

# iGx Download Tool Version Log

Last Update: Friday, January 19, 2024

The latest version is at the end of this document.

## 2013

### B9085: June 10, 2013

Changed 'Advanced' checkbox to drop down list. Now there are three choices: Simple, Normal and Advanced. Simple really simplifies the interface.

### B9086: June 10, 2013

Fixed 'Time since end of observation' to reflect correct timezone offset.

### B9087: June 11, 2013

Delay 0.2 seconds between serial commands on advanced setup to allow receiver to 'catch up'. Program failed on some WinXP machines that were too fast.

Note on Google Desktop interaction: After X90 download tool writes a ZIP file (or an OBS, or NAV), it is probable that Google Desktop will open the file and add the contents into its search database. This prevents the X90 tool from reading the file size, but it apparently does not prevent X90 from opening the file to send to NGS. It is probably safe to ignore this error, but be warned that the file size will be reported as a bogus (large) number.

### B9088: June 13, 2013

Entry into the secret factory mode has been cleaned up a bit. The installer now reports the build number on the opening screen.

### B9091: June 24, 2013

Note: Printed RevC User Manuals no longer match program well.

Support for OPUS-Projects exposed.

Fixed issue with 'bad date encode' when milliseconds of start or stop time was not 0.000000.

### B9095: June 24, 2013

Fixed Boolean overflow when writing HCN INI file. NGSProject was uninitialized for files exported prior to B9088, when they were read with 9091, an exception was thrown when the INI file was replaced.

### B9100: August 2, 2013

Changed default receiver name to "CHC X90D-OPUS" as it is now listed in the IGS table [http://igsb.jpl.nasa.gov/igsb/station/general/rcvr\\_ant.tab](http://igsb.jpl.nasa.gov/igsb/station/general/rcvr_ant.tab).

Added support for AusPOS, CPCS and RTX.

Added 'Log' function.

Added 'Show Browser' button so user can show the internet browser with the last results.

Default decimation is now 15-seconds to support expected changes in OPUS processor.

HcRinex will process 'any' sized HCN file. It has been tested with 250,000 epoch files (7+ days of 5 second epochs).

### B9102: August 17, 2013

Changed the NGS logo (16x16 bit) on the submit button to not infringe on any NOAA trademark. I believe that these changes:

- No mission statement surrounding round logo.

- No gull wings in center.

- No NOAA letters inside circles.

- Colors changed.

Will make it obviously not the NOAA / NGS logo.

The similarity was very weak before these changes (it was a 16 bit square image after all.)

### B9103: August 21, 2013

New HCN Rinex Tool 2.0.2. Does not make registry entry. Does not trip security warning on locked down computers.

Changed tab order on default configuration page.

### B9104: September 11, 2013

Once occupations were moved from \_New project, changes to PID and Description would not survive closing program and reopening.

### B9106: October 14, 2013

8.3 Filename Support.

### B9107: October 21, 2013

Force RinexSolution screen to be on a valid monitor.

### B9108: November 18, 2013

Correct spelling on device dump log output.

## B9109: December 29, 2013

Compiler update to XE5. Required minor updates to Async toolbox and utilities.

## 2014

B9115: January 17, 2014

Added support for the IBGE, Brazilian PPP Service.

## B9154: May 1, 2014

Added buttons on configuration tab to undelete files, reread a single file from GPS, reread all files from GPS, convert HCN to RINEX.

Added support for alternate CHC devices (X91x, X900x.)

## B9155: May 13, 2014

The delete occupation button is no longer the default action on 'Esc'. There is a new nag dialog to confirm occupation delete.

Descriptions no longer accept ' or " (quote) characters in the description. Quote characters keep output file from being built.

PID's are now forced to uppercase characters, numbers and the '\_' in all exported RINEX files.

Column widths in the occupation grid are now stored and recalled properly.

Download from GPS button icon fixed to include arrow.

Enhanced installation of latest desktop tool on machines with previous installations.

## B9163: May 22, 2014

Added MSS (Show screen to support agent) button on main form. (It previously existed on the iGage about screen.

## B9180: June 25, 2014

Updated to compiler version XE6. No other changes made.

## 2015

## B9200: January 2015

The receiver model is now stored in the HCN.KEY file on the receiver. This allows a user to have multiple X9x heads and combine data from all of them on one PC.

