Welcome to WinSNTP!

WinSNTP is an implementation of the Simple Network Time Protocol described in RFC-1361. You can use WinSNTP to accurately synchronize your PC clock with the clock of a server running the Network Time Protocol (NTP).

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Configuring WinSNTP

To configure WinSNTP you really only need the name or IP address of an NTP server.   WinSNTP will default the other configuration parameters for you if you leave them blank or supply values outside the permitted limits.

Simple Configuration

Unless you want WinSNTP to keep your PC on Coordinated Universal Time (UTC) you should set the time zone and daylight savings information.   Click on the Set TZ... button and you will see a dialog box that allows you to configure the necessary information.   See **Time zones & Daylight Savings Time** for detailed help on this dialog box.

Position the mouse cursor within the NTP Server edit box and click the left mouse button.   Type in the name or address of your NTP server and then click on the Set Time button.   If you typed a name in the NTP Server edit box, WinSNTP will attempt to lookup the address of the server using the Domain Name Service (DNS).   If you typed an address WinSNTP will use the address you supplied as the address of the server.

WinSNTP will poll the server immediately you click on the Set Time button and set the time of your PC to the correct time based on your time zone and daylight savings information. WinSNTP will update the status bar with progress information as it proceeds.   Normally you will see WinSNTP display the time at which the PC clock was last set and the delta (in seconds) that it found between your PC clock and that of the server.

If you only want to periodically update the time of your PC you can exit WinSNTP at this point. WinSNTP will save its configuration information in a file called WINSNTP.INI in your Windows directory (usually C:\WINDOWS).   WinSNTP will restore this information the next time you run the application.

Alternately you can leave WinSNTP running.   WinSNTP will next poll the server for the time after 60 seconds have passed (the value of Initial Poll).   Every time WinSNTP polls and successfully updates the time it calculates the delta between your PC clock and the clock of the server.   If the delta is less than 100 mS (the value of Max Delta) WinSNTP will double the poll period to a maximum of 16 times the value in the Initial Poll edit box.   If the delta is greater than the value of Max Delta, WinSNTP will reduce the poll period by a half to a minimum of the value set by Initial Poll.

WinSNTP will attempt to find a poll interval that keeps your PC clock accurate to within the value specified in Max Delta.

Advanced Configuration

For a more advanced configuration you can override the default values for the Initial Poll period and Max Delta.

See **Setting the initial poll period** and **Choosing a value for Max Delta** for more information.

You can also configure WinSNTP to set the time and then exit - useful if you access the Internet over a dial up connection or simply dont want WinSNTP running all the time.   See **How to make WinSNTP set the time once and exit** for more information.

If you are running Windows 95, you may want to configure WinSNTP so that it doesnt occupy space on the task bar - Making WinSNTP invisible tells you how.

How to make WinSNTP set the time once and exit

If you access the Internet using a dial up connection or dont want to keep WinSNTP running all the time, you can use the -s command line flag to cause WinSNTP to exit as soon as its successfully set the time.

You can set the command line flag using the Program Manager under Window and Windows NT or with Windows Explorer under Windows 95.

Windows & Windows NT

Select the WinSNTP icon (or make a new Program Item with the File|New command of the Program Manager).   Select Properties from the File menu (or press ALT+ENTER) to bring up the properties dialog.

In the Command Line field, add -s after WINSNTP.EXE so it looks like (for example):

    WINSNTP.EXE -s

Click on OK - thats it!

Windows 95

Run the Windows Explorer application from the Start task bar and locate the WinSNTP application.   Click on the WinSNTP icon and click with the RIGHT mouse button - select Create Shortcut from the pop-up menu.

Select the short cut you have just created and again click on it with the RIGHT mouse button - select Properties from the pop-up menu.   Click on the Shortcut tab of the tabbed dialog for the shortcut - add -s at the end of the Target edit field so it looks like (for example):

    C:\Program Files\Winsntp\Winsntp.exe -s

Click on OK.   The short cut you created will now cause WinSNTP to run once, set the time and then exit.

