

## Connecting to an Office Computer

### In this chapter:

- [Connection management software](#)
- [Connecting the handheld to a computer](#)
- [Managing the connection using the Windows Mobile Device Center](#)
- [Managing the connection using ActiveSync technology](#)
- [Installing software onto the handheld](#)

Connect the Juno series handheld to an office computer to transfer information, settings, and files from one device to the other, or to install software onto the handheld.

You can connect the handheld to a computer using the USB cable or a Bluetooth wireless link.

To protect your data, Trimble recommends that you regularly copy important data to an office computer.

## Connection management software

To install software onto a Windows Mobile powered device, or to copy files between the handheld and a computer, you must connect the device to an office computer. If the computer is running:

- the Windows Vista® operating system, use the Windows Mobile Device Center to manage the connection.
- the Windows® XP or 2000 operating system, use ActiveSync technology to manage the connection.

**Note** – You must install the Windows Mobile Device Center or ActiveSync technology onto the computer **before** you connect the handheld.

This connection management software also enables you to synchronize office applications on an office computer with the handheld.



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**CAUTION** – The available space on the handheld is small compared to an office computer. To avoid accidentally synchronizing the handheld with a large amount of data on the office computer, Trimble recommends that you either connect to the handheld **without forming a partnership**, or that you limit the information types and amount of data that is synchronized.

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**CAUTION** – Synchronizing data is designed to keep the same data on both the office computer and the handheld. Exercise care when resynchronizing applications after deleting data from one computer, as resynchronizing will delete the same information from the other computer.

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For more information see one of the following:

- [Managing the connection using the Windows Mobile Device Center, page 54](#)
- [Managing the connection using ActiveSync technology, page 55.](#)

## Installing the Windows Mobile Device Center

The Windows Vista operating system includes a basic connectivity driver for Windows Mobile powered devices. This driver allows you to transfer files from the handheld to an office computer.

To install software onto a Windows Mobile powered device, you must install Windows Mobile Device Center 6 onto an office computer.

A copy of the Windows Mobile Device Center is provided on the *Juno Series Getting Started Disc*. Alternatively, go to [www.microsoft.com/windowsmobile/devicecenter.mspx](http://www.microsoft.com/windowsmobile/devicecenter.mspx) to download the latest version from the Microsoft website.

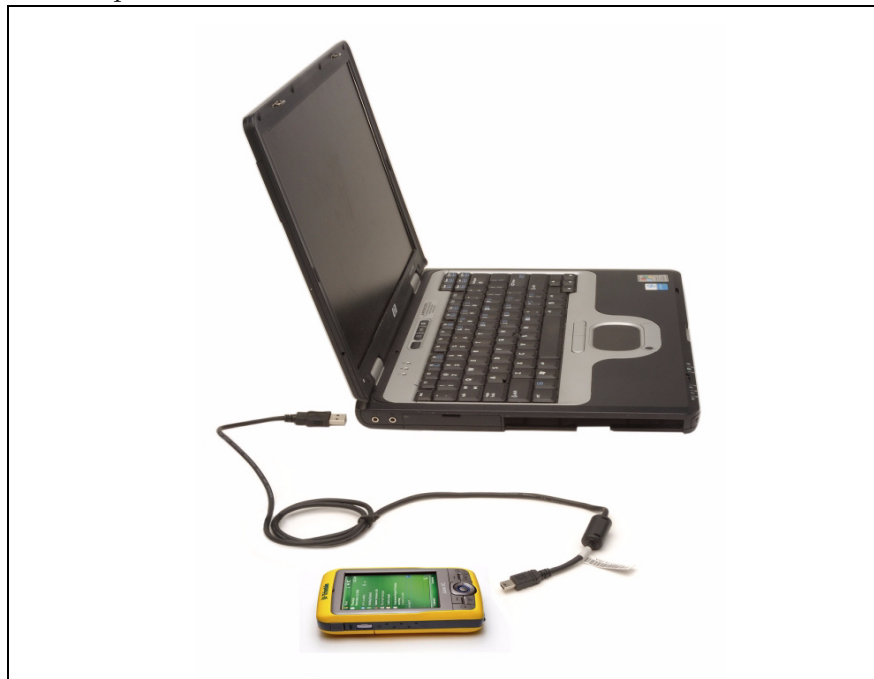
## Installing ActiveSync technology

A copy of ActiveSync technology is provided on the *Juno Series Getting Started Disc*. Alternatively, go to [www.microsoft.com/windowsmobile/activesync/default.mspx](http://www.microsoft.com/windowsmobile/activesync/default.mspx) to download the latest version from the Microsoft website.

## Connecting the handheld to a computer

To connect the Juno series handheld to a computer:

1. Make sure that the handheld and the computer are switched on.
2. Make sure you have installed the appropriate connection management software onto the computer (see [Connection management software, page 52](#)).
3. To form a connection, do one of the following:
  - Use the handheld's integrated Bluetooth radio to establish a wireless serial link to a Bluetooth-enabled computer. For more information, see [Connecting to an office computer to use ActiveSync technology, page 89](#).
  - Use a USB connection:
    - a. Connect the USB data cable to the USB port on the handheld.
    - b. Connect the other end of the USB data cable to a USB port on the computer.

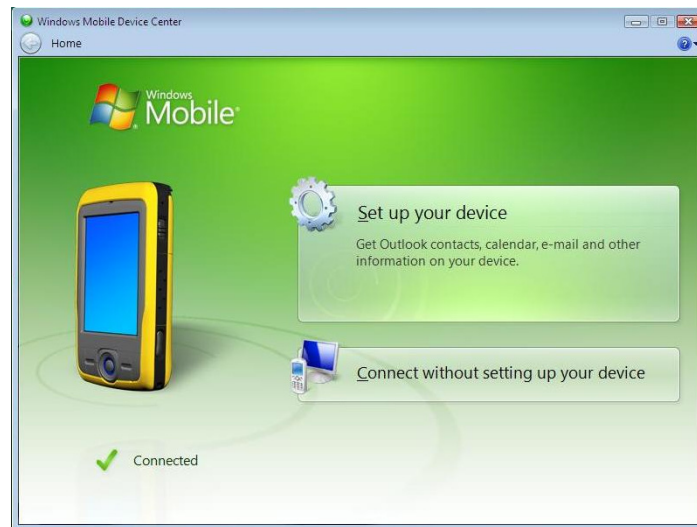


When the handheld and the computer are connected, you can manage the connection through a window that appears on the office computer. See one of the following:

- [Managing the connection using the Windows Mobile Device Center, page 54](#)
- [Managing the connection using ActiveSync technology, page 55](#)

## Managing the connection using the Windows Mobile Device Center

1. Connect the handheld to the computer (see [page 53](#)).
2. If the Autoplay window appears, close the window.
3. The *Windows Mobile Device Center* window displays the message Connected:



**Note** – If the connection is not made automatically, check that the connection is enabled in the *Windows Mobile Device Center* software and on the handheld. For more information, see [Troubleshooting, page 99](#).

4. Do one of the following:
  - To synchronize files and data between the handheld and a computer, click *Set up your device* and then follow the instructions on screen.
  - To transfer data between the handheld and the computer without synchronizing the devices, click *Connect without setting up your device*.
5. To transfer files between the computer and the handheld, click *File Management*. A Windows Explorer-type window appears, displaying files stored on the handheld. Copy and paste files to other locations on the computer, or from the computer to the handheld.
6. To install software onto the handheld, see [Installing software onto the handheld, page 57](#).
7. To uninstall software from the handheld, click *Programs and Services* and then click *Add/Remove Programs*.



**Tip** – If the *Add/Remove Programs* option does not appear below *Programs and Services*, click *More*. The *Add/Remove Programs* option appears.

For more information, refer to the *Windows Mobile Device Center Help*.



**Tip** – If the GPS Pathfinder Office software is installed on the office computer, you can configure the Connection Manager utility in the GPS Pathfinder Office software to automatically detect when you connect a Juno series handheld to the computer. This enables you to automatically transfer data from the TerraSync software, differentially correct the data, and then export it to a GIS. For more information, refer to the *GPS Pathfinder Office Software Help*.

## Managing the connection using ActiveSync technology

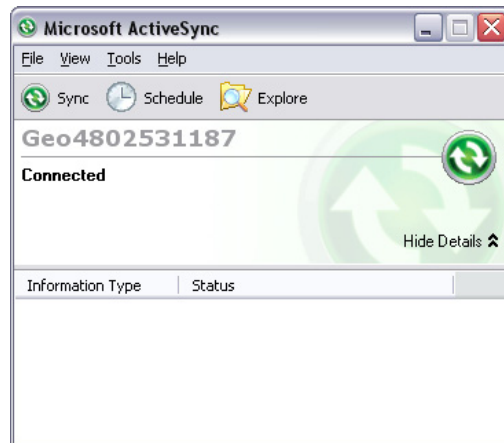
1. Connect the handheld to the computer (see [page 53](#)). The *Synchronization Setup Wizard* appears:



**Note** – If the connection is not made automatically, check that the connection is enabled in the ActiveSync software and on the handheld. For more information, see [Troubleshooting, page 99](#).

2. Do one of the following:
  - To synchronize files and data between the handheld and a computer, click **Next** and then follow the instructions in the *Synchronization Setup Wizard*.
  - To transfer data between the handheld and the computer without synchronizing the devices, click **Cancel** to close the wizard.

3. The *Microsoft ActiveSync* window displays the message Connected:



4. To transfer files between the computer and the handheld, click **Explore**. A Windows Explorer-type window appears, displaying files stored on the handheld. Copy and paste files to other locations on the computer, or from the computer to the handheld.
5. To install software onto the handheld, see [Installing software onto the handheld, page 57](#).
6. To uninstall software from the handheld, select *Add/Remove Programs* from the *Tools* menu. Clear the check box beside the program you want to remove and then click **OK**.

For more information, refer to the *ActiveSync Help*.



**Tip** – If the GPS Pathfinder Office software is installed on the office computer, you can configure the Connection Manager utility in the GPS Pathfinder Office software to automatically detect when you connect a Juno series handheld to the computer. This enables you to automatically transfer data from the TerraSync software, differentially correct the data, and then export it to a GIS. For more information, refer to the *GPS Pathfinder Office Software Help*.

## Installing software onto the handheld

Before you begin, refer to the installation instructions provided with the software.

Some software installations are specifically designed to run on a Windows Mobile powered device. To install software that has a Windows Mobile installation setup:

1. Connect the handheld to a computer (see [page 53](#)).
2. Copy the installation files to a folder on the handheld.
3. Browse to the folder on the handheld. Tap and hold the installation setup file and then select Run.
4. If prompted after installation, perform a soft reset of the handheld (see [page 30](#)).

To install software that is provided on a CD, or as an installation setup that runs on an office computer:

1. Connect the handheld to a computer (see [page 53](#)).
2. If the software is provided on a CD, insert the software CD into the office computer.
3. Run the installation setup.
4. If prompted, select the install option for a Windows Mobile powered device. Once the software is installed on the computer, it is automatically transferred to the handheld.

