1. Opening Toolkit
To run Toolkit, open the directory that contains Toolkit and double click on the file USERTK.EXE.

2. Running Toolkit for the First Time
The first time that Toolkit is run, the communications port of your computer will need to be set up to correlate to the configuration of the command port of the receiver. A window, as shown in Figure 2.1, will appear and settings for the communications port of the computer will need to set up to attempt connection to the receiver. The settings are most commonly as follows:

- Port Name: COM1
- Baud Rate: 57600, 38400, 9600
- Parity: None
- Flow Control: None
- Stop Bits: 1
- Data Bits: 8

![Communications Port Configuration](image)

When the settings have been entered, click OK.

If the computer is communicating with the receiver correctly, Toolkit will display information about the receiver such as the serial number and the DGPS reception levels. The screen will look similar to Figure 2.2.
In Figure 2.2 various information and status is displayed. In the ‘3500 Receiver Configuration’ frame, as shown in Figure 2.3, the serial number, group number, channel and manual stations are displayed. The ‘Serial Number’ is used for subscribing receivers for differential corrections. The ‘Group Number’ is the group to which the receiver belongs but is rarely used anymore and is default to 0. The ‘Channel’ is the DGPS service that the receiver is tuned into. The ‘Manual Stations’ is a list of reference stations to use when the receiver is generating the DGPS corrections. This is often blank meaning that it is automatic.

In the ‘Static Information’ frame of Figure 2.2, the software versions and detector mode of the receiver is displayed, as shown in Figure 2.4. The ‘Software Version’ is the version of the software in the receiver. This version number is more important than the ‘Firmware Version’, which is a more general software version and is updated less commonly. The ‘Detector Mode’ controls how the receiver processes data and the output format of the differential corrections received over the OmniSTAR channel. This commonly VBS or RTCM, however RAW and VRC can be used. When the receiver is set for VRC, the reference position is displayed below the detector mode as shown in Figure 2.4.

Displayed in the ‘Dynamic Information’ frame of Figure 2.2 is the reception status of the differential corrections, as shown in Figure 2.5. The ‘Actual Frequency’ shows the frequency that the receiver is currently tuned into followed by the symbol rate for the DGPS service. The ‘Signal Status’ displays whether the data received on that frequency is available. The ‘Service Identifier’ shows the tracking status of the receiver on the DGPS signal. The ‘Signal Quality’ displays the strength of the signal. Ideally this should be 8 dark bars.
Shown in the ‘Subscription Information’ frame of Figure 2.2, as in Figure 2.6, are the details of the subscription of the receiver. The ‘Date & Time’ displays the current date and time that the receiver has decoded from the DGPS signal. The ‘Expiry Date & Time’ shows the time and date of which the differential corrections can no longer be used. The ‘Data Received’ shows what data that the receiver has decoded from the DGPS signal. For the receiver to operate correctly, i.e. produce corrections, ‘Time’, ‘Gps’, ‘Almanac’ and ‘Sites’ needs to be listed in this field. The ‘Subscription Status’ displays the state of your subscription and needs to say ‘Subscribed’ for correct operation.

Lastly, in Figure 2.2, there are two buttons in the lower right. ‘Set Port’ displays a window that allows you to configure the port of your computer to communicate with your receiver. ‘Refresh’ simply refreshes the data on the screen in case of communication interruptions. These buttons are displayed in Figure 2.7

3. Operation Menu
The operation menu allows users to change various settings in the receiver. To access this menu click ‘Operation’ on the menu bar of Toolkit. A drop down menu will appear as shown in Figure 3.0.1.

3.1 Mode
The mode of the receiver specifies the mode of operation of the receiver. To access this configuration click ‘Mode’ in the ‘Operation’ menu, as shown in Figure 3.1.1. A window will appear similar to that shown in Figure 3.1.2.
This allows the user to select the 3500 Output Configuration and the port on which to operate. The default is VBS on the DATA port as shown in Figure 3.1.1.