Please note, if you are using an un-registered copy of WinSNTP, you will still be presented with the initial greeting dialog and will have to click on OK before WinSNTP will set the system time.

Making WinSNTP invisible

There are certain times when you may want to hide WinSNTP from view.   For example, you may run WinSNTP all the time under Windows 95 and dont want to clutter up the task bar with WinSNTP.

WinSNTP supports a command line flag - -h which will tell WinSNTP to run as a HIDDEN Window.

You can set the -h command line flag in the same way as the -s command flag - see **How to make WinSNTP set the time once and exit** for information on setting command line options.

Once you have set the -h flag and run WinSNTP, the program will continue to execute in the background but will be invisible.   WinSNTP wont appear on the task bar nor in the list of running tasks (under any version of Windows).

The only way to stop WinSNTP running once youve started it in HIDDEN mode is to re-start your computer OR use -h in conjunction with the -s command line flag.   In the latter case, WinSNTP will run hidden, set the time and then exit.

Note when you use the -s and -h flags together, the command line would appear as (for example):

WINSNTP.EXE -s -h

Please note, if you are using an un-registered copy of WinSNTP, you will still be presented with the initial greeting dialog and will have to click on OK before WinSNTP will continue and hide itself from view.

Using WinSNTP

WinSNTP is a Windows application that implements the Simple Network Time Protocol (SNTP). SNTP allows a client computer to keep its clock in synchronization over a network with a server running the Network Time Protocol (NTP).   You can find more information on both SNTP and NTP in **More Information on NTP & SNTP**.

It is important that you use the correct version of WinSNTP for the operating system running on your PC.   Version 1.5 and earlier run on Windows or Windows for Workgroups while V2.2 and beyond run on Windows NT and Windows 95.

In order to use WinSNTP, you need a computer connected to a network via a Winsock compliant TCP/IP stack.   Winsock is a standard interface that allows Windows programs to use the services of a TCP/IP protocol stack.   Most commercial TCP/IP products for Windows implement the Winsock interface as does the shareware product Trumpet.   We have tested WinSNTP with a number of different TCP/IP products.   You can find information on the stacks tested with WinSNTP in **WinSNTP and TCP/IP Stacks**.

WinSNTP uses the SNTP protocol to query a server for time updates.   The protocol allows WinSNTP to calculate network delays between your PC and the server and then accurately set the clock.   In typical use, WinSNTP will keep your PC clock accurate to within 100 to 200 milli-seconds.   WinSNTP provides support for operation in different time zones and under different daylight savings time conventions.

You should read **Configuring WinSNTP** to get started.   If you have problems getting WinSNTP to work on your PC, read the section **Trouble Shooting**.

Selecting a Time Server

While the location and distance between you and the server are not critical, you should select an NTP server with which your PC can reliably communicate.   This is specially important if you are going to leave WinSNTP running so that it can keep your PC clock accurate to the value of Max Delta.

You should consult your network administrator or service provider for the name of a recommended NTP server.   While the load presented to the NTP server is light, it is only common courtesy to inform the person operating the NTP server that you are using their server as a source of time.   You can often contact the person responsible for the time server by sending an email message to *timekeeper@server* where server is the name of the NTP server.

Many organizations and companies operate their own NTP servers and either provide a local source of accurate time or slave their NTP servers to high stratum servers in the Internet.   NTP operates as a distributed time keeping system; having local servers is one of the ways in which NTP scales in size to support potentially huge numbers of users such as WinSNTP.

Setting the initial poll period

You can override the default value of 60 seconds selected by WinSNTP.   WinSNTP will not allow a value of less than 60 seconds but you can extend the poll period by typing in a new value in the Initial Poll edit box of the main window.

Most PC clocks drift 1 to 2 seconds per day depending on temperature and other ambient conditions.   An Initial Poll value of 60 seconds will keep your clock accurate to within about 100 mS as WinSNTP extends the period to a maximum of 16 times this initial value (16 minutes).

