing troubles with service please review [troubleshooting tips for service installation](#).

Servers

Time servers

The servers list displays the various network time servers you have specified. It also allows you to add new servers, delete and edit existing ones. The servers list is the ordered list of time servers that will be queried sequentially until a valid time source is contacted. Each line in the list contains the address of server and time protocol that you prefer to use with this server.

Ping

Test the server availability and display the time, in which the response from the server was received.

Select

Select the server. The selected server is displayed in the main window. Automatic time synchronization starts from sampling the selected server.

Edit

The **Edit** button allows you to change a selected server definition. You can also invoke the edit dialog by double-clicking any entry in the server list.

Add

The **Add** button invokes **New server** dialog allowing you to specify a new server name and select a time protocol. You can click **Lookup** button to choose time server from our predefined list.

Up

Moves selected server upwards in the list.

Down

Moves selected server downwards in the list.

Disable

The **Disable** button disables or enables selected server.

Delete

The **Delete** button allows you to delete a selected server.

Read more in the [Time server settings](#) topic.

Scheduling

Auto start time correction

In this dialog you can customize an automatic start of time synchronization. **Auto start time correction** combo box contains 7 intervals through which time synchronization must be started.

Dial-up

The Dial-up options may be customized in the **Dial-up** group. In the combo box titled **If computer is not connected at this time** you can choose an action for Advanced Time Synchronizer if there is no Dial-up connection established.

Do not connect option causes Advanced Time Synchronizer to prevent auto dialup connection, which Windows starts when some program trying to connect Internet.

Connect by Dial-up option causes Advanced Time Synchronizer to establish a dialup connection either with settings from the **Dial-up** tab, or if there is no auto dialup option enabled by standard Windows means.

Wait Dial-up connected option causes Advanced Time Synchronizer to wait for a dial-up connection to be established and only after that it will start automatic time synchronization.

Local server

Local time server protocols

Advanced Time Synchronizer can function as a time server for your local area network using three time synchronization protocols for that: Simple Network Time Protocol (SNTP), Time Protocol (TIME) and Daytime Protocol (DAYTIME).

For SNTP protocol: select **Simple Network Time Protocol** in the combo box titled **Time server protocol** and customize options concerning to this protocol.

For TIME protocol: select **Time Protocol** in the combo box titled **Time server protocol** and customize options concerning to this protocol.

For DAYTIME protocol: select **Daytime Protocol** in the combo box titled **Time server protocol** and customize options concerning to this protocol. For the DAYTIME protocol, you should also specify the syntax of the string that the server will be sending when requested. Format specifications for this string are described in [Daytime protocol timestamp format](#) topic.

When you press the **OK** button, Advanced Time Synchronizer will start functioning as a time server on your computer. From now on, to connect to this server, you should add the IP address or the name of the computer in the local area network, on which Advanced Time Synchronizer is running as a server, select the protocol that you specified for the server and, if you use the DAYTIME protocol, the syntax of the string. You can add a new server to the list of servers on the **Servers** tab in the **Settings** dialog.

Advanced Settings

Log server access

Save all connections to local server to the log file. You can view log file by clicking on **View log** button and clear it by **Clear log** button.

Restrict server access

This option allows local server to reject connections from some addresses. Use semicolons (;) to separate entries. Wildcards (*) and (?) are allowed. Example: 10.10.5.75;192.168.1.*;192.168.150.2?.

Sounds

Advanced Time Synchronizer sounds

In this dialog you can customize sounds that will be played after time synchronization events occurred. Currently two events available: Time server connected and local clock time updated. Also you can choose an audio output device for playing sounds through it.

Dial-up

Auto-dial network connection

In this dialog you can customize auto dial network connection. If you want to Advanced Time Synchronizer establish a dial-up network connection before it tries to connect a time server, check the **Auto-dial network connection** option, select a phone book entry and specify the username and password for it. If you want Advanced Time Synchronizer to terminate the established connection after it synchronizes the time, check the **Automatically disconnect** option.

Advanced Time Synchronizer will dial only if no any dial-up connections established and will hang-up only one connection it made. Advanced Time Synchronizer will not start auto dial, if **Do not connect** option is selected on the **Scheduling** tab of **Settings** dialog is checked.

Proxy

Use a proxy server

If you are behind a firewall, it can be still available to synchronize your local PC clock with time servers. You just need to know what type of proxy you use, its address and port number. Currently Advanced Time Synchronizer supports HTTP, SOCKS4, SOCKS4A and SOCKS5 proxy servers. Unfortunately, most proxy servers do not support UDP datagrams, so the time servers configured to SNTP protocol and TIME and DAYTIME protocols with UDP network protocol will be unavailable, if you using a HTTP, SOCKS4 or SOCKS4A proxy server.

If your proxy server requires authentication, you must check **Use authentication for the server** check box and specify your user name and password in the corresponding boxes.

Average drift

This tab displays the system clock drift statistics based on the differences of system clock with time servers. These statistics are accumulated over time, therefore the longer you wait between resets the more accurate the measurement will be. The **Reset** button is provided for cases such as mother board replacement where you want to restart the measurement from scratch.

Statistics

Advanced Time Synchronizer keeps information about all time synchronizations it made. In this dialog you can view this information. To clear all statistics information click **Clear** button. If you do not want to keep statistics information anymore, you can check **Do not save statistics information** check box.

Logo

Advanced Time Synchronizer Industrial can display a custom logo in its main window. The logo can be loaded from an image file. The bmp, jpg and gif image formats are supported.

Time server settings

You can change settings for existing time servers and add new time servers in the Time servers tab of the Settings window. The time server settings include its DNS name or IP address, the protocol you prefer to use to synchronize the time with this server and additional settings according to the selected protocol.

To add a server from our preset list, you can press the **Lookup** button. The **Server lookup** dialog will open, it contains the list of generally available Internet time servers arranged in the alphabetical order by their location.

In case you select the DAYTIME protocol for the server, you should specify the syntax of the server timestamp string. If you do not know the format the selected server supports, you can press the **Receive** button to receive a sample timestamp from the server. Depending on the received timestamp, you can specify the syntax of the server string or you can select the corresponding syntax of the string from the list of preset formats that can be accessed by clicking the **Preset** button. The field below displays the string that the syntax you specified represents. If you specified the server data syntax correctly, this string will coincide with the string that is received from the server. You can also press the **Test** button to check if the specified server data syntax is correct.

Format specifications for syntax of the server timestamp string are described in [Daytime protocol timestamp format](#) topic.

Changing system time

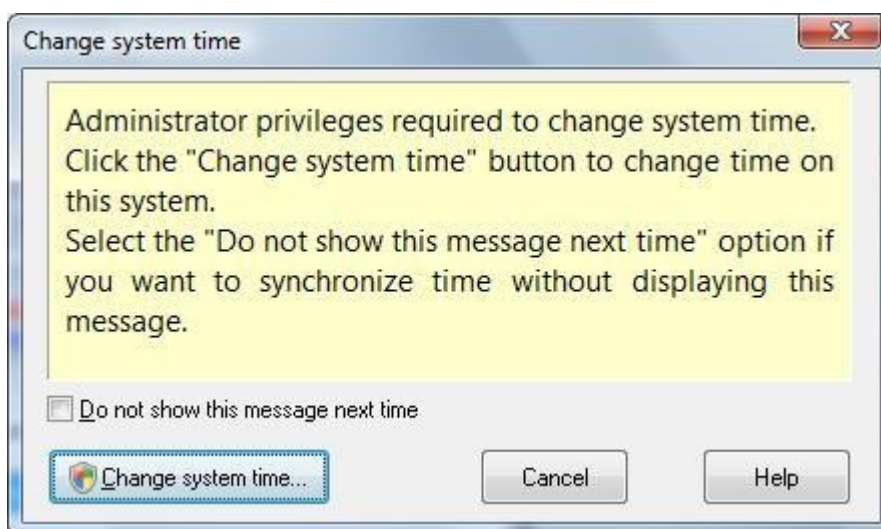
If you are running Windows NT, 2000, XP, Vista or later, then administrator privileges required to change system time. If you want to synchronize time on those operating systems, you can either run Advanced Time Synchronizer from an administrator account or install Advanced Time Synchronizer Service.

To install Advanced Time Synchronizer Service:

- Logon into your system as administrator;
- Select the **Advanced Time Synchronizer Service Control** from the Advanced Time Synchronizer group in the **Start** menu (or execute `svctimesync.exe` file from the folder where Advanced Time Synchronizer is installed);
- Click the **Change Settings** button and make sure that the option **Allow time synchronization from non-administrator accounts** is enabled;
- Click the **Install service** button;
- When the service is installed, you can logon under your account and use Advanced Time Synchronizer to synchronize your computer clock.

Changing time in Windows Vista or later

If you are running Windows Vista or later with User Account Control (UAC) turned on, the following message appears before system data and time is changed:



Because administrator privileges are required to change system time, you have to click **Change system time** button to allow Advanced Time Synchronizer to act as administrator. If you are running under non-administrator account, you will be prompted for administrator password.

You can select **Do not show this message next time** option before clicking the **Change system time** button, if you want to synchronize time without displaying this elevation prompt. Alternatively, you can avoid this elevation prompt by installing Advanced Time Synchronizer Service manually as described in the [Changing system time](#) topic.

Daytime protocol timestamp format

Advanced Time Synchronizer supports the format templates for Daytime protocol timestamp strings.

When Advanced Time Synchronizer connects a time server and received Daytime protocol timestamp string, it parses it by using following format specifiers:

space or underscore	Space
%x,%w	Any text
%d	Day in month
%m	Month number 1..12
%M	Month text (three letter abbreviation or full)
%y	Year number
%h	Hour
%n	Minutes
%s	Seconds
%a	AM/PM
%z	Time zone abbreviation
%z=ABB or %z=±hh:mm	Set time zone ignoring source string
%z!ABB or %z! ±hh:mm	Read time zone from source string but set time zone from template
%e	A health digit that indicates the health of the server. If e=0, the server is healthy, otherwise the received timestamp will be rejected as incorrect.
%j	MJD is the Modified Julian Date. The MJD is the last five digits of the Julian Date, which is simply a count of the number of days since January 1, 4713 B.C.

%v	msADV displays the number of milliseconds that NIST advances the time code to partially compensate for network delays. The advance is currently set to 50.0 milliseconds.
----	---

Examples:

"15.02.04 13:13:04 CST"	→	"%d.%m.%y %h:%n:%s %z"	(date, time and time zone)
"15 Feb 04 13:13:04"	→	"%d %M %y %z=EST %h:%n:%s"	(date and time in EST time zone)
"13:13:04 EDT 02/15/04"	→	"%h:%n:%s %z!EDT %m/%d/%y"	(date and time, but change time zone to EDT)
"02/15/04 1:13:04 PM UTC"	→	"%m/%d/%y %h:%n:%s %a %z"	(date and time with AM/PM specification)
"53050 04-02-15 10:23:32 00 0 0 909.7 UTC (NIST) *"	→	"%j_%y-%m-%d_%h:%n:%s_%x_ %x_%e_%v_%z (NIST) *"	NIST

When Advanced Time Synchronizer functioning as a local time server it sends Daytime protocol timestamp strings encoding them by using following format specifiers:

space or underscore	Space
%d	Day in month
%w	Weekday text (three letter abbreviation)
%m	Month number 1..12
%M	Month text (three letter abbreviation)
%y	Two digit year number
%Y	Full year number
%h	Hour
%n	Minutes
%s	Seconds
%a	am/pm
%A	AM/PM
%z	Add time zone abbreviation
%z=ABB or %z=±hh:mm	Use time in specified time zone, but not add abbreviation
%z!ABB or %z!±hh:mm	Use time in specified time zone and add its abbreviation
%e	A health digit that indicates the health of the server. If e=0, the server is healthy, otherwise the received timestamp will be rejected as incorrect.
%j	MJD is the Modified Julian Date. The MJD is the last five digits of the Julian Date, which is simply a count of the number of days since January 1, 4713 B.C.
%v	msADV displays the number of milliseconds that NIST advances the time code to partially compensate for network delays. The advance is currently set to 50.0 milliseconds.

Examples:

"%d.%m.%y %h:%n:%s %z"	→	"15.02.04 13:13:04 UTC"	(date, time and time zone)
"%d %M %y %z=EST %h: %n:%s"	→	"15 Feb 04 13:13:04"	(date and time in EST time zone)

"%m/%d/%y %h:%n:%s %A %z"	→	"02/15/04 1:13:04 PM UTC"	(date and time with AM/PM specification)
"%j_%y-%m-%d %h:%n: %s %x %x %e %v_ %z (NIST) *"	→	"53050 04-02-15 10:23:32 x x 0 50.0 UTC (NIST) *"	NIST
"%x, %M %d, %y %h: %n:%s%a-%z!PDT"	→	"x, Feb 15, 04 1:02:11am- PDT"	(date and time with AM/PM specification in PDT time zone)

Lookup a predefined time server

This window allows you to choose time server from [The list of public time servers](#) arranged by countries. To use time server from this list select it in the list view on the left of window and click **OK** button.

Troubleshooting

Different settings for different users

Advanced Time Synchronizer is optimized for Fast User Switching feature of Windows XP. It keeps settings for different users separately. So, different users of one computer may customize Advanced Time Synchronizer settings by their preferences and run Advanced Time Synchronizer even simultaneously using Fast User Switching.

Local time servers does not start (Address is already in use error)

Address is already in use error means that the server is already started by another instance of Advanced Time Synchronizer or by another application. For example, if you start Advanced Time Synchronizer as service and then start Advanced Time Synchronizer as application, the local time server will not able to start twice and you get Address is already in use error, but time servers will work and will be handled by the service.

The same happens if you start Advanced Time Synchronizer as multiple users (when Fast User Switching is enabled). The local time servers will be started and executed by the first instance of Advanced Time Synchronizer and all other instances will prompt Address is already in use error.

Service does not start

First of all review Events Log form Control Panel | Administrative Tools. If service failed to start due to error, the error will be described there.

Advanced Time Synchronizer service will not start when your trial period is expired.

If you still experiencing troubles please contact our [Support Service](#).

Service starts but does not work

When Advanced Time Synchronizer is started as service it synchronizes time by intervals and options specified in the settings file. By default service uses the settings file as the user who installed Advanced Time Synchronizer. But you can specify another settings file for service by saving settings in the file `advtimesync.ini` and specifying folder where the file is located by clicking **Change settings** button in the **Service** tab of Advanced Time Synchronizer settings dialog. If service does not find settings file it informs you in the Event Log.

Please review [Frequently Asked Questions](#) for more troubleshooting tips.