**Note** – *If a memory card is inserted in the handheld, the card appears as an installation location option. Trimble recommends that you install software to the handheld's storage memory, not to a memory card. If you install software to a card and then remove the card from the handheld, the software will not be available for use.*

5. If prompted after installation, perform a soft reset of the handheld (see [page 30](#)).





## Using the GPS receiver

### In this chapter:

- Supported GPS field software
- Configuring the GPS field software to connect to the receiver
- Using the GPS field software
- Ensuring the accuracy of your GPS data
- Differential GPS explained
- Outputting NMEA data

The Juno series handheld includes an integrated GPS receiver that enables you to collect GPS data for incorporating into a GIS or for managing assets.

The Global Positioning System (GPS) is a satellite-based positioning system consisting of a constellation of operational NAVSTAR satellites that orbit the earth every 12 hours. This system provides worldwide, all-weather, 24-hour time and position information.

***Note** – To receive signals from GPS satellites, the handheld must have a clear view of the sky. GPS positions may not always be available, particularly in or near buildings, in vehicles, or under tree canopy.*

## Supported GPS field software

You can use the Juno series handheld with any of the software products described below.

### TerraSync software

You can install version 3.30 or later of the TerraSync software on a Juno series handheld. Use the software to collect and maintain GIS and GPS data.

To install the TerraSync software, either insert the *TerraSync Software CD* in the CD-ROM drive of a computer and use the menus provided, or run the downloaded setup file. To obtain an installation code for installation, you must register your copy of the software online. Detailed installation instructions are provided in the *TerraSync Software Getting Started Guide*.

### ESRI ArcPad software and the Trimble GPSCorrect extension

You can install version 7.1.0 or later of the ESRI ArcPad software on a Juno series handheld. Use the software to collect and maintain GIS and GPS data. Detailed installation instructions for ESRI ArcPad software are provided in the ArcPad documentation.

To be able to differentially correct ArcPad GPS data, install version 2.42 or later of the Trimble GPSCorrect extension for ESRI ArcPad software on a Juno series handheld.

You must install the ArcPad software **before** you install the GPSCorrect extension.

**Note** – Make sure your version of the GPSCorrect extension is compatible with the version of ArcPad software you are using. For more information, go to [www.trimble.com/gpsccorrect\\_ts.asp](http://www.trimble.com/gpsccorrect_ts.asp), click Support Notes and then search for the Mapping and GIS Product Compatibility List Support Note.

To install the GPSCorrect extension, either insert the *Trimble GPSCorrect Extension for ESRI ArcPad Software CD* in the CD-ROM drive of a computer and use the menus provided, or run the downloaded setup file. Detailed installation instructions are provided in the *Trimble GPSCorrect Extension Getting Started Guide*.

### GPS Controller software

You can install version 2.21 or later of the GPS Controller software on a Juno series handheld. Use the software to configure and monitor the status of the internal GPS receiver.

To install the GPS Controller software, go to [www.trimble.com/support.shtml](http://www.trimble.com/support.shtml). Click GPS Controller and then click Downloads. Click the link for the version you want to install and then follow the instructions in the Installation wizard.

## Other GPS field applications

You can use the Juno series handheld with a custom application developed using version 2.32 or later of the Trimble GPS Pathfinder Tools Software Development Kit (SDK).




You can also use the Juno series handheld with any GPS field software that accepts NMEA messages.

## Configuring the GPS field software to connect to the receiver

The first time you use GPS field software on the handheld, you may need to configure the software to connect to COM4, which is the GPS port on the handheld.

### Connecting to the COM port


Details of how to configure different types of GPS field software to connect to the GPS COM port are as follows:

GPS field software	Configuration details
GPS Controller	Run GPS Controller. The software automatically activates the integrated GPS receiver on COM4.
TerraSync	Run Terrasync. The software automatically activates the integrated GPS receiver on COM4.
ArcPad with the GPScorrect extension	When the Trimble GPScorrect extension is installed, the extension automatically configures the ArcPad software to use the integrated GPS receiver on COM4 using the Trimble GPScorrect protocol. To connect to GPS, tap the <b>GPS</b> button  and then tap <b>Yes</b> . To configure a real-time DGPS source, or to view status information, run the GPScorrect extension. To do this, tap the <b>GPScorrect</b> button in the Trimble toolbar.
ArcPad 7 without the GPScorrect extension	<ol style="list-style-type: none"> <li>1. In ArcPad, tap the <b>GPS</b> drop-down menu  and then select <i>GPS Preferences</i> from the drop-down menu. Tap the <i>GPS</i> tab.</li> <li>2. In the <i>Protocol</i> field, select NMEA 0183.</li> <li>3. In the <i>Port</i> field, select COM4.</li> <li>4. Tap <b>OK</b>.</li> <li>5. Tap the <b>GPS</b> button  and then tap <b>Yes</b>.</li> </ol>
NMEA application	Configure the software to connect to GPS on COM4 and then use the Connect or Activate GPS command.

## Using the GPS field software

Depending on the GPS field software you have installed, you can use the software to view satellite reception, configure logging settings, and collect features. For more information, refer to the rest of this chapter and the documentation for the GPS field software.

## Starting the GPS field software

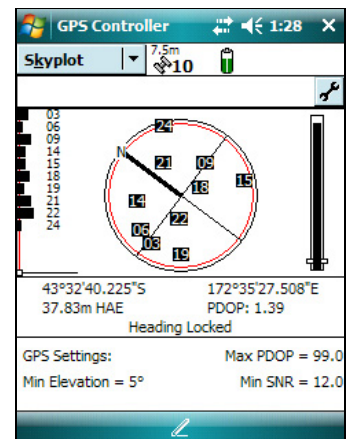
- Tap  / *Programs* and then select the GPS field software, for example *GPS Controller*.

When you first open any Trimble GPS field software, the Skyplot section is displayed.

## Viewing available GPS satellites

Use the graphical Skyplot section or the Satellite Info section in the Trimble GPS field software to view detailed GPS information.

**Note** – To receive signals from GPS satellites, the handheld must have a clear view of the sky. GPS positions may not always be available, particularly in or near buildings, in vehicles, or under tree canopy.



## Resetting the GPS receiver

Trimble GPS field applications all have options to reset the receiver to:

- delete the almanac
- delete information stored on the last known position
- restart the receiver
- reset the GPS receiver to factory default settings

## Ensuring the accuracy of your GPS data

The Juno series handheld has an integrated GPS receiver that provides accurate positioning with real-time or postprocessed differential correction of between two and five meters.

The accuracy that you obtain from your Juno series handheld is affected by a number of factors, including whether the data is differentially corrected in real-time or after data collection, and the availability of GPS satellites in the sky when you collect the data.

The list below identifies the most important settings and techniques that you can use in the field to improve the accuracy of your data:


1. If you are using TerraSync software to collect data, use accuracy-based logging. For more information, see [page 63](#).
2. Use real-time differential SBAS corrections. For more information, see [page 64](#). Plan GPS data collection around the times of the day when satellite geometry is best. For more information, see [page 65](#).

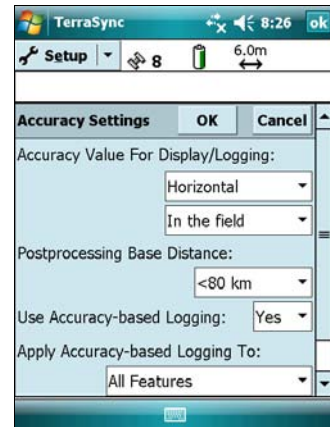
## Using accuracy-based logging

If you are using the TerraSync software, use accuracy-based logging to ensure that only GPS positions that meet the specified estimated accuracy are logged. GPS positions that do not meet your accuracy requirements are not logged.

**Note** – Accuracy estimates for streaming (dynamic) GPS positions may not be as good as those for static GPS positions.

To configure accuracy-based logging in the TerraSync software:

1. In the Setup section of the TerraSync software, tap **Logging Settings**. The *Logging Settings* form appears.
2. Tap the **Setup** button  below the *Accuracy Settings* field. The *Accuracy Settings* form appears.
3. In the *Accuracy Value For Display/Logging* fields, select the parameters that will be used to determine the estimated accuracy:
  - Select whether to use the horizontal or vertical accuracy of the current GPS position.
  - Select *In the field* to use the current estimated accuracy (recommended if you are using a real-time correction source), or select *Postprocessed* to use the predicted estimated accuracy that will be achieved after the field data has been postprocessed.
4. If you selected *Postprocessed*, select the estimated distance to the base station that will be used for postprocessing from the *Postprocessing Base Distance* field. If you will use more than one base station (during H-Star processing), specify the estimated distance to the closest base station.
5. Set the *Use Accuracy-based Logging* field to *Yes*. The settings fields for accuracy-based logging appear.
6. In the *Apply Accuracy-based Logging To* field, select the feature types that you want to log only if the GPS positions meet your required accuracy.
7. In the *Required Accuracy* field, select the estimated accuracy that is required before GPS positions are logged.
8. Tap **OK**.



**Note** – Accuracy settings do not affect GPS positions that are used for navigation. GPS positions are still calculated by the GPS receiver and are available for navigation.

## Connecting to a real-time differential correction source

Use a real-time differential GPS (DGPS) source to give you better accuracy as you collect data. For more information about how real-time differential GPS works, see [Differential GPS explained, page 65](#).

### Using SBAS corrections


The Juno series handheld has an integrated receiver that uses Satellite Based Augmentation Systems (SBAS) correction messages to improve the accuracy and integrity of GPS data.

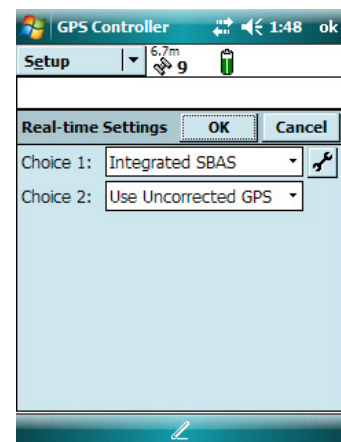
The SBAS tracking mode is Auto. In Auto mode, the receiver tracks or locks onto the most powerful satellite signal. The GPS receiver can track two SBAS satellites at the same time in Auto mode. It uses corrections from only one SBAS satellite at a time, but tracking two satellites can improve the availability of SBAS real-time corrections. For example, if you are working in environments where obstacles may block the direct line of sight to the SBAS satellite, there is less chance of signal loss if you are tracking more than one SBAS satellite. The receiver tracks SBAS satellites according to your geographical location:

- Wide Area Augmentation System (WAAS) satellites are tracked in the Continental United States including Alaska, and parts of Canada and Mexico.
- European Geostationary Navigation Overlay Service (EGNOS) satellites are tracked in Europe.
- MTSAT Satellite-based Augmentation System (MSAS) satellites are tracked in Japan.

**Note** – If you have other Trimble GPS field software installed, configure real-time correction settings in that application instead of the GPS Controller software.

To use SBAS corrections:

1. In the GPS field software, open the Real-time section and tap the **Setup** button .
2. In the *Choice 1* field, select Integrated SBAS.
3. In the *Choice 2* field, specify whether to use uncorrected positions, or to stop using GPS positions, if corrections are not available.
4. Tap **OK**.

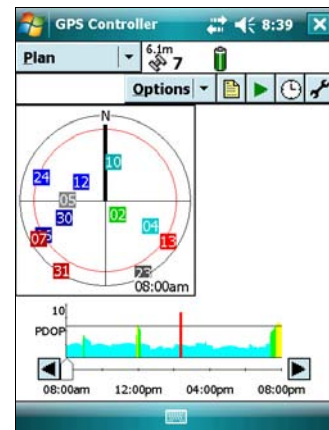


## Planning a data collection session

To maximize productivity, plan GPS data collection around the times of the day when satellite geometry is best. The GPS Controller software includes a Plan section with an animated skyplot and DOP (satellite geometry) graph for your position for the next 12 hours.