Most of us do not need 100 mS accuracy of the PC clock time.   You could keep your PC accurate to within 500 mS by setting the Initial Poll period to 300 seconds (5 minutes).   WinSNTP will extend this poll interval to a maximum of 90 minutes as it finds the accuracy of your PC clock.

Using Initial Poll and Max Delta you can control the frequency and accuracy with which WinSNTP maintains your PC clock.

Choosing a value for Max Delta

The value of Max Delta controls the accuracy within which WinSNTP will try to keep your PC clock.   The default value is 100 mS that represents the typical accuracy that WinSNTP can achieve.   More accurate time keeping would require a full implementation of NTP and is unwarranted for most PC applications.

WinSNTP will extend or reduce the period with which it polls the NTP server to keep the delta between your PC clock and that of the server within the value of Max Delta.

Set Max Delta to the accuracy you want for your PC clock.   500 mS is a reasonable accuracy for most applications.

Statistics

You can display counts of the number of messages Sent, Received and Rejected by clicking on the Stats button in the main window.

WinSNTP snap shots the counter values when it displays the statistics and does not update the counters while displaying the Statistics dialog.

WinSNTP resets the statistics to zero every time you click on the Set Time button.

Time zones & Daylight Savings Time

You can configure WinSNTP to be cognizant of the time zone you live in and your country's convention for Daylight Savings Time.   Click on the Set TZ button on the main window and WinSNTP will display a dialog that allows you to configure the necessary information.

To configure the time zone and daylight savings information, click on the field within the dialog box that you want to update and set the information requested.

The fields *Standard Name* and *Daylight Savings Name* are the names you want to use for your time zone during standard time and daylight savings time respectively.   For example, on the West Coast of the USA, the standard time zone name is *Pacific Standard Time* and during daylight savings time is *Pacific Daylight Time*.   These time zone names are abbreviated to *PST* and *PDT.*   WinSNTP will use the first three characters you enter these fields when it displays time information in   the status bar of the main window.

The *Offset from UTC* field is the time displacement between your time zone and that of Coordinated Universal Time (UTC).   UTC is based on the time at the Grenwich meridian in London, England.   If you are WEST of Grenwich your time displacement is POSITIVE, if you are EAST of Grenwich then your displacement is negative.

For example, on the West Coast of the USA, the time displacement would be +8:00 so you would enter *+08:00* in the *Offset from UTC* field.   In the Middle European Time zone, the time displacement is -1:00 hour from Grenwich so you would enter *-01:00* in the *Offset from UTC* field.

Once you have set the time zone information, you need to tell WinSNTP when daylight savings time starts and ends.   For example, in the USA, daylight savings time begins at 02:00 on the first Sunday in April and ends at 02:00 the last Sunday in October.   Conventions for daylight savings time differ by country so you need to know the conventions for your country.

The Configure Time Zone dialog box provides controls that allow you to set the start and end of daylight savings time.   The controls for setting the start and the end operate in the same way.

Use the *Ordinal* control to set the First, Second, Third, Fourth or Last day of a month.

Use the *Day of Week* control to set the day of the week such as Sunday, Monday, etc.

Use the *Month* control to set the month such as January, February, etc.

Use the *Time* control to set the time of day for the transition.

HINT: You can select values for the Ordinal, Day of Week and Month controls, by typing the first letter of the value of the field. You can also click on the down scroll control and then drag through the list of values.

In the USA, you would set the information for daylight savings time as follows:

Start:

    Ordinal: First

    Day of Week: Sunday

    Month: April

    Time: 02:00

End:

    Ordinal: Last

    Day of Week: Sunday

    Month: October

    Time: 02:00

Trouble shooting

WinSNTP will display status information on the status bar at the bottom of the main window as it proceeds.   You can use these messages together with the Statistics displayed by the Stats button (see Statistics for more information on the statistics kept by WinSNTP) to trouble shoot if WinSNTP appears not to work.

Here are the messages displayed by WinSNTP and how you can interpret them in case of problems.