## B9102: 28 January 2015

Increased delays when programming head via serial cable. The new X900S-OPUS receivers take longer between commands (evidently...)

## B9105: 30 January 2015

Set the Web browser to top-level and silent. Now the scripting error on the Map display for NGS CORS include / exclude does not toss exception. (However the error is still there, since it is in the JS on the server side, not much I can do.)

## B9200: January 2015

Changed the way the .HCN file works. It now has the key AND a receiver type code that is used to choose the correct NGS antenna model. The code is stored in the .INI file. This way a user can have a mixture of receiver types and it will all work out, including the Slant measurements.

Added buttons in the advanced mode to override the receiver type.

## B9300: May 2015

Implemented new HCRinex tool that automatically spawns off conversions and fully supports GLO, GAL, BDU files. Added support for moving .yyG, .yyC, .yyE navigation files (GLO, BDU, GAL).

Fixed 'Stop' button to work on startup.

Changed RTX to NOT decimate.

Changed the Head initialization to set receiver name to 'X9123456' instead of 'X90123456'.

## B9318 : July 31 2015

Implemented new HCRinex5.exe tool which fixes RINEX file generation from X900S with bad a-priori estimated position.

Implemented July 23 2015 version of TEQC.

The 'Remote Assistance' link on the main page, now automatically downloads the ShowMyPC tool (into the User's Application Data) and then shell runs it. This removes the requirement that the user must interact with the browser and some of the virus checking steps.

## B9319 : October 1, 2015

Updated TEQC to interim version 2015Sep14. Previous release did not QC some GLONASS data properly and caused a fault. Lou's description:

"All Windows builds of the latest teqc version 2015Jun23 appear to have an unintentional, built-in flaw -- related to just compilers for Windows -- such that when trying to qc GLONASS data with GLONASS ephemerides (GLONASS RINEX navigation files), teqc will either quietly terminate without doing anything of note or, depending on the dataset being tried, Windows will report a memory fault. (This was originally reported by Richard Langley's group at UNB in mid-August.) It does not matter whether you are running either of 32-bit builds or the 64-bit Mingw build."

No changes were made to the X9Download tool, other than a version number increment.

## B9330 : November 27, 2015

You can now trim the beginning and ending of an observation when processing occupations. You must set the tool to Advanced mode. Put the pre-trim time first separated by a ";" followed by the optional post-trim value.

Use these (case sensitive) abbreviations for time: h, m, s for hours, minutes, seconds.

Examples:

1 m trim the first minute from the observation file

2 m; 30 s trim the first two-minutes and last 30 seconds from the observation file

## 2016

### B9410: January 23, 2016

Partial support for the CHC i80 GNSS receiver. Antenna offsets are unknown so this is just a download tool which can not automate OPUS submissions at this point.

### B9415: March 16, 2016

Updated support for 'CHCI80' with IGS antenna L1 offset and mechanicals which are now available.

Updated RINEX Convertor to HCRinex6.exe (CHC Build 2.1.5)

### B9427: September 7, 2016

Fixed 8.3 filename generation for devices with long serial numbers.

Added 'Set to iGage' button for sending an observation file, with all meta data to iGage.

B9428: September 9, 2016

A previous debug ZIP file is now deleted prior to adding new files.

### B9429: October 6, 2016

X91+S now submits with 'X91+S NONE' antenna.

## 2017

### B9505: January 12, 2017

Compiler version 10.1.

Test for open file when downloading from i80, trap 0-length files (open on reciever).

Test for failed conversion.

Add 'Regen RINEX from HCN' button on top right. Reprocesses HCN file. Useful when updating program to get new RINEX convertor, updates existing file.

## B9515: January 26, 2017

Added support for OPUS\_Upload tool. Now include OPUS\_Upload tool with distribution. This allows users to check a box and directly upload observation files to OPUS. This is required for Windows XP machines as the Internet Explorer on them will not navigate the NGS HTTPS site anymore.

## iGx Toolset

### B9541: April 4, 2017

In April 2017, the iG3s receiver was introduced and replaces the X90D-OPUS and the X900S-OPUS. The iG3s receiver is a static UniCoreComm based receiver. The physical interface and file structure is compatible with the earlier devices.

The download program has been reflagged as 'iGx Download'. Only the default project directory which used to be 'X90-OPUS' has changed. The new default location is 'iGx\_Projects', however if the 'X90-OPUS' folder has been used in the past, it will continue to be used.