In the Plan section, you can check the planning skyplot as you play a session, then use the timeline to zoom in on times when geometry is poor.

*Note – If you have other Trimble GPS field software installed, use the planning feature in that application instead of the GPS Controller software.*



## Differential GPS explained

Use differential GPS to correct errors in your collected data. Differential GPS (DGPS) requires one or more additional receivers, called **base stations** or reference stations, which are located at known points. Data collected at the base stations is used to determine GPS measurement errors and compute corrections to these errors. An unlimited number of mobile GPS receivers, called **rovers**, collect GPS data at unknown locations within the vicinity of the base station. Errors common at both the base station and the rover receiver are corrected with DGPS either in real time or during postprocessing.

### Real-time DGPS

In real-time DGPS, the base station calculates and broadcasts the error for each satellite as each measurement is received, enabling you to apply corrections while in the field and collect accurate GPS data. DGPS corrections are available from a variety of public and commercial sources. They can be generated and broadcast in real-time by privately or self-owned GPS base stations, or by a wide range of government agencies.

Real-time DGPS corrections can be used on the Juno Series handheld from Satellite Based Augmentation Systems (SBAS) such as WAAS in the US and EGNOS in Europe. SBAS uses multiple base stations to calculate the DGPS corrections that are then delivered to the user from a Geostationary satellite.

Factors that affect real-time DGPS accuracy include how often the corrections are updated, how far you are from the base station, and whether the coordinate system used by the correction source matches the coordinate system used by the GPS receiver.

## Postprocessed DGPS

In postprocessed DGPS, the collected GPS data is transferred to an office computer, and measurements from the base station are downloaded. You can postprocess GPS data collected with Trimble GPS field software using:

- the GPS Pathfinder Office software version 4.10 (with the latest updates) or later.
- the Trimble GPS Analyst extension for ESRI ArcGIS software version 2.10 (with the latest updates) or later.

Factors that affect the accuracy of postprocessed DGPS include the type of receiver and antenna used at the base station, the distance between the base station and the location where the rover data was collected, the accuracy of the base station position, and the logging interval at the base station.

For more information, refer to the documentation provided with the postprocessing software.

## Postprocessed real-time DGPS

The accuracy of positions using the Juno series handheld is within 2 to 5 meters, whether it is corrected in real-time or postprocessed. The accuracy cannot be improved beyond this by postprocessing real-time SBAS corrected positions.

However, if your data files contain autonomous (uncorrected) positions as well as real-time corrected positions, Trimble recommends that you postprocess the data. During postprocessing, you can choose whether to correct only autonomous positions, or all positions.

For more information about GPS and DGPS, go to [www.trimble.com/gps](http://www.trimble.com/gps) and review the All About GPS tutorial.

## Outputting NMEA data


You can use the Juno series handheld's integrated GPS receiver with any GPS field software that accepts NMEA messages.

If you connect to the GPS receiver using Trimble GPS field software, by default the NMEA output is switched off.

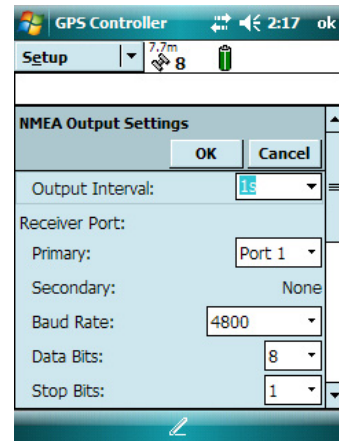
**Note** – *You can only configure NMEA data output using the GPS Controller software. The software is provided free from the Trimble website. For more information, see [GPS Controller software](#), page 60.*



To enable NMEA data to be output:

1. In the *GPS Settings* form, set the *NMEA Output* field to **On**.
2. Tap the **Setup** button  that appears next to the *NMEA Output* field. The *NMEA Output Settings* appears.
3. Configure the NMEA message output settings.
4. Tap **OK**.

For more information, refer to the *GPS Controller Help*.





# Getting Connected

## In this chapter:

- [General wireless connection information](#)
- [Options for connecting wirelessly to other devices and networks](#)
- [Bluetooth wireless connections explained](#)

The Juno series handheld includes an integrated wireless LAN radio and an integrated Bluetooth radio, and provides a number of options for connecting to networks and other devices. In addition, the Juno SC handheld includes an integrated cellular modem for sending and receiving data.

This chapter describes how to enable the radios, and the main connectivity options available.

Use the table on [page 75](#) to identify the wireless connection type you want to make and then follow the steps provided to connect to that device.

You can use the handheld's integrated wireless LAN radio to connect to the Internet or a corporate network using a wireless LAN (Local Area Network) connection.

Alternatively, you can use Bluetooth wireless technology to connect to the Internet using a cellular phone, or to other Bluetooth-enabled devices such as, a laser rangefinder, or a barcode scanner.

The cellular modem in the Juno SC handheld can be used to communicate between field and office and send e-mail messages using a data connection from your local cellular provider.

## General wireless connection information

The Juno series handheld has an integrated wireless LAN radio compliant with IEEE 802.11 b/g and an integrated Bluetooth radio. The Juno SC handheld also has a cellular modem. To use the wireless LAN, Bluetooth radio, or cellular modem, you need to turn it on (see [Turning on and turning off the integrated radios](#) below).

### Turning on and turning off the integrated radios

You can use the Wireless Manager application to turn on and turn off the Juno series handheld's wireless LAN radio and/or Bluetooth radio (see [page 70](#)).

You can use the Modem Control application to turn on and turn off the Juno SC handheld's cellular modem (see [page 71](#)).







You can also turn on or turn off the Bluetooth radio from within the Bluetooth application (see [Turning on and turning off the Bluetooth radio from within the Bluetooth application, page 73](#)).

To make the Juno series handheld visible to other Bluetooth-enabled devices and enable them to connect, see [page 74](#).

### Using the Wireless Manager

You can use the Wireless Manager application to turn on and turn off the Juno series handheld's wireless LAN radio and/or Bluetooth radio. You can turn on and turn off both radios at the same time, or control each radio individually.

To open the Wireless Manager, do one of the following:

- Tap the Wi-Fi  icon or the Bluetooth icon  in the *Today* screen.
- Tap , , or  in the title bar and then tap *Wireless Manager*.
- Tap  / *Settings* / *Connections* / *Wireless Manager*.

Turn on the wireless LAN radio and/or Bluetooth radio to be able to connect to other devices or networks.

Turn off the wireless LAN radio and/or Bluetooth radio to prevent the handheld from sending or receiving wireless signals.

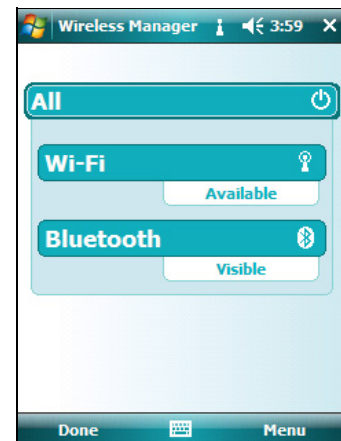


**Tip** – To conserve power, turn off the wireless LAN radio and/or the Bluetooth radio when not in use.



### To turn on or turn off the radios using the Wireless Manager

1. Open the Wireless Manager (see above).
2. Do one of the following:
  - Tap **All** at the top of the screen to turn on both radios, or to turn off both radios if they are already on.
  - Tap **Wi-Fi** or **Bluetooth** to turn on the radio that you want to use, or to turn off the radio if it is already on.

The status fields below the **Wi-Fi** button and the **Bluetooth** button change from *Off* when the radios are turned on and show the current state of the radio. The Wi-Fi status field shows *Connecting* or *Available*, and the Bluetooth status field shows *On* or *Visible*.




3. Tap **Done** to exit the Wireless Manager.

After you turn on the wireless LAN radio, the wireless LAN icon  appears in the title bar to indicate that the wireless LAN radio is enabled. A second icon  appears if a wireless LAN network is detected, and a Notification for the detected network may appear in the left softkey.

### Using the Modem Control

You can use the Modem Control application to turn on and turn off the Juno SC handheld's cellular modem, enter a PIN for the SIM card, or change the dial string to connect with the cellular network.

To open the Modem Control, do one of the following:

- Tap the *Modem Control* indicator in the *Today* screen.
- Tap  / *Settings* / *Connections* / *Modem Control*.

Turn on the cellular modem to be able to connect to a cellular network.


Turn off the cellular modem to prevent the handheld from sending or receiving wireless signals.



**Tip** – To conserve power, turn off the cellular modem when not in use.

### To turn on or turn off the modem using the Modem Control

1. Open the Modem Control (see above)
2. The modem's current status will show on the top line, as *Modem Power On* or *Modem Power Off*.
3. To change the status from *On* to *Off*, tap the line *Modem Power On*. The status will then change to *Modem Power Off*.
4. Tap **Exit** to close the Modem Control.

After you turn on the cellular modem, the Modem Status icon will change from  to indicate the type of network coverage. For more information, see [Modem status indicators, page 37](#).

### Setting a PIN

You can help to keep data secure by configuring your SIM card with a PIN (personal identification number). You will need to enter the PIN each time the modem is turned on.

Most SIM cards are preset with a PIN that is assigned by your wireless service provider. You will need to enter this PIN first.

To set a PIN:

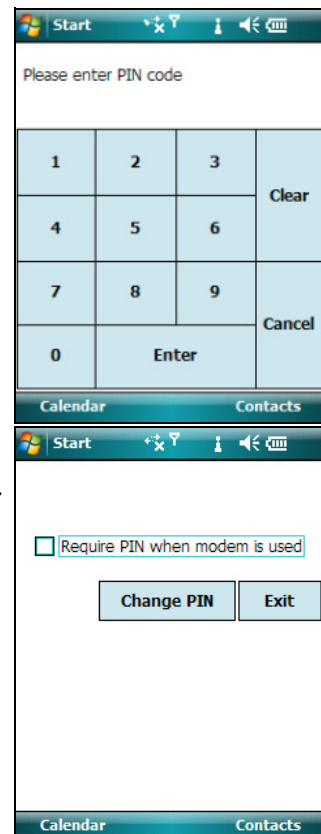
1. Open the Modem Control (see above).
2. Tap **PIN Settings**.
3. Enter the preset PIN assigned by your wireless service provider.
4. Tap **OK**.

To add a PIN:

- Select the *Require PIN when phone is used* check box. You are to enter a PIN (see [page 72](#)).

To change a PIN:

1. Tap **Change PIN**.
2. Enter the current PIN before entering the new PIN.



### Dial string editor

Some carriers do not require a custom dial string to establish an Internet connection. Your service provider can provide you with specific connection details, which may include:


- A username and password.
- The carrier's access point name (APN).
- The "phone number" required to establish a connection.
- Any additional required dial string.