Command line tool

Advanced Time Synchronizer includes the command line tool, which can be invoked from the command line. The arguments from command line are used instead of standard Advanced Time Synchronizer settings.

command line:

```
[-r] [-e] [-h] [-v] [-n] [-y] [time_server:[protocol]] [net_protocol]
[daytime_format] [samples] [timeout] [proxy_server:port type [user:pwd]]
[autodial entry user:pwd [hangup]]
```

-r - display ordering information

-e - enter registration key

-h - display this help screen

-v - verbosely

-n - do not change system time (just receive and display difference)

-y - answer YES to all questions

time_server - time server DNS name or IP address

protocol - time server protocol (SNTP | TIME | DAYTIME) (TIME - default)

net_protocol - network protocol (TCP | UDP) (only for TIME and DAYTIME protocol) daytime_format - syntax of DAYTIME server timestamp (only for DAYTIME protocol)

samples - number of time server samples

timeout - time out in seconds

proxy_server:port - proxy server DNS name or IP address and port number

type - type of proxy server (HTTP | SOCKS4 | SOCKS4A | SOCKS5)

user:pwd - user name and password, if proxy requires authentication

autodial - automatically establish dial-up connection

entry - phone book entry

user:pwd - user name and password for specified phone book entry

hangup - disconnect automatically established connection

Examples:

"contimesync nist1.datum.com" - synchronize local PC clock with nist1.datum.com by TIME protocol

"contimesync nist1.datum.com:SNTP 5 20" - synchronize local PC clock with nist1.datum.com by SNTP protocol, sample server 5 times and use 20 seconds timeout

"contimesync.exe nist1.datum.com:DAYTIME TCP %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_* 1 20" - synchronize local PC clock with nist1.datum.com by DAYTIME protocol, sample server 1 time, use 20 seconds timeout and NIST format of server timestamp

"contimesync.exe nist1.datum.com:TIME TCP 2 20 192.168.150.1:3128 HTTP" - synchronize local PC clock with nist1.datum.com by TIME protocol, use HTTP proxy server

"contimesync.exe nist1.datum.com:TIME TCP 2 20 autodial ISP user:password hangup" - synchronize local PC clock with nist1.datum.com by TIME protocol, automatically establish dial-up connection using "ISP" phone book entry

Exit codes:

- 0 Success
- 1 Fatal error
- 2 User cancel
- 3 Request is timed out
- 4 DNS entry not found
- 5 Net down
- 6 Data read error
- 7 Data send error
- 8 Connecting error
- 9 Server data format is unsupported
- 10 Server is not healthy
- 11 Selected proxy type is not supported
- 12 Proxy server requires authentication
- 13 Proxy server authentication failed
- 14 Proxy server error
- 15 Proxy does not support this time protocol
- 16 Proxy uses unknown type of authentication
- 17 Auto Dial-up error

Appendixes

Appendix A: Time zone abbreviations

The list of time zone abbreviations that can be specified in Daytime protocol timestamp format in Advanced Time Synchronizer:

Abbreviation	Name	Correction
A	Alpha	+1:00
ACDT	Australian Central Daylight Time	+10:30
ACST	Australian Central Standard Time	+9:30
ADT	Atlantic Daylight Time	-3:00
AST	Atlantic Standard Time	-4:00
AEDT	Australian Eastern Daylight Time	+11:00
AEST	Australian Eastern Standard Time	+10:00
AKDT	Alaska Daylight Time (USA)	-8:00
AKST	Alaska Standard Time (USA)	-9:00
ART	Argentina Time	-3:00
B	Bravo	+2:00
BOT	Bolivia Time	-4:00
BET	Bering Standard Time	-11:00
BDT	Bangladesh Time	-6:00
BST	Eastern Brazil Standard Time	-3:00
C	Charlie	+3:00
CDT	Central Daylight Time (USA)	-5:00
CST	Central Standard Time (USA)	-6:00
CEST	Central Europe Summer Time	+2:00
CET	Central Europe Time	+1:00
COT	Colombia Time	-5:00
CUT	Coordinated Universal Time	0

D	Delta	+4:00
E	Echo	+5:00
EDT	Eastern Daylight Time (USA)	-4:00
EST	Eastern Standard Time (USA)	-5:00
EEST	Eastern Europe Summer Time	+3:00
EET	Eastern Europe Time	+2:00
F	Foxtrot	+6:00
G	Golf	+7:00
GMT	Greenwich Mean Time	0
H	Hotel	+8:00
HAA	Heure Avanc�e de l'Atlantique (french)	-3:00
HAC	Heure Avanc�e du Centre (french)	-5:00
HAE	Heure Avanc�e de l'Est (french)	-4:00
HAP	Heure Avanc�e du Pacifique (french)	-7:00
HAR	Heure Avanc�e des Rocheuses (french)	-6:00
HAT	Heure Avanc�e de Terre-Neuve (French)	-2:30
HAY	Heure Avanc�e du Yukon (french)	-8:00
HNA	Heure Normale de l'Atlantique (french)	-4:00
HNC	Heure Normale du Centre (french)	-6:00
HNE	Heure Normale de l'Est (french)	-5:00
HNP	Heure Normale du Pacifique (french)	-8:00
HNR	Heure Normale des Rocheuses (french)	-7:00
HNT	Heure Normale de Terre-Neuve (french)	-3:30
HNY	Heure Normale du Yukon (french)	-9:00
HDT	Hawaiian Daylight Time (USA)	-9:30
HST	Hawaiian Standard Time (USA)	-10:00
I	India	+9:00
IST	Irish Summer Time	+1:00
JST	Japan Standard Time	+9:00
K	Kilo	+10:00
L	Lima	+11:00
M	Mike	+12:00
MDT	Mountain Daylight Time (USA)	-6:00
MST	Mountain Standard Time (USA)	-7:00
MED	Middle European Daylight	+2:00
MESZ	Mitteeuropaische Sommerzeit (german)	+2:00
MEST	Middle European Summer	+2:00
MET	Middle European Time	+1:00
METDST	Middle European Daylight Savings Time	+2:00
MEWT	Middle European Winter Time	+1:00
MEZ	Mitteeuropaische Zeit (german)	+1:00
MEX	Mexico Time	-6:00
N	November	-1:00
NDT	Newfoundland Daylight Time	-2:30
NFT	Newfoundland Time	-3:30
NST	Newfoundland Time	-3:30
NT	Nome Time (USA)	-11:00
O	Oscar	-2:00
P	Papa	-3:00
PDT	Pacific Daylight Time (USA)	-7:00
PST	Pacific Standard Time (USA)	-8:00
Q	Quebec	-4:00
R	Romeo	-5:00
S	Sierra	-6:00
SBT	Solomon Islands Time	+11:00
T	Tango	-7:00
THAT	Tahiti Time	-10:00
TUC	Coordinated Universal Time (french)	0
U	Uniform	-8:00
UTC	Coordinated Universal Time	0
V	Victor	-9:00
W	Whiskey	-10:00
WEST	Western Europe Summer Time	+1:00
WETDST	Western Europe Summer Time	+1:00

WESZ	Westeuropäische Sommerzeit (german)	+1:00
WET	Western Europe Time	0
WEZ	Westeuropäische Zeit (german)	0
WST	Western Standard Time (Australia)	+8:00
X	X-ray	-11:00
Y	Yankee	-12:00
YDT	Yukon Daylight Time	-8:00
YST	Yukon Standard Time	-9:00
Z	Zulu	0

Some zone abbreviation(s) are not unique, and have different time offsets.

Some countries and territories have more than one time zone abbreviation.

Appendix B: The list of public time servers

This appendix contains the list of public primary (stratum 1) time servers and the list of public primary (stratum 2) time servers.

As the load on the hosts supporting NTP primary (stratum 1) time service is heavy and always increasing, clients should avoid using the primary servers whenever possible. In most cases the accuracy of the NTP secondary (stratum 2) servers is only slightly degraded relative to the primary servers and, as a group, the secondary servers may be just as reliable.

The list of primary (stratum 1) and secondary (stratum 2) designates the NTP time servers available for public access under stated restrictions. Each entry gives the country code, state (US only), host name, Internet address, approximate location and geographic coordinates (if available), synchronization source (stratum, type of radio or satellite receiver and host type), suggested service area, access policy (as notified) and responsible person name and e-mail address. Most servers indicate the NTP version as well. It is always wise to consult the DNS to verify host addresses, which are changed from time to time. When more than one address is given, preference should be given to each in order.

Please respect the access policy as stated by the responsible person. It is very important that potential clients avoid use of servers not listed as open access, unless approved first by the responsible person. This especially includes indiscriminate use of servers not listed in the list, since this can be disruptive. The responsible person should always be notified upon establishment of regular operations with servers listed as open access. Servers listed as closed access should NOT be used without prior permission, since this may disrupt ongoing activities in which these servers are involved.

All primary and secondary servers listed have no access restrictions, so that service is available for any client with a valid IP address. Where noted, some servers enforce a limit on the number of clients from any one network other than the server network itself. Where noted, some servers provide a cryptographic authentication service. Contact the site operators for further details.

The List of Public Primary (stratum 1) Time Servers

Australia

1 ntp0.cs.mu.OZ.AU

Stratum: 1

Location: The University of Melbourne, Melbourne, Australia
 Geographic Coordinates: 37:48:09.60S 144:57:29.50E
 Synchronization: NTP V4 primary (Trimble Acutime GPS), i386/NetBSD 1.6
 Service Area: Australia, New Zealand, Pacific Region
 Access Policy: open access, please limit to two peer hosts per site
 Contact: David Hornsby (ntp@cs.mu.OZ.AU)
 Note: service previously available at 128.250.37.1 moved to 128.250.37.2

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 ntp1.cs.mu.OZ.AU

Stratum: 1

Location: The University of Melbourne, Melbourne, Australia
 Geographic Coordinates: 37:48:09.60S 144:57:29.50E
 Synchronization: NTP V4 primary (Magellan OEM GPS), i386/NetBSD 1.6
 Service Area: Australia, New Zealand, Pacific Region
 Access Policy: open access, please limit to two peer hosts per site
 Contact: David Hornsby (ntp@cs.mu.OZ.AU)

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Brazil

1 ntps1.pads.ufrj.br

Stratum: 1

Location: Laboratory for the Processing of Analog and Digital Signals (PADS), Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil.
 Geographic Coordinates: Lat: 22°51.7031'S. Lon: 043°13.7045'W. Alt: 25m.
 Synchronization: NTP V4 Primary (Garmin ETrex GPS with RA-46 system and 1 PPS external stabilized oscillator), PC/Linux with nanokernel.
 Service Area: Brazil, Latin America and Caribbean.
 Access Policy: Open access, please limit to two peer hosts (preferentially stratum 2 servers) per domain. Clients (end-users) should use only stratum 2 servers for synchronization.
 Contact: Rafael Jorge Csura Szendrodi (szendro@pads.ufrj.br).
 Note: IP addresses (IPv4 and IPv6) are subject to change, please use DNS instead!

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Canada

1 clock.uregina.ca

Stratum: 1

Location: University of Regina, Regina, Saskatchewan, Canada
 Geographic Coordinates: 50:25N , 104:35W
 Synchronization: NTP V4 Primary (GPS clock), PC/FreeBSD
 Service Area: SASK#net, CA*net, Canada
 Access Policy: open to stratum2 time servers, others by arrangement.
 Contact: Mark Haidl (timekeeper@uregina.ca)
 Note: for reliable access please notify with IP of your server

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 subitaneous.cpsc.ucalgary.ca

Stratum: 1

Organization: Department of Computer Science, University of Calgary
 Location: Calgary, Alberta, Canada
 Geographic Coordinates: Latitude: 51.0801 Longitude: -114.1281
 Synchronization: NTP V4 Primary (GPS clock), UltraSparc/Solaris
 Service Area: North America
 Access Policy: Open to stratum 2 time servers, others by arrangement. Please notify us.
 Contact: Shaun Laing (timemaster@cpSC.ucalgary.ca)
 Note: The IP address is subject to change so please use DNS.

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Chile

1	<i>Stratum: 1</i>
ntp.dgf.uchile.cl	
<p>Location: Dpto. GeofHsica, Universidad de Chile. Santiago, Chile. Geographic Coordinates: Lat: 33° 27.19'S. Lon: 70° 39.70'W. Alt: 533m. Synchronization: NTP V3 primary (GOES OM/DC-468 clock), SunSparc10/SunOS 4.1.3. Service Area: REUNA and interconnected networks, Chile. Access Policy: open access, please send a message to notify. Contact: Gonzalo PÉrez (gperez@dgf.uchile.cl) Note: ntp is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-4:00</p>	

1	<i>Stratum: 1</i>
ntp.shoa.cl	
<p>Location: Servicio Hidrografico y Oceanografico de la Armada de Chile Geographic Coordinates: 33:01,6958S 71:38,1136W (WGS-84) Synchronization: NTP V4 primary (GPS Clock), i386 Redhat Linux Service Area: Chile Access Policy: open access Contact: Raul Vergara (rvergara@shoa.cl)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Czech Republic

1	<i>Stratum: 1</i>
ntp.cesnet.cz	
<p>Location: CESNETPrague, The Czech Republic Geographic Coordinates: 50° 6.11' N, 14° 23.49' E, +252 m Synchronization: NTP V4 primary (Garmin GPS35), PC / Linux with nanokernel Service Area: Czech Republic and Slovakia, European academic community Access Policy: open to servers providing synchronization to ten or more hosts, others by arrangement Contact: Vladimir Smotlacha (ntp-admin@cesnet.cz) Note: ntp is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Germany

1	<i>Stratum: 1</i>
ntp0.fau.de	
<p>Location: University Erlangen-Nuernberg, D-91058 Erlangen, FRG Geographic Coordinates: 49.573N 11.028E (from Meinberg GPS 166) Synchronization: NTP V3 primary (GPS receiver (<<1us)), Sun SS10/Unix SunOS 5.6 Service Area: Germany/Europe Access Policy: open access, pick one of ntp{0,1,2,3}.fau.de Contact: The Timekeepers (time@informatik.uni-erlangen.de) Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

1	<i>Stratum: 1</i>
ntp1.fau.de	
<p>Location: University Erlangen-Nuernberg, D-91058 Erlangen, FRG Geographic Coordinates: 49.573N 11.028E (from Meinberg GPS 166) Synchronization: NTP V3 primary (DCF77 PZF receiver (<50us)), Sun SS10 SunOS 5.6 Service Area: Germany/Europe Access Policy: open access, pick one of ntp{0,1,2,3}.fau.de Contact: The Timekeepers (time@informatik.uni-erlangen.de) Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>	

