


TSS-P: Time Service Software

to update the PC clock with a 1ms guaranteed accuracy by using a GPS unit on a COM port providing 1PPS signal and NMEA messages


TSS-P

Configuration

This application updates local PC date and time by using UTC date and time provided by your GPS unit. To use it, you should specify first the communication port where the GPS unit is plugged in.

Communication Port for the GPS:


Current Time Zone:





Internet Time Server:

Last Windows Clock Update:

Status Legend

Current Status



 The GPS unit synchronizes the local PC date and time with a guaranteed accuracy of 1 millisecond
 Waiting for GPS synchronization or the accuracy of 1 millisecond can't be guaranteed.
 No GPS unit available
 The PC is automatically synchronized with an Internet time server. TSS-P can't update the date and time of the local PC.

Information provided by the GPS Unit

Satellite Information

Satellite	Level C/No (dB:1Hz)
16	29.00
21	46.00
23	31.00
25	51.00
27	28.00
29	42.00
31	41.00
5	50.00
(13)	21.00
(40)	40.00

GPS Information

Latitude	Longitude	Altitude	Speed
<input type="text" value="48° 45.4018' N"/>	<input type="text" value="3° 27.9928' W"/>	<input type="text" value="80.60"/>	<input type="text" value="0"/>
(Sexagesimal unit)		(meters)	(Km/h)

Date and Time

UTC (Universal Time Coordinated):

PC Clock with the Time Zone:

GPS Unit Feature

☒ Baud Rate: 57600 - Receiving NMEA messages

Read Me First

Revision 1.7

Table of Contents

Part 1 :	Install and Uninstall “TSS-P”	3
1.1.	Install “TSS-P” from a downloaded trial version	3
1.2.	Install “TSS-P” from the CD-ROM.....	4
1.3.	Uninstall “TSS-P”	5
Part 2 :	License Configuration.....	6
2.1.	15-day Trial license	6
2.2.	To configure a license	7
Part 3 :	Launch “TSS-P”.....	8
3.1.	Internet Time Server synchronization.....	8
3.2.	First start	8
3.3.	How to configure “TSS-P”	9
3.4.	TSS-P menu	9
3.4.1	The “Open TSS-P” item	10
3.4.2	The “Quit” item	12
3.4.3	The “About” item	12
Part 4 :	Registry Content	13
4.1.	Parameters.....	13
4.2.	Auto-Run	13
Part 5 :	NMEA 0183 Messages	14

Part 1 : Install and Uninstall “TSS-P”

To install this software, you need a PC with [at least a 1024 x 768 display screen resolution](#) and [Windows XP, Vista, Seven, 8 or 10](#).



** To run "TSS-P" your computer's screen resolution must be configured on 1024 X 768 (at least). Please note that you should mask the task bar in a 1024x768 screen resolution, so you could have an optimal view of the software interface.*

** You must be logged on with administrator privileges.*



It is advisable to first close anti-virus application before installing this software.

The “TSS-P” software requires a license code to run. See part 2 below for more information about the license program.

The installation procedure is a standard installation program for Windows.

There are 2 packages available:

- **Package #1 - 15-day trial package:** This package is a full functional package available during 15 day after the first start.
- **Package #2 - Software Protection Code package:** This package is a full functional package with no time limitation.

1.1. Install “TSS-P” from a downloaded trial version



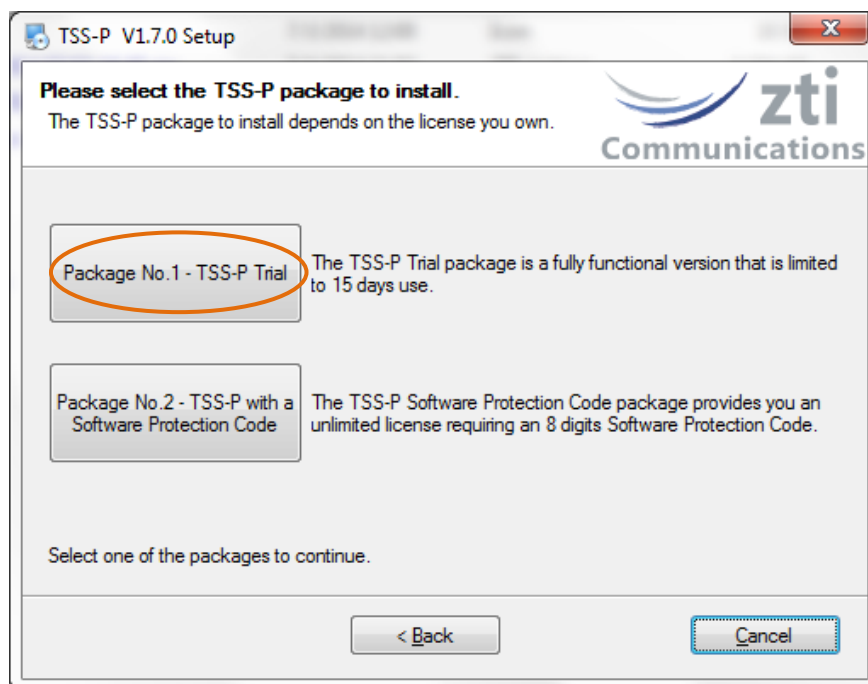
The installation procedure under Windows requires to be logged on with administrator privileges.