To configure the dial string settings:

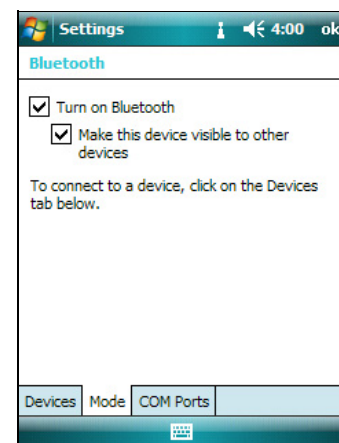
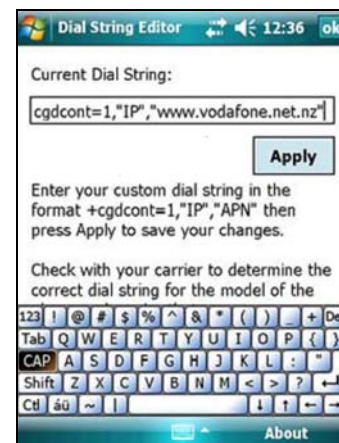
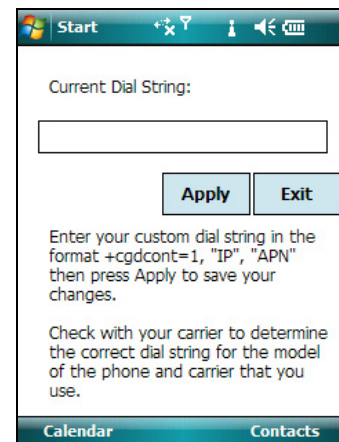
1. Enter the custom dial string in the format `+cgdcont=1,"IP","APN"` where APN is the access point name of your carrier.
2. Tap **Apply** to save your changes.
3. Tap **OK** to close the Dial String Editor.

When you set up a new Internet connection, the custom dial string that you have just saved is sent to the modem when you attempt to connect to the Internet.

### Turning on and turning off the Bluetooth radio from within the Bluetooth application

1. Tap  / *Settings* / *Connections* / *Bluetooth*.
2. Tap the *Mode* tab.
3. Select the *Turn on Bluetooth* check box to turn on the radio, or clear this check box to turn off the radio.
4. Tap **OK**.


**Note** – If the integrated Bluetooth radio is deactivated, the message *Problem with Bluetooth hardware may appear when you try to turn on the Bluetooth radio or discover devices*.



### **Making the handheld visible (discoverable) to other Bluetooth devices**

To allow other Bluetooth-enabled devices to connect to the Juno series handheld, or if the handheld will not connect to or pair with another device you are attempting to connect to, you must make the handheld visible (this is sometimes referred to as “discoverable”).

To make the handheld *visible* to other devices:

1. Tap  / *Settings* / *Connections* / *Bluetooth*.
2. Tap the *Mode* tab.
3. Select the *Turn on Bluetooth* check box, if it is not already selected. This enables the integrated Bluetooth radio.
4. Select the *Make this device visible to other devices* check box.
5. Tap **OK**.



## Options for connecting wirelessly to other devices and networks

The Juno series handheld has an integrated wireless LAN radio and an integrated Bluetooth radio that you can use to connect to other devices and networks. In addition, the Juno SC handheld includes an integrated cellular modem for data connections.

A wireless LAN access point or the Juno SC handheld's integrated cellular modem can be used to connect to the Internet (at broadband speeds) or a corporate network to:

- browse the Internet or an Intranet
- send and receive e-mail and instant messages
- access files on the network

Wireless LAN Access points are also known as "hotspots". Wireless LAN is often referred to as *Wi-Fi*.

You can use Bluetooth wireless technology to connect to other Bluetooth-enabled devices that are within range (typically within 5 m to 10 m of the handheld). You can connect to:

- Bluetooth-enabled devices such as cellular phones to access the Internet and receive data
- computers and other handheld devices to exchange files
- other devices such as a GeoBeacon receiver, laser rangefinder or barcode scanner

The following table lists devices you can connect to using the handheld, and where to find detailed information on how to achieve these connections.

Connection method	To...	See...
Wireless LAN	Connect to a wireless LAN access point	<a href="#">page 76</a>
Juno SC cellular modem	Connect to a cellular network	<a href="#">page 77</a>
Bluetooth wireless technology	Connect to another Bluetooth-enabled device (paired and non-paired connections)	<a href="#">page 79</a>
	Connect to a Bluetooth-enabled phone for Internet access	<a href="#">page 82</a>
	Connect to a Bluetooth-enabled serial device	<a href="#">page 87</a>
	Connect to an office computer to use ActiveSync technology	<a href="#">page 89</a>
	Beam files to or from another device	<a href="#">page 92</a>
Wireless LAN or Bluetooth wireless technology or Juno SC cellular modem	Access a corporate network through your Internet connection	<a href="#">page 93</a>


## Connecting to a wireless LAN access point

To connect to a wireless LAN access point, you must:

1. Set up the wireless LAN connection
2. Connect to the wireless LAN network or access point.

**Note** – If you have installed a personal certificate on the handheld, you do not need to set up the wireless connection manually as described in Step 1. To connect to the network or access point go to [Step 2: Connecting to the network or access point](#).

### Step 1: Setting up the wireless LAN connection

1. Make sure that the Juno series handheld's wireless LAN radio is enabled (see [page 70](#)).
2. Tap  / *Settings* / *Connections* / *Network Cards*.
3. Select the *Wireless* tab.


Any networks that you have already configured are displayed in the list of preferred networks.

4. To add a new network, tap *Add New*. To change the settings for an existing network, tap the network.
5. Enter the name of the network and other connection details and then tap **Next**.
6. To use authentication, select the authentication method from the *Authentication* list.
7. To use data encryption, select an encryption method from the *Data encryption* list.
8. To automatically use a network key, select the check box for *The key is automatically provided*. Otherwise, enter the network key.
9. Tap **Next**.
10. For increased security, select the *Use IEEE 802.1x network access control* check box and then configure additional authentication information.
11. Tap **Finish**.




### Step 2: Connecting to the network or access point

1. Disconnect the USB data cable as the handheld prioritizes a USB connection over a wireless LAN connection.
2. Bring the handheld within range of the network or access point.


When a wireless LAN is detected, the access point icon  on the title bar is animated, and a notification message appears on the left softkey.

If the access point icon or the notification does not appear, use the Wireless Manager to turn off and then turn back on the wireless LAN radio. When the wireless LAN radio is turned on, any networks or access points within range are detected and the icon and notification appear.

3. Tap the access point icon on the title bar or tap **Notification** on the left softkey. A popup message shows the available networks.
4. Select the network you want to connect to and then tap **OK** on the left softkey.
5. Select *The Internet (or work via a VPN)* or *Work* and then tap **Connect** on the left softkey.
6. If a *Network Log On* screen appears, enter your user name, password, and domain information and then tap **OK** on the left softkey.

When the handheld is connected to the network or access point, the wireless LAN connected icon  appears in the title bar.

7. Start using the program you want to use, for example Windows Explorer Mobile or Internet Explorer.

**Note** – To disconnect from the network or an access point at any time, turn off the handheld's wireless radio. To do this, tap the wireless LAN connected icon  in the title bar, select **Wireless Manager** and then tap the **Wi-Fi** button.



**Tip** – To delete a wireless LAN connection, tap and hold the connection in the **Wireless** tab of the **Network Cards** screen and then select **Delete**.

## Connecting to a cellular network from the modem

Use the Juno SC handheld's cellular modem to connect to a cellular network and access the Internet or a company network. Use this type of connection to access a background map server, or for Internet and e-mail access.


**Note** – The Juno SC handheld's cellular modem can only be used to transmit data, and does not have voice functionality or the ability to send SMS, MMS, or text messages (Multimedia Messaging Service). It is recommended to request the data-only plan from your service provider and have a "voice restriction" placed on your line.

To connect to a cellular network, you must:

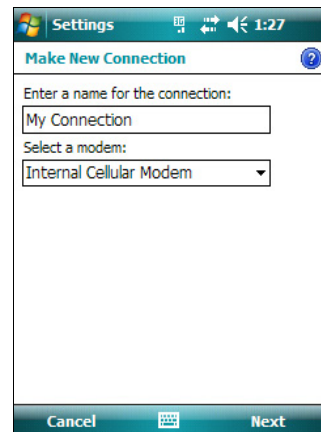
1. Configure the connection to the network.
2. Connect to the cellular network.

**Note** – Before you begin the steps below, Trimble recommends that you confirm that the modem can access the Internet directly. If necessary, contact your service provider and confirm whether you must enter a user name, password, and domain details when connecting.

### Step 1: Configuring the connection to the network

1. On the handheld, tap  / *Settings* / *Connections* / *Connections*.
2. Below *My ISP*, tap *Add a new modem connection*.
3. Enter the name for the connection.
4. From the *Select a Modem* dropdown list, select HC-25 MODEM and then tap **Next** on the right softkey.
5. Enter the GPRS access number for the Internet.

Two of the common GPRS access numbers for GSM networks are \*99\*\*\*1# and \*99#. If these access numbers do not work, contact the cellular service provider to obtain the appropriate number to use.



6. Tap **Next** on the right softkey.
7. Unless the phone provider confirmed that you must enter the user name, password, and domain settings to access the Internet, tap **Finish** on the right softkey without entering any information on this screen.



Otherwise:


- a. Enter the required information.
- b. If the service provider has told you that you need to change the baud rate or other settings for the connection, tap **Advanced**, configure these settings and then tap **OK** in the top right corner of the screen.
- c. Tap **Finish** on the right softkey.


You are returned to the *Connections* screen.

You have now configured the connection.

### Step 2: Connecting to the Internet using the cellular network

1. On the handheld, go to the *Connections* screen, if it is not already open (tap  / *Settings* / *Connections* / *Connections*).
2. Below *My ISP*, tap *Manage existing connections*.
3. Tap and hold the connection you want to use and then select *Connect*.
4. Unless the service provider already confirmed that you must enter the user name, password, and domain settings, to access the Internet, tap **OK** on the left softkey without entering any information on this screen. Otherwise, enter the required information and then tap **OK** on the left softkey.
5. The *Connectivity* icon  in the title bar appears as the connection is being made. After the connection is made, you are returned to the *My ISP* screen. Tap **OK** in the top right corner of the screen to close the *My ISP* screen.

6. Tap **OK** in the top right corner to close the *Connections* screen.
7. Tap  in the top right corner to close the *Settings* screen.

To check the connection status at any time, tap the *Connectivity* icon  in the title bar.

To end the connection at any time, tap the *Connectivity* icon  in the title bar and then tap **Disconnect**.

The *Modem Status Indicator* in the *Today* screen indicates the signal strength and connectivity status within the cellular network. For more information, see [page 37](#).

To connect to a corporate network or Intranet, see [page 94](#).

To send and receive e-mail messages, see [Messaging, page 48](#).

## Connecting to a Bluetooth-enabled device

To use another Bluetooth-enabled device with the Juno series handheld, you must form a Bluetooth connection between the two devices, during which you select the type of service to use for the connection. This defines how the devices will communicate with each other.

After forming the Bluetooth connection between the devices you may need to configure settings for the connection such as the COM port for the field software to use, or the number for the phone to dial. You must then connect to the other device using the appropriate software application.

To connect the Juno series handheld to another Bluetooth-enabled device, you can use either a paired connection or a non-paired connection.

**Note** – *If you are connecting to a phone, skip this section and go to [Connecting to a Bluetooth-enabled phone for Internet access on page 82](#), where the pairing step is described as part of the procedure for connecting to a phone.*

Trimble recommends using a paired connection, if pairing is supported by the other device, as a paired connection creates a more secure connection and makes reconnecting to the device easier. For more information, see [Pairing with a Bluetooth-enabled device](#) below.