1	<i>Stratum: 1</i>
ntp2.fau.de	
Location: University Erlangen-Nuernberg, D-91058 Erlangen, FRG Geographic Coordinates: 49.573N 11.028E (from Meinberg GPS 166) Synchronization: NTP V3 primary (GPS receiver (<<1us)), Sun SS10/SunOS 5.6 Service Area: Germany/Europe Access Policy: open access, pick one of ntp{0,1,2,3}.fau.de Contact: The Timekeepers (time@informatik.uni-erlangen.de) Note: IP addresses are subject to change; please use DNS	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ntp3.fau.de	
Location: University Erlangen-Nuernberg, D-91058 Erlangen, FRG Geographic Coordinates: 49.573N 11.028E (from Meinberg GPS 166) Synchronization: NTP V3 primary (DCF77 PZF receiver (<50us)), Sun SS10/SunOS 5.6 Service Area: Germany/Europe Access Policy: open access, pick one of ntp{0,1,2,3}.fau.de Contact: The Timekeepers (time@informatik.uni-erlangen.de) Note: IP addresses are subject to change; please use DNS	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ntps1-0.cs.tu-berlin.de	
Location: Technische Universitaet Berlin, D-10587 Berlin, FRG Geographic Coordinates: 52.518N 13.326E Synchronization: NTP V3 primary (Meinberg GPS 166), Sun 4/65 SunOS4.1.3 Service Area: Germany/Europe Access Policy: open access Contact: Gerard Gschwind (gg@cs.tu-berlin.de)	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ntps1-1.cs.tu-berlin.de	
Location: Technische Universitaet Berlin, D-10587 Berlin, FRG Geographic Coordinates: 52.518N 13.326E Synchronization: NTP V3 primary (Meinberg GPS 166), SunS10-402 SunOS5.4 Service Area: Germany/Europe Access Policy: open access Contact: Gerard Gschwind (gg@cs.tu-berlin.de)	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ptbtime1.ptb.de	
Location: Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany Synchronization: NTP V3 primary (Primary standards CS1, CS2), HP9000/744/HP-UX Service Area: Germany/Europe, others by arrangement Access Policy: open access, please send a message to notify. Contact: Dieter Sibold, Ronald Scheffler (ntp-admin@ptb.de)0 Note: ptbtime1.ptb.de is an alias and the IP address may change; please use DNS.	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ptbtime2.ptb.de	
Location: Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany Synchronization: NTP V3 primary (PTB's primary standards CS1, CS2), HP9000/744/HP-UX Service Area: Germany/Europe, others by arrangement Access Policy: open access, please send a message to notify. Contact: Dieter Sibold, Ronald Scheffler (ntp-admin@ptb.de) Note: ptbtime2.ptb.de is an alias and the IP address may change; please use DNS.	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)	
DAYTIME timestamp format: %d_%M_%Y_%h:%n:%s_%z	

1	rustime01.rus.uni-stuttgart.de	<i>Stratum: 1</i>
<p>Location: Computer Center University of Stuttgart, D-70550 Stuttgart, Germany Geographic Coordinates: 48:47N, 9:10E Synchronization: NTP V3 primary (Meinberg DCF-77 PZF 535/TCXO), IBM RS6000-250, AIX 4.x Service Area: Germany/Europe Access Policy: open, preferred for stratum-2 servers providing synchronization to local networks; appreciate email notification Contact: Walter Wehinger (wehinger@rus.uni-stuttgart.de)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

France

1	canon.inria.fr	<i>Stratum: 1</i>
<p>Location: INRIA, Rocquencourt (near Paris), France Synchronization: NTP V3 primary (GPS), Datum TymServe 2100L Service Area: France/Europe Access Policy: open access, please send a message to notify Contact: ntp-adm@inria.fr Note: We use a Datel RCH208 clock with SER024 V24 interface.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	chronos.cru.fr	<i>Stratum: 1</i>
<p>Location: University of Rennes 1, Brittany, France Synchronization: NTP V3, Datum TymServe 2100L with GPS Service Area: France/Europe Access Policy: open access to stratum-2 servers, send a message to notify Contact: timemaster@cru.fr Note: use DNS for IP address</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp-p1.obspm.fr	<i>Stratum: 1</i>
<p>Location: BNM-SYRTE, Observatoire de Paris, Paris, France Synchronization: NTP V3, Datum TymServe 2100 with 1PPS Service Area: France/Europe Access Policy: open access to stratum-2 servers, but please send a message to notify Contact: info.bnm-syrte@obspm.fr, More Informations? Note: Ref: 1PPS from Atomic Clock</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp-sop.inria.fr	<i>Stratum: 1</i>
<p>Location: INRIA, Sophia Antipolis (French Riviera, near Nice), France Synchronization: NTP V3 primary (GPS), PC/Linux Service Area: RENATER, R3T2, France/Europe Access Policy: open to servers providing synchronization to reasonable size networks (>10 hosts). Contact: ntp-adm@sophia.inria.fr, More help? Note: We use a MC2 Starsync GPS EISA card</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>		

Ireland

1	ntp-galway.hea.net	<i>Stratum: 1</i>
<p>Location: Dept. of Information Technology, National University of Ireland, Galway, Ireland Synchronization: NTPV4 primary (Trimble Acutime GPS), Intel, Linux 6.2 Service Area: Ireland, UK Access Policy: open access, please send a message to notify Contact: ntp@it.nuigalway.ie Note: IP address is subject to change so please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

Italy

ntp1.ien.it	<i>Stratum: 1</i>
<p>Location: IEN Galileo Ferraris, Torino, Italy Synchronization: NTP primary (Cesium Beam Frequency Standard), PC/Linux Service Area: Italy/Europe Access Policy: open access, pick one of ntp{1,2}.ien.it; please send a message to notify Contact: ntp.info@ien.it Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp2.ien.it	<i>Stratum: 1</i>
<p>Location: IEN Galileo Ferraris, Torino, Italy Synchronization: NTP primary (Cesium Beam Frequency Standard), PC/Linux Service Area: Italy/Europe Access Policy: open access, pick one of ntp{1,2}.ien.it; please send a message to notify Contact: ntp.info@ien.it Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z+2:00</p>	

Japan

clock.nc.fukuoka-u.ac.jp	<i>Stratum: 1</i>
<p>Location: Fukuoka university, Fukuoka, Japan Geographic Coordinates: 130:21.81E, 33:32.87N Synchronization: NTP V3.3 primary (GPS clock), Heliostation 400/SunOS 4.1.3 Service Area: Japan/Pacific area Access Policy: open access Contact: TSURUOKA Tomoaki (tsuruoka@fukuoka-u.ac.jp), YOSHIMURA Kenji (yosimura@tl.fukuoka-u.ac.jp) Note: We use a TRAK 8810 GPS STATION CLOCK and a Furuno Electric Co.'s GN-72 GPS receiver respectively.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Mexico

cronos.cenam.mx	<i>Stratum: 1</i>
<p>Location: Centro Nacional de Metrologia, Queretaro, Mexico Geographic Coordinates: 20:32:9.6 N, 100:16:18 W, +1912 Synchronization: Interlock algorithm with direct 1 pps from primary frequency standard of CENAM, UTC(CENAM) Service Area: All Mexico and USA Access policy: Open access Contact: J. Mauricio Lopez R., jlopez@cenam.mx , 52 4 211 0543</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Netherlands

ntp0.nl.net	<i>Stratum: 1</i>
<p>Location: NLnet, Amsterdam, The Netherlands Synchronization: NTP primary (GPS), Sun/Unix SunOS 4.1.3 Service Area: The Netherlands/Europe Access Policy: open access Contact: beheer@nl.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z</p>	

ntp1.nl.net	<i>Stratum: 1</i>
<p>Location: NLnet, Amsterdam, The Netherlands Synchronization: NTP primary (GPS), Sun/Unix SunOS 4.1.3 Service Area: The Netherlands/Europe Access Policy: open access Contact: beheer@nl.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z</p>	

ntp2.nl.net	<i>Stratum: 1</i>
<p>Location: NLnet, Amsterdam, The Netherlands Synchronization: NTP primary (GPS), Sun/Unix SunOS 4.1.3 Service Area: The Netherlands/Europe Access Policy: open access Contact: beheer@nl.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z</p>	

Norway

time.service.uit.no	<i>Stratum: 1</i>
<p>Location: The EDB Centre, University of Tromsøe, Norway Synchronization: NTP V3 primary (GPS clock), HP-UX/Unix Service Area: NORDUnet Access Policy: semi-open access, prior arrangement required Contact: (timekeeper@uit.no)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Poland

vega.cbk.poznan.pl	<i>Stratum: 1</i>
<p>Location: Astrogeodynamical Observatory, Space Research Centre, Borowiec, Poland Synchronization: NTP V3 primary (Caesium clock), PC Pentium, RedHat Linux Service Area: Poland/Europe Access Policy: open access Contact: Robert Diak (kondor@cbk.poznan.pl), Jerzy Nawrocki (nawrocki@cbk.poznan.pl)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>	

Singapore

nets.org.sg	<i>Stratum: 1</i>
<p>Location: SPRING Singapore Synchronization: ACTS dial-up using lockclock algorithm; Compaq Alpha UNIX Service Area: Singapore and Asia Access Policy: Open to stratum-2 servers and others by arrangement Contact: Liu YanYing (lyy@spring.gov.sg) 65-67739852</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)*</p>	

Slovenia

1 **goodtime.ijs.si***Stratum: 1*

Location: J. Stefan Institute, Ljubljana, Slovenia
 Geographic Coordinates: 46° 2.517' N, 14° 29.241' E, +363 m (WGS84)
 Synchronization: NTP V4 primary (Trimble Palisade GPS), Compaq (DEC) Alpha / Tru64 Unix with MICRO_TIME kernel option
 Service Area: Slovenia, European academic community, others by arrangement
 Access Policy: restricted to servers providing synchronization to ten or more hosts, please send notification before regular use
 Contact: MarkMartinec (timekeeper@ijs.si); More info?
 Note: NTP V4 clients preferred for their lower load and better accuracy; IP address subject to change

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Sweden

1 **ntp1.gbg.netnod.se***Stratum: 1*

Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Gothenburg, Sweden)
 Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD
 Service Area: all areas
 Access Policy: open access
 Contact: Magnus Andersson; See also NTP time server statistics

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 **ntp2.gbg.netnod.se***Stratum: 1*

Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Gothenburg, Sweden)
 Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD
 Service Area: all areas
 Access Policy: open access
 Contact: Magnus Andersson; See also NTP time server statistics

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 **ntp1.mmo.netnod.se***Stratum: 1*

Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Malmoe, Sweden)
 Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD
 Service Area: all areas
 Access Policy: open access
 Contact: Magnus Andersson; See also NTP time server statistics

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 **ntp2.mmo.netnod.se***Stratum: 1*

Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Malmoe, Sweden)
 Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD
 Service Area: all areas
 Access Policy: open access
 Contact: Magnus Andersson; See also NTP time server statistics

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

1 **ntp1.sp.se***Stratum: 1*

Location: SP Swedish National Testing and Research Institute, BORAS, SWEDEN
 Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale), FreeBSD
 Service Area: all areas
 Access Policy: open access
 Contact: Kenneth Jaldehag info@sp.se; See also NTP time server statistics

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

ntp2.sp.se	<i>Stratum: 1</i>
<p>Location: SP Swedish National Testing and Research Institute, BORAS, SWEDEN Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale), FreeBSD Service Area: all areas Access Policy: open access Contact: Kenneth Jaldehag info@sp.se; See also NTP time server statistics</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp1.sth.netnod.se	<i>Stratum: 1</i>
<p>Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Stockholm, Sweden) Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD Service Area: all areas Access Policy: open access Contact: Magnus Andersson; See also NTP time server statistics</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp2.sth.netnod.se	<i>Stratum: 1</i>
<p>Location: Netnod Internet Exchange i Sverige AB, Stockholm, SWEDEN (Exchange point Stockholm, Sweden) Synchronization: NTP V4 primary (UTC(SP) Swedish National Time Scale via GPS CV), FreeBSD Service Area: all areas Access Policy: open access Contact: Magnus Andersson; See also NTP time server statistics</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

time1.stupi.se	<i>Stratum: 1</i>
<p>Location: Stupi AB, Stockholm, SWEDEN Synchronization: NTP V3 primary (Saphir Cesium Beam Standard/GPS), BSDI Unix Service Area: SUnet, NORDUnet Access Policy: open access Contact: Peter Lothberg (roll@Stupi.SE)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

time2.stupi.se	<i>Stratum: 1</i>
<p>Location: Stupi AB, Stockholm, SWEDEN Synchronization: NTP V4 primary (HP5071, FreeBSD) Service Area: Europe Access Policy: open access Contact: roll@stupi.se (Peter Lothberg)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Switzerland

ntp.metas.ch	<i>Stratum: 1</i>
<p>Location: Federal Office of Metrology and Accreditation Switzerland (METAS), Bern, Switzerland Geographic Coordinates: N 46:55:25 E 07:27:51 Synchronization: radiosynchronized receiver locked to HBG transmitter and ACTS dial-up link to METAS T&lab UTC(CH) Service Area: Switzerland, others by arrangement Access Policy: open access, please send a message to notify Contact: Laurent-Guy Bernier (laurent-guy.bernier@metas.ch) Note: the IP address may change, please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>	

1	<i>Stratum: 1</i>
swisstime.ethz.ch	
Location: Integrated Systems Laboratory, Swiss Fed. Inst. of Technology, CH 8092 Zurich, Switzerland Geographic Coordinates: 47:23N, 8:32E Synchronization: NTP primary (DCF77 clock), Sun-4/SunOS 4.1.4 Service Area: Switzerland/Europe Access Policy: open access Contact: Christoph Wicki (time@iis.ee.ethz.ch)	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)	

United Kingdom

1	<i>Stratum: 1</i>
ntp.my-inbox.co.uk	
Location: Falmouth, Cornwall, UK Synchronization: NTP V3 primary (MSF clock), Sun/Unix Service Area: JANET Access Policy: closed access, see notes below. Contact: jips-nosc@nosc.ja.net Note: This server is part of the JANET NTP service and is available for JANET stratum-2 clients and for peering with external stratum-1 clocks. Any external stratum-1 peering requests should be emailed to the Contact address.	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

1	<i>Stratum: 1</i>
ntp2.ja.net	
Location: University of London Computer Centre, UK Synchronization: NTP V3 primary (MSF clock), Sun/Unix Service Area: JANET Access Policy: closed access, see notes below. Contact: jips-nosc@nosc.ja.net Note: This server is part of the JANET NTP service and is available for JANET stratum-2 clients and for peering with external stratum-1 clocks. Any external stratum-1 peering requests should be emailed to the Contact address.	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	







USA


1	Alaska
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1	<i>Stratum: 1</i>
ntp.alaska.edu	
Location: University of Alaska, Fairbanks, AK (147 50 59.7W 64 51 27.3N WGS84) Synchronization: NTP V3 primary (GPS) Service Area: Pacific Northwest, others by arrangement Access Policy: open access for stratum 2 servers Contact: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil)	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

1	California
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1	<i>Stratum: 1</i>
clepsydra.dec.com	
Location: HP Western Research Laboratory, Palo Alto, CA Synchronization: NTP V4 primary (GPS) Service Area: NSFNET, BARR region Access Policy: open access Contact: ntp-admin@wrl-mail.hpl.hp.com	
Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	

	<p>clock.isc.org <i>Stratum: 1</i></p> <p>Location: Internet Software Consortium, Palo Alto, CA Geographic Coordinates: 122 9 41 W / 37 26 35 N Synchronization: NTP primary (GOES clock), BSD UNIX Service Area: BARRnet, Alternet-west, CIX-west Access Policy: open access Contact: Paul Vixie (paul@vix.com)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>clock.via.net <i>Stratum: 1</i></p> <p>Location: ViaNet Communications, Palo Alto, CA, USA Synchronization: NTP V3 with Trimble Pasisade GPS receiver/FreeBSD Service Area: All areas Access Policy: open access Contact: Joe McGuckin (joe@via.net)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>montpelier.ilan.caltech.edu <i>Stratum: 1</i></p> <p>Location: California Institute of Technology, Pasadena, CA Synchronization: NTP V3 primary (GPS clock) Service Area: USA Pacific timezone, others by arrangement Access Policy: open access for stratum 2 servers</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>nist1.aol-ca.truetime.com <i>Stratum: 1</i></p> <p>Location: AOL Time Warner facility, Sunnyvale, California</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>nist1.datum.com <i>Stratum: 1</i></p> <p>Location: Datum Inc., Bancomm-Timing Division, San Jose, California Synchronization: ACTS dial-up using lockclock algorithm; DEC Alpha UNIX Service Area: Primarily networks in Western US Access Policy: Open to stratum-2 servers and others by arrangement. Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>nist1-sj.glassey.com <i>Stratum: 1</i></p> <p>Location: Abovenet, San Jose, California Synchronization: ACTS dial-up using lockclock algorithm; DEC Alpha UNIX Service Area: Western US Access Policy: Open to stratum-2 servers and others by arrangement Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>

