



Assisted Starts Using OA / OWB AGPS Control Interface

1. Summary

This document explains how to use AGPS Customer Interface of Orion Analyzer or Workbench to perform assisted starts of Orion receiver using various sources of AGPS information.

2. Revision History

Version	Date	Author	Changes
0.1	17.04.2009	RGe	First version

3. Prerequisites

Assistance information sources

There are several possible sources of assistance information:

- The same or another Orion receiver connected by UBP protocol
- Assistance information provided as a file
- Atheros' real-time AGPS server (RTAGPS)

In order to access RTAGPS user should configure OA/OWB using proper URL to the file on the server, user name and private key file (in OpenSSL format).

4. Interface

Below is a representation of what the AGPS Control dialog looks like.

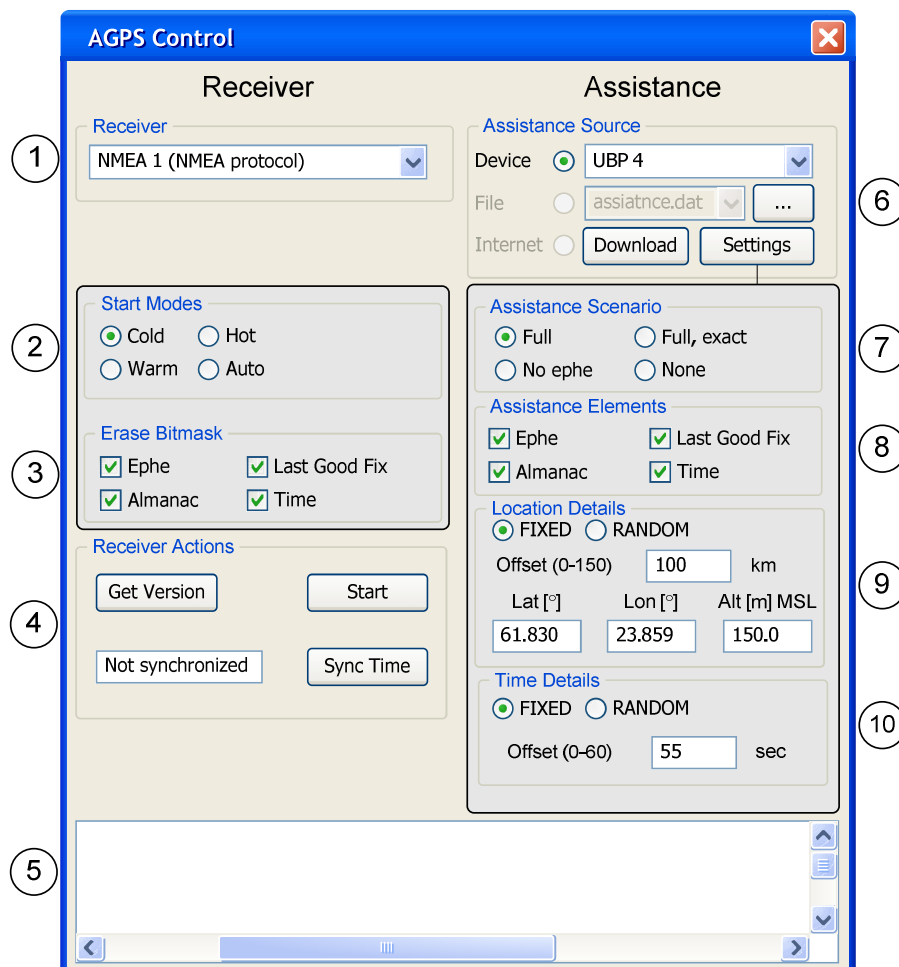


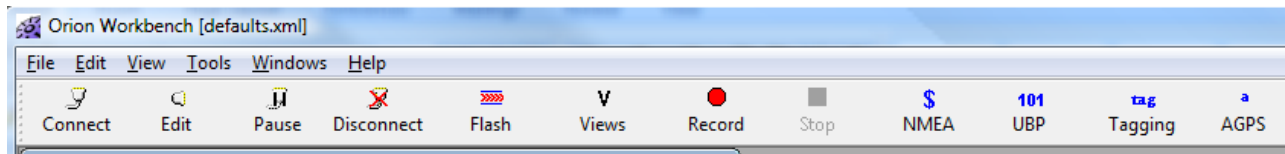
Figure 1 AGPS Control dialog

5. Setting up the environment

The following sections give detailed instructions on how to configure the receiver, choose and configure source of assistance and then perform assisted starts and estimate results.

