NavCom Technology, Inc.
A John Deere Company
20780 Madrona Ave, Torrance, CA. 90503
Tel: 310-381-2000 Fax: 310-381-2001 E-mail: customerservice@navcomtech.com

Software Release Notice

V5.1.6 Software Ensemble for

RT-3010, RT-3020, SF-2040, SF-2050, and NCT-2030M; *Serial Numbers >5000* and NCT-2100 Series Products

*** Warning ***

1. This software build will only function in products containing the NCT-2100D GPS engine. Products equipped with the older NCT-2000D GPS engine will operate on v3.2.9, which is an existing released software ensemble in June 2008.

2. *Important* - Update the receiver with a consistent ensemble of software and to use only the latest versions of the Install and StarUtil programs included in this release.

3. **Always install the new software ensemble via COM 2 and power cycle the receiver after installing the software**.

4. **Always install the new software and software options/licenses with the antenna connected and in an area where the receiver has the ability to track satellites**.

5. **Force the Install program to load all versions of software** including the GPS engine, IOP and LBM (LBM for the SF product line only), even if the load boxes are not checked by default.

6. Use of the *Install* utility is recommended for installation of the new software. However, if using StarUtil to load software individually, follow this load sequence: 1) LBM (SF- models), 2) IOP (where applicable), and 3) GPS Engine. *Failure to load new software in this order may result in receiver communication failure*.

    a. The IOP and LBM software must be loaded at 19200 baud. The GPS engine can be loaded at baud rates up to 115200 baud.

7. To optimize performance when using the receiver with an external RTK communication device, it should be connected to COM2, and the controller to COM1.

8. **The receiver controller software may need updating** to function properly with this new release and to enable some of the new features.

New Messages and Features

This software ensemble incorporates new features, enhancements, and updates to older software. Since the release of 4.2.26, we have incorporated a couple of fixes to 4.2.26 (a StarFire FOM scaling error fix). This version also incorporates new QC/QI features for UKOA. The Technical Reference Manual (TRM) has a number of revisions and is up to date and published on our website. System integrators need to review the message changes to see if any modifications are needed to the controller software they supply as part of the end user solution.

Install Makes Updating Software Easy

The Install program automatically determines what software modules in the receiver require updating, and performs the update process. Additionally, the Install program can display and update the StarFire license and GPS receiver options.

NavCom RTK receivers utilize two processors, one in the GPS engine module and a second in the I/O processing (IOP) module. In the StarFire models, there is a third processor in the L-band module (LBM) that processes the StarFire measurements. The software upgrade package includes new software for each of the three modules. If you are receiving the software upgrade package via E-mail, then the zip file will be included as an attachment.

Create a new folder for this ensemble. This will ensure that: 1) all of the correct software is in one location, 2) there is no mixing of old and new software, and 3) it affords the ability to revert to the previous version (this causes the StarFire license to cancel when reverting to 3.x.x, necessitating a new license from NavCom).

Software "ZIP" File Contents

The update "**ZIP**" file includes the following:

Program	Version/Date	Comments
Release Notes v5.1.6 Ensemble.PDF	Dated 13 Mar 2009	Description of improvements and bug fixes (This document)
Readme.TXT	Dated 13 Mar 2009	Update instructions and a list of files
SLv5,1,6.bin	Version5.1.6	GPS engine software - NCT-2100D models
IOPv3,0.hex	Version 3.0	IOP software
LBMv3,6.hex	Version 3.6	LBM software
StarUtil_v101_5_17.exe	Version 101.5.17	StarUtil program – NCT-2100D models
Install_v1_6.exe	Version 1.6	Install program
Install.ini	Dated 13 Mar 2009	Install initialization file – must reside in the same directory as the Install program
RinexUtil_v1.27.exe	Version 1.27	Binary to RINEX conversion program

Documentation

The Technical Reference Manual, Product User Guides, and the StarUtil User Guide have been revised with major changes for this release. The Install Manual has not changed for this release. The latest versions of the Product User Guides, Install User Guide, StarUtil User Guide, and Technical Reference Manual will be available on the NavCom's web site at:
http://www.navcomtech.com/Support/DownloadCenter.cfm?category=manuals once the software is officially released.

Manual	Part Number	Revision	Description
StarUtil User Guide.pdf	96-310008-3001	G	Revised StarUtil User's Guide
Install Manual.pdf	96-310012-3001	C	Install User's Manual
Technical Reference Manual.pdf	96-312001-3001	L	Revised Technical Reference Manual

Software Changes/Improvements

The following sections describe the changes and improvements to each of the software modules included in the ensemble.

GPS Engine Software

This GPS Engine release of software provides the following list of changes, improvements, and features incorporated since the previous formal release of v4.2.26:

V5.1.6

- StarFire FOM scale tuning

- Improved StarFire convergence technique

  o The convergence time has not changed, the convergence is on a curve now instead of linear

- Completed UKOA messaging implementation

  o Implement proprietary NMEA GPS, GST, and MDE, and 0x9D messages

- Corrected a port scheduling bug for the 0xDB message from the LBM.

- Fixed a port scheduling bug for NMEA GRS

- Fixed a port scheduling bug for the 0xB9 message – Doppler

- Corrected a message scheduling error for the 0x8C and 9C messages

General improvements

- Fix a bug in IODE update which affects RTCM 3,9 performance

- Implemented an SBAS geo-fencing feature to reduce the likelihood of applying SBAS corrections to the position solution when the receiver is not within the

defined SBAS Iono grid. This applies to the current active SBAS systems (WAAS, EGNOS, and MSAS)

- Improved navigation performance in adverse tracking scenarios

I/O Processor (IOP) Software

This IOP release of software provides the following list of changes, improvements, and features incorporated since the previous formal release of v3.0:

V3.0

- No changes were made to the IOP software.

L-Band Module (LBM) Software

This LBM release of software provides the following list of changes, improvements, and features incorporated since the previous formal release of v3.4:

V3.6

- Updated StarFire satellite lookup table to reflect the recent satellite moves

- Corrected a StarFire satellite selection scenario

StarUtil Software

This StarUtil release of software provides the following list of changes, improvements, and features incorporated since the previous formal release of v101.5.15:

V101.5.17

- Fixed a port scheduling bug for NMEA GRS

- Corrected a bug for viewing the 0xDB message

RINEXUtil Software

This RINEXUtil release of software provides the following list of changes, improvements, and features incorporated since the previous formal release of v1.25:

V1.27

- Changes were made in the RINEXUtil software to support a future product.

If you have any questions regarding the installation or use of the software upgrade package please contact NavCom Customer Support at customerservice@navcomtech.com or by phone at +1 310.381.2000.