	<p>ntp.nasa.gov <i>Stratum: 1</i></p> <p>Location: NASA Ames Research Center, Moffett Field, CA Synchronization: NTP V3 primary GPS Clock Service Area: NSFNET, BARR region, NASA NSN, DOE ESNET, DDN Access Policy: prior permission required Contact: clockmaster@ntp.nasa.gov</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>tick.gpsclock.com <i>Stratum: 1</i></p> <p>Location: GPSClock.com headquarters, Redondo Beach, CA Geographic Coordinates: 33:50:26.510N, 118:22:55.245W Synchronization: NTP V4 primary, GPSClock 300 hard PPS, FreeBSD Service Area: US Pacific, Los Angeles area Access Policy: Open to stratum 2 servers for 10 or more hosts, others upon request</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>tick.ucla.edu <i>Stratum: 1</i></p> <p>Location: UCLA, Los Angeles, CA Synchronization: NTP V3 primary (GPS) HP9000/747i Service Area: Pacific time zone, others on request Access Policy: open access to stratum-2 servers and to UCLA clients</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%z_%Y</p>
	<p>timekeeper.isi.edu <i>Stratum: 1</i></p> <p>Location: USC Information Sciences Institute, Marina del Rey, CA Geographic Coordinates: 33:58:49N, 118:26:20W (USGS map NAD27) Synchronization: NTP V3 primary Datum Tymserve 2100-GPS Service Area: CalRen2, Los Nettos region Access Policy: open access Contact: Information Processing Center (action@isi.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP)</p>
	<p>tock.gpsclock.com <i>Stratum: 1</i></p> <p>Location: GPSClock.com headquarters, Redondo Beach, CA Geographic Coordinates: 33:50:26.510N, 118:22:55.245W Synchronization: NTP V4 primary, GPSClock 200 hard PPS, FreeBSD Service Area: US Pacific, Los Angeles area Access Policy: Open to stratum 2 servers for 10 or more hosts, others upon request</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
<input type="checkbox"/>	<p>Colorado</p>
	<p>navobs1.usnogps.navy.mil <i>Stratum: 1</i></p> <p>Location: Falcon AFB, Colorado Geographic Coordinates: 104 31 30 W, 38 48 30 N WGS84 Synchronization: NTP V3 primary (USNO Alternate Master Clock H-maser) HP9000/747i Service Area: USA Pacific and Mountain timezones, others by arrangement. Access Policy: open access Contact: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>

	<p>navobs2.usnogps.navy.mil <i>Stratum: 1</i></p> <p>Location: Falcon AFB, Colorado Geographic Coordinates: 104 31 30 W, 38 48 30 N WGS84 Synchronization: NTP V3 primary (USNO Alternate Master Clock H-maser) HP9000/747i Service Area: USA Pacific and Mountain timezones, others by arrangement. Access Policy: open access Contact: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>time-a.nist.gov <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>time-a.timefreq.bldrdoc.gov <i>Stratum: 1</i></p> <p>Location: NIST Boulder Laboratories, Boulder, Colorado Synchronization: Direct 1 pps from clock ensemble; lockclock algorithm and ACTS dial-up as backup; DEC Alpha/UNIX Service Area: NSFnet, WESTnet Access Policy: Open to stratum-2 servers, others by arrangement; please use only one of the servers as primary with the other as a backup. Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492 7785.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>time-b.timefreq.bldrdoc.gov <i>Stratum: 1</i></p> <p>Location: NIST Boulder Laboratories, Boulder, Colorado Synchronization: Direct 1 pps from clock ensemble; lockclock algorithm and ACTS dial-up as backup; DEC Alpha/UNIX Service Area: NSFnet, WESTnet Access Policy: Open to stratum-2 servers, others by arrangement; please use only one of the servers as primary with the other as a backup. Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492 7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>time-c.timefreq.bldrdoc.gov <i>Stratum: 1</i></p> <p>Location: NIST Boulder Laboratories, Boulder, Colorado Synchronization: Direct 1 pps from clock ensemble; lockclock algorithm and ACTS dial-up as backup; DEC Alpha/UNIX. Service Area: NSFnet, WESTnet Access Policy: Open to servers with at least 10 clients; others by arrangement. please use only one of these servers primary with the other as backup. Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492 7785.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>

1	time.nist.gov	<i>Stratum: 1</i>
<p>Location: National Center for Atmospheric Research, Boulder, Colorado Geographic Coordinates: 39:58:43.44N 254:43:32.5E +1840m (WGS 84) Synchronization: ACTS dial-up with NTP backup, DEC Alpha UNIX Service Area: NSFnet, WESTnet Access Policy: open to stratum-2 servers and others by arrangement Contact: Judah Levine (jlevine@boulder.nist.gov), (303) 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>		


1	utcnist.colorado.edu	<i>Stratum: 1</i>
<p>Location: JILA Laboratory, University of Colorado Synchronization: ACTS dial-up using lockclock algorithm; DEC Alpha UNIX Service Area: Western US Access Policy: Open to All Colorado users, other stratum-2 servers; others by arrangement Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>		


1	District of Columbia	
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1	ntp2.usno.navy.mil	<i>Stratum: 1</i>
<p>Location: U.S. Naval Observatory, Washington, DC Geographic Coordinates: 77 03 57.7W 38 55 14.1N WGS84 Synchronization: NTP V3 primary (USNO Master Clocks 1,2, and GPS) Service Area: USA Eastern timezone, others by arrangement Access Policy: open access for stratum 2 servers Contact: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	tick.usno.navy.mil	<i>Stratum: 1</i>
<p>Location: U.S. Naval Observatory, Washington, DC Geographic Coordinates: 38:55:14.01 77:03:58.03 (GPS WGS84) Synchronization: NTP V3 primary (USNO Master Clock 2, H-maser), HP9000/747i Service Area: NSFNET Access Policy: open access Contact: Rich Schmidt (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%z_%Y</p>		


1	Delaware	
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	mizbeaver.udel.edu	<i>Stratum: 1</i>
<p>Location: University of Delaware, Newark, DE Geographic Coordinates: 39:40:48.425N, 75:45:02.392W (GPS WGS84) Synchronization: NTP V4 primary (GPS clock), TrueTime NTS-200-GPS Service Area: CAIRN, Abilene/vBNS Access Policy: closed access, except for stratum-2 servers providing synchronization to local networks of ten or more hosts Contact: Dave Mills Note: This server does not implement the NTP control-message protocol</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%Y_%h:%n:%s-%z</p>		


	ntp1.nss.udel.edu	<i>Stratum: 1</i>
<p>Location: University of Delaware, Newark, DE Geographic Coordinates: 39:40:35.8N, 75:44:36.6W (GPS WGS 84) Synchronization: NTP V3 Primary (GPS clock), TrueTime NTS-100-GPS Service Area: BBN Planet SER Access Policy: closed access, except for stratum-2 servers providing synchronization to local networks of ten or more hosts Contact: Ron Reisor (ron@udel.edu) Note: This server does not implement the NTP control-message protocol.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

	rackety.udel.edu	<i>Stratum: 1</i>
<p>Location: University of Delaware, Newark, DE Geographic Coordinates: 39:40:48.425N, 75:45:02.392W (GPS WGS84) Synchronization: NTP V4 primary (GPS clock), Sun IPC/SunOS 4.1.3 Service Area: CAIRN, Abilene/vBNS Access Policy: closed access, except for stratum-2 servers providing synchronization to local networks of ten or more hosts Contact: Dave Mills Note: service is restricted to NTP Version 4 clients only.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		


	Florida	
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	ntp-s1.cise.ufl.edu	<i>Stratum: 1</i>
<p>Location: University of Florida, Gainesville, FL Synchronization: NTP V3 primary (TrueTime GPS-VME) Service Area: Eastern time zone US Access Policy: open access for stratum 2 servers and UFL clients, others by arrangement Contacts: Rich Schmidt, US Naval Observatory CISE, Univ. Florida <></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

	Georgia	
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	navobs1.gatech.edu	<i>Stratum: 1</i>
<p>Location: Georgia Institute of Technology, Atlanta, GA Geographic Coordinates: 84 23 40.9W 33 46 30.0N WGS84 Synchronization: NTP V3 primary (GPS clock) Service Area: USA Eastern timezone, others by arrangement Access Policy: open access for stratum 2 servers</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%z_%Y</p>		

1	<p>time.twc.weather.com <i>Stratum: 1</i></p> <p>Location: The Weather Channel, Atlanta GA Geographic Coordinates: 33:53:39.94N, 84:27:47.98W Synchronization: NTP V4 primary (CMDA), Sun/Solaris Service Area: Primarily Southeastern US Access policy: Open access for stratum 2 servers Contact: NTP Administrator Note: IP addresses are subject to change; please use DNS Important: Access policies subject to change if server is overloaded or abused. No access for dial-up or DHCP systems.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
Hawaii	
1	<p>tick.mhpcc.hpc.mil <i>Stratum: 1</i></p> <p>Location: Maui High Performance Computing Center Geographic Coordinates: 20 44.9286 N, 156 26.4070 W Synchronization: NTP V3 primary (Brandywine/Motorola Oncore GPS) Service Area: Hawaii, others on request Access Policy: open access for stratum 2 servers Contacts: Rich Schmidt (res@tuttle.usno.navy.mil), MHPCC NTP administrator (ntp@mhpcc.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
Illinois	
1	<p>ntp0.mcs.anl.gov <i>Stratum: 1</i></p> <p>Location: Argonne National Laboratories <>, Chicago, IL Synchronization: NTP V3 primary (Brandywine Syncclock32/Oncore GPS) Service Area: Central time zone US Access Policy: open access for stratum 2 servers and ANL clients, others by arrangement Contacts: Rich Schmidt, US Naval Observatory Bill Nickless, Argonne National Labs << nickless@mcs.anl.gov >></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
Massachusetts	
1	<p>bonehed.lcs.mit.edu <i>Stratum: 1</i></p> <p>Location: Massachusetts Institute of Technology, Cambridge, MA Synchronization: Motorola Oncore UT+ GPS, xntp3-5.90, FreeBSD 3.2 Service Area: Eastern US Access Policy: open access Contact: Robert Morris (rtm@lcs.mit.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp.quidnet.com <i>Stratum: 1</i></p> <p>Location: Concord, MA Synchronization: NTP V4 primary, Motorola Oncore VP GPS, Linux Service Area: Eastern US Access Policy: open access for stratum 2 servers, please notify Contact: timekeeper@quidnet.com</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>tick.mit.edu <i>Stratum: 1</i></p> <p>Location: Massachusetts Institute of Technology, Cambridge, MA Synchronization: NTP V3 primary (GPS) HP9000/747i Service Area: eastern time zone, others on request Access Policy: open access to stratum-2 servers and to MIT clients Contacts: Rich Schmidt (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%z_%Y</p>


	<i>Stratum: 1</i>
<p>time.keneli.org</p> <p>Location: Cambridge, MA Synchronization: Motorola Oncore UT+ GPS, Linux Service Area: Eastern US Access Policy: open access Contact: Kenneth Baker (bakerkj@umich.edu) Note: IP addresses are subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

	<i>Stratum: 1</i>
<p>timeserver.cs.umb.edu</p> <p>Location: University of Massachusetts at Boston Geographic Coordinates: 42:18:83N, 71:02:36W. Synchronization: NTP V3/V4 primary (GPS), TrueTime NTS-200 Service Area: New England Access Policy: Open access to stratum-2 servers in service area; any SOHO's in Massachusetts. Contact: Rick Martin (ntp@cs.umb.edu) Note: IP addresses are subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x,_%M_%d,_%Y,_%h:%n:%s-%z</p>	


<input type="checkbox"/>	<p>Maine</p>
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	<i>Stratum: 1</i>
<p>ntp.colby.edu</p> <p>Location: Colby College, Waterville, ME Geographic Coordinates: 69 39 42.0 W, 44 33 48 N WGS84 Synchronization: NTP V3 primary (GPS) Service Area: Northeastern US and Canada, others by arrangement Access Policy: open access for stratum 2 servers Contacts: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil), Jeff Earickson, Colby College (jaearick@colby.edu) Note: IP addresses are subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

<input type="checkbox"/>	<p>Maryland</p>
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	<i>Stratum: 1</i>
<p>time-b.nist.gov</p> <p>Location: NIST Central Computer Facility, Gaithersburg, Maryland Synchronization: ACTS dial-up using lockclock algorithm, DEC Alpha/UNIX Service Area: NSFnet, SURAnet Access Policy: Open to stratum-2 servers, others by arrangement; please use one of the servers as primary with the other as a backup. Contact: Judah Levine (jlevine@boulder`.nist.gov) 303 492 7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>	

<input type="checkbox"/>	<p>Missouri</p>
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	<i>Stratum: 1</i>
<p>navobs1.wustl.edu</p> <p>Location: Washington University, St. Louis, MO Synchronization: NTP V3 primary (GPS) HP9000/747i Service Area: USA Central timezone, others by arrangement. Access Policy: open access Contact: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

North Carolina

 **ncnoc.ncren.net***Stratum: 1*

Location: MCNC, Research Triangle Park, NC
 Synchronization: NTP V3 primary (WWVB clock), Netclock/2, Sun 4/65
 Service Area: NC-REN region
 Access Policy: NC-REN region, other use by prior arrangement
 Contact: Tim Seaver (tas@ncren.net, clockmaster@ncren.net)

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

New Jersey

 **ntp0.jensenresearch.com***Stratum: 1*

Location: Jensen Research Corporation, Oakland NJ
 Geographic Coordinates: 41 00.975 N, 74 15.262 W
 Synchronization: NTP V4 primary; Prϋcis Ct CDMA clock; Intel PIII/866 Win2K
 Service Area: Eastern US
 Access Policy: Closed access, except for stratum-2 servers providing synchronization to local networks of ten or more hosts; others by arrangement only. Please send a message to notify.
 Contact: JRC Network Ops (noc@jensenresearch.com) 201 337-4000
 Note: IP addresses are subject to change; please use DNS.