Setting the environment requires first connecting all the needed receivers and then configuration of the start procedure itself.

Connection of the receiver is done using 'Connect' button on the application's toolbox. Editing the connection parameters if necessary can be done using 'Edit' button. Opening assisted start controlling dialog 'AGPS Control' can be done using 'AGPS' button.



Receiver

User first needs to connect Orion 3.1 or 3.2 receiver with NMEA interface using 'Connect' button on the toolbar of OA / OWB. In the case where assisted start is to be done using higher communication speed than standard 4800 bps, the speed should be changed using 'Edit' button on the toolbar of the application. Note that Edit Connection changes both receiver and PC speed, so it's a single-step operation. Any speed up to 38400 bps is supported.

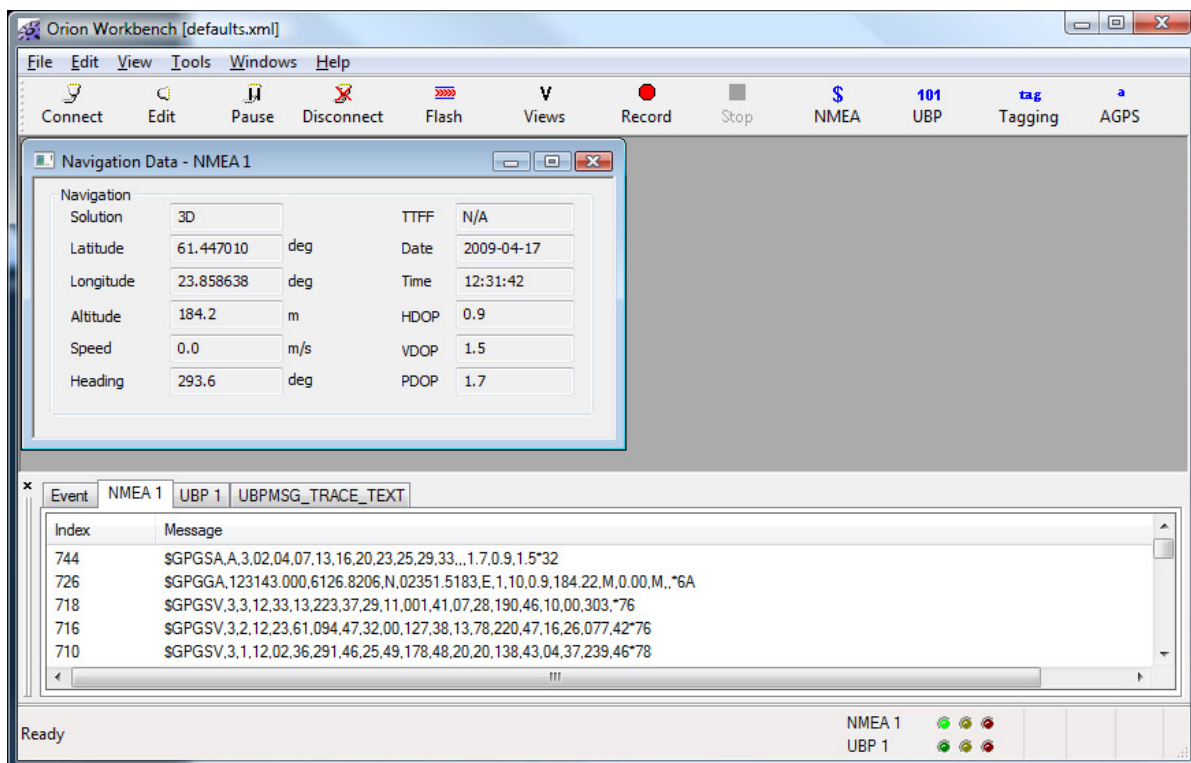
In AGPS Control dialog the receiver is chosen using control in group 1 (refer to Figure 1). This must be NMEA connection, not UBP.