[The installation procedure is a standard installation program.](#)

- If you have downloaded the “TSS-P” software from a website, you have downloaded the file “Setup_TSS-P.zip” that includes this documentation and the file “Setup_TSS-P.exe”.
- Run “Setup_TSS-P.exe” and follow the “TSS-P” setup instructions to proceed with the installation.

By default, the “TSS-P” software will be installed in the directory C:\Program Files (x86)\TSS-P (C: is used as example):

To install the **15-day trial package**, select the package #1.



Start Menu shortcuts created:

Start > Programs > **TSS-P**

- ⇒ **Uninstall TSS-P**
- ⇒ **TSS-P** (click to run the “TSS-P” software)
- ⇒ **TSS-P Read Me First** (this guide)

1.2. Install “TSS-P” from the CD-ROM



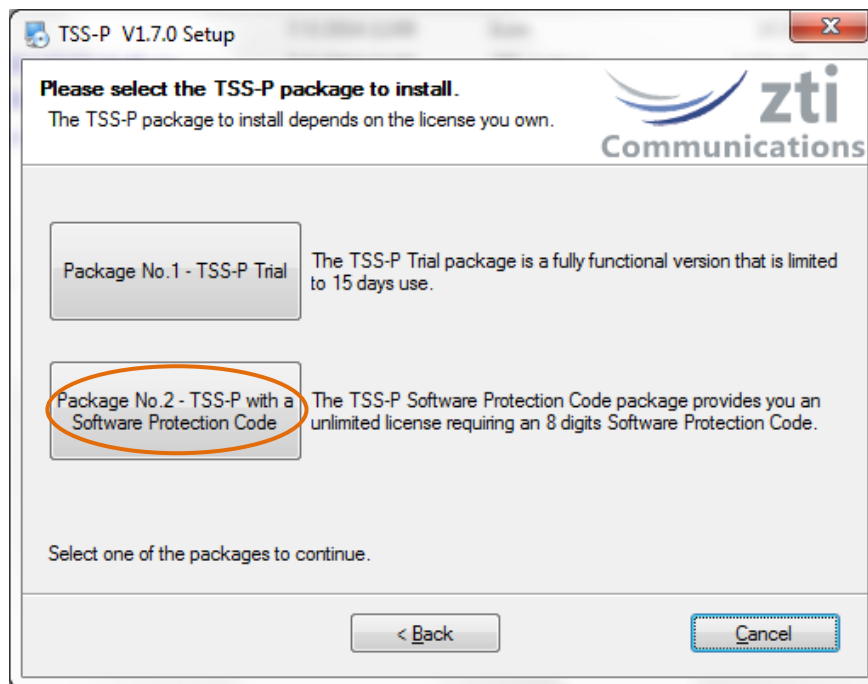
The installation procedure under Windows requires to be logged on with administrator privileges.

The installation procedure is a standard installation program.

- First, insert the «TSS-P» CD-ROM on disk drive.
- Click on “Start”, “Execute” and type “CD-ROM unit>:\Setup_TSS-P.exe” and follow the “TSS-P” setup instructions to proceed with the installation.

By default, the “TSS-P” software will be installed in the directory C:\Program Files (x86)\TSS-P (C: is used as example).

To install the **Software Protection Code unlimited license package**, select the package #2.



Start Menu shortcuts created:

Start > Programs > **TSS-P**

- ⇒ **Uninstall TSS-P**
- ⇒ **TSS-P** (click to run the “TSS-P” software)
- ⇒ **TSS-P Read Me First** (this guide)

1.3. Uninstall “TSS-P”

The uninstall procedure is a standard uninstall program.