DNS Lookup in Progress...

WinSNTP displays this message when it is trying to translate a server name to a network address using the Domain Name Service.   If the DNS cannot resolve the name, WinSNTP displays a warning message telling you that the lookup operation was unsuccessful.

DNS Lookup Complete

WinSNTP displays this message after successfully translating the server name to its IP address. This message remains displayed until WinSNTP issues an NTP request.

NTP request sent -- <time>

WinSNTP updates the status line with the current time every time it sends an NTP request.   If this message remains displayed then WinSNTP did not receive a response back from the NTP server.   This could mean that the system you specified as an NTP server is not currently running the NTP server or that the server cannot be reached due to a network problem.   You can use PING to verify network connectivity.   If you have network connectivity, ask the System Administrator of the system you specified as the NTP server whether they are running NTP and whether they are an open server.

NTP Reply rejected

WinSNTP will display this message if it rejects the NTP reply it receives.   WinSNTP will reject replies for several reasons:

- The NTP server is not synchronized to an accurate time source
- The reply came from a IP address of a different server

You can get similar trouble shooting information from the Statistics display.   If you see the Sent count increment but see no received packets then the server is not responding.

If all three counters increase, Sent, Received and Rejected, then the server is currently un-synchronized.

Clock NOT set Delta = xxxxx (Check TZ)

WinSNTP will display this message if the time offset between the PC clock and the NTP server is more than 1 hour (3600 seconds).   WinSNTP wont update the PC clock if the offset is this large in case you have forgotten to set the Timezone information - see Time zones & Daylight Savings Time for information on how to set the Timezone.

If you have a PC whose clock drifts excessively or perhaps is always wrong at power up due to an exhausted CMOS battery, you can use the -I command flag to force WinSNTP to always set the time of the PC regardless of the offset to the NTP server.   Run WinSNTP with a command line as follows:

WINSNTP.EXE -I

and WinSNTP will always set the PC clock.   This option can be combined with the other command flags as required.

WinSNTP used to work and now its stopped

Under the terms of the limited license, you may evaluate WinSNTP for 30 days.   At the end of the 30 day evaluation period, WinSNTP will display a dialog saying that the evaluation period is over.

To continue using WinSNTP you must register your copy of WinSNTP - see Registering your copy of WinSNTP.

More information on NTP & SNTP

Both NTP and SNTP are the work of David Mills at the University of Delaware, USA.

You can find the complete description of these protocols in RFC-1305 (for NTP) and RFC-1361 (for SNTP).   Many sites on the Internet carry RFCs or Request for Comments.   These documents describe the protocols and services on which the Internet is built.

The Internet site `ds.internic.net` holds the master archive of Internet RFCs.

WinSNTP & TCP/IP Stacks

We have tested with the following TCP/IP stacks.   As a Winsock compliant application, WinSNTP should work with any TCP/IP stack that correctly implements the Winsock interface regardless of whether it is on this list or not.   If you use WinSNTP with a stack not on this list, please send us a mail message at winsntp@solaris.com so we can add your stack to this list.

Distinct Software TCP/IP

Frontier Software Super-TCP/IP for Windows

FTP Software Inc, PC/TCP V.2.22

FTP Software Inc, PC/TCP V.2.3

FTP Software Inc, PC/TCP V.3.0

LAN Workplace for DOS V.4.1

Microsoft Corp, Wolverine TCP/IP stack Beta

Microsoft Corp, Wolverine TCP/IP stack FCS release

Microsoft Corp, Windows 95 built-in TCP/IP stack

Microsoft Corp, Windows NT built-in TCP/IP stack

NetManage Inc, Chameleon V.3.1

NetManage Inc, Chameleon V.4.0

NetManage Inc, Chameleon V4.07

Sun Microsystems, Inc PC-NFS V.5.1

Trumpet V1.0 Beta Rev B

Trumpet V2.0

WinKing (a Taiwanese Winsock stack)

Running WinSNTP as a Windows NT Service

If you are using Windows NT as your operating system, you may wish to run WinSNTP as a service.   Windows NT services are special applications that run under the control of the Services Control Manager.   The System Administrator can configure services to be run in the background without requiring user interaction.