In order to see better details of assisted start it makes sense to connect UBP channel of the receiver as well.

Step-by-step instructions:

1. Connect the receiver using NMEA protocol
2. [Optional] Configure NMEA connection speed of (any from 4800 to 38400)
3. Make sure that receiver sends NMEA stream (NMEA data are running in corresponding tab of Output Console in the bottom of the application's window.
4. [Optional] Connect UBP channel of the receiver.
5. Open 'Navigation Data' view for UBP channel if available or for NMEA channel. Use button 'Views' on the application's toolbar and then choose connection in drop-down box and a view type 'Navigation Data'.

At this point application should look similar to the following:



Assistance source

There are three possible options for getting assistance information from:

- a) UBP stream produced by the receiver or another Orion receiver
- b) File containing AGPS information located on file system
- c) File containing AGPS information located on RTAGPS server

Last two options are similar and the difference is file location only.

UPB stream as assistance source

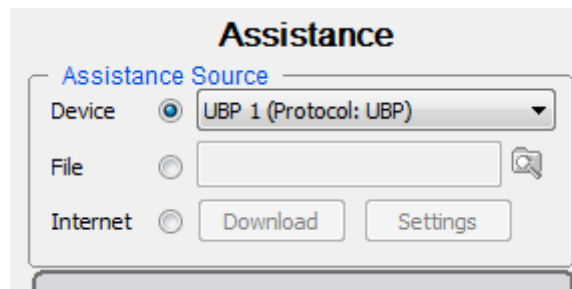
Usage of this source requires that the receiver or another Orion receiver is connected on UBP protocol to OWB / OA. Use button 'Connect' on the OWB / OA toolbar to do that.

The receiver that is used as assistance source should be producing valid fixes for several minutes before its output can be used as assistance.

In order to use the UBP stream choose 'Device' on AGPS Control dialog and then use dropdown box to choose particular receiver.

Step-by-step instructions:

1. Connect UBP channel of the receiver that is supposed to be used as a source of assistance information. Use 'Connect' button on the application's toolbar for that purpose.
2. On AGPS Control dialog choose 'Device' in Assistance Source and then choose particular UBP connection in dropdown box.

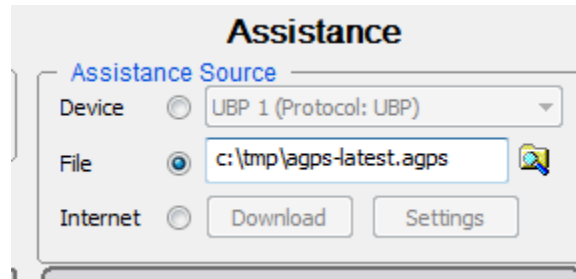


AGPS data as a file

Usage of this source requires either file with AGPS messages saved to local file system or an access through internet to RTAGPS server. Please note that file with AGPS messages should be fresh enough as AGPS information can go stale relatively quickly.

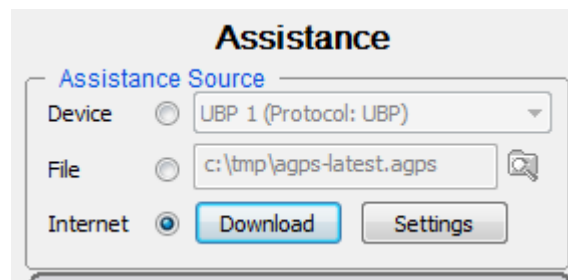
Step-by-step instructions (File as a source):

1. On AGPS Control dialog choose 'File' in Assistance Source and then either type the filename in the textbox to the right or choose explorer button to choose file using a file system browser dialog.