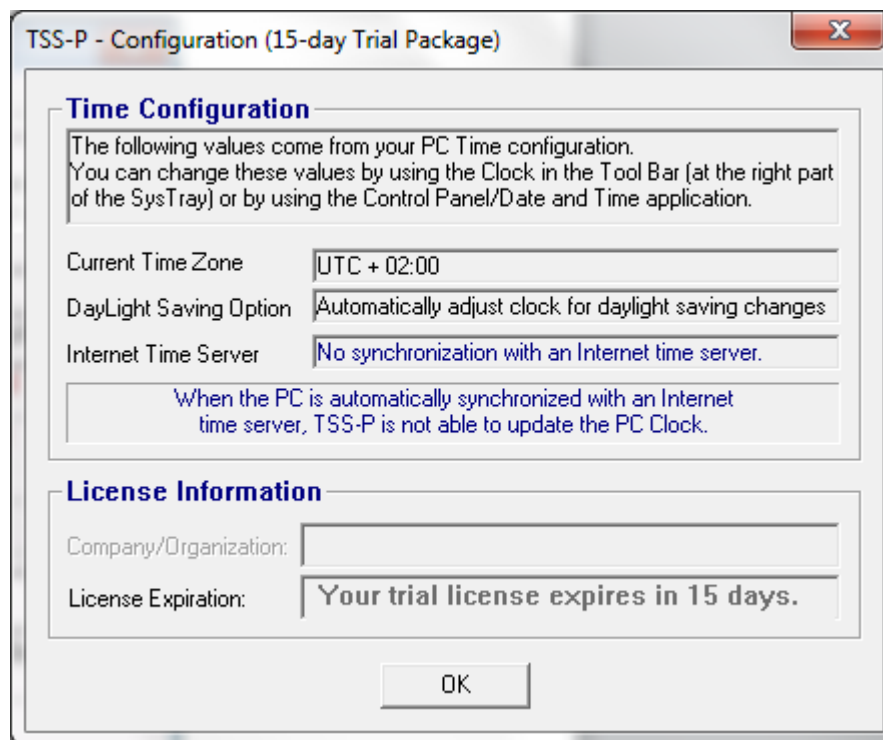
In the “Start > Programs > TSS-P” menu, select “**Uninstall TSS-P**”.

Part 2 : License Configuration

The TSS-P software is available as a Trial package that can be used during 15 days or with a permanent license. When you get the permanent license, you should install the Software Protect Code package and enter the license code in the TSS-P Configuration dialog.

2.1. 15-day Trial license

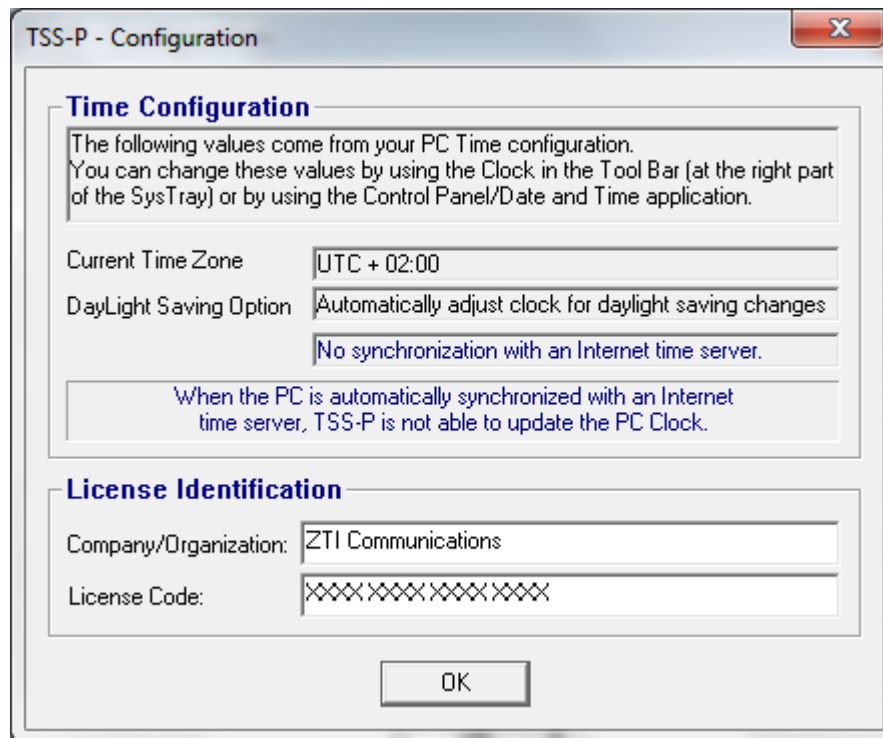
There is code to enter when using the 15-day trial package.