Some devices do not support paired connections. Use a non-paired connection if the device does not have a keyboard, and if you know that the device does not automatically exchange a pre-programmed passkey during pairing. For more information, see [Setting up a connection to a non-paired device, page 81](#).


To connect the Juno series handheld to the other device, do one of the following:

- Pair with a Bluetooth-enabled device (see below)
- Set up a connection to a non-paired device (see [page 81](#))

## Pairing with a Bluetooth-enabled device

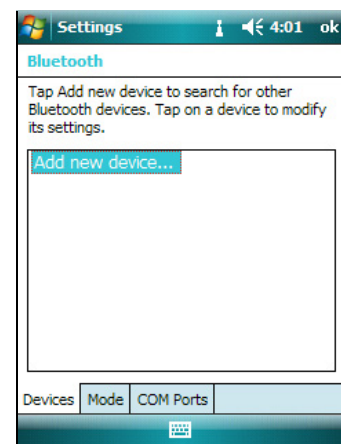
Pairing the handheld with another Bluetooth-enabled device creates a permanent security bond between the devices, which helps to exchange information securely between the devices. The paired relationship is established when two devices create and exchange a link key. Once the relationship is established, the handheld and the other Bluetooth device only need to have their Bluetooth radios turned on to exchange information; they do not need to be visible to other devices.

To pair with a Bluetooth device:

1. Make sure that the handheld and the Bluetooth device you want to pair with are within five meters of each other, and that the Bluetooth radio in each device is turned on.
2. On the Juno series handheld, tap  / *Settings* / *Connections* / *Bluetooth*.
3. In the *Devices* tab, tap *Add new device*. The handheld searches for other Bluetooth devices and displays them in the list.

If the device you are trying to connect is not displayed in the list, ensure that the device is on and within range and then tap **Refresh** to search for devices again.

4. Tap the name of the device you want to pair with and then tap **Next** on the right softkey.
5. In the *Passcode* field, enter a passcode of between 1 and 16 characters. If you are connecting to:
  - a device with a keypad, enter a passcode of your choice.
  - a device without a keypad, but you know that the device has a pre-programmed passcode that will be exchanged, enter that passcode on the Juno series handheld.




**Note** – Trimble recommends that you enter only numbers, as some devices do not support passcodes that include letters.

6. Tap **Next** on the right softkey.
7. When prompted, enter the same passcode on the other device.  
On the handheld, the *Partnership Settings* screen appears.
8. If required, change the name of the device in the *Display Name* field.
9. Select the service(s) you want to use with this device. For example, if you are connecting to:
  - a Bluetooth-enabled phone to connect to the Internet, select **Dialup Networking (DUN)**.
  - a serial device, such as a laser rangefinder, select **Serial Port**.

- a computer to access ActiveSync technology, select **ActiveSync**.

**Note** – For more information on the types of devices that the Juno series handheld can connect to, and the supported Bluetooth services, see [Connecting to a Bluetooth device as a client, page 95](#).

10. Tap **Finish** on the right softkey.
11. Tap **OK** in the top right corner of the screen to close the Bluetooth application.
12. Tap  in the top right corner to close the *Settings* screen.

You have now created a partnership between the Juno series handheld and the other Bluetooth-enabled device so that they can communicate. To start using the connection, you must complete the configuration steps for that type of connection and then connect to the device. For more information, see:

- [Connecting to a Bluetooth-enabled phone for Internet access, page 82](#)
- [Connecting to a Bluetooth-enabled serial device, page 87](#)
- [Connecting to an office computer to use ActiveSync technology, page 89](#)




**Tip** – You only need to pair the handheld with a device before you connect to the device for the **first** time.

### Setting up a connection to a non-paired device

Setting up a connection to a non-paired device enables you to connect to a device that does not allow you to enter a passcode on the device, or that does not automatically exchange a pre-programmed passkey during pairing.

To set up a non-paired connection to a Bluetooth-enabled device:

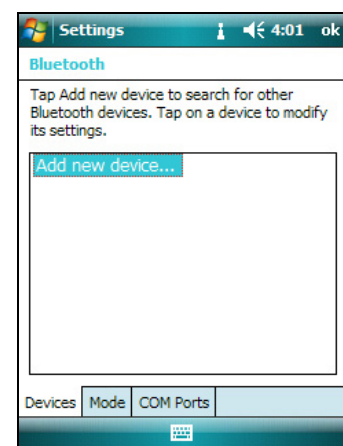
1. Make sure that the handheld and the Bluetooth device you want to connect to are within five meters of each other, and that the Bluetooth radio in each device is turned on.
2. Tap  / *Settings* / *Connections* / *Bluetooth*.
3. In the *Devices* tab, tap *Add new device*. The handheld searches for other Bluetooth devices and displays them in the list.
4. Tap the name of the device you want to connect to and then tap **Next** on the right softkey.

The *Enter Passcode* screen appears.

5. Tap **Next** without entering a passcode.
6. If prompted to add the device to your device list, tap **No**.


The *Partnership Settings* screen appears.

7. If required, change the name of the device in the *Display Name* field.



8. Select the service(s) you want to use with this device. For example, if you are connecting to:
  - a Bluetooth-enabled phone to connect to the Internet, select **Dialup Networking (DUN)**.
  - a serial device, such as a laser rangefinder, select **Serial Port**.
  - a computer to access ActiveSync, select **ActiveSync**.

**Note** – For more information on the types of devices that the Juno series handheld can connect to, and the supported Bluetooth services, see [Connecting to a Bluetooth device as a client, page 95](#).

9. Tap **Finish** on the right softkey.
10. Tap **OK** in the top right corner of the screen to close the Bluetooth application.
11. Tap  in the top right corner to close the *Settings* screen.

You have now created a partnership between the Juno series handheld and the other Bluetooth-enabled device so that they can communicate. To start using the connection, you must complete the configuration steps for that type of connection and then connect to the device. For more information, see:

- [Connecting to a Bluetooth-enabled phone for Internet access or real-time corrections \(including VRS networks\), page 89](#)
- [Connecting to a Bluetooth-enabled serial device, page 87](#)
- [Connecting to an office computer to use ActiveSync technology, page 89](#)

## Connecting to a Bluetooth-enabled phone for Internet access

If your model of Juno series handheld does not contain an integrated cellular modem, you can use the handheld's Bluetooth radio to connect to a Bluetooth-enabled cellular phone and then connect to the Internet. Use this type of connection to access a background map server, or for Internet and e-mail access.

**Note** – Some cellular phones support the Bluetooth PAN (Personal Area Networking) service as well as the Bluetooth DUN (Dialup Networking) service. Because DUN connections are more common, this section assumes you are making a dialup network connection with the Bluetooth-enabled phone.


To connect to a Bluetooth-enabled phone using a Bluetooth DUN (Dialup Networking) connection, you must:

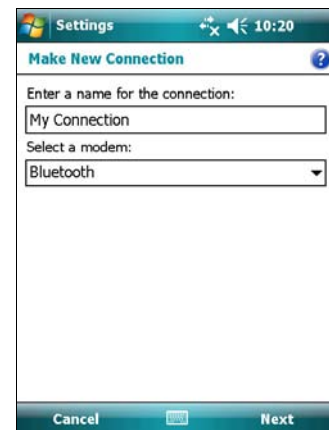
1. Connect the Juno series handheld to a Bluetooth-enabled phone and then configure the connection to the dialup network.
2. Connect to the Internet using the dialup network.
3. Configure the software to use the connection. For example, you must configure the GPS field software to use map data received from the Internet source, or you must set up the Messaging application to send and receive e-mail using the connection.



**Note** – Before you begin the steps below, Trimble recommends that you confirm that the phone can access the Internet directly. If necessary, contact the cellular phone provider and confirm whether you must enter a user name, password, and domain details when connecting an external device to the phone using Bluetooth dialup networking.

### Step 1: Connecting the handheld to the phone and configuring the connection to the dialup network

1. Make sure that the handheld and the Bluetooth device you want to connect to are within five meters of each other, and that the Bluetooth radio in each device is turned on. For more information, see [Turning on and turning off the integrated radios, page 70](#).
2. On the handheld, tap  / *Settings* / *Connections* / *Connections*.
3. Below *My ISP*, tap *Add a new modem connection*.
4. Enter the name for the connection.
5. From the *Select a Modem* dropdown list, select **Bluetooth** and then tap **Next** on the right softkey.
6. If the phone you want to connect to is:
  - listed, go to [Step 7](#) below.
  - not listed:



- a. Tap *Add new device*. The handheld searches for other Bluetooth devices and displays them in the list.

If the handheld's integrated Bluetooth radio is turned off, it is now automatically turned on.

- b. From the list of available devices, select the device you want to connect to and then tap **Next** on the right softkey.
  - c. To pair with the phone, enter a passcode of your choice that you will easily remember onto the handheld and then tap **Next** on the right softkey.
  - d. When prompted by the phone, enter the same password and then accept the connection.
  - e. On the Juno series handheld, in the *Partnership Settings* screen, make sure that **Dialup Networking (DUN)** is selected and then tap **Finish** on the right softkey.
- You have now created a partnership between the Juno series handheld and the phone so that they can communicate.
7. From the *My Connections* list, select the phone that you want to configure the connection to.

8. Enter the GPRS access number for the Internet.

Two of the common GPRS access numbers for cellular phones on GSM networks are \*99\*\*1# and \*99#. If these access numbers do not work, contact the cellular phone provider to obtain the appropriate number to use.

**Note** – *You do not need to set up dialling rules or change the Internet connection settings on the phone. The connection settings you enter on the handheld are passed to the phone to use for this connection.*

9. Tap **Next** on the right softkey.
10. Unless the phone provider confirmed that you must enter user name, password, and domain settings to access the Internet, tap **Finish** on the right softkey without entering any information in this screen.


Otherwise:

- a. Enter the required information.
- b. If the phone provider has told you that you need to change the baud rate or other settings for the connection, tap **Advanced**, configure these settings and then tap **OK** in the top right corner of the screen.
- c. Tap **Finish** on the right softkey.

You are returned to the *Connections* screen.

You have now configured the dialup networking connection.


## Step 2: Connecting to the Internet using the dialup network


1. On the handheld, go to the *Connections* screen, if it is not already open (tap  / *Settings* / *Connections* / *Connections*).
2. Below **My ISP**, tap *Manage existing connections*.
3. Tap and hold the connection you want to use and then select *Connect*.
4. Unless the phone provider confirmed that you must enter user name, password, and domain settings to access the Internet, tap **OK** on the left softkey without entering any information in this screen. Otherwise, enter the required information and then tap **OK** on the left softkey.
5. If the phone prompts for confirmation to connect to the Internet, accept the connection.


The phone dials the configured GPRS access number and then connects to the Internet.


A Connectivity notification appears on the handheld as the connection is being made.

After the connection is made you are returned to the *My ISP* screen.

To confirm that the Juno series handheld is connected to the phone, or to check the status of the connection at any time, tap the Connectivity icon  in the title bar. The notification shows the name of the current connection, and the time elapsed since the connection was made. To hide the notification, tap **Hide**.