3.2 Port Settings
This item allows operators to configure the ports of the 3500 Receiver. To change the configuration of the ports, click ‘Operation’ menu, followed by ‘Port Settings’ and then the desired port to reconfigure being either Command or Data as shown in Figure 3.2.1. A window as shown in Figure 3.2.2 will appear.

With the 3500, only the rate at which the port operates can be changed and not the parity, data bits or stop bits. Select the baud rate and click ‘OK’.

3.3 Channel Selection
This menu item allows users to configure the channel on which to receive DGPS corrections. To adjust this setting, click ‘Operation’ menu followed by ‘Channel Selection’. Under ‘Channel Selection’ either select the service by entering the frequency, by clicking ‘By Frequency’, or by selecting the service, by clicking ‘By Service Name’. This is shown in Figure 3.3.1.
• ‘By Frequency’
  If ‘By Frequency’ was clicked, a window will appear as shown in Figure 3.3.2.

![Frequency and Symbol Rate window](image)

**Figure 3.3.2**

In this window, enter the frequency in Hertz and select a Symbol Rate. Click ‘OK’ to save and exit.

• ‘By Service Name’
  If ‘By Service Name’ was selected, a window similar to that shown in Figure 3.3.3.

![Service Selection window](image)

**Figure 3.3.4**

Select the service to receive DGPS corrections from and click ‘OK’.

### 3.4 Glonass Sites Output
To select the sites for Glonass output, click ‘Operation’ menu followed by ‘Glonass Sites Output’ as shown in Figure 3.4.1. Currently only ‘Auto’ can be selected, which will automatically select the nearest Glonass site.

![Figure 3.4.1](image)

### 3.5 Remote Sites Output

To select the remote sites to use, click ‘Operation’ menu followed by ‘Remote Sites Output’. In here select ‘Auto’ to automatically select which remote sites to use in RTCM mode or select ‘Manual’. This is shown in Figure 3.5.1. Selecting ‘Manual’ will bring up the window as shown in Figure 3.5.2.

![Figure 3.5.1](image) ![Figure 3.5.2](image)

Set the required sites in the list to use for DGPS corrections. Click ‘OK’ to save these settings.

### 4. Maintenance Menu

The ‘Maintenance’ menu allows the download of firmware into the receiver and talk directly to the receiver. To open the ‘Maintenance’ menu click ‘Maintenance’ in the menu bar as shown in Figure 4.0.1.

![Figure 4.0.1](image)

#### 4.1 Download New Software

This item will allow users to download new firmware into the receiver. To access this, click ‘Maintenance’ menu followed by ‘Download New Software’, as shown in Figure 4.0.1. This will bring up a window similar to Figure 4.1.1.
In this window locate the new firmware to download into the 3500 receiver. To do this, click ‘Select’, locate the file and click ‘Open’. Once selected, click ‘Download’. A window will appear asking for confirmation of this operation as shown in Figure 4.1.2.

To continue, click ‘Yes’. At this point ensure that the power is not removed and that the data cable remains plugged in. After clicking ‘Yes’, a window similar to that of Figure 4.1.3 will appear and this shows the status of the download of the firmware. When the firmware has completed downloading, the button saying ‘Cancel’ will change to ‘Done’. Click ‘Done’.

4.2 Run Terminal
To open the terminal click ‘Maintenance’ menu followed by ‘Run Terminal’, as shown in Figure 4.2.1. A window will appear as shown in Figure 4.2.2 that allows operators to send commands directly to the 3500.
5. Subscription Menu
The subscription menu allows users to view the subscription details. To open this menu, click ‘Subscription’ on the menu bar.

5.1 Details
To view the details of the subscription, click ‘Subscription’ menu followed by ‘Details’. This will bring up a window similar to that of Figure 5.1.1. This displays information such as the group number, expiry date, allowed modes of operation, enabled uplinks and range rings.
Figure 5.1.1