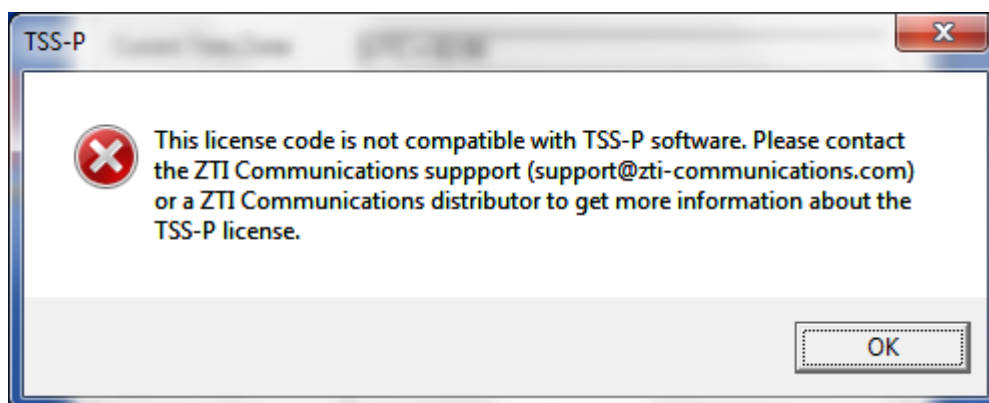
The Configuration dialog indicates the remaining number of days of your trial.

2.2. To configure a license

***Note:** This software is licensed on a per workstation basis. You will need to have a separate license for each machine that you install it on. Each licensed copy of the software installed on a system has a unique License Code.*



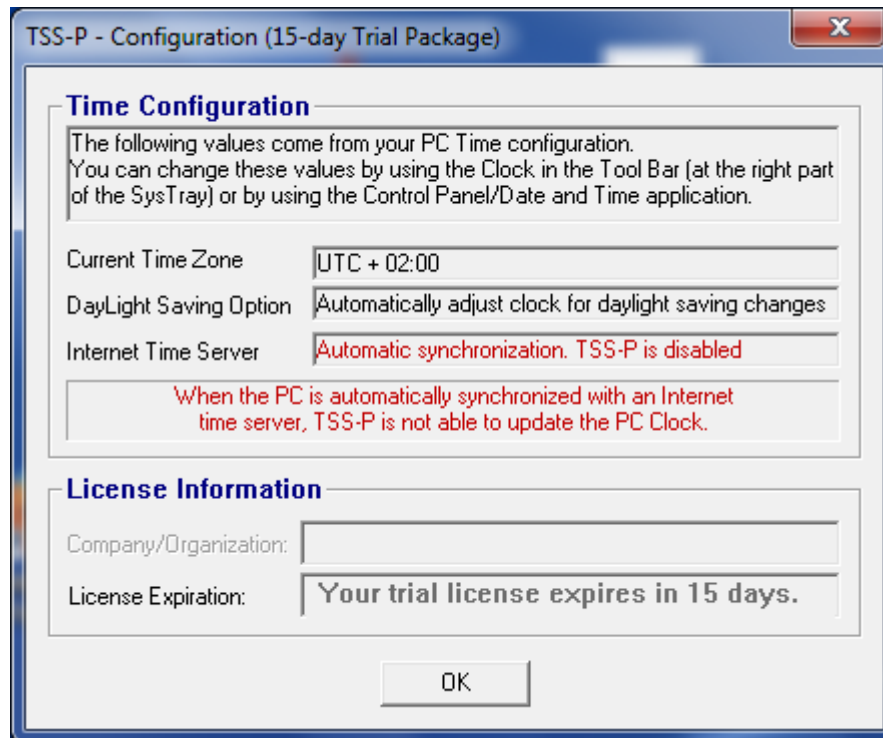
In case there is a mismatched License Code entered, the information windows ask you to retry.



Part 3 : Launch “TSS-P”

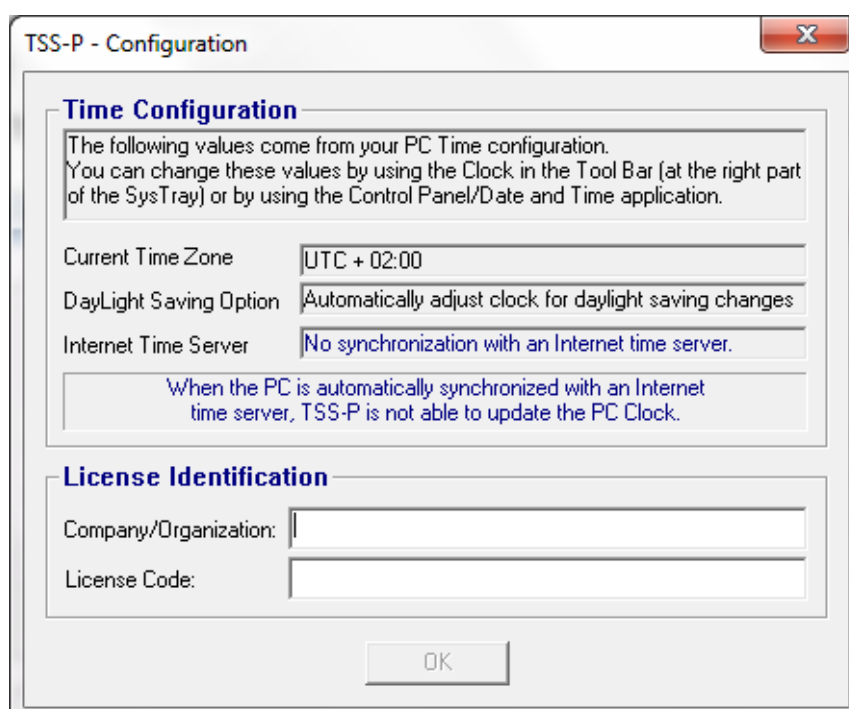
3.1. Internet Time Server synchronization