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

New York

 **nist1-ny.glassey.com***Stratum: 1*

Location: Abovenet, New York City, New York
 Synchronization: ACTS dial-up using lockclock algorithm; DEC Alpha UNIX
 Service Area: North Eastern US
 Access Policy: Open to stratum-2 servers and others by arrangement
 Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492-7785

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)
 - Time Protocol (TCP/IP)
 - Time Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)

DAYTIME timestamp format:
 %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*

Oklahoma

 **now.okstate.edu***Stratum: 1*

Location: Oklahoma State University, Stillwater, OK
 Geographic Coordinates: 97 04 17.0 W, 36 07 19.7 N WGS84
 Synchronization: NTP V4 primary (Motorola UT+)
 Service Area: Central Time Zone, others by arrangement
 Access Policy: open access
 Access Policy: open access
 Contacts: Rich Schmidt, US Naval Observatory (res@tuttle.usno.navy.mil), Matthew Collier, Oklahoma State University (mwc@okstate.edu)

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)
 - Time Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)

DAYTIME timestamp format:
 %x_%M_%d_%h:%n:%s_%z_%Y

Pennsylvania

1	<p>otc1.psu.edu <i>Stratum: 1</i></p> <p>Location: Penn State University, University Park, PA Synchronization: NTP V3 primary (WWV clock), Sun/Unix Service Area: NSFNET, PREPNET, JvNCnet Access Policy: open access Contact: John Balogh (JohnBalogh@psu.edu) (no longer: jdb@ecl.psu.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>www.otc.psu.edu <i>Stratum: 1</i></p> <p>Location: Penn State University, University Park, PA Geographic Coordinates: 40:47:58.1N, 77:51:44.8W (USGS 40077-G7-TF-024) Synchronization: NTP V3 primary (Traconex/PSTI-1020 WWV clock), Sun/Unix Service Area: Internet2, vBNS, CERFnet(AT& T IP Services), PSC/NCNE, CASC. Access Policy: open access Contact: John Balogh Note: www.otc.psu.edu is the CNAME for this service. The IP address WILL change sometime after mid-year 1999; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>Texas</p>
1	<p>tick.uh.edu <i>Stratum: 1</i></p> <p>Location: University of Houston, Houston, TX Geographic Coordinates: 29:43:37N,95:20:22W Synchronization: NTP V3 primary (GPS) HP9000/747i Service Area: US Central time zone, others on request Access Policy: open access to stratum-2 servers and to UH clients Contacts: Rich Schmidt (res@tuttle.usno.navy.mil), Alan Pfeiffer-Traum (apt@uh.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>Utah</p>
1	<p>time.xmission.com <i>Stratum: 1</i></p> <p>Location: XMission Internet, Salt Lake City, Utah Synchronization: Motorola Oncore UT+ GPS, ntp-4.1.1a, Linux 2.4.18-nano Service Area: Western US Access Policy: open access Contact: ntp@xmission.com</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-7:00</p>
	<p>Virginia</p>
1	<p>nist1-dc.glassey.com <i>Stratum: 1</i></p> <p>Location: Abovenet, Vienna, VA Synchronization: ACTS dial-up using lockclock algorithm; DEC Alpha UNIX Service Area: Primarily networks in Eastern US Access Policy: Open to stratum-2 servers and others by arrangement. Contact: Judah Levine (jlevine@boulder.nist.gov) 303 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
	<p>Washington</p>

1	<p>bigben.cac.washington.edu <i>Stratum: 1</i></p> <p>Location: University of Washington, Seattle, WA Synchronization: NTP primary (GPS clock), HP9000/747i HPUX Service Area: Pacific Northwest Access Policy: open access to Pacific Time Zone stratum 2's and to Univ. of Washington clients; others by arrangement Contact: Rich Schmidt, USNO, res@tuttle.usno.navy.mil, Bill Mar, Univ. of Washington (bmar@cac.washington.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>time-nw.nist.gov <i>Stratum: 1</i></p> <p>Location: Microsoft Corporation, Redmond, Washington Synchronization: ACTS Dial-up and lockclock algorithm, DEC Alpha/UNIX Service Area: NorthWestNet, NSFnet Access Policy: open to stratum-2 servers and others by arrangement. Contact: Judah Levine (jlevine@boulder.nist.gov) (303) 492-7785</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %j_%y-%m-%d_%h:%n:%s_%x_%x_%e_%v_%z(NIST)_*</p>
Other	
1	<p>bitsy.mit.edu <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp.cc.utexas.edu <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp.quidnet.com <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp.cs.mu.OZ.AU <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp0.ja.net <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp1-0.uni-erlangen.de <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
1	<p>ntp1-1.uni-erlangen.de <i>Stratum: 1</i></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>

1	ntp1-2.uni-erlangen.de	<i>Stratum: 1</i>
<p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) 		
1	time.ien.it	<i>Stratum: 1</i>
<p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP) <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>		
1	wwvb.isi.edu	<i>Stratum: 1</i>
<p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) 		
Last modified: April 4, 2005		

The List of Public Primary (stratum 2) Time Servers

Argentina		
1	time.sinectis.com.ar	<i>Stratum: 2</i>
<p>Location: Sinectis S.A., Buenos Aires (Argentina) Geographic Coordinates: 3432'S, 5820'W Synchronization: NTP V3 secondary (stratum 2), i686/Linux Service Area: Argentina Access Policy: open access, please send a message to notify. Contact: timekeeper@sinectis.com.ar Note: time is an alias and the IP address may change, please use DNS.</p> <p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) 		
1	tick.nap.com.ar	<i>Stratum: 2</i>
<p>Location: Network Access Point, Buenos Aires, Argentina Synchronization: NTP V3 secondary (stratum 2), Cisco IOS Service Area: Argentina Access Policy: open access, please send a message to notify Contact: Pablo J. Fritz (timekeeper2002@nap.com.ar) Note: tick.nap.com.ar is a CNAME</p> <p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) 		
1	tock.nap.com.ar	<i>Stratum: 2</i>
<p>Location: Network Access Point, Buenos Aires, Argentina Synchronization: NTP V3 secondary (stratum 2), Cisco IOS Service Area: Argentina Access Policy: open access, please send a message to notify Contact: Pablo J. Fritz (timekeeper2002@nap.com.ar) Note: tock.nap.com.ar is a CNAME</p> <p>Supports following time protocols:</p> <ul style="list-style-type: none"> - Simple Network Time Protocol (UDP/IP) 		
Belgium		

1	ntp1.belbone.be	<i>Stratum: 2</i>
<p>Location: Brussels, Belgium Synchronization: xntpd (stratum 2), linux/unix Service Area: European Union Access Policy: open access Contact: Belbone NOC (timemaster@belbone.be)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2.belbone.be	<i>Stratum: 2</i>
<p>Location: Brussels, Belgium Synchronization: xntpd (stratum 2), linux/unix Service Area: European Union Access Policy: open access Contact: Belbone NOC (timemaster@belbone.be)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
Brazil		
1	ntp.cais.rnp.br	<i>Stratum: 2</i>
<p>Location: Brazilian Research Network/Rede Nacional de Pesquisa (RNP) Synchronization: NTP V4 Secondary (stratum 2), Sun SPARC10/Solaris, Service Area: Brazil Access Policy: Open access to stratum 2 and stratum 3 NTP servers. Please, send a mail to notify. Contact: ntp-admin@cais.rnp.br</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.hiway.com.br	<i>Stratum: 2</i>
<p>Location: Brazil, SP, Valinhos (near Sao Paulo) Hiway Internet Provider Valinhos Geographic Coordinates: 22:58:22.4S 47:00:19.7W / Alt +729m (GPS WGS84) Synchronization: NTP V4 Secondary (stratum 2), Linux i586, NTPd v.4.1.71 Service Area: Brazil Access Policy: Open access. Please, send a mail to notify. Contact: Fernando Braghetto, webmaster@hiway.com.br, 55 19 38694300 Note: IP address are subject to change; use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.massayonet.com.br	<i>Stratum: 2</i>
<p>Location: Telemacro Sistemas e Servi?os Synchronization: NTP V4 Secondary (stratum 2), OpenBSD 3.4 Service Area: Brazil Access Policy: Open access to stratum 2 and stratum 3 NTP servers. Please send a mail to notify Contact: ntp@massayonet.com.br</p> <p>Supports following time protocols: - Time Protocol (TCP/IP)</p>		
1	ntp.pop-pr.rnp.br	<i>Stratum: 2</i>
<p>Location: PoP-PR/Brazilian Research Network (RNP) Synchronization: NTP V4 Secondary (stratum 2), IBM RS6000 - 43P-240 /Debian GNU Linux Service Area: Brazil Access Policy: Open access to stratum 2 server. Please, send a mail to notify. Contact: ntp-admin@pop-pr.rnp.br</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.ufes.br	<i>Stratum: 2</i>
<p>Location: POP-ES Federal University of Espirito Santo / POP-ES Universidade Federal do Espirito Santo (UFES) Synchronization: NTP V4 Secondary (stratum 2), AIX 4 Service Area: Brazil Access Policy: Open access to stratum 2 and stratum 3 NTP servers. Please, send a mail to notify. Contact: ntp-admin@ufes.br</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp1.pucpr.br	<i>Stratum: 2</i>
<p>Location: Brazilian / Pontificia Universidade Catolica do Parana Synchronization: NTP V4 secondary (stratum 2), Sun SPARC4/Solaris 7 Service =Cirea: Brazil Access Policy:open access to stratum 2 server Contact: ntp1@pucpr.br</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
Canada		
1	ntp.cpsc.ucalgary.ca	<i>Stratum: 2</i>
<p>Location: University of Calgary, Calgary, Alberta, Canada Synchronization: NTP V4 Secondary, i686/Solaris Service Area: Canada Access Policy: open access Contact: Brad Arlt (timekeeper@cpsc.ucalgary.ca)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp1.cmc.ec.gc.ca	<i>Stratum: 2</i>
<p>Location: Canadian Meteorological Centre, Dorval, Quйбec, Canada Synchronization: NTP V4 secondary SGI/Unix Service Area: Eastern Canada Access Policy: open access Contact: (ntp-admin@cmc.ec.gc.ca)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2.cmc.ec.gc.ca	<i>Stratum: 2</i>
<p>Location: Canadian Meteorological Centre, Dorval, Quйбec, Canada Synchronization: NTP V4 secondary SGI/Unix Service Area: Eastern Canada Access Policy: open access Contact: (ntp-admin@cmc.ec.gc.ca)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	tick.utoronto.ca	<i>Stratum: 2</i>
<p>Location: University of Toronto, Toronto, Ontario, CANADA Synchronization: NTP V3 secondary (stratum 2), Sparc 10, Solaris 2.5.1 Service Area: Eastern Canada Access Policy: open access, send email to notify. Contact: Russell Sutherland (russ@madhaus.cns.utoronto.ca) Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	time.chu.nrc.ca	<i>Stratum: 2</i>
<p>Location: National Research Council of Canada, Ottawa, Ontario, Canada Geographic Coordinates: 45:17:41N, 75:45:27W Synchronization: NTP V3 secondary (stratum 2), PC/Linux Service Area: Canada Access Policy: open access Contact: time@nrc.ca Note: IP address subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

time.nrc.ca	<i>Stratum: 2</i>
<p>Location: National Research Council of Canada, Ottawa, Ontario, Canada Geographic Coordinates: 45:27N, 75:37W Synchronization: NTP V3 secondary (stratum 2), PC/Linux Service Area: Canada Access Policy: open access Contact: time@nrc.ca Note: time is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>	

timelord.uregina.ca	<i>Stratum: 2</i>
<p>Location: University of Regina, Regina, Saskatchewan, Canada Geographic Coordinates: 50:25N , 104:35:20 W Synchronization: NTP V3 secondary (stratum 2), Sun Sparc 5 Service Area: SASK#net, CA*net, Canada Access Policy: open access Contact: Mark Haidl (timekeeper@uregina.ca) Note: please limit to one or two hosts per site.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-6:00</p>	

tock.utoronto.ca	<i>Stratum: 2</i>
<p>Location: University of Toronto, Toronto, Ontario, CANADA Synchronization: NTP V3 secondary (stratum 2), Sparc 5, Solaris 2.5 Service Area: Eastern Canada Access Policy: open access, send email to notify. Contact: Russell Sutherland (russ@madhaus.cns.utoronto.ca) Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Croatia

zg1.ntp.carnet.hr	<i>Stratum: 2</i>
<p>Location: CARNet (Croatian Academic and Research Network), Zagreb, Croatia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Croatia/Europe Access Policy: open access, glad to receive a note Contact: ntp@carnet.hr Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

zg2.ntp.carnet.hr	<i>Stratum: 2</i>
<p>Location: CARNet (Croatian Academic and Research Network), Zagreb, Croatia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Croatia/Europe Access Policy: open access, glad to receive a note Contact: ntp@carnet.hr Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

1	st.ntp.carnet.hr	<i>Stratum: 2</i>
<p>Location: CARNet (Croatian Academic and Research Network), Split, Croatia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Croatia/Europe Access Policy: open access, glad to receive a note Contact: ntp@carnet.hr Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>		

1	ri.ntp.carnet.hr	<i>Stratum: 2</i>
<p>Location: CARNet (Croatian Academic and Research Network), Rijeka, Croatia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/UNIX Service Area: Croatia/Europe Access Policy: open access, glad to receive a note Contact: ntp@carnet.hr Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	os.ntp.carnet.hr	<i>Stratum: 2</i>
<p>Location: CARNet (Croatian Academic and Research Network), Osijek, Croatia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Croatia/Europe Access Policy: open access, glad to receive a note Contact: ntp@carnet.hr Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>		

Czech Republic

1	ntp.cgi.cz	<i>Stratum: 2</i>
<p>Location: Prague, The Czech Republic Synchronization: NTP V4 secondary (stratum 2), PC/FreeBSD Service Area: Czech Republic Access Policy: open access Contact: Jakub Chromy (helpdesk@cgi.cz) Note: ntp is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp.globe.cz	<i>Stratum: 2</i>
<p>Location: Prague, The Czech Republic Synchronization: NTP V4 secondary (stratum 2), PC/Linux Service Area: Czech Republic Access Policy: open access Contact: Jan Panoch (panoch.jan@globe.cz) Note: ntp is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp.karpo.cz	<i>Stratum: 2</i>
<p>Location: Prague, The Czech Republic Synchronization: NTP V4 secondary (stratum 2), PC/Linux Service Area: Czech Republic Access Policy: open access Contact: Karel Zvara (zvara@karpo.cz) Note: ntp is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

ntp1.contactel.cz	<i>Stratum: 2</i>
<p>Location: Prague, The Czech Republic Synchronization: NTP V4 secondary (stratum 2), PC/Linux Service Area: Czech Republic Access Policy: open access Contact: Contactel hostmasters (hostmaster@ctt.cz) Note: ntp1.contactel.cz is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp2.contactel.cz	<i>Stratum: 2</i>
<p>Location: Prague, The Czech Republic Synchronization: NTP V4 secondary (stratum 2), PC/Linux Service Area: Czech Republic Access Policy: open access Contact: Contactel hostmasters (hostmaster@ctt.cz) Note: ntp1.contactel.cz is an alias and the IP address may change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Germany

tick.fh-augsburg.de	<i>Stratum: 2</i>
<p>Location: Augsburg University of Applied Sciences (FH), Augsburg, Bavaria, Germany Synchronization: NTP V3 secondary (stratum 2), i486/Linux Service Area: Germany, Europe, European academic community Access Policy: please check the details at our website Contact: Burkhard Erdlenbruch (erd@rz.fh-augsburg.de)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

tock.fh-augsburg.de	<i>Stratum: 2</i>
<p>Location: Augsburg University of Applied Sciences (FH), Augsburg, Bavaria, Germany Synchronization: NTP V3 secondary (stratum 2), i486/Linux Service Area: Germany, Europe, European academic community Access Policy: please check the details at our website Contact: Burkhard Erdlenbruch (erd@rz.fh-augsburg.de)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

tack.fh-augsburg.de	<i>Stratum: 2</i>
<p>Location: Augsburg University of Applied Sciences (FH), Augsburg, Bavaria, Germany Synchronization: NTP V4 secondary (stratum 2), i486/Linux Service Area: Germany, Europe, European academic community Access Policy: please check the details at our website Contact: Burkhard Erdlenbruch (erd@rz.fh-augsburg.de)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