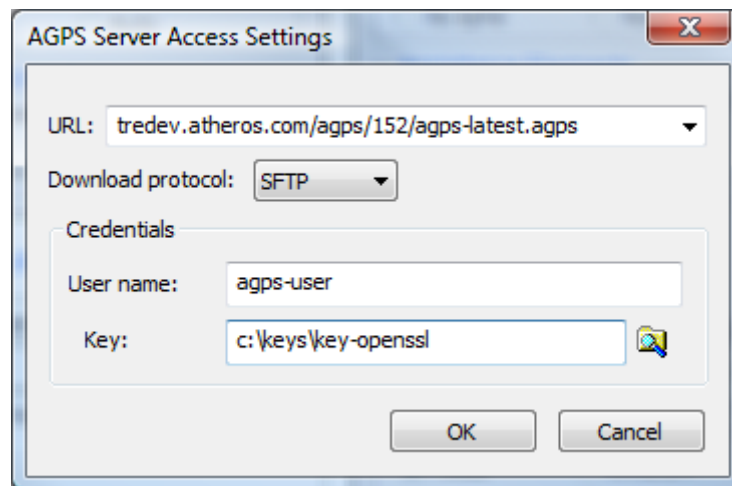


Step-by-step instructions (RTAGPS server as a source):

1. On AGPS Control dialog choose 'Internet' in Assistance Source and then press 'Settings' button on the right.

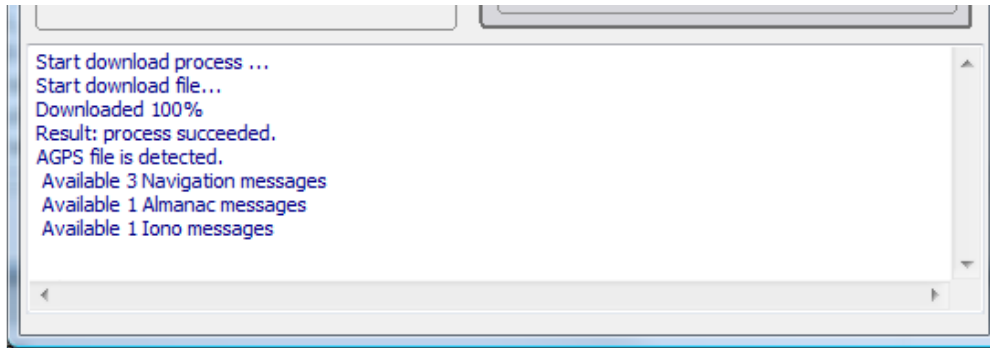


2. In 'AGPS Server Access Settings' dialog type in the URL, choose 'SFTP' as a protocol, type user name and path to the private key file in corresponding text fields.



Default URL to the AGPS information file on Atheros' development server is 'tredev.atheros.com/agps/152/agps-latest.agps'. User name and private key should be agreed upon subscription to the service.

3. Press OK.
4. Press 'Download' button and check that the applications downloaded successfully assistance data file. This will be indicated by the corresponding messages in the text field in the bottom of the 'AGPS Control' dialog:



Performing a start

Please refer to Figure 1 to see location of controls groups that are mentioned in instructions below.

Time synchronization

In order to provide the receiver with reasonably accurate time assistance, AGPS Control dialog should first measure the difference between the local PC time and GPS time. This step is needed since the PC clock can easily be off from GPS time. This is done when user presses button 'Sync Time' in controls group 4. The receiver must be navigating during the measurement i.e. provide valid time and date information. Once this measurement is done, it stays valid while AGPS Control dialog remains open.

This step (step 2 in instructions below) is only needed when time assistance is to be fed in, i.e. 'Time' is selected in Assistance Elements (controls group 8).

Step-by-step instructions:

1. Choose Start Mode in controls group 2 or some specific mask to erase information stored in the receiver in controls group 3 of 'AGPS Control' dialog.
2. Press 'Sync Time' button in controls group 4 and check that message 'Time difference = ... s' appears in the message text box. At the same time text field to the left of 'Sync Time' button should start showing assistance time.
3. Choose assistance scenario using controls groups 7, 8, 9 and 10.
4. Press 'Start' button in controls group 4 to initiate assisted start.
5. Ensure that there are no error messages (in red) in the message text box.
6. Watch at 'Navigation Data' view and check that receiver loses a fix first and then starts producing valid fixes again. This can be seen for example in 'Solution' field.