This new version supports the iG3s receiver with the assumed IGS name of 'IGAIG3S NONE'. Additional family members are also supported with the assumed antenna designators.

In addition, there have been a few cosmetic changes.

The grid is now force drawn when switching tabs. The 'Occupation' tab is manually resized in an effort to better support non-standard font scaling on 4K monitors.

### B9545: June 1 2017

Fixed settings upload (via serial port) to wait longer for the iG3 to update the collection rate.

Changed OA label to OU on 'Configuration' tab.

Bundled latest OPUS\_Upload tool, added support for -inc and -exc flags when spawning upload.

### B9546: 2017.8.27.9546 August 27 2017

Added support for iG8 GNSS Receiver.

### B9549: 2017.9.10.9549 September 10, 2017

Fixed 'SF' as default height tossing modal dialog box when pre-reading HCN files to load grid.

### B9550: 2017.12.19.9549 December 19, 2017

Add support for firmware 1.5.67 and higher in iG8 (and i80) receivers. Device SN is now appended to the repo folder on the flash drive.

2018

**B9556: 2018.2.27.9556 February 27, 2018**

A submission page update on the NGS OPUS submittal website changes the antenna selection from a select box to a Ajax select2 selector with run-time antenna list download. This build (9556) enables java execution in the IE emulator by setting the registry:

```
'SOFTWARE\Microsoft\Internet Explorer\Main\FeatureControl\FEATURE_BROWSER_EMULATION\' = 11001
```

An attempt is made to load the antenna type into the correct hidden field on the webpage, however it fails so the user is prompted to manually select the proper antenna.

The NGS is entertaining making an adjustment to allow automation and it is expected that a new release of the download tool will shortly follow.

**B9557: 2018.2.27.9557 February 27, 2018**

Packaging version increment.

**B9558: 2018.8.11.9558 August 11, 2018**

Fixed/changed volume naming function. The volume now starts with 'iG' followed by the first 9-characters of the device serial number.

Added 'Loosen Filename Match' checkbox on settings tab. When checked, the download tool will find, transfer and use devices with names like 'BASE' in addition to devices with full 7 or 8 digit serial names.

**B9560: 2018.9.5.9560 September 5, 2018**

Updated OU tool to support later TLS version. No changes to iGx\_download tool.

**B9561: 2018.9.6.9561**

Added debugging traces for filename inclusion when reading devices to help debug custom device names on iG8,i80... style receivers.

Placed new version of TEQC in distribution.

**B9562: 2018.9.7.9562**

Added additional debugging traces for filename inclusion when reading devices to help debug custom device names on iG8,i80... style receivers. (If you change the filename of the recorded observation files on the iG8 style devices, be sure to check the 'Loosen Filename Match' checkbox box on the settings tab!

Placed new 32-bit version of TEQC in distribution. (duhh!)

2019

### B9602: 2019.6.17.9602

Initial Support for iG4 receiver using new HCData RINEX convertor. This convertor is required for raw files from the Unicorecomm UB4B0 engine. (Note, HCData is installed in a convoluted way into the

..\Users\..\AppData\Local\X90-OPUS\CHCData\CHCData.exe  
folder.

Added hints on the status line for Agency and User settings on the Configuration tab.

### B9621: 2019.8.9.9621

Updated TEQC to:

version: teqc 2019Feb25

build: Linux2.4.20-8|x86|gcc|Win32-MinGW32|=+

Added "+C2" to TEQC conversions for OPUS uploading. (No change in output, preparation for future devices.)

Changed target destinations to HTTPS: for OPUS, CSRS, RTX.

### B9621: 2019.8.29.9621

Updated RTX spoofing array based on current supported antenna list. Devices with RTXAval=FALSE are spoofed as 'ADVNULLANTENNA'

```
'CHCX90D' RTXAval := TRUE;  
'CHCX900S-OPUS' RTXAval := TRUE;  
'CHCX90+' RTXAval := TRUE;  
'CHCX900+' RTXAval := TRUE;  
'CHCX900+S' RTXAval := TRUE;  
'CHCX900R' RTXAval := TRUE;  
'CHCX900B' RTXAval := TRUE;  
'CHCX91+' RTXAval := TRUE;  
'CHCX91+S' RTXAval := TRUE;  
'CHCX91R' RTXAval := TRUE;  
'CHCX91B' RTXAval := TRUE;  
'CHCX900S' RTXAval := TRUE;  
'CHCI80' RTXAval := FALSE;  
'IGAIG3S' RTXAval := FALSE;  
'IGAIG4' RTXAval := FALSE;  
'IGAIG8' RTXAval := FALSE;
```



## 2020

### B9631: 2020.1.18

Support for high-resolution displays added.