**Note** – If you have an active wireless LAN connection, the connectivity icon appears as  instead.

6. Tap **OK** in the top right corner of the screen to close the *My ISP* screen.
7. Tap **OK** in the top right corner to close the *Connections* screen.
8. Tap  in the top right corner to close the *Settings* screen.

To check the connection status at any time, tap the  or  icon in the title bar.

To end the connection at any time, tap the  or  icon in the title bar and then tap **Disconnect**.

To connect to a corporate network or Intranet, see [page 93](#).

To send and receive e-mail messages, see [Messaging, page 48](#).

### Step 3: Configuring the GPS field software to use data received from the Internet source

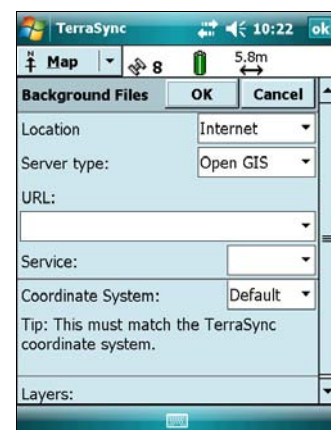
Now that you have connected the Juno series handheld to the Internet using a Bluetooth-enabled cellular phone, you must configure the software to use the connection to receive data.


#### Downloading background map files from an Internet map server

1. Make sure that the coordinate system selected in the TerraSync software matches the coordinate system of the map server.
2. In the Map section of the TerraSync software, pan or zoom to make sure that the area for which you want a background image is displayed on the map.

If the map server covers the area you are in, it will provide a background image that matches the current map extents.

3. Tap **Layers** and then select *Background files*. The *Background Files* form appears.
4. In the *Location* field select Internet and then use the fields that appear to specify the Map Server type, the URL of the server, the service, and the layers from that service that you want to download.
5. Tap **OK** to close the *Background File* form and download the selected background map.



This may take some time. When a download is in progress, an icon  appears in the top left corner of the map. Once the background file is downloaded, the hourglass icon appears until the downloaded image is rendered and becomes visible.

If you pan or zoom beyond the extents of the downloaded image, new images are downloaded automatically and displayed in the background of the map.

To stop automatic downloading of background files, either clear the address of the map server from the *URL* field, or set the *Location* field to Default and then clear the check box next to any files.

### **Reconnecting to the Internet**

To reconnect to the Internet at any time after setting up the connection, repeat the steps listed under [Step 2: Connecting to the Internet using the dialup network](#) on [page 84](#).

## Connecting to a Bluetooth-enabled serial device

Use Bluetooth wireless technology to receive data from a Bluetooth-enabled serial device, such as a laser rangefinder.


To connect to a Bluetooth-enabled serial device, you must:

1. Connect to the Bluetooth-enabled serial device.
2. Configure the COM port on the handheld to use for the connection.
3. If necessary, configure the GPS field software to use data received from the serial device.


### Step 1: Connecting to the Bluetooth-enabled serial device

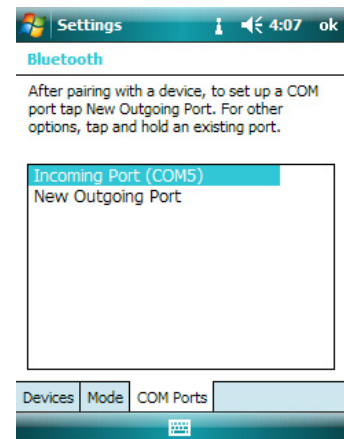
Connect the handheld to the Bluetooth-enabled device, selecting the *Serial Port* service if it is not already selected (see [Connecting to a Bluetooth-enabled device](#), page 79).

### Step 2: Configuring the COM port to use on the handheld

1. On the Juno series handheld, tap  / *Settings* / *Connections* / *Bluetooth*.
2. Tap the *COM Ports* tab.
3. Tap *New Outgoing Port*.
4. Select the device you want to set up the connection to and then tap **Next** on the right softkey.
5. Select the COM port on the Juno series handheld to use for the connection.

The Juno series handheld has four COM ports (COM6, COM7, COM8 and COM9) available for connections out to Bluetooth-enabled serial devices.

6. Do one of the following:
  - To communicate with any device, for example if you have formed this connection without pairing to a device, clear the *Secure Connection* check box.
  - To communicate only with devices with which the handheld has a Bluetooth partnership, select the *Secure Connection* check box.
7. Tap **Finish** on the right softkey.
8. Tap **OK** in the top right corner to close the Bluetooth application.
9. Tap  in the top right corner to close the *Settings* screen.



### Step 3: Configuring the GPS field software to use data from the serial device

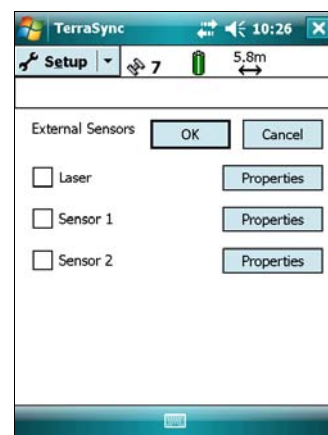
Once you configure the connection between the Juno series handheld and the Bluetooth-enabled serial device, you must configure the software to use the connection to receive data.

To use a Bluetooth-enabled external sensor such as a laser rangefinder or a barcode scanner in TerraSync software, see below.

#### Using data from an external source in the TerraSync software

To configure the TerraSync software to use data from an external source, for example, a laser rangefinder or barcode scanner:

1. Start the TerraSync software and then open a data file.
2. In the *Setup* section, tap **External Sensors**. The *External Sensors* form appears.
3. If you are connecting to:
  - a laser rangefinder, select the *Laser* check box and then tap the **Properties** button beside the *Laser* check box. The *Laser Properties* form appears.
  - a barcode scanner or other external sensor, select the *Sensor 1* or *Sensor 2* check box and then tap the **Properties** button beside the appropriate check box. The *Sensor Properties* form appears.
4. If you are connecting to a barcode scanner or other external sensor, enter a name for the connection in the *Name* field.
5. From the *Port* drop-down list, select the name of the COM port that you selected in the Bluetooth application when you set up the connection to the device.
6. Tap **OK** to confirm the sensor settings and return to the *External Sensors* form.
7. Tap **OK** to confirm the settings and return to the main screen of the Setup section.
8. The external sensor is now setup for use and can be used to add data as attributes into an open file in TerraSync. The device is automatically connected and disconnected when data files in TerraSync are opened and closed.



To check the status of the connection, select the Comms subsection in the Status section of the GPS field software.

## Connecting to an office computer to use ActiveSync technology

Instead of using a USB or serial cable to physically connect to an office computer, you can use Bluetooth wireless technology to connect to ActiveSync technology or the Windows Mobile Device Center on a Bluetooth-enabled office computer.

**Note** – *Not all Bluetooth devices and Bluetooth management software support ActiveSync connections. Check with the manufacturer of the office computer for compatibility.*

**Note** – *The exact steps required may vary depending on the office computer.*

To connect to a office computer to use ActiveSync with a Bluetooth connection, you must:

1. Set up the connection to the computer.
2. Connect to ActiveSync using Bluetooth wireless technology.

### Step 1: Setting up the connection to the computer

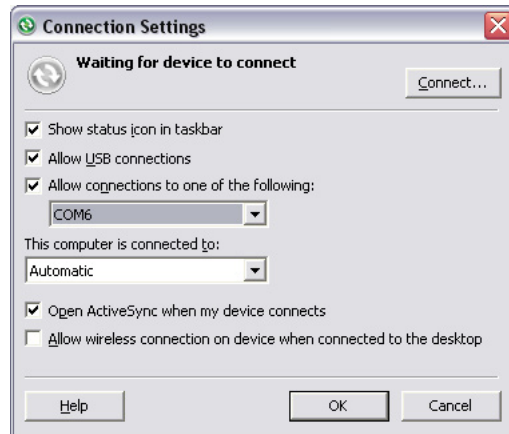
1. From the Bluetooth user interface on the office computer, make sure that the computer allows itself to be discovered by other Bluetooth devices.
2. Configure the ActiveSync software on the office computer to connect to the correct Bluetooth port. The steps required depend on the operating system installed on the office computer. If the office computer is using:
  - the Windows Vista operating system:
    - a. From the *Start* menu on the office computer, select *Control Panel / Hardware and Sound / Windows Mobile Device Center*.

The *Connection Settings* dialog appears:




- b. Select the *Allow connections to one of the following* check box.
- c. From the list, select Bluetooth and then click **OK**.
- the Windows XP or 2000 operating system:
  - a. From the Bluetooth user interface on the office computer, identify the virtual COM port of the host Bluetooth Serial Port or Local Service and ensure that this is enabled. In this example, the virtual COM port is COM5.
  - b. Start the ActiveSync software on the office computer.
  - c. Select *File / Connection Settings*.

The *Connection Settings* dialog appears:




- d. Select the *Allow connections to one of the following* check box.
- e. From the list, select the COM port that you selected in [Step a](#) and then click **OK**.

**Note** – Before you try to form a Bluetooth connection from the Juno series handheld to the office computer, you must correctly configure the Bluetooth host serial port and ActiveSync technology on the office computer.

3. On the handheld, tap  / *Settings* / *Connections* / *Bluetooth*.
4. In the *Devices* tab, tap *Add new device*. The handheld searches for other Bluetooth devices and displays them in the list.
5. Tap the name of the computer you want to connect to and then tap **Next** on the right softkey.
6. When prompted, enter a passcode of your choice that you will easily remember on the handheld.
7. Enter the same passcode on the office computer.
8. On the handheld, select the **ActiveSync** check box in the list of services provided by the computer and then tap **Finish** on the right softkey.


You have now created a partnership between the Juno series handheld and the office computer so that they can communicate.

9. Tap **OK** in the top right corner to close the Bluetooth application.
10. Tap  in the top right corner to close the *Settings* screen.


To connect to ActiveSync, see Step 2 on the following page.





## Step 2: Connecting to ActiveSync using Bluetooth wireless technology

1. On the Juno series handheld, tap  / *Programs* / *ActiveSync*.
2. Tap **Menu** and then select *Connect via Bluetooth*.

On the Juno series handheld, a message box shows the status of the connection as it is made.

3. When the connection to the office computer is successful, you are returned to the ActiveSync application on the handheld.
4. Tap  to close.

The connectivity icon in the status bar shows , or  if WLAN is connected.


To check the status of the ActiveSync connection, tap the connectivity icon in the title bar.

To disconnect, tap  / *Programs* / *ActiveSync* on the handheld and then select *Menu* / *Disconnect*.

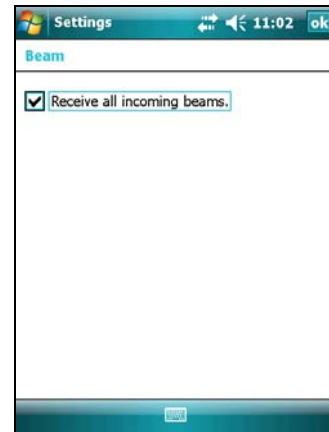
## Beaming files to or from another device

You can beam files, contacts, tasks, and appointments between the handheld and another device.

To **receive** beamed files from another device:

1. Make sure that the Juno series handheld's integrated Bluetooth radio is turned on (see [page 73](#)).
2. Tap  / *Settings / Connections/ Beam*.
3. Select the *Receive all incoming beams* check box and then tap **OK**.
4. When another device attempts to beam a file, you are prompted to accept the file. To receive the file, tap **Yes**.

