Trimble® GPSBase
Installation Tutorial
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Introduction

This document is a basic guide for installing and configuring GPSBase software. The configuration discussed consists of a 5700 GPS receiver connected to the GPSBase computer through a serial interface cable. There are features and functions of this equipment that are not discussed in this guide. For more information please refer to the manuals for the individual components, or seek assistance from a Trimble technical representative.

For the following procedures, you will need:

- A computer that meets the following minimum requirements:
  - Microsoft® Windows® 2000, Service Pack 2 or later, Microsoft Windows XP operating system
  - Pentium III PC with 500MHz processor
  - 256MB RAM
  - 10GB of unused hard disk space
  - Internet Explorer 6.0 or later
  - One unused nine pin serial port
- GPSBase software CD (V2.2 or higher)
- A valid serial number and authorization code
- A working GPS reference receiver with a serial cable for connection to the office computer.
- A static LAN address for the GPSBase computer
- An Internet connection with a static WAN address.
Verifying Operation of the GPS Receiver

Make sure that the GPS reference receiver is operational and that the receiver and the GPSBase computer are connected by the serial cable, as shown in Figure 1.

Figure 1  Office elements of a GPSBase installation
Installing the GPSBase Software on the Computer

1. Insert the Trimble GPS Infrastructure software CD. The CD runs automatically.

2. In the window that appears, click Install GPSBase:

3. All of the default choices that are provided work for a simple installation of GPSBase. When prompted, click Accept.

4. When completed, click Finish to exit.

   A GPSBase shortcut now appears on the desktop.

5. If required, insert a security dongle into a USB port:
   a. If a New hardware found window appears, click Accept.
   b. If a driver is required, set a path to the Dongle directory on the Trimble GPS Infrastructure CD, where the required drivers are located.
Launching GPSBase

1. Double-click the GPSBase shortcut on the desktop.
   - If you are using a security dongle, the following window appears:
   - If the software is licensed using a serial number and authorization key, the following window appears:
**Entering the serial number and authorization key**

1. In the *Serial Number* field of the *License Activation* window, enter the serial number and then click **Enter**.
2. In the *Authorization Key* field, enter the authorization key and then click **Enter**.

The *License Activation* window closes. The software license verification is now complete and you will not have to do this again.

**Connecting to the GPS Receiver**

1. Click the GPSBase icon in the *Navigator* pane. A drop down menu appears.
2. Click *Receivers*. The Receivers module appears in the *Information* pane.
3. Right-click the Receivers module name. A drop down menu appears.
4. Click **Connect**. The *Connection wizard* appears.

5. Click **Trimble(concise)** and then click **Next**. The *Select a connection name* dialog appears.
Configuring the Connection

1. In the Select a connection name dialog, click Add. The Enter connection name dialog appears.

2. Enter a descriptive name for the receiver type, connection type, and baud rate. For example 5700Serial38400.

3. Click OK. The Driver Selector dialog appears.

4. Click Serial Port Handler and then click OK.
5. In the *Receiver Communications Settings* dialog that appears, select appropriate communications values, as shown in the following example:

![Receiver Communication Settings](image)

6. Click **OK**. The *Connection wizard* dialog appears with the new connection name highlighted.

7. Click **Finish**. The *Select receiver type* dialog appears.
Configuring the Receiver

1. In the *Select receiver type* dialog click the appropriate receiver type, and then click **OK**. The *Receiver Data* dialog appears:

2. If required, enter the *Station ID* number.

3. In the *Position* field, select *Geographical(WGS84)*.

4. Enter the latitude, longitude, and ellipsoidal height values for the GPS antenna.

   Make sure that you enter the correct hemisphere suffixes in the latitude and longitude fields.
5. Click **Next**. The *Antenna* dialog appears:

6. Select the appropriate values for the antenna fields.
   Trimble recommends that you set the *Antenna height measured to* field to *Bottom of Antenna*, and *Antenna Model* to *US National Geodetic Survey Calibration*.

7. Click **Next**. The *Receiver data logging scheduler* dialog appears.

8. Clear the *Use schedule* check box

9. Click **Finish**. The *GPSBase* window appears.
   Once the GPS receiver is connected, it begins communicating with the GPSBase software.
Adding Important Modules

The following sections describe how to add two of the most important modules to the GPSBase.

Adding the raw data analysis module

1. Right-click a receiver name icon in the Navigator pane. In this example, the receiver name is Kilo.

2. From the drop down list that appears, click Insert Module. The Module selector dialog appears:
3. Click **Raw Data Analysis** and then click **OK**. The **Raw data analysis** dialog appears directly below the **Receiver** icon in the **GPSBase** window:

![Image of GPSBase window showing Raw Data Analysis dialog]

**Adding the RTCM single station module**

1. In the **Navigator** pane, right-click the **Raw Data Analysis** icon.
2. In the drop down menu that appears, click **Insert Module**. The **Module selector** dialog appears:

![Image of Module selector dialog]

**Module selector dialog for adding RTCM single station module**
3. Click **RTCM Single Station** and then click **OK**. The **Connection wizard** appears:

![Connection Wizard](image)

4. Click **ADD**. The **Connection Name** dialog appears.

5. Enter a descriptive name for the corrections generator data type, connection type, and port number. For example, `CMRMulticastSocketServer8500`.

6. Click **OK**. The **Driver selection** dialog appears:

![Driver Selector](image)
7. Click Multicast socket server and then click OK. The Multicast socket server configuration dialog appears:

![Multicast Socket Server Configuration](image)

8. Enter an IP Port Number, for example 8500, and then select the Use as remote connection check box.

9. Click OK. The Connection wizard dialog that appears shows the RTCM generator:
10. Click **Finish**. In the *Data Format* dialog that appears, set the required parameter as shown below:
11. Click **Next**. In the *Observations* field of the *CMR+ messages* dialog that appears, enter 1

12. Click **Finish**.

GPSBase begins providing RTK data on the selected port.

The software is now communicating with the receiver and generating RTK data. For information on the available modules, refer to the GPSBase manual.
Configuring the router

The GPSBase installation produces RTK data for GPS rovers. For this data to be accessed by GPS rovers in real time, the GPSBase computer has to initiate socket connections through the Internet. The IP address and port number must remain static, so that end users know where to access the data.

You must install the GPSBase on an office computer with high speed Internet access and a static IP address. Make sure that RTCM requests initiated through the Internet are directed to the GPSBase computer. Trimble recommends that you configure the network router to forward the port used for the RTCM generator to the GPSBase machine. This procedure is described in Adding the RTCM single station module, on page 15.

Figure 2 shows the data flow for a GPSBase installation and RTK rover.

Figure 2 Data flow
Configuring a Static IP Address in the GPSBase Computer

1. To retrieve the LAN IP address of the GPSBase machine, open a command session. Click Start / Run and enter cmd in the dialog.

2. Enter `ipconfig /all` at the prompt. A typical data return is shown below:

3. Record all of the displayed values.
   Alternatively press Alt + Print Screen and paste the copied window into a Word document or a Paint image for future reference.

4. Make sure that the returned IP address in the GPSBase machine is static.
Setting the static IP address in Windows XP

1. Click Start / Control Panel / Network Connections.
2. Click LAN or High-Speed Internet.
3. Double-click LAN connection.
4. On the dialog that appears, click Properties.
5. Click List and then scroll down and click Internet Protocol (TCP/IP).
6. Click Properties.
7. Click Use the following IP address.
8. Enter values in the fields: Static IP address, Subnet mask, and Default Gateway.
9. Select the appropriate DHCP and DNS options.
10. Click OK to exit.