Fixed issue with project paths containing spaces on machines with invalid short-filename translations.

iGx Download now (by default) checks for a new version every 4 days. The downloaded 'setup.exe' file is checked for code signing and author.

### B9633: 2020.3.20

Added support for iG9 GNSS receiver.

### B9634: 2020.3.23

Supports iG9 antenna as 'CHCI90..NONE'. When IGS model is available this will be updated.3

### B9640: 2020.4.24

Issue with extraction of Start and Stop times from initially converted RINEX file (on one customer's machine.) Extensive debugging of process added. This version will probably be superseded with an additional change soon.

### B9643: 2020.4.29

Additional debugging added on file reads of RINEX files after writing. HCN files opened read-only when checking for valid receiver.

Updated OPUS\_Uploader to version 2020.4.30.2019. Read the manual which is distributed with the OU tool for change details, there have been many enhancements.

### B9645: 2020.6.2

Default for program update check is now disabled. Because of the variable nature of the NGS submission process it is highly recommended that you manually check this box and allow iGx to check for updates regularly.

Installer simplifications with respect to DLL for OPUS-Upload and shortcuts.

### B9646: 2020.6.19

Fixed file transmission for 'Send File' function.

### B9647: 2020.7.3

iG4 with latest OEM firmware required expansion of available channel counts. The following commands were added to TEQC runs for QC, Export and OPUS targeted conversions:

```
-max_rx_ch 64  
-max_rx_SVs 64
```

-n\_GPS 32

## [B9647: 2020.7.6](#)

-n\_GPS 38

## [2021](#)

### [B9650: 2021.2.18](#)

Support for iG5 (preliminary, no antenna calibration available. Used i73.)

### [B9652: 2021.3.28](#)

Support for iG5: NGS Antenna Name "IGAI73 NONE", L1 Offset: 0.08444 m, L2 Offset: 0.06825 m.

The download tool now checks if the default/current project folder contains a '.' (period) character and issues this warning if it does:

WARNING: The current project folder:

'\_foldername\_'

contains a period ".". Because of a shortcoming in a 3rd-party tool this will cause a failure in conversion of raw GPS files to RINEX.

Please manually change the "Base Project Folder", listed on the Configuration tab to a location with suitable rights.

The 3rd-party tool is the CHCData RINEX conversion tool and there is no resolution available.

### [B9653: 2021.3.28](#)

Fixed NAV message issue where not all navigation files were included when the export button was used.

### [B9655: 2021.6.9.9656](#)

OPUS-Project Limitation:

It is no longer possible to set the '\_New' or 'CONTROL' projects as an 'OPUS-Project'.

#### [\\_New Project Cleanup:](#)

A new 'Broom' icon button allows the '\_New' project to be cleaned up. When you click the button, you will be prompted to confirm the cleanup operation. Then all jobs older than 60-days are automatically moved to a project named by the four-character year the observation was begun. So observations from 2019 are moved to the '2019' project. This addition was prompted by some users having several hundred observations left in the \_New project and there being a significant delay when organizing the grid.

The 'Stop' button has been moved and will prematurely stop the clean-up process.

## Cleanup Receiver:

On the 'Configuration' tab a new option 'Cleanup GPS' will move all previously downloaded observation files from the receiver that are older than 6-months old. The raw observation files are first copied to the '\_\_\_GPSBackup' folder which is made in the 'Base Project Folder'. After successful copy, the files are deleted from the GPS receiver. Empty folders are also removed.

The download tool now checks and if a receiver is within 20% of being completely full will recommend to the user that the device be cleaned up.

## B9660: 2021.9.25.9660

New iG5 OEM firmware results in illegal RINEX line:

```
3393835 2.2.1.10RtkzhongyuanT REC # / TYPE / VERS < bad!  
3393835 2.2.1.10Rtkzhongyua REC