**Note** – *All incoming files are automatically saved in the My Documents folder on the handheld.*



To **send** beamed files to another device:

1. Make sure that the Juno series handheld's integrated Bluetooth radio is turned on (see [page 73](#)).
2. On the Juno series handheld, open File Explorer and go to the file you want to send.
3. Tap and hold the file and then select *Beam File*. The handheld scans for nearby devices.
4. Tap the device you want to send the file to. The file is sent to the device.

A message reports **Done** or **Failed**, depending on the outcome of the file transfer.



## Accessing a corporate network through your Internet connection

Use a Virtual Private Network (VPN) connection to access a corporate network or Intranet.

Before you begin, obtain the following information from your network administrator:

- user name and password
- domain name
- host name or IP address of the VPN server

To access a corporate network through your Internet connection, you must:


1. Set up an Internet connection on the handheld.
2. Set up a VPN connection.
3. Connect to the corporate network or Intranet.


### Step 1: Setting up an Internet connection on the handheld

Do one of the following:

- Set up a wireless LAN connection to an access point. For more information, see [page 76](#).
- Connect to the Internet using the internal cellular modem (Juno SC version only). For more information, see [page 77](#).
- Connect to the Internet using a Bluetooth-enabled phone. For more information, see [page 82](#).

### Step 2: Setting up a VPN connection

1. On the Juno series handheld, tap  / *Settings* / *Connections* / *Connections*.
2. From the *My Work Network* list, tap *Add a new VPN server connection*.
3. Follow the instructions in the *Make New Connection* wizard.

To view additional information for any screen in the wizard, tap .

4. Tap **Finish**.





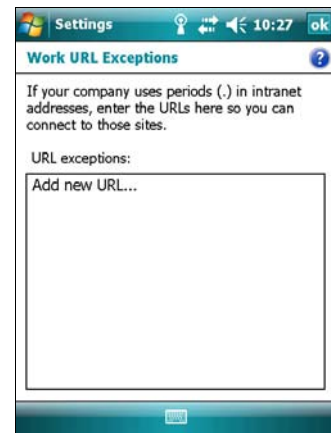
### Step 3: Connecting to the corporate network or Intranet

To connect to the corporate network or Intranet, simply start using Internet Explorer.

The Windows Mobile operating system automatically controls whether the VPN connection is used, depending on whether the URL contains a period. For example, the URL [www.trimble.com](http://www.trimble.com) contains periods, and so the connection to this web site is made without using the VPN connection. However, an address to a network computer or file server that does not contain periods automatically starts the VPN connection.

If you need to use the VPN connection to access URL addresses that contain periods, specify exceptions for the addresses that are within the corporate network. To do this:

1. Tap  / *Settings* / *Connections* / *Connections*.
2. Tap the *Advanced* tab.
3. Tap **Exceptions**. The *Work URL Exceptions* screen appears.
4. Tap *Add new URL*.
5. Enter the URL and then tap **OK** in the top right corner of the screen.
6. Repeat [Step 4](#) and [Step 5](#) as required.
7. Tap **OK** in the top right corner of the screen to return to the *Advanced* tab of the *Connections* screen.
8. Tap **OK** in the top right corner of the screen to close the *Connections* screen.
9. Tap  to close the *Settings* screen.



## Bluetooth wireless connections explained

The Juno series handheld has an integrated Bluetooth radio that you can use to establish a wireless connection to other Bluetooth devices that are within range.

Using a Bluetooth connection, you can communicate with devices such as cellular phones, office computers, other handhelds, and Bluetooth-enabled laser rangefinders and barcode scanners. You can also communicate with peripheral devices that use Bluetooth adaptors instead of serial or USB connections.

The Juno series handheld can act as a Bluetooth client device or a Bluetooth host device, and can act as both at the same time. The concepts of client and host devices are explained in detail below.

### Connecting to a Bluetooth device as a client

You can use the Juno series handheld as *client* device, which uses *services* offered by Bluetooth host devices that are within range. In general the *host* device provides information to the client device, but in some cases the client initiates the connection and also provides information to the host device.

The services used by a Juno series handheld when connecting as a Bluetooth client are:

Service	Description
Dialup Networking (DUN)	Connects the handheld to a cellular phone or modem for dial-up network or Internet access.
Personal Area Networking (PAN)	Connects to Bluetooth network access points or phones that support the Personal Area Network/Network Access (PAN) profile.
Serial Port	Emulates an RS-232 serial (COM) port on the handheld.
ActiveSync	Enables an ActiveSync connection to a computer.
Input Device (HID)	Connects the handheld to a physical input device, such as a keyboard.
Wireless Stereo	Connects to Bluetooth A2DP (Advanced Audio Distribution Profile) headphones.

A client can connect to a number of different services provided by different hosts. The number of active connections at any one time affects the speed of the connections. [Figure 6.1](#) shows the handheld connected to different types of host devices using Bluetooth wireless technology.

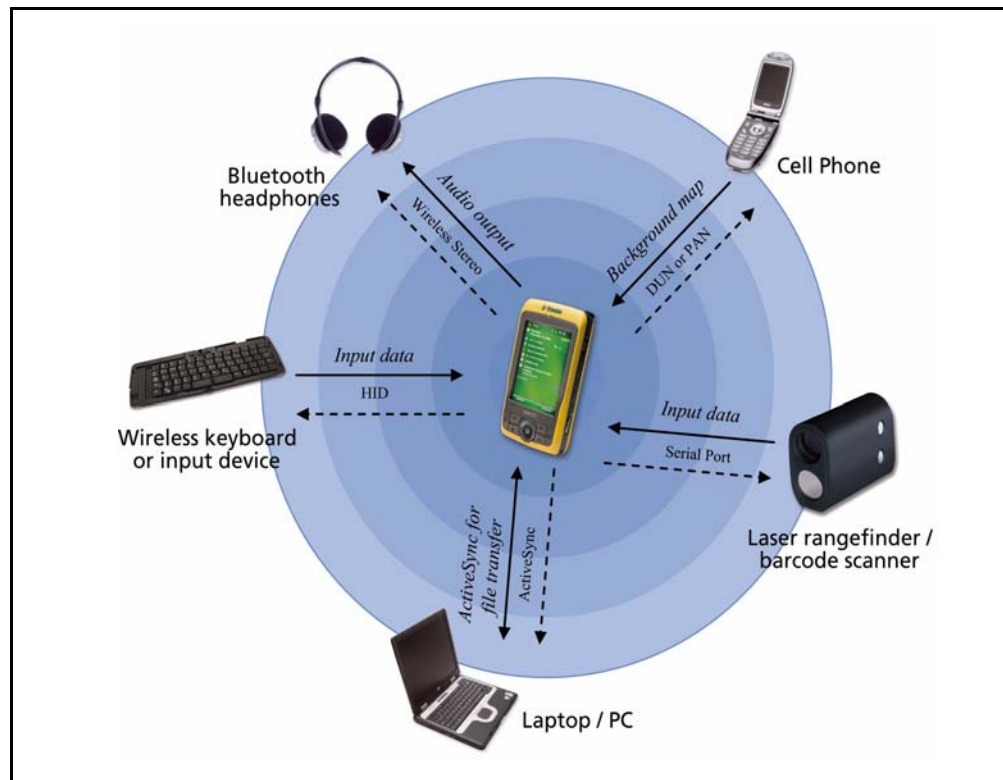


Figure 6.1 Juno series handheld Bluetooth client connections

In Figure 6.1, the dashed arrows indicate the client device—that is, the Juno series handheld—connecting to host devices. The Bluetooth profile (or service) used for the connection is shown between the arrows, for example, the **DUN** service is used for a connection to a cell phone, and the **Serial Port** service is used for a serial connection to a barcode scanner or laser rangefinder.

The solid arrows indicate the flow of information between devices. For example, when the Juno series handheld connects as a client to:

- a cellphone, the handheld uses the DUN or PAN host service provided by the phone to access the Internet and background map data.
- a laptop computer or office computer, the devices use the ActiveSync service to exchange information to and from either device.
- Bluetooth headphones, the handheld uses the Wireless Stereo host service provided by the headphones to play audio files and system sounds.

## Providing Bluetooth services as a host

You can use the Juno series handheld as a Bluetooth host device, which provides services to Bluetooth client devices that are within range.

Host services provided by the Juno series handheld are:

Service	Description
Serial Port	Emulates an RS-232 serial (COM) port on the handheld.

To provide a host service, you must turn on the Bluetooth radio and make both devices visible to other devices (see [page 70](#) and [page 74](#)).

When a client device connects to the Serial Port service provided by the Juno series handheld, applications on the handheld can use the pre-defined host serial port on COM5 to provide host services to the client device.






# Troubleshooting

## In this chapter:



- [Power issues](#)
- [Backlight issues](#)
- [Touch screen issues](#)
- [Keypad issues](#)
- [Memory card issues](#)
- [Connection issues](#)
- [GPS receiver issues](#)
- [Real-time DGPS issues](#)

Use this section to identify and solve common problems that may occur when using the Juno series handheld. Please read this section before you contact technical support.


## Power issues

Problem	Cause	Solution
The handheld does not turn on.	The battery is flat.	Recharge the battery (see <a href="#">page 25</a> ).
The screen is blank.	The handheld is turned off.	Press the <b>Power</b> button to turn on the handheld.
	The handheld has locked up.	Reset the handheld (see <a href="#">Resetting the handheld, page 30</a> ).
The handheld is not charging.	The internal temperature has risen above the allowed maximum for charging the battery.	Do one or all of the following: <ul style="list-style-type: none"> <li>• Turn off the integrated radios before charging the handheld.</li> <li>• Suspend the handheld before charging.</li> <li>• Remove the handheld from any external heat sources (for example, sunlight). The handheld will automatically start charging again when the internal temperature has dropped below the range for charging the battery.</li> </ul>
	The USB cable provides only a minimal charge when an active connection to the computer is formed.	Recharge the battery using the AC adaptor or the vehicle adaptor.
The battery power percentage bar does not appear in the Power control.	The battery has 0% power.	Recharge the battery (see <a href="#">page 25</a> ). Once the battery level is above 0%, the battery power percentage bar reappears. Tap  / <i>Settings</i> / <i>System</i> / <i>Power</i> / <i>Battery</i> to view the level of power remaining in the battery.
The charge level of the battery drops when the handheld is turned off.	The handheld was left in Suspend mode or was left fully charged for a long duration.	Before storing the handheld, completely shut down the handheld (see <a href="#">Turning on and turning off the handheld, page 29</a> ). Then store the handheld as recommended (see <a href="#">Storage, page 18</a> ).


## Backlight issues

Problem	Cause	Solution
The backlight does not come on when you tap the screen or press a button.	The backlight is not set to turn on in the Backlight control.	Tap  / <i>Settings</i> / <i>System</i> / <i>Backlight</i> to view the Backlight control, and make sure that: <ul style="list-style-type: none"> <li>• the <i>Turn on backlight when a button is pressed or the screen is tapped</i> check box is selected.</li> <li>• the brightness is not set to <i>Dark</i> in the <i>Configure</i> tab.</li> </ul>
The screen is blank or hard to see.	The backlight is off.	Tap the screen or press a button.
	The backlight level needs to be adjusted.	Tap  / <i>Settings</i> / <i>System</i> / <i>Backlight</i> to view the Backlight control and then adjust the slider in the <i>Configure</i> tab.