To run WinSNTP as a service under Windows NT requires that you use a special version of WinSNTP that specifically supports operation under the Services Control Manager.   This version of WinSNTP is distributed as SVSNTPxx.zip where xx is the version number.   See **Where to find the latest versions of WinSNTP** for information on where to find the latest versions of WinSNTP.

Installing WinSNTP as a service requires some additional steps; these are described in the README.TXT file supplied with the application.

You can run the services version of WinSNTP either as a service or as a regular application. When starting this version as an application, you will see a several second pause before WinSNTP displays its main window.   This delay results from WinSNTP determining whether it has been run as a service or as an application.   Aside from this initial display, the services version of WinSNTP behaves exactly the same as the regular versions.

Configuring WinSNTP when run as a service

Normally, the WinSNTP service runs in the background with no visible window displayed on the desktop.   At times, you might wish to have WinSNTP display a window to allow configuration or perhaps for troubleshooting.   You can force WinSNTP to display a window by using the -v command line flag.

You can configure WinSNTP by either running WINSNTPS.EXE from the Program Manager Run command on the File menu or by using the following procedure:

Open up the Control Panel application and double click on the Services applet.   Use the mouse to click on the scroll bars of the list of services until you find the service called WinSNTP Time Synchronization.   Select the WinSNTP service and then click on the Startup Parameters edit control and type -v - now click on Start and WinSNTP will run and display an open window.

See **Configuring WinSNTP** for more information on configuring WinSNTP.

Synchronizing a group of PCs to a master PC

You can use WinSNTP as a time server if you want to synchronize a group of PCs to the same time.

Select one PC running WinSNTP to be the master.   If you have access to a remote NTP server, configure the master PC to access the remote NTP server.   WinSNTP will act as a time server even if it hasnt been configured with a remote server but the accuracy of time will depend on the local PC clock if no remote server is available.

Configure the other PCs that you want to time synchronize with the IP address or name of the master PC in the Server field of their WinSNTP configuration.   Whenever these PCs poll for a time update, they will receive a reply from the master PC and so all the PCs will be tightly synchronized to the local clock of the master PC.

The level of synchronization between the master PC and its slaves will be approximately the same as the synchronization between the master PC and its remote NTP server.   You can expect all the PCs to be typically within 100 mS of each other when synchronized this way.

Remember that when you operate the master PC without a remote NTP server for its synchronization, the accuracy of time will depend SOLELY on the local clock of the master PC. You can use a number of different methods to insure that the master PC has the correct time including the use of a remote time service such as NIST ACTS or by setting the PC time using a Speaking Clock and manual time input.

Most PC clocks will gain or lose several seconds a day in normal operation.   Clocks on PCs with power saving enabled can often lose minutes while they are in power saving mode.   SELECT YOUR MASTER PC WITH CARE and be sure that the time is set correctly or all the slave PCs will have the same incorrect view of time!

Reporting Defects

If you encounter a defect when using WinSNTP, we want to hear about it!   Unlike other developers of software, we do not call problems with our products 'bugs' or 'features.'   If the application fails to perform as we document, there is a defect in the application and we want to remove it!

If you encounter a problem, please send us the following information:

- Description of your PC
- How your PC connects to the network (LAN card, SLIP link,etc.)
- Which Winsock TCP/IP stack you use
- If possible, the name and IP address of your NTP server
- A description of the problem
- Your email address (if you have one)

If you have access to CompuServe, USENET or system with similar e-mail, you can address queries regarding WinSNTP to *winsntp@solaris.com*.

You can also write to us at the following address:

Solaris Technologies
Dept.: WSNTP
1577 Fairway Drive
Los Altos, CA 94024-5313
U.S.A

Please enclose a stamped, self-addressed envelope or International Reply Coupon to speed your reply!