El Salvador

clock.cimat.ues.edu.sv	<i>Stratum: 2</i>
<p>Location: Faculty of Natural Sciences and Mathematics, University of El Salvador, San Salvador, El Salvador Synchronization: NTP V4 secondary (stratum 2), PC/Linux Service Area: Central America Access Policy: open access, please send a message to notify Contact: (admin@ciamat.ues.edu.sv) Note: clock.cimat.ues.edu.sv is a CNAME</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-5:00</p>	

France

1	ntp.obspm.fr	<i>Stratum: 2</i>
<p>Location: BNM-SYRTE, Observatoire de Paris, Paris, France Synchronization: NTP V4 secondary (stratum-2), i386/Linux Service Area: France/Europe Access Policy: open access, but please send a message to notify Contact: info.bnm-syrte@obspm.fr, More Informations? Note: use DNS for IP address.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.tuxfamily.net	<i>Stratum: 2</i>
<p>Location: SFINX or TeleHouse2, Paris, France Synchronization: NTP V4 secondary (stratum-2), Debian GNU/Linux ix86 Service Area: France/Europe Access Policy: open access, no need to notify Contact: ntp-adm@tuxfamily.net, More Informations ? Note: see ntp{1,2}.tuxfamily.net entries for more information</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp1.tuxfamily.net	<i>Stratum: 2</i>
<p>Location: SFINX, Paris, France Synchronization: NTP V4 secondary (stratum-2), Debian GNU/Linux ix86 Service Area: France/Europe Access Policy: open access, no need to notify Contact: ntp-adm@tuxfamily.net, More Informations ? Note: If you use this service regularly, you should subscribe to ntp@tuxfamily.org</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2.tuxfamily.net	<i>Stratum: 2</i>
<p>Location: TeleHouse2, Paris, France Synchronization: NTP V4 secondary (stratum-2), Debian GNU/Linux ix86 Service Area: France/Europe Access Policy: open access, no need to notify Contact: ntp-adm@tuxfamily.net, More Informations ? Note: If you use this service regularly, you should subscribe to ntp@tuxfamily.org</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.univ-lyon1.fr	<i>Stratum: 2</i>
<p>Location: CISM, Lyon, France Synchronization: NTP V3 secondary (stratum 2), Sun SS10 Service Area: France, Switzerland, Italy, Europe Access Policy: open access Contact: ntp-adm@univ-lyon1.fr Note: we would appreciate getting a little note if you make regular use of this server, so that we can put you on our NTP mailing-list.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.via.ecp.fr	<i>Stratum: 2</i>
<p>Location: VIA, Ecole Centrale Paris, France Synchronization: ntp v4.0.99c (stratum 2), Debian GNU/Linux x86 Service Area: France/Europe Policy: open access, send email to notify. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: ntpadmin@via.ecp.fr</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
Greece		

ntp.mfa.gr	<i>Stratum: 2</i>
<p>Location: Athens, GR Synchronization: NTP V3 secondary (stratum 2), i686/FreeBSD Service Area: Greece Access Policy: open access/GR, please send a message to notify. Contact: ntp@mfa.gr Note: "ntp" is an alias and the IP address may change, please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Hong Kong

ntp.cuhk.edu.hk	<i>Stratum: 2</i>
<p>Location: The Chinese University of Hong Kong. Geographic Coordinates: 22:25:10N, 114:12:22E Synchronization: NTP V3 secondary (stratum 2), i686/Linux Service Area: Hong Kong, Taiwan, China, and South East Asia Access Policy: open access Contact: Connie Law (conniel@cuhk.edu.hk), Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Hungary

time.kfki.hu	<i>Stratum: 2</i>
<p>Location: KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary Synchronization: NTP secondary (stratum 2), Sun/Solaris Service Area: HUNGARNET Access Policy: open access, send email to notify. Contact: time@sunserv.kfki.hu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>	

Ireland

ntp.maths.tcd.ie	<i>Stratum: 2</i>
<p>Location: School of Mathematics, Trinity College, Dublin, Ireland. Synchronization: NTPV4 secondary (stratum 2), Intel, FreeBSD 2.2 Service Area: Ireland, UK Access Policy: open access, please send a message to notify. Contact: time@maths.tcd.ie Note: ntp.cs.tcd.ie, ntp.maths.tcd.ie and ntp.tcd.ie peer together over local area net. It is normally sufficient just to pick one machine to peer with.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>	

Italy

ntps.net4u.it	<i>Stratum: 2</i>
<p>Location: 4u Srl, Vercelli, Italy Synchronization: NTP secondary (stratum 2), Linux 2 on Intel PIII 500MHz Service Area: Italy Access Policy: open access, please send a message to notify Contact: timemaster@net4u.it</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Korea

ntp.ewha.net	<i>Stratum: 2</i>
<p>Location: KT-IDC, Bundang, Korea Geographic Coordinates: 37:24:45.3N 127:07:28.5E (WGS 84) Synchronization: NTP V3 (stratum 2), i586/Linux Service Area: Korea Access Policy: Open access within Korea, send email to notify. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: ntp@ewha.net Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Malaysia

ntp.doubleukay.com	<i>Stratum: 2</i>
<p>Location: Cyberjaya, Malaysia Synchronization: NTP V4 secondary (stratum 2), Intel/Linux Service Area: Malaysia Access Policy: open access Contact: Woon Wai Keen (timekeeper@doubleukay.com)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Netherlands

ntp1.theinternetone.net	<i>Stratum: 2</i>
<p>Location: The Internetone, Abovenet Amsterdam, The Netherlands Synchronization: NTP V4 secondary (stratum 2), i686/Linux Service Area: Netherlands/Europe, Abovenet Access Policy: open access, please send a message to notify Contact: Cees de Groot (cg@theinternetone.net) Note: please choose one of ntp{1,2,3}.theinternetone.net. Use DNS, addresses subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp2.theinternetone.net	<i>Stratum: 2</i>
<p>Location: The Internetone, Abovenet Amsterdam, The Netherlands Synchronization: NTP V4 secondary (stratum 2), i686/Linux Service Area: Netherlands/Europe, Abovenet Access Policy: open access, please send a message to notify Contact: Cees de Groot (cg@theinternetone.net) Note: please choose one of ntp{1,2,3}.theinternetone.net. Use DNS, addresses subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp3.theinternetone.net	<i>Stratum: 2</i>
<p>Location: The Internetone, Abovenet Amsterdam, The Netherlands Synchronization: NTP V4 secondary (stratum 2), i686/Linux Service Area: Netherlands/Europe, Abovenet Access Policy: open access, please send a message to notify Contact: Cees de Groot (cg@theinternetone.net) Note: please choose one of ntp{1,2,3}.theinternetone.net. Use DNS, addresses subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

New Zealand

ntp.iprolink.co.nz	<i>Stratum: 2</i>
<p>Location: Iprolink, CBD, Auckland, New Zealand Geographic Coordinates: 36:50:59.6 S, 174:45:31.9 E, (GPS NZ Geodatum 1949) Synchronisation: NTP V3 (stratum 2), Cisco Router Service Area: New Zealand Access Policy: Open access within New Zealand, send email to notify. Contact: ntp@iprolink.co.nz Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp.public.otago.ac.nz	<i>Stratum: 2</i>
<p>Location: University of Otago, Dunedin, New Zealand Synchronisation: NTP V3 (stratum 2), Linux on Intel Service Area: New Zealand Access Policy: Open access within New Zealand, send email to notify. Contact: ntp@otago.ac.nz Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Norway

fartein.ifi.uio.no	<i>Stratum: 2</i>
<p>Location: University of Oslo, Norway Geographic Coordinates: 59:56:32N, 10:43:22E Synchronization: NTP secondary (stratum 2), DEC Alpha OSF/1 V4.0 Service Area: NORDUnet Access Policy: open access Contact: timekeeper@ifi.uio.no)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+3:00</p>	

time.alcanet.no	<i>Stratum: 2</i>
<p>Location: Alcanet International, Oslo, Norway Synchronization: NTP V3 secondary (stratum 2), PC/Linux Service Area: Europe=20 Access Policy: open access, notify message appreciated Contact: timekeeper@alcanet.no</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Russia

ntp.psn.ru	<i>Stratum: 2</i>
<p>Location: Pushchino, Moscow region, Russia Geographic Coordinates: 54:50N, 37:37E Synchronization: NTP secondary (stratum 2), Alpha/Linux Service Area: Russia Access Policy: open access, please send a message to notify Contact: clockmaster@psn.ru</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+4:00</p>	

Slovenia

biofiz.mf.uni-lj.si	<i>Stratum: 2</i>
<p>Location: Institute of Biophysics, University of Ljubljana, Slovenia Geographic Coordinates: 46:03:09N, 14:30:40E Synchronization: NTP V4 secondary (stratum 2), IBM/Linux Service Area: Slovenia/Europe Access Policy: open access, please send a message to notify Contact: Primoz Peterlin (time@biofiz.mf.uni-lj.si)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>	

ntp1.arnes.si	<i>Stratum: 2</i>
<p>Location: ARNES (Academic and Research Network of Slovenia), Ljubljana, Slovenia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Slovenia/Europe Access Policy: open access with some restrictions (see http://www.arnes.si/english/ntp_access.html) Contact: ntp-admin@arnes.si Note: IP address subject to change; better useDNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+3:00</p>	

ntp2.arnes.si	<i>Stratum: 2</i>
<p>Location: ARNES (Academic and Research Network of Slovenia), Ljubljana, Slovenia Synchronization: NTP V4 secondary (stratum 2), Sun Sparc/Solaris Service Area: Slovenia/Europe Access Policy: open access with some restrictions (see http://www.arnes.si/english/ntp_access.html) Contact: ntp-admin@arnes.si Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

time.ijs.si	<i>Stratum: 2</i>
<p>Location: J. Stefan Institute, Ljubljana, Slovenia Geographic Coordinates: 46:02:35N, 14:29:17E (WGS84) Synchronization: NTP V4 secondary (stratum 2), DEC Alpha / Digital Unix Service Area: Slovenia/Europe Access Policy: open access, glad to receive a note Contact: Mark Martinec (timekeeper@ijs.si) Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

time.ijs.si	<i>Stratum: 2</i>
<p>Location: J. Stefan Institute, Ljubljana, Slovenia Geographic Coordinates: 46° 2.517'N, 14° 29.241'E (WGS84) Synchronization: NTP V4 secondary (stratum 2), Compaq (DEC) Alpha / Tru64 Unix with MICRO_TIME kernel option Service Area: Slovenia/Europe Access Policy: open access, glad to receive a note Contact: Mark Martinec (timekeeper@ijs.si); More info? Note: IP address subject to change; better use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Spain

hora.oxixares.com	<i>Stratum: 2</i>
<p>Location: Ogijares (Granada/SPAIN) Synchronization: ntp v4.1.1 secondary (stratum 2)/athlon XP 2500+/SuSE Linux 8.2 Service Area: Spain Access Policy: Public (glad to receive a note) Contact: timekeeper@oxixares.com</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Sweden

ntp.lth.se	<i>Stratum: 2</i>
<p>Location: Lund Institute of Technology, Lund, Sweden Synchronization: NTP V3 secondary (stratum 2), Sun/Solaris Service Area: Sweden, NORDUnet Access Policy: open access, send email to notify. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: timemaster@lth.se</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>	

time.flygplats.net	<i>Stratum: 2</i>
<p>Location: flygplats.net, Sigtuna, Sweden Synchronization: NTP V4 secondary, i386, FreeBSD Service Area: Europe Access Policy: Open access Contact: timekeeper@flygplats.net Note: IP address subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

Turkey

time.deu.edu.tr	<i>Stratum: 2</i>
<p>Location: Dokuz Eylul University, Izmir, Turkey Synchronization: NTP V4 Secondary (stratum 2), Sun SPARC10/Solaris, Service Area: Turkey Access Policy: Open access Please, send a mail to notify. Contact: berent@deu.edu.tr Note: IP address are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

United Kingdom







a.ntp.alphazed.net	<i>Stratum: 2</i>
<p>Location: Telehouse, London E14 Synchronization: NTP 4, FreeBSD Service Area: all areas Access Policy: open access Contact: ntp@alphazed.com Note: Please check http://www.alphazed.co.uk/support/ntp.php</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	








bear.zoo.bt.co.uk	<i>Stratum: 2</i>
<p>Location: BT Adastral Park, Ipswich, England Synchronisation: NTP Secondary, PentiumIII/Linux 2.4 Service Area: UK Access Policy: Open Access Contact: John Sager, jcs@zoo.bt.co.uk Note: WYSIWYG. No service guarantee, so don't use it as your sole sync source.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

ntp.cis.strath.ac.uk	<i>Stratum: 2</i>
<p>Location: Dept. Computer and Information Sciences, University of Strathclyde, Glasgow, Scotland. Geographic Coordinates: 04:14W, 55:52N Synchronization: NTP V4 secondary Service Area: UK/Europe Access Policy: open access Contact: Ian Gordon (ntp@cis.strath.ac.uk) Note: Do not use IP address because these can change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

