

## **Somar™ ACTS™ Version 1.7 Help Contents**

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## Overview

Somar ACTS is an automatic computer time source program for Microsoft® Windows NT™ and Windows 95. Somar ACTS allows you to set the internal clock of your computer with accuracy of about a second, using either the National Institute of Standards and Technology (NIST) or United States Naval Observatory (USNO) time source. Somar ACTS dials the time source using a modem, obtains the current time, and then uses this time to set the system time on your PC.

Somar ACTS can optionally be run as a batch program, so you can use the AT command to schedule it to run late at night, for example.

There are programs similar to Somar ACTS for Windows 3.1 and DOS, but these will not work under Windows NT, because Windows NT requires a program to have the SetSystemTime privilege before it can set the internal clock, and programs do not have this privilege by default. See [Installation](#) for how to ensure that Somar ACTS can obtain the SetSystemTime privilege.

## Installation

- 1) Place ACTSNT.EXE and ACTSNT.HLP together in any directory.
- 2) (Windows NT only) Ensure that all users who will be running ACTSNT.EXE have the SetSystemTime right. Members of the Administrators and Power Users groups have this right by default. You can assign this right to other users using the User Manager (User Rights option under the Policies menu).
- 3) The first time ACTSNT.EXE is run, it will create the following registry keys:  
(Windows NT and Windows 95):  
HKEY\_LOCAL\_MACHINE\SOFTWARE\SomarSoftware\ACTS  
  
(Windows NT only):  
HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\EventLog\  
Application\Somar ACTS
- 4) Use the Setup dialog to configure Somar ACTS.
- 5) Select the Dial and Set Time option to set your computers time. Observe the results display to verify that the modem is configured properly.
- 6) See Command Line Options for how to run Somar ACTS as a batch program.
- 7) (Windows NT only) Somar ACTS adds event log entries each time it sets the system time. You can view these entries using Event Viewer.
- 8) Note that there is no need to make any Time Zone adjustments when using Somar ACTS. The time source, Windows NT and Somar ACTS all use Universal Time (UTC), even though your computer may be setup to display a local time. See Technical notes for further discussion.

## Setup

### Time source

You can choose to use either of the following sources to set your computers time:

NIST	1-303-494-4774
USNO	1-202-653-0351

Both sources give similar results.

### Modem

Somar ACTS has only been tested with Hayes ® compatible modems. It always sets the comm port for 1200 bps, 8 data bits, no parity, 1 stop bit. The modem must be configured to return verbose result codes. Example of typical modem setup strings:

Initialize	ATQ0V1E1S0=0
Dial	ATDT9-1-303-494-4774
Hangup	ATH

## Command Line Options

- /b**      Batch option. Dial and set time immediately, without waiting for operator input, then terminate. Retry 0 times unless **/retry:** option is specified.  
Return code of 0 if time set successfully, non-zero otherwise.
- /retry:n**    Number of retries allowed if dialing attempt fails.  
Value of 2 results in 3 attempts total (original plus 2 retries).  
Default value is 0.
- /f**      Force failure of dialing attempts for debug purposes.
- /u**      Uninstall (removes Somar ACTS registry keys). Does not delete `ACTSNT.EXE` or `ACTSNT.HLP`.

## **Uninstallation**

- 1) Run `ACTSNT.EXE` with the `/u` option to delete the Somar ACTS registry keys.
- 2) Delete `ACTSNT.EXE` and `ACTSNT.HLP` from your computer.

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You are specifically prohibited from copying or redistributing the keyfile (ACTSNT.KEY) that will be sent to you upon receipt of your registration payment.

Unregistered use of Somar ACTS after the 21-day evaluation period is in violation of federal copyright laws.

For how to register, see [Registration](#).

A single registered copy of Somar ACTS can only be installed on a single computer. Thus, if you have 3 computers on which you want to install Somar ACTS, you must register and pay for 3 copies of Somar ACTS.

#### **Governing Law**

This agreement shall be governed by the laws of the District of Columbia.

#### **Disclaimer of Warranty**

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## Registration

This is not free software. This license allows you to use this software for evaluation purposes without charge for a period of 21 days. If you use this software after the 21 day evaluation period a registration fee of \$10 is required. Payments must be in US dollars drawn on a US bank, payable to Somar Software, and sent to Somar Software, 1 Scott Circle NW Suite 816, Washington DC 20036, USA. You can also register through CompuServe (GO SWREG, ID 2189).

Upon receipt of your registration payment (check or CompuServe notice), you will be sent a key file (`ACTSNT.KEY`), which is to be placed in the same directory as `ACTSNT.EXE`. This key file will be your proof of registration.

A single registered copy of Somar ACTS can only be installed on a single computer. Thus, if you have 3 computers on which you want to install Somar ACTS, you must register and pay for 3 copies of Somar ACTS.

You may access the registered version of Somar ACTS through a network, provided you have obtained individual licenses for the software covering all workstations that will access the software through the network.

## Technical notes

### Time sources

Somar ACTS obtains the current time by dialing a time source and then waiting for a time code string to be sent. It is not necessary to send any commands to the time source. The time source sends the time code string automatically every second on the second.

### Format of NIST time code string

```
jjjjj yy-mm-dd hh:mm:ss tt l uuu aaaaa UTC(NIST) O
```

```
jjjjj      = last 5 digits of days since jan 1, 4713 b.c.  
yy-mm-dd   = year (last 2 digits), month, day in UTC time  
hh:mm:ss   = hours, minutes, seconds in UTC time  
tt         = daylight saving indicator  
l          = leap second indicator  
uuu        = correction factor for old format UTC  
aaaaa      = milliseconds that time is being advanced  
UTC(NIST)  = constant  
O          = on-time marker  
           = '*' if time is uncorrected  
           = '#' if time is corrected
```

The on-time marker should be returned to NIST until it changes to a '#'. At that time, the time should be received by your computer exactly at the start of the second. The aaaaa correction factor will indicate how many milliseconds early NIST is sending time in order to compensate for transmission delays. Initially, NIST will send time 45 milliseconds early.

### Format of USNO time code string

```
jjjjj ddd hhmmss UTC
```

```
jjjjj      = last 5 digits of days since jan 1, 4713 B.C.  
ddd        = julian day of current year  
hhmmss     = hours, minutes, seconds in UTC time  
UTC        = constant
```

### Modem algorithm

1. Open comm port.
2. Initialize comm port for 1200 bps, 8 data bits, no parity, 1 stop bit, DTR enabled.
3. Write initialize string to modem.
4. Wait for OK from modem (wait max of 100 seconds)
5. Write dial string to modem.
6. Loop receiving time code string from modem. When time code is stable, set PC clock. Loop at most 15 seconds.
7. Clear DTR.
8. Wait 3.2 secs, write +++ to modem, wait 3.2 secs.
9. Write modem hangup string.
10. Wait for OK from modem (wait max of 10 seconds).
11. Close comm port.

Cancel operation if BUSY, NO CARRIER, ERROR, NO ANSWER or NO DIALTONE received from modem at any time, or if comm port error.

## **Significance of time zone**

You can use the Control Panel Date/Time applet to set the time zone and daylight saving settings for your computer. The only purpose of these setting is to affect the local time displayed by programs such as CLOCK.EXE. Windows NT always stores time internally using Universal Time (which is the local time at 0 degrees longitude). Somar ACTS simply passes the Universal Time received from the time source to Windows NT, and so does not need to be aware of the local time zone or daylight savings settings for your computer.