## Touch screen issues

Problem	Cause	Solution
The touch screen does not respond to stylus taps.	The touch screen is incorrectly aligned.	Realign the screen (see <a href="#">page 46</a> ).
	The touch screen is locked.	To unlock the touch screen, tap <b>Unlock</b> in the menu bar of the <i>Today</i> screen.
	The handheld has locked up.	Reset the handheld (see <a href="#">Resetting the handheld, page 30</a> ).
The screen is blank.	The handheld is turned off.	Press the <b>Power</b> button to turn on the handheld.
	The battery is flat.	Recharge the battery (see <a href="#">page 26</a> ).
	The handheld has locked up.	Reset the handheld (see <a href="#">Resetting the handheld, page 30</a> ).
The screen is hard to see.	The backlight level needs to be adjusted.	Open the Backlight control and then adjust the backlight level (see <a href="#">Backlight, page 47</a> ).
	The backlight is off.	Tap the screen to turn on the backlight.
	You are unable to see parts of an application windows when the screen is in landscape orientation.	Some applications are designed for portrait orientation only. To view the entire application window, change the screen display to portrait.
	The selected display theme does not have enough contrast.	Select the High-Contrast display theme. Tap  / <i>Settings / Personal / Today</i> , select the High-Contrast theme and then tap <b>OK</b> .

## Keypad issues



Problem	Cause	Solution
Pressing the application key does not activate the function shown on the softkey above it.	The hardware application key has been programmed to run another program or to perform another action.	Do one of the following: <ul style="list-style-type: none"> <li>Tap the touchscreen softkey to activate the function shown on the softkey.</li> <li>Re-program the application key to perform the same action as the touchscreen softkey. To do this, tap  / <i>Settings / Personal / Buttons</i>, select the button to reprogram and then select &lt;Left Softkey&gt; or &lt;Right Softkey&gt;.</li> </ul>

## Memory card issues



Problem	Cause	Solution
The handheld does not recognize a memory card.	The handheld does not support SDIO (SD input/output) cards.	Use a microSD or microSDHC memory card.
Files on the memory card are not visible or are not able to be opened.	Files have been encrypted on another device and have a .menc file extension.	Remove encryption from the files (see <a href="#">Encrypting files on memory cards, page 33</a> ).

## Connection issues

### ActiveSync technology

Problem	Cause	Solution
ActiveSync technology will not connect to the handheld.	The connection is not initiated automatically.	Disconnect the USB cable from the computer and then reconnect the handheld to the computer. Alternatively, in the ActiveSync software on the office computer, select <i>File / Connection Settings</i> and then tap <b>Connect</b> .
	ActiveSync does not recognize the Juno series handheld.	Restart the office computer. Disconnect the USB cable from the handheld, reset it (see <a href="#">Resetting the handheld, page 30</a> ) and then reconnect the handheld to the computer.
	An incompatible version of ActiveSync software is installed.	ActiveSync version 4.5 and later is compatible with the Juno series handheld. If version 4.5 or later of the ActiveSync software is not installed on the office computer, you can install it from the <i>Juno Series Getting Started Disc</i> . You can also download the latest version from the Microsoft website at <a href="http://www.microsoft.com/windowsmobile/activesync/default.msp">www.microsoft.com/windowsmobile/activesync/default.msp</a> .
	The connection is not enabled in ActiveSync on the computer.	In the ActiveSync software on the office computer, click <i>File / Connection Settings</i> . If you are using: <ul style="list-style-type: none"> <li>the support module, make sure that the <i>Allow USB connections</i> check box is selected from the drop-down list.</li> <li>a Bluetooth connection, make sure that the correct port for Bluetooth is selected. Then open the Bluetooth control on the handheld. In the <i>Devices</i> tab, tap the partnership and in the services list make sure that the <i>ActiveSync</i> check box is selected.</li> </ul>
	The connection is not enabled in ActiveSync on the handheld.	On the handheld, tap  / <i>Programs / ActiveSync / Menu / Connections</i> . Make sure that the <i>Synchronize all PCs using this connection</i> check box is selected, and that the correct option is selected.
	The handheld connection settings conflict with network settings or VPN client software.	If you are using the USB data cable, use the USB to PC utility to change the connection method the handheld uses to connect to ActiveSync on the computer. Tap  / <i>Settings / Connections / USB to PC Utility</i> . Clear the <i>Enable advanced network functionality</i> check box. The handheld stops using the default RNDIS method to connect to the ActiveSync software.

## Windows Mobile Device Center

Problem	Cause	Solution
Windows Mobile Device Center will not connect to the handheld.	The connection is not initiated automatically.	Disconnect the USB cable from the computer and then reconnect the handheld to the computer.. Alternatively, in the Windows Mobile Device Center software on the office computer, select <i>Mobile Device Settings / Connection Settings</i> .
	The Windows Mobile Device Center software does not recognize the Juno series handheld.	Restart the office computer. Disconnect the USB cable from the handheld, reset it (see <a href="#">Resetting the handheld, page 30</a> ) and then reconnect the cable to the handheld.
	The connection is not enabled in Windows Mobile Device Center on the computer.	In the Windows Mobile Device Center software on the office computer, click <i>Mobile Device Settings / Connection Settings</i> . If you are using: <ul style="list-style-type: none"> <li>the USB data cable, make sure that the <i>Allow USB connection</i> check box is selected from the drop-down list.</li> <li>a Bluetooth connection, make sure that the correct port for Bluetooth is selected. Then open the Bluetooth control on the handheld. In the <i>Devices</i> tab, tap the partnership and in the services list make sure that the <i>ActiveSync</i> check box is selected.</li> </ul>
	The connection is not enabled on the handheld.	On the handheld, tap  / <i>Programs / ActiveSync / Menu / Connections</i> . Make sure that the <i>Synchronize all PCs using this connection</i> check box is selected, and that the correct option is selected.
	The handheld connection settings conflict with network settings or VPN client software.	If you are using the USB data cable, use the USB to PC utility to change the connection method the handheld uses to connect to the Windows Mobile Device Center on the computer. Tap  / <i>Settings / Connections / USB to PC Utility</i> . Clear the <i>Enable advanced network functionality</i> check box.  The handheld stops using the default RNDIS method to connect to the Windows Mobile Device Center.



## Network connections

Problem	Cause	Solution
The bluetooth connection with the cellular phone suddenly ends.	If you change the proxy settings of the handheld while connected to a cellular phone, the cellular phone ends the connection.	Make any changes to proxy settings before connecting to a mobile device.
Unable to connect to another Juno series handheld.	Data encryption settings are set incorrectly.	When setting up a peer-to-peer ad-hoc network with a WEP encryption, set a Network Key, rather than leaving the key blank to be provided automatically.


## Bluetooth wireless technology

Problem	Cause	Solution
The handheld cannot discover a nearby Bluetooth device.	The device is out of range.	Move the devices closer to each other and then scan again.
	Bluetooth wireless technology is not enabled on one or both devices.	Make sure that the Bluetooth radio is turned on, on both the handheld (see <a href="#">page 73</a> ) and the other Bluetooth device.
	The device has not been made Discoverable.	Make sure that the Bluetooth device has been made Discoverable.
The COM port that you assigned to a serial port service is not available in your application.	The application cannot recognize ports if they are added after the application opens.	Exit from the application, add the port and then run the application again.
The Bluetooth connection fails while in use.	The Bluetooth device has moved out of range.	Move the devices closer to each other. The devices should reconnect automatically. If they do not, select the Bluetooth device in the <i>Devices</i> tab. Tap and hold the device name and then select <i>Delete</i> . Tap <i>New</i> to discover the device again.
	The Bluetooth radio has lost the connection.	Turn off the Bluetooth radio on the handheld and then turn on the Bluetooth radio (see <a href="#">page 73</a> ).
	Bluetooth file transfer interrupts the connection.	When you transfer large image or data files, other Bluetooth connections may stop responding. To avoid problems, close other Bluetooth connections before transferring large files.

## Wireless LAN connections

Problem	Cause	Solution
The "New Network Detected" notification does not appear automatically.	The wireless LAN radio is off.	Tap the wireless icon in the Today screen or go to the Wireless Manager and make sure wireless LAN is on.
	The handheld is out of range of the network.	Move to within range of the network, then tap  / Settings / Connections / Network Cards and then setup the connection.
The handheld cannot connect to a secure site.	The date on the handheld is incorrect.	Check that the handheld has the date set correctly on the Today screen. If the date is incorrect, tap the clock icon on the Today screen and then adjust the date and time.
You cannot configure an Internet connection.		
Within range of more than one network, you are not connecting to the network you would prefer to use.	The radio is connecting to the first network signal it has received.	Tap  / Settings / Connections / Network Cards. Tap and hold the network you would prefer to use and then select <i>Connect</i> .
The "New Network Detected" notification appears but the menu bar and soft key options are not displayed.	Some applications are not fully compatible with all features of the Windows Mobile 6 operating system.	Use the application buttons on the keypad, as they map to the soft keys in the menu bar: <ul style="list-style-type: none"> <li>To dismiss the notification, press the right application button on the keypad.</li> <li>To connect to the network, press the left application button.</li> </ul> Alternatively, select a Windows Mobile application from the Start menu, such as the Today screen or File Explorer, and the menu bar and soft keys will be displayed correctly.

## GPS receiver issues

Problem	Cause	Solution
The handheld is not receiving GPS positions.	The integrated GPS receiver is not activated.	Use the Connect or Activate GPS command in the GPS field software to open the GPS COM port and activate the integrated GPS receiver. For more information, see <a href="#">Using the GPS receiver, page 59</a> .
	The GPS COM port is already in use. Only one application at a time can have the port open.	Do the following: <ul style="list-style-type: none"> <li>Exit the software that is using the GPS COM port and then retry in your application.</li> <li>Check that a GPS application is not running in the background. Tap  / Settings / Memory, select Running Programs, and then select and close any GPS applications you are not using..</li> </ul>
	The GPS field software is using the wrong GPS COM port.	Connect to COM4.
	Not enough satellites are visible.	Move to a location where the receiver has a clear view of the sky and ensure the antenna is not obstructed.
	<i>Wait for real-time</i> is selected in the GPS field software and the integrated receiver is waiting to receive real-time corrections.	If you are collecting data for postprocessing, clear the wait for real-time selection. Check that the real-time correction source is setup correctly (see <a href="#">Connecting to a real-time differential correction source, page 64</a> ).
NMEA data includes autonomous positions.	The integrated GPS receiver outputs autonomous positions when real-time corrections are unavailable.	Configure the NMEA application to filter out non-DGPS positions.



## Real-time DGPS issues

Problem	Cause	Solution
<p>The handheld is not receiving SBAS real-time corrections</p>	<p>The SBAS satellite is obstructed from view.</p>	<p>Check the location of the SBAS satellite in the Skyplot section of the GPS field software, and if possible move to a different location.</p>
	<p>You are outside the WAAS, EGNOS, or MSAS coverage area.</p>	<p>Wide Area Augmentation System (WAAS) satellites are tracked in the Continental United States including Alaska, and in southern parts of Canada.                      European Geostationary Navigation Overlay Service (EGNOS) satellites are tracked in Europe.                      MTSAT Satellite-based Augmentation System (MSAS) satellites are tracked in Japan.</p>



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