When you start “TSS-P” with Internet Time Server synchronization selected, TSS-P software will not update your PC clock.



3.2. First start

When you start “TSS-P” for the first time, you have to enter a Company name and the license code.



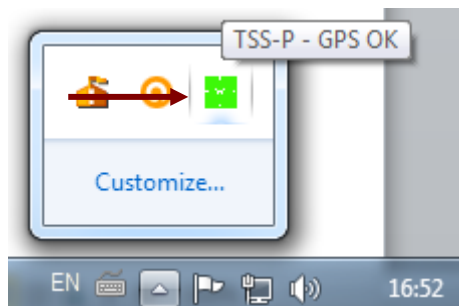
The next times, the configuration window will be presented with these initial values that you are able to change as needed.

After pressing OK, the “TSS-P” application is installed in the Windows ‘Systray’. It will be restarted automatically when you reboot the PC until you use the Quit menu option (see 3.4.2).

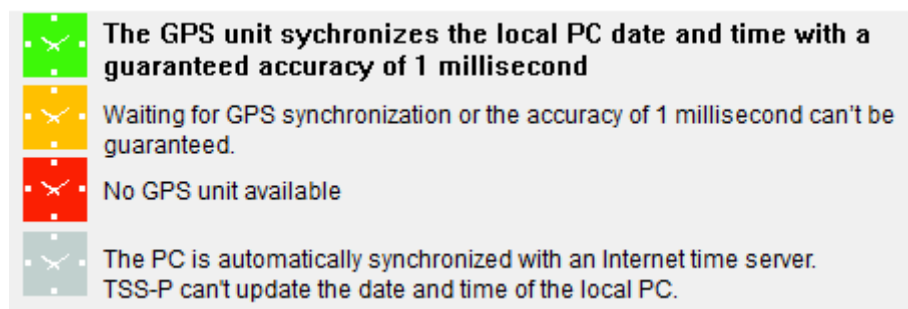
3.3. How to configure “TSS-P”

Once the “TSS-P” software is started, it has been installed automatically.

A coloured icon is then displayed in the ‘Systray’, on the right part of the Task bar.

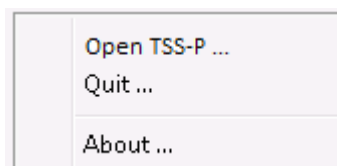


This colored icon is used to show the status of the “TSS-P” software as shown below:



3.4. TSS-P menu

To open the “TSS-P” menu, click with the right button when the mouse is on the “TSS-P” icon. The TSS-P menu is opened as shown below:

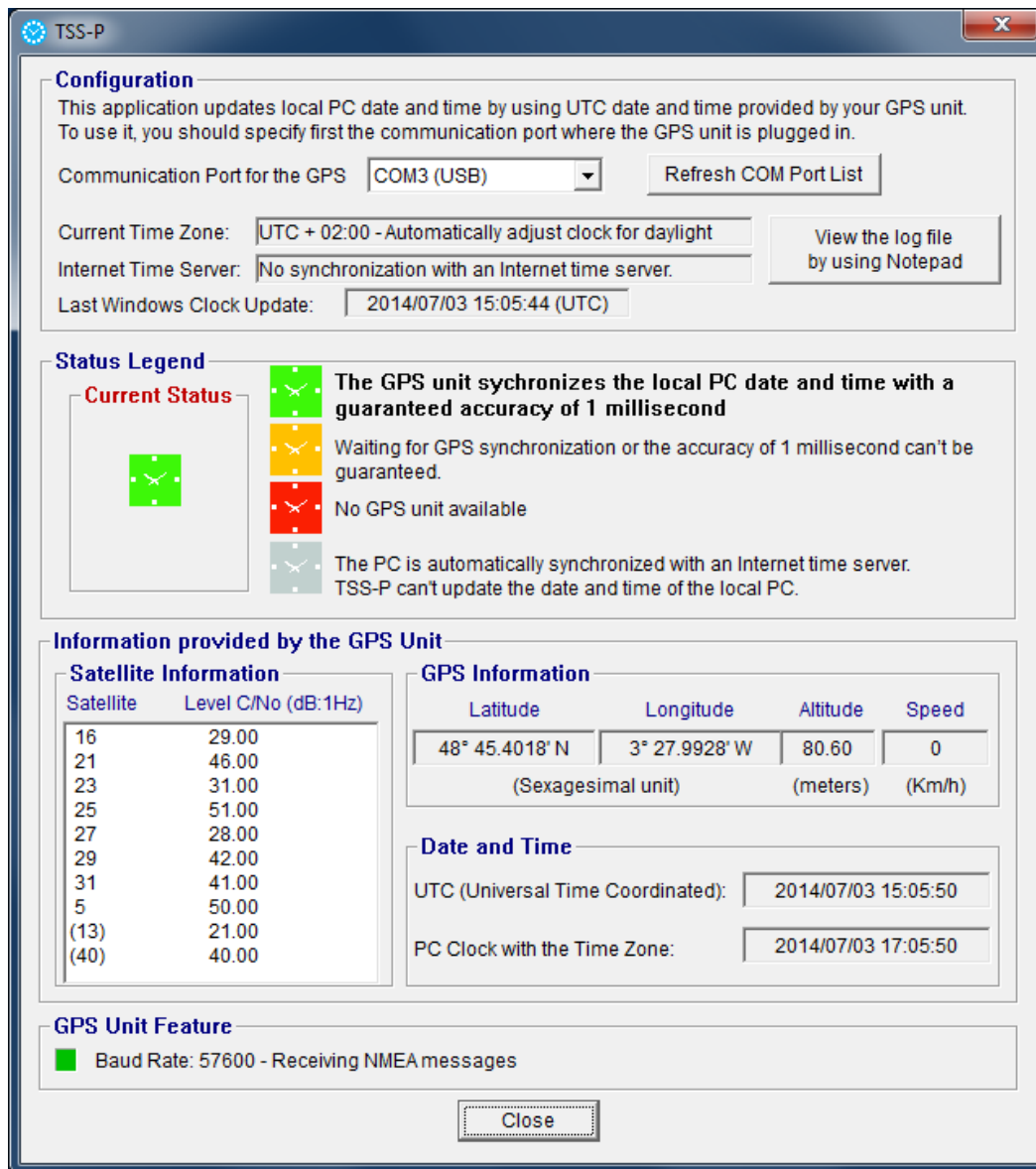


There are three items in the TSS-P menu.