1	ntp.exnet.com	<i>Stratum: 2</i>
<p>Location: ExNet Ltd, London, UK Synchronization: NTP secondary (stratum 2), Sun-4/Unix Service Area: UK/Europe/any Access Policy: semi-open access, please send message first for access Contact: sysadmin@exnet.com or dhd@exnet.com Note: Please see our Web page before using. Please use CNAME ntp.exnet.com since IP address may well change.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2a.mcc.ac.uk	<i>Stratum: 2</i>
<p>Location: University of Manchester, Manchester, England Synchronization: NTP secondary (S2), Sun/SunOS Service Area: UK Access Policy: Open Access Contact(s): timelords@mcc.ac.uk Note: Please use DNS for address, subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>		
1	ntp2b.mcc.ac.uk	<i>Stratum: 2</i>
<p>Location: University of Manchester, Manchester, England Synchronization: NTP secondary (S2), PC/FreeBSD Service Area: UK Access Policy: Open Access Contact(s): timelords@mcc.ac.uk Note: Please use DNS for address, subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>		
1	ntp2c.mcc.ac.uk	<i>Stratum: 2</i>
<p>Location: University of Manchester, Manchester, England Synchronization: NTP secondary (S2), PC/FreeBSD Service Area: UK Access Policy: Open Access Contact(s): timelords@mcc.ac.uk Note: Please use DNS for address, subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>		
1	ntp2d.mcc.ac.uk	<i>Stratum: 2</i>
<p>Location: University of Manchester, Manchester, England Synchronization: NTP secondary (S2), SGI/Irix Service Area: UK Access Policy: Open Access Contact(s): timelords@mcc.ac.uk Note: Please use DNS for address, subject to change</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp0.sandvika.net	<i>Stratum: 2</i>
<p>Location: Telehouse Europe, London E14. Geographic Coordinates: 51°30.71'N 0°00.08'W Synchronisation: NTP V4 secondary Sun UltraSPARC Solaris 8 Service area: UK / Europe Contact: time@sandvika.net Note: www.sandvika.net/time (ntp2 new - due online mid-October 2002).</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp1.sandvika.net	<i>Stratum: 2</i>
<p>Location: Telehouse Europe, London E14. Geographic Coordinates: 51°30.71'N 0°00.08'W Synchronisation: NTP V4 secondary Sun UltraSPARC Solaris 8 Service area: UK / Europe Contact: time@sandvika.net Note: www.sandvika.net/time (ntp2 new - due online mid-October 2002).</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2.sandvika.net	<i>Stratum: 2</i>
<p>Location: Telehouse Europe, London E14. Geographic Coordinates: 51°30.71'N 0°00.08'W Synchronisation: NTP V4 secondary Sun UltraSPARC Solaris 8 Service area: UK / Europe Contact: time@sandvika.net Note: www.sandvika.net/time (ntp2 new - due online mid-October 2002).</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp0.uk.uu.net	<i>Stratum: 2</i>
<p>Configuration: NTP V3 secondary (stratum 2), Sun sparc Ultra, Solaris 7, xntpd 3-5.93 Location: Cambridge, UK Service Area: UUNET (formerly known in the UK as PIPEX); UK Access Policy: Semi-open access. These are primarily for use by UUNET customers who may use them without asking, but others are welcome to peer if they give notice. Contact: timelord@uk.uu.net Note: This service is supported on a best-effort basis, but is not guaranteed. UUNET customers should peer with all three: ntp0.uk.uu.net, ntp1.uk.uu.net, and ntp2.uk.uu.net.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp1.uk.uu.net	<i>Stratum: 2</i>
<p>Configuration: NTP V3 secondary (stratum 2), Sun sparc Ultra, Solaris 7, xntpd 3-5.93 Location: Cambridge, UK Service Area: UUNET (formerly known in the UK as PIPEX); UK Access Policy: Semi-open access. These are primarily for use by UUNET customers who may use them without asking, but others are welcome to peer if they give notice. Contact: timelord@uk.uu.net Note: This service is supported on a best-effort basis, but is not guaranteed. UUNET customers should peer with all three: ntp0.uk.uu.net, ntp1.uk.uu.net, and ntp2.uk.uu.net.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp2.uk.uu.net	<i>Stratum: 2</i>
<p>UK ntp2.uk.uu.net 158.43.192.66 Configuration: NTP V3 secondary (stratum 2), Sun sparc Ultra, Solaris 7, xntpd 3-5.93 Location: London, UK Service Area: UUNET (formerly known in the UK as PIPEX); UK Access Policy: Semi-open access. These are primarily for use by UUNET customers who may use them without asking, but others are welcome to peer if they give notice. Contact: timelord@uk.uu.net Note: This service is supported on a best-effort basis, but is not guaranteed. UUNET customers should peer with all three: ntp0.uk.uu.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
USA		
1	time.cachenetworks.com	<i>Stratum: 2</i>
<p>Location: Multiple, United States Synchronization: NTP V4 secondary (stratum 2) Service Area: US/any Access Policy: open access, please send a message to notify Contact: Matt Levine (matt.levine@cachenetworks.com) Note: service is (unicast) anycasted in multiple locations.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
Arizona		

	<p>decimal.lib.ci.phoenix.az.us</p> <p>Location: Phoenix, AZ Synchronization: NTP V4 secondary (stratum 2) P-III/Linux 2.4 Service Area: North America Access Policy: Open access. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: timekeeper@phxlib.org</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>dewey.lib.ci.phoenix.az.us</p> <p>Location: Phoenix, AZ Synchronization: NTP V4 secondary (stratum 2) P-III/Linux 2.4 Service Area: North America Access Policy: Open access. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: timekeeper@phxlib.org</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp.drydog.com</p> <p>Location: Tempe, AZ Synchronization: NTP V4 secondary (stratum 2) P-III/Linux 2.4 Service Area: Western United States and Northern Mexico Access Policy: open access, please send a message to notify. Please limit access to one or two hosts per site (large sites should set up their own ntp server) Contact: Dan Anderson (timekeeper@drydog.com)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
<p>California</p>		
	<p>clock.fmt.he.net</p> <p>Location: Hurricane Electric, Fremont, California Synchronization: NTP V4 primary (GPS), Symmetricom NTS-150 Service Area: all areas Access Policy: open access Contact: support@he.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x,_%M_%d,_%Y,_%h:^n:%m-%z</p>	<p><i>Stratum: 2</i></p>
	<p>clock.sjc.he.net</p> <p>Location: Hurricane Electric, San Jose, California Synchronization: NTP V4 primary (CDMA), Endrun Praecis CNTP Service Area: all areas Access Policy: open access Contact: support@he.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp.ucsd.edu</p> <p>Location: UCSD Academic Computing Services/Network Operations, San Diego, CA Synchronization: NTP secondary (stratum 2) Service Area: CERFNET; NSFNET, SDSC region and nearby Access Policy: open access, please send a message to notify. Contact: timekeeper@ucsd.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>

	<p>ntp1.mainecon.com</p> <p>Location: Quincy, California Geographic Coordinates: 39:56.863N, 120:54.657W Synchronization: NTP V4 secondary (stratum 2) P-II/X86 Solaris 2.7 Service Area: North America Access Policy: Open Access, please drop us a note so we can add you to our mailing list. Contact: time@mainecon.com or Chris Kennedy (chris@mainecon.com) Note: ntp1 is a CNAME for time service. Please use DNS; IP assignments subject to change.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp2.mainecon.com</p> <p>Location: Quincy, California Geographic Coordinates: 39:56.863N, 120:54.657W Synchronization: NTP V4 secondary (stratum 2) Sun 4/75 Solaris 2.7 Service Area: North America Access Policy: Open Access, please drop us a note so we can add you to our mailing list. Contact: time@mainecon.com or Chris Kennedy (chris@mainecon.com) Note: ntp2 is a CNAME for time service. Please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp1.sf-bay.org</p> <p>Location: San Jose, CA Synchronization: NTP secondary (stratum 2), FreeBSD Service Area: North America: Northern California and Pacific Northwest Access Policy: open access, please send a message to notify Contact: Scott Hazen Mueller (clockmaster@sf-bay.org)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp2.sf-bay.org</p> <p>Location: Los Angeles, CA Synchronization: NTP secondary (stratum 2), FreeBSD Service Area: North America: Southern California Access Policy: open access, please send a message to notify Contact: Scott Hazen Mueller (clockmaster@sf-bay.org)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp.ucsd.edu</p> <p>Location: UCSD Academic Computing Services/Network Operations, San Diego, CA Synchronization: NTP secondary (stratum 2) Service Area: CERFNET; NSFNET, SDSC region and nearby Access Policy: open access, please send a message to notify. Contact: timekeeper@ucsd.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>reloj.kjsl.com</p> <p>Location: Salinas, CA, USA Synchronization: NTP V3 secondary (stratum 2), MultiNet on VMS Service Area: Western USA (Layer42 connectivity) Access Policy: open access, please drop me a note if you use the server so I can keep you on the notify list. Contact: ></p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>time.berkeley.netdot.net</p> <p>Location: Berkeley, CA Synchronization: NTP secondary (stratum 2), FreeBSD Service Area: North America: Pacific Coast Access Policy: open access, please send a message to notify Contact: Caleb Haley (chaley@netdot.net) Note: time.berkeley.netdot.net is a CNAME</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>

Colorado

 **ntp1.tummy.com***Stratum: 2*

Location: tummy.com, ltd., Fort Collins, CO
 Synchronization: NTP Secondary (stratum 2), i686/Linux
 Service Area: US
 Access Policy: open access.
 Contact: ntp@tummy.com
 Note: ntp1 is an alias and the IP address may change, please use DNS.

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Delaware

 **louie.udel.edu***Stratum: 2*

Location: University of Delaware, Newark, DE
 Synchronization: NTP V3 secondary (stratum 2), Sun SPARC10/Solaris 2.6
 Service Area: CAIRN, Abilene/vBNS
 Access Policy: open access
 Contact: Dave Mills

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)

Georgia

 **rolex.usg.edu***Stratum: 2*

Location: University System of Georgia NOC, Atlanta, GA
 Synchronization: NTP secondary (stratum 2)
 Service Area: PeachNet (Georgia)
 Access Policy: open access, please send a message with the hostname and/or address of your NTP client to notify.
 Contact: timekeeper@usg.edu

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)
 - Time Protocol (TCP/IP)
 - Time Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)

DAYTIME timestamp format:
 %x_%M_%d_%h:%n:%s_%Y_%z=-4:00


 **timex.usg.edu***Stratum: 2*

Location: University System of Georgia NOC, Atlanta, GA
 Synchronization: NTP secondary (stratum 2)
 Service Area: PeachNet (Georgia)
 Access Policy: open access, please send a message with the hostname and/or address of your NTP client to notify.
 Contact: timekeeper@usg.edu

Supports following time protocols:
 - Simple Network Time Protocol (UDP/IP)
 - Time Protocol (TCP/IP)
 - Time Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)
 - Daytime Protocol (UDP/IP)

DAYTIME timestamp format:
 %x_%M_%d_%h:%n:%s_%Y_%z=-4:00

Illinois

	<p>ntp-0.cso.uiuc.edu</p> <p>Location: University of Illinois, Urbana-Champaign, IL Synchronization: NTP secondary (stratum 2), Cisco-ASM/4 Service Area: CICNET, Midwest, NCSA region Access Policy: open access Contact: Charley Kline (kline@uiuc.edu) Note: select one of (ntp-0.cso.uiuc.edu, ntp-1.cso.uiuc.edu, ntp-2.cso.uiuc.edu) to equalize load. Use names rather than IP addresses if possible. The ntp-N aliases follow wherever the service is moved to.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-1.cso.uiuc.edu</p> <p>Location: University of Illinois, Urbana-Champaign, IL Synchronization: NTP secondary (stratum 2), Cisco-ASM/4 Service Area: CICNET, Midwest, NCSA region Access Policy: open access Contact: Charley Kline (kline@uiuc.edu) Note: select one of (ntp-0.cso.uiuc.edu, ntp-1.cso.uiuc.edu, ntp-2.cso.uiuc.edu) to equalize load. Use names rather than IP addresses if possible. The ntp-N aliases follow wherever the service is moved to.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-1.mcs.anl.gov</p> <p>Location: Argonne National Laboratory, near Chicago, IL Synchronization: NTP V3 secondary (stratum 2), Sun Sparcstation Service Area: NSF/ANSNet, CICNet, NetIllinois, ESNet, others welcome</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-2.cso.uiuc.edu</p> <p>Location: University of Illinois, Urbana-Champaign, IL Synchronization: NTP secondary (stratum 2), Cisco-ASM/4 Service Area: CICNET, Midwest, NCSA region Access Policy: open access Contact: Charley Kline (kline@uiuc.edu) Note: select one of (ntp-0.cso.uiuc.edu, ntp-1.cso.uiuc.edu, ntp-2.cso.uiuc.edu) to equalize load. Use names rather than IP addresses if possible. The ntp-N aliases follow wherever the service is moved to.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
<p>Indiana</p>		
	<p>gilbreth.ecn.purdue.edu</p> <p>Location: Purdue University Engineering Computer Network, West Lafayette, IN Synchronization: NTP V3 secondary (stratum 2), Sun SPARCserver 1000/Solaris 2.3 Service Area: NSFNET, CICNET area Access Policy: open access Contact: Mike Moya (moyman@ecn.purdue.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>harbor.ecn.purdue.edu</p> <p>Location: Purdue University Engineering Computer Network, West Lafayette, IN Synchronization: NTP V3 secondary (stratum 2), Sun-4/75+/Solaris 2.3 Service Area: NSFNET, CICNET area Access Policy: open access Contact: Mike Moya (moyman@ecn.purdue.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>

1	molecule.ecn.purdue.edu	<i>Stratum: 2</i>
<p>Location: Purdue University Engineering Computer Network, West Lafayette, IN Synchronization: NTP V3 secondary (stratum 2), Sun SPARCserver 1000/Solaris 2.3 Service Area: NSFNET, CICNET area Access Policy: open access Contact: Mike Moya (moyman@ecn.purdue.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

Kansas

1	ntp1.kansas.net	<i>Stratum: 2</i>
<p>Location: KansasNet OnLine Services, Manhattan, KS Synchronization: NTP V3 secondary (stratum 2), Linux on Intel Service Area: Central USA / Great Plains Access Policy: open access to ntp1.kansas.net *or* ntp2.kansas.net; customers may use both servers. Contact: support@kansas.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

1	ntp2.kansas.net	<i>Stratum: 2</i>
<p>Location: KansasNet OnLine Services, Manhattan, KS Synchronization: NTP V3 secondary (stratum 2), Linux on Intel Service Area: Central USA / Great Plains Access Policy: open access to ntp1.kansas.net *or* ntp2.kansas.net; customers may use both servers. Contact: support@kansas.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		






Massachusetts







1	ntp.ourconcord.net	<i>Stratum: 2</i>
<p>Location: Concord, MA Synchronization: NTP v4 stratum 2, Linux Service Area: Eastern time zone Access Policy: open access Contact: Bruce Walker (timekeeper@quidnet.com)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		






Massachusetts

1	chronos1.umont.edu	<i>Stratum: 2</i>
<p>Location: University of Montana, Missoula, Montana Synchronization: NTP secondary (stratum 2), Cisco 7507 Service Area: Northwest USA, Internet 2 Access Policy: open access, please send message to notify Contact: Michael Bloom (michaelb@selway.umt.edu) Note: IP addresses are subject to change; please use DNS if possible</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		


1	chronos2.umont.edu	<i>Stratum: 2</i>
<p>Location: University of Montana, Missoula, Montana Synchronization: NTP secondary (stratum 2), Cisco 7507 Service Area: Northwest USA, Internet 2 Access Policy: open access, please send message to notify Contact: Michael Bloom (michaelb@selway.umt.edu) Note: IP addresses are subject to change; please use DNS if possible</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		