Registering your copy of WinSNTP

WinSNTP is shareware.   You may freely copy WinSNTP, upload it to bulletin board, Internet file archives, etc., providing you include all the files listed in the `MANIFEST` file that accompanies the application and other files.   You may evaluate WinSNTP for 30 days.   At the end of the evaluation period, you must either register your copy of WinSNTP (see below) or stop using the application.

Remember that the future of shareware and a continued supply of quality software depends on you honoring the shareware principles!

You can register your copy of WinSNTP by completing the registration form provided in the file `REGISTER` contained in the archive file that comprises the WinSNTP distribution.   The registration fee is $25 US plus postage and packing.   California residents should add appropriate sales tax.   The registered version of WinSNTP allows you to by-pass the initial display of the About... dialog.

Registered users will receive the latest copy of WinSNTP and can obtain free technical support via electronic mail or letter for 1 year.

Please remit funds in US. Dollars drawn on a US. Bank.   If you are outside the US. and Canada, you may find it convenient to obtain an American Express US. Money order.   You can usually obtain these money orders from American Express travel agencies or other accredited suppliers.   We regret that we cannot accept payment via credit cards.

Warranty Disclaimer & License

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Acknowledgments

WinSNTP would not be what it is today without the help of the following people!   We would like to recognize their efforts!

Thanks to:

Mark Bixby	**Norman Chang**
Denis Gordon	**Keith Hanson**
Zeljko Horvat	**Galen Hunt**
Andrew Jessett	**Lin Jyun-Naih**
Mike Purucker	**John Ross**

Special thanks to:

Dave Mills for encouragement and for designing NTP and SNTP to make all this possible.

Dave Katz for encouragement and being my local NTP guru thus suffering all kinds of questions.

Kevin Rowett for encouragement and the original suggestion to write a Windows SNTP client.

Wishlist

Here is a list of the things that did not make this release.   This serves as a reminder to us as well as showing you the candidate ideas for the next release.   If you send us a suggestion that gets incorporated into a release, we will send you a complementary registered copy as a token of appreciation!

- WinSNTP ignores NTP broadcasts

Currently WinSNTP does not process broadcast NTP messages regardless of whether they are real broadcasts or multicast.   Multicast NTP is the ultimate in scaleability for large numbers of clients.

- No way to override rejection of NTP messages

You cannot tell WinSNTP to accept messages from allegedly un-synchronized servers.   There are legitimate reasons why you might want to do this; for example, you have a server that is not peered with other NTP servers but you want a number of client systems to have the same time as the server.

- Daylight savings time should be defaulted by time zone
- Time zone selection should be done with a list box

The current mechanism of setting time zone and daylight savings information is acquired. Ideally WinSNTP should supply a list of time zones and allow you to choose which one you want. WinSNTP should determine the start and end of daylight savings time from the time zone information.

Unfortunately, the start and end of daylight savings time vary by country.   Some countries experiment with no daylight savings time (as the United Kingdom did in the early 1970s) or change the start and end time (by Presidential decree as during the Reagan era in the U.S.A).

- WinSNTP doesnt run with Windows NT

Versions 1.5 and earlier of WinSNTP do not run under Windows NT but versions 2.2 and beyond are full 32-bit applications and run under NT and Windows 95.   The 32-bit version of WinSNTP is packaged as NTSNTPxx.ZIP where xx is the version number.   You can find the 32 bit version on the same Internet archives as you probably found this copy of WinSNTP.

- WinSNTP should get its timezone information from the OS

Both Windows 95 and Windows NT allow the user to configure time zone information during installation.   WinSNTP should pick up this information from the OS rather than requiring it to be configured separately.

- WinSNTP should support multiple time servers

Currently you can only specify a single server for WinSNTP to get NTP information.   If this server is unavailable there is no way of specifying a backup server.

Where to find the latest versions of WinSNTP

You can always find the latest versions of WinSNTP using the World Wide Web.   Our home page for Solaris Technologies includes information on all our products.   You can locate our home page at:

URL: http://www.solaris.com