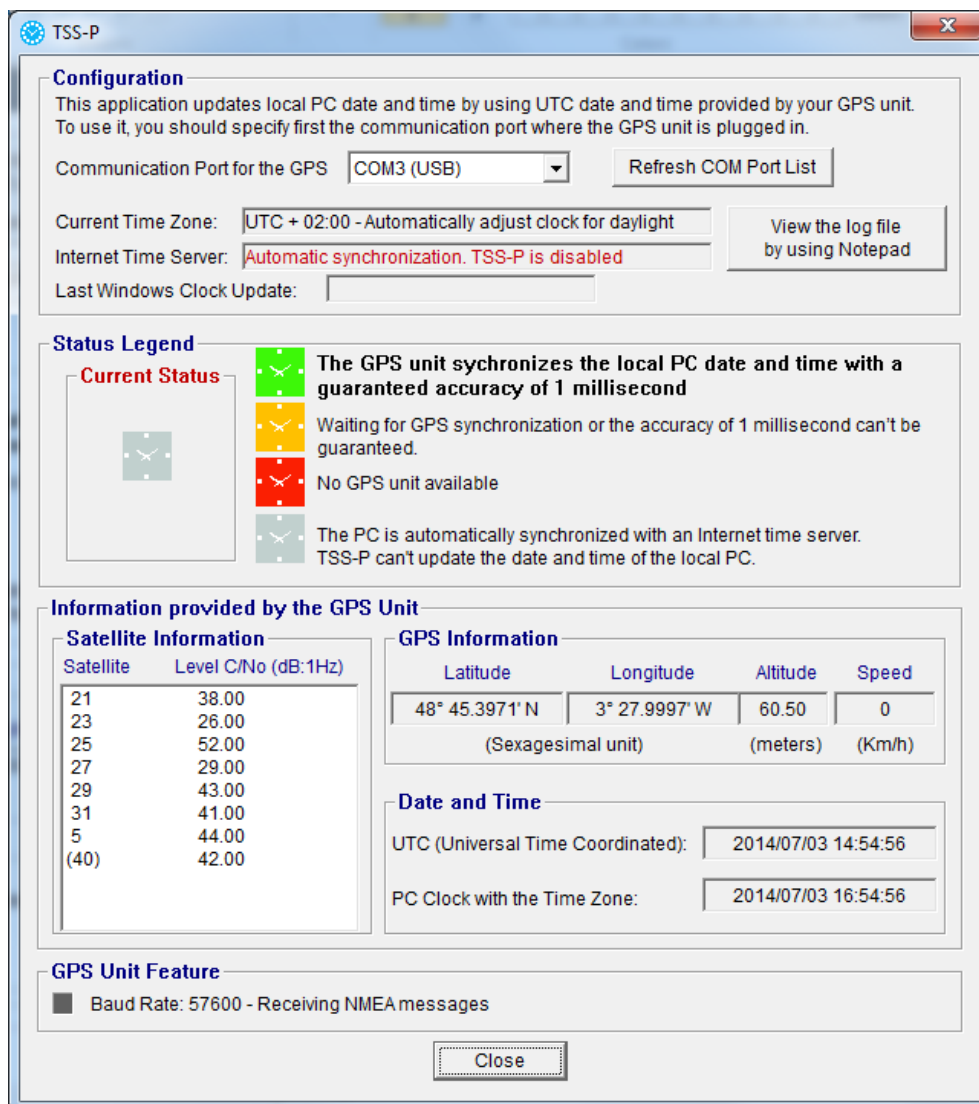
3.4.1 The "Open TSS-P" item

The 'Open TSS-P' item opens the configuration and detailed status window, as shown in the next picture. The TSS-P window allows:

- To set the serial port used to dialog with the GPS unit.
- To access the TSS-P trace file located in the directory C:\Program Files\TSS-P.

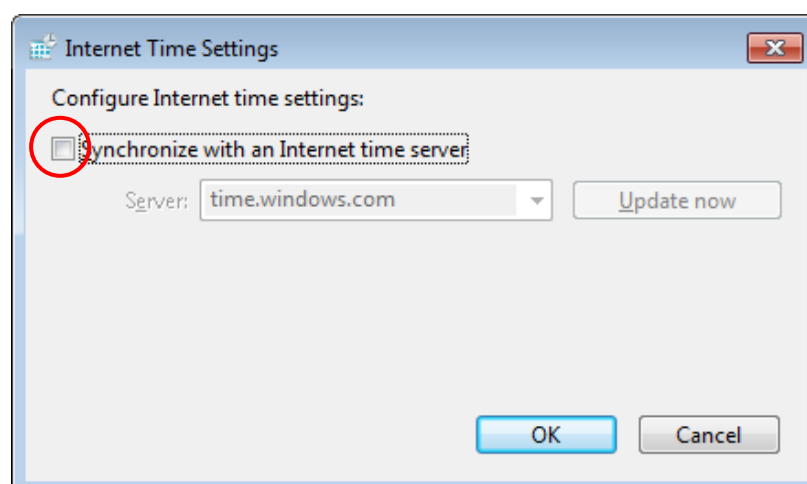


In the example above, the green current status indicates that the date and time of the local PC are synchronized with 1ms accuracy.



In the above example, the gray current status indicates that the date and time of the local PC are not synchronized by the GPS unit because the PC is already synchronized automatically with an Internet time server.

To change this state you need to disable this automatic synchronization: just uncheck the option **'Automatically synchronize with an Internet time server'** of the Internet Time tab displayed by the Date and Time Properties window of your PC.



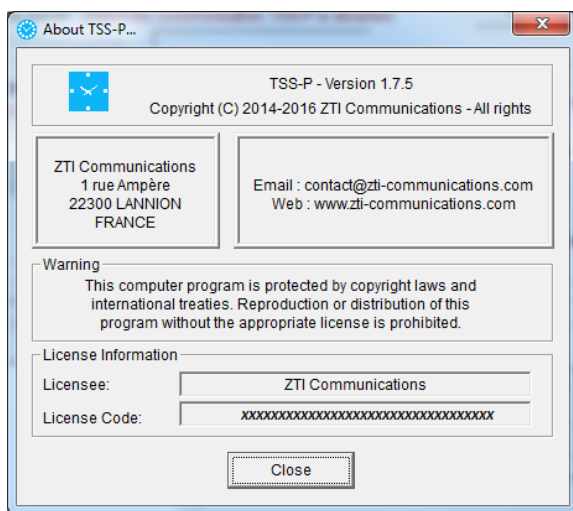
3.4.2 The “Quit” item

The Quit Item removes the “TSS-P” from the Windows Service list and stops the “TSS-P” program. It doesn’t remove the License information from the PC.