	<p>chronos3.umn.edu <i>Stratum: 2</i></p> <p>Location: University of Montana, Missoula, Montana Synchronization: NTP secondary (stratum 2), Cisco 7507 Service Area: Northwest USA, Internet 2 Access Policy: open access, please send message to notify Contact: Michael Bloom (michaelb@selway.umn.edu) Note: IP addresses are subject to change; please use DNS if possible</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
Missouri	
	<p>time-ext.missouri.edu <i>Stratum: 2</i></p> <p>Location: University of Missouri-Columbia, Columbia, MO, USA Synchronization: NTP secondary (stratum 2), Linux/Intel Service Area: MOREnet Access Policy: open access, please send a message to notify Contact: time@missouri.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>
Minnesota	
	<p>nss.nts.umn.edu <i>Stratum: 2</i></p> <p>Location: St Paul, MN Synchronization: NTP secondary (stratum 2), Sun/SunOS 4.1.3 Service Area: CICNET region Access Policy: open access, please send a message to notify. Networking & Telecommunications Services (nts@nts.umn.edu) Note: select one of ns.nts.umn.edu or nss.nts.umn.edu to equalize load</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (UDP/IP)</p>
North Carolina	
	<p>clock1.unc.edu <i>Stratum: 2</i></p> <p>Location: University of North Carolina-Chapel Hill, Chapel Hill, NC Geographic Coordinates: 35:54N, 79:03W Synchronization: NTP secondary (stratum 2), Sun4/SunOS/xntpd (V3) Service Area: CONCERT region Access Policy: CONCERT region, others by prior arrangement Contact: Timekeeper (timekeeper@clock1.unc.edu) NOTE: The default restriction on this host is "noserve". Hosts outside the service area must make prior arrangements to receive time service.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
New Jersey	
	<p>tick.jrc.us <i>Stratum: 2</i></p> <p>Location: Jensen Research Corporation, Oakland NJ Geographic Coordinates: 41 00.975 N, 74 15.262 W Synchronization: NTP V3 secondary (stratum 2), Cisco 3620 IOS 12.2 Service Area: Eastern US Access Policy: Open access; please send a message to notify. Contact: JRC Network Ops (noc@jensenresearch.com) 201 337-4000 Note: IP addresses are subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>

	<p>tock.jrc.us <i>Stratum: 2</i></p> <p>Location: Jensen Research Corporation, Oakland NJ Geographic Coordinates: 41 00.975 N, 74 15.262 W Synchronization: NTP V4 secondary (stratum 2), Intel PIII/866 Win2K Service Area: Eastern US Access Policy: Open access; please send a message to notify. Contact: JRC Network Ops (noc@jensenresearch.com) 201 337-4000 Note: IP addresses are subject to change; please use DNS.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
<div style="border: 1px solid black; padding: 2px;">Nevada</div>	
	<p>cuckoo.nevada.edu <i>Stratum: 2</i></p> <p>Location: University of Nevada System Computing Services, Las Vegas, NV Synchronization: NTP V3 secondary (stratum 2), DEC Alpha/Unix Service Area: NevadaNet, NSFNET, SDSC region Access Policy: open access, please send message to notify Contact: Systems Group (software@nevada.edu) Note: cuckoo.nevada.edu is a CNAME for alphabits.nevada.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>
	<p>tick.cs.unlv.edu <i>Stratum: 2</i></p> <p>Location: UNLV College of Engineering, Las Vegas, NV Synchronization: NTP V4 secondary (stratum 2), Solaris Service Area: Sprintnet Access Policy: open access, an email note is appreciated Contact: Note: select one of tick.cs.unlv.edu or tock.cs.unlv.edu at random to equalize load</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>tock.cs.unlv.edu <i>Stratum: 2</i></p> <p>Location: UNLV College of Engineering, Las Vegas, NV Synchronization: NTP V4 secondary (stratum 2), Mips/Unix Service Area: Sprintnet Access Policy: open access, an email note is appreciated Contact: Note: select one of tick.cs.unlv.edu or tock.cs.unlv.edu at random to equalize load</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
<div style="border: 1px solid black; padding: 2px;">New York</div>	
	<p>clock.nyc.he.net <i>Stratum: 2</i></p> <p>Location: Hurricane Electric, New York City, New York Synchronization: NTP V4 primary (CMDA), Endrun Praecis CNTP Service Area: all areas Access Policy: open access Contact: support@he.net</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>ntp0.cornell.edu <i>Stratum: 2</i></p> <p>Location: Cornell University, Ithaca, NY Synchronization: NTP secondary (stratum 2), Sun/Unix Service Area: NYSERNet, NYSERNet 2000, Internet2/Abilene, vBNS Access Policy: open access Contact: Dan Eckstrom (de10@cornell.edu) Note: Open access for clients, though an email is appreciated (especially if peering).</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>

	reva.sixgirls.org Location: The NYITC Building, 55 Broad Street, New York City, NY Geographic Coordinates: 40:42:20N, 74:0:40W Synchronization: NTP V4 secondary (stratum 2), m68k/NetBSD Service Area: New York, New Jersey, Connecticut, Long Island areas Access Policy: open access Contact: John Klos (john@sixgirls.org) Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
	sundial.columbia.edu Location: Morningside Campus, Columbia University, New York, NY Synchronization: NTP V3 secondary (stratum 2), Sun Sparc10 model 40 Service Area: NYSERnet Access Policy: open access; please use name rather than address. Contact: timekeeper@columbia.edu Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP) DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-4:00	<i>Stratum: 2</i>
	timex.cs.columbia.edu Location: Columbia University Computer Science Department, New York City, NY Synchronization: NTP secondary (stratum 2), Sun/Unix Service Area: PSINET; NSFNET, NYSER region Access Policy: open access, authenticated NTP (DES/MD5) available Contact: James Tanis (timekeeper@cs.columbia.edu) Note: IP addresses are subject to change; please use DNS Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Daytime Protocol (UDP/IP) DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-4:00	<i>Stratum: 2</i>
Pennsylvania		
	clock-1.cs.cmu.edu Location: Carnegie Mellon University Computer Science, Pittsburgh, PA Synchronization: NTP V3 secondary (stratum 2), Sun Sparc/Solaris 2.5.1 Service Area: PSC region Access Policy: semi-open access; for use only by prior arrangement Contact: Help@cs.cmu.edu Note: The host name is an alias used only for time service. Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP) DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-4:00	<i>Stratum: 2</i>
	clock-2.cs.cmu.edu Location: Carnegie Mellon University Computer Science, Pittsburgh, PA Synchronization: NTP V3 secondary (stratum 2), Sun Sparc/SunOS 4.1.4 Service Area: PSC region Access Policy: semi-open access; for use only by prior arrangement Contact: Help@cs.cmu.edu Note: The host name is an alias used only for time service. Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP) DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=-4:00	<i>Stratum: 2</i>

	<p>clock.psu.edu</p> <p>Location: Penn State University, University Park, PA Geographic Coordinates: 40:47:58.1N, 77:51:44.8W (USGS 40077-G7-TF-024) Synchronization: NTP V3 secondary (stratum 2), Sun/Unix Service Area: Internet2, vBNS, CERFnet(AT & T IP Services), PSC/NCNE, CASC. Access Policy: open access Contact: John Balogh Note: clock.psu.edu is a CNAME for otc2.psu.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>fuzz.psc.edu</p> <p>Location: Pittsburgh Supercomputing Center, Pittsburgh, PA Synchronization: NTP V3 secondary (stratum 2), DEC5000/200 Service Area: NSFNET, PSC region Access Policy: open access, but please send a message to notify. Contact: noc@psc.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-1.cede.psu.edu</p> <p>Location: Penn State University, University Park, PA Synchronization: NTP V4 secondary (stratum 2), IBM RS/6000-B50, Debian GNU Linux Service Area: Internet2, vBNS, CERFnet, PSC/NCNE Access Policy: open access, please send a message to notify Contact: timekeeper@cede.psu.edu Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-2.cede.psu.edu</p> <p>Location: Penn State University, University Park, PA Synchronization: NTP V4 secondary (stratum 2), i686, Debian GNU Linux Service Area: Internet2, vBNS, CERFnet, PSC/NCNE Access Policy: open access, please send a message to notify Contact: timekeeper@cede.psu.edu Note: IP addresses are subject to change; please use DNS</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-1.ece.cmu.edu</p> <p>Location: Carnegie Mellon Electrical and Computer Engineering, Pittsburgh, PA Geographic Coordinates: 40:26N, 79:57W Synchronization: NTP V3 secondary (stratum 2), Solaris 9 Service Area: PREPNET, PSC region Access Policy: open access Contact: ECE Facilities (gripe@ece.cmu.edu) Note: Name is an alias for use by NTP.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>ntp-2.ece.cmu.edu</p> <p>Location: Carnegie Mellon Electrical and Computer Engineering, Pittsburgh, PA Geographic Coordinates: 40:26N, 79:57W Synchronization: NTP V3 secondary (stratum 2), Solaris 9 Service Area: PREPNET, PSC region Access Policy: open access Contact: ECE Facilities (gripe@ece.cmu.edu) Note: Name is an alias for use by NTP.</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP)</p>	<p><i>Stratum: 2</i></p>
	<p>Texas</p>	

	<p>ntp.fnbhs.com <i>Stratum: 2</i></p> <p>Location: First National Bank of Hughes Springs, TX Synchronization: NTP secondary (stratum 2), Debian Linux 2.1 Service Area: Northeast Texas Access Policy: open access, please send a message to notify Contact: walterp@fnbhs.com</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>ntp.tmc.edu <i>Stratum: 2</i></p> <p>Location: Baylor College of Medicine, Houston, TX Synchronization: NTP secondary (stratum 2), Sun/Solaris Service Area: NSFNET, SESQUI region Access Policy: open access to other stratum 2 servers and upstream for statum 3 servers;not to be used for individual servers;please notify before use Contact: Postmaster (postmaster@tmc.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>ntppub.tamu.edu <i>Stratum: 2</i></p> <p>Location: Texas A&M University, College Station, TX Synchronization: NTP secondary (stratum 2, ver. 3), SPARCstation 10/Solaris 1.x Service Area: NSFNET, SESQUI region, THEnet, TAMUSDSN Access Policy: open access Contact: NTP Administrator (ntp@tamu.edu)</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>
	<p>tick.greyscale.com <i>Stratum: 2</i></p> <p>Location: Greyscale Automation Products, Plano, TX Synchronization: NTP secondary (stratum 2), Windows NT Service Area: South-Central US, others by arrangement Access Policy: open access for any server with 50+ clients Contact: techsupport@greyscale.com Note: IP may change, please use DNS name. Other protocols offered include TIME-UDP, TIME-TCP, and Domain Time II</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>
	<p>tock.greyscale.com <i>Stratum: 2</i></p> <p>Location: Greyscale Automation Products, Plano, TX Synchronization: NTP secondary (stratum 2), Windows NT Service Area: South-Central US, others by arrangement Access Policy: open access for any server with 50+ clients Contact: techsupport@greyscale.com Note: IP may change, please use DNS name. Other protocols offered include TIME-UDP, TIME-TCP, and Domain Time II</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP)</p>
<input type="checkbox"/>	<p>Virginia</p>
	<p>ntp-1.vt.edu <i>Stratum: 2</i></p> <p>Location: Virginia Tech, Blacksburg, Virginia, USA Synchronization: V3 Stratum 2 synced to local GPS primary servers Service Area: US southeastern region, Abilene Access Policy: open access Info: Communications Network Services <> Contact: ntp@cns.vt.edu</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>

	ntp-2.vt.edu Location: Virginia Tech, Blacksburg, Virginia, USA Synchronization: V3 Stratum 2 synced to local GPS primary servers Service Area: US southeastern region, Abilene Access Policy: open access Info: Communications Network Services <> Contact: ntp@cns.vt.edu Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
	ntp-3.vt.edu Location: Virginia Tech, Blacksburg, Virginia, USA Synchronization: V3 Stratum 2 synced to local GPS primary servers Service Area: US southeastern region, Abilene Access Policy: open access Info: Communications Network Services <> Contact: ntp@cns.vt.edu Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
	ntp-4.vt.edu Location: Virginia Tech, Blacksburg, Virginia, USA Synchronization: V3 Stratum 2 synced to local GPS primary servers Service Area: US southeastern region, Abilene Access Policy: open access Info: Communications Network Services <> Contact: ntp@cns.vt.edu Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
Wisconsin		
	ntp1.cs.wisc.edu Location: Computer Science Department, University of Wisconsin-Madison Geographic Coordinates: 89:24:30W, 43:08:00N Synchronization: NTP V4 secondary Solaris 2.7 Service Area: US/any Access Policy: open access Contact: David Thompson (ntp-admin@cs.wisc.edu) Note: IP addresses are subject to change; please use DNS Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
	ntp3.cs.wisc.edu Location: Computer Science Department, University of Wisconsin-Madison Geographic Coordinates: 89:24:30W, 43:08:00N Synchronization: NTP V4 secondary Solaris 2.7 Service Area: US/any Access Policy: open access Contact: David Thompson (ntp-admin@cs.wisc.edu) Note: IP addresses are subject to change; please use DNS Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
	ntp3.sf-bay.org Location: Milwaukee, WI Synchronization: NTP secondary (stratum 2), FreeBSD Service Area: North America: Central Time Zone Access Policy: open access, please send a message to notify Contact: Scott Hazen Mueller (clockmaster@sf-bay.org) Supports following time protocols: - Simple Network Time Protocol (UDP/IP)	<i>Stratum: 2</i>
Venezuela		

ntp.linux.org.ve	<i>Stratum: 2</i>
<p>Localizaci: VELUG, Grupo de Usuarios Linux de Venezuela Sincronizaci: NTP secundario (stratum 2), Pentium/Linux Area de Servicio: Arica Potica de Acceso: Abierta, por favor enviar e-mail para notificar Contacto: time@linux.org.ve</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

South Africa

ntp.cs.unp.ac.za	<i>Stratum: 2</i>
<p>Location: Natal University, Pietermaritzburg, South Africa Synchronization: NTP V3 secondary (stratum 2), SGI Indy/Irix6.2 Service Area: South Africa Access Policy: open access, please send a message to notify Contact: sysadmin@cs.unp.ac.za</p> <p>Supports following time protocols: - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>	

tock.nml.csir.co.za	<i>Stratum: 2</i>
<p>Location: Pretoria, South Africa Geographic Coordinates: 25,7461 S 28,2770 E (WGS-84) Synchronization: NTP secondary (stratum 2), i386/FreeBSD Service Area: Southern Africa Access Policy: open access Contact: elmarais@csir.co.za</p> <p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) - Daytime Protocol (UDP/IP)</p> <p>DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+3:00</p>	

Other

chime.utoronto.ca	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

chime1.surfnet.nl	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

eagle.tamu.edu	<i>Stratum: 2</i>
<p>Supports following time protocols: - Time Protocol (UDP/IP)</p>	

finch.cc.ukans.edu	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

gazette.bcm.tmc.edu	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>	

1	ntp.adelaide.edu.au	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	ntp.botbay.net	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	salmon.maths.tcd.ie	<i>Stratum: 2</i>
<p>(null) Supports following time protocols: - Simple Network Time Protocol (UDP/IP) - Time Protocol (TCP/IP) - Time Protocol (UDP/IP) - Daytime Protocol (UDP/IP) DAYTIME timestamp format: %x_%M_%d_%h:%n:%s_%Y_%z=+2:00</p>		
1	time.deakin.edu.au	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	time.nuri.net	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	tmc.edu	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	wuarchive.wustl.edu	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	www1.cmc.ec.gc.ca	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	www2.cmc.ec.gc.ca	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		
1	www2.cmc.ec.gc.ca	<i>Stratum: 2</i>
<p>Supports following time protocols: - Simple Network Time Protocol (UDP/IP)</p>		

Last modified: April 4, 2005