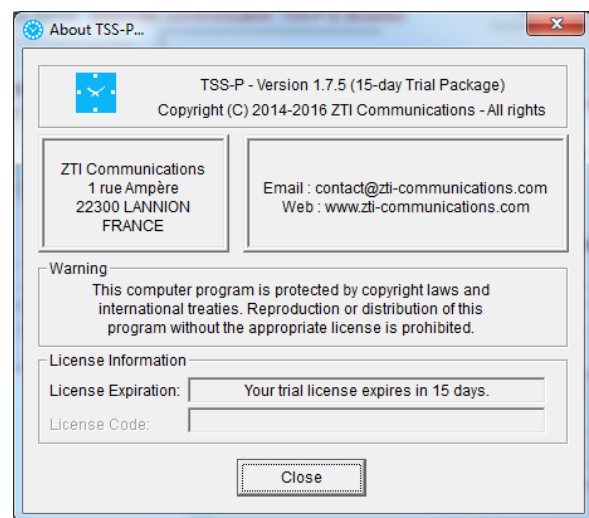
To restart the “TSS-P” software, you launch the software via the ‘Start/All Programs/TSS-P’ menu as described in paragraph 3.2 First start.

3.4.3 The “About” item

The About item displays the current version of “TSS-P” and gives you all information to contact ZTI by email. Depending on the installed package, it displays your current license code or the number of days remaining to use the trial package.



TSS-P with a Software Protection Key



TSS-P 15-day trial

Part 4 : Registry Content

4.1. Parameters

The “TSS-P” software uses some parameters located in Windows the registry. Some of these parameters are saved to be reuse for the next session such as the COM port, the User and License code.

The specific “TSS-P” registry entry is located at: HKEY_LOCAL_MACHINE\Software\ZTI\TSS-P. The parameters are detailed in Table 1.

Note: Change in one of these parameters needs to restart “TSS-P” software.

Key	Type	Comment
COMPort	REG_DWORD	Latest COM port number used. There is no default.
User	REG_SZ	User identification. There is no default.
LicenseCode	REG_SZ	License code identification. There is no default.
JournalMaxSize	REG_DWORD	Maximal size of the log file. Unit is Kbytes. Default is 1024.
PPSaccuracy	REG_DWORD	Extreme value where a PPS is considered enough accurate [-PPSaccuracy..+PPSaccuracy]. Unit is microsecond. Default is 500.
PPSrebound	REG_DWORD	Number of microseconds to assume a second PPS is the CTS level change. Unit is microsecond. Default is 11000
TraceLevel	REG_DWORD	Level of message provided by the software. This is an integer value. More the value is high, more verbose messages are provided. Messages are sent using OutputDebugString() Win32 API. They may be consulted using DbgView for www.sysinternals.com . Default value is 2. Valid range is from 0 to 6 (where 0 means no message, and 6 includes internal debug: 6 should be used only when required by the ZTI support because it may avoid upgrading the PC clock accurately).

Table 1 – TSS-P Registry entries

4.2. Auto-Run

When the “TSS-P” software is configured to start with Windows (Auto-Run), the Windows registry is updated. The Windows registry key concerned depends on the User selection i.e. **All Users** or the **Current User**. The registry keys are listed in Table 2.

Concerned	Registry Entry
All Users	HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run
Current User	HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run

Table 2 – TSS-P Windows Auto-Run Registry entries

When the Auto-Run is active, there is an entry “TSS-P” in the relevant Windows registry key as presented in Figure 1.

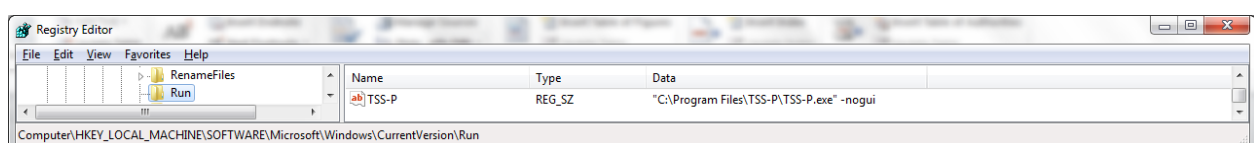


Figure 1- TSS-P Auto-Run Registry Key

Part 5 : NMEA 0183 Messages

The “TSS-P” software assumes the GPS receiver will provide at least the NMEA 0183 messages shown in Table 3.

Message	Description
GGA	GPS fix data
GSA	GPS DOP and active satellites
GSV	GPS satellites in view
RMC	Recommended minimum specific GPS/Transit data (Date and Time)
VTG	Track Made Good and Ground Speed

Table 3 – NMEA 0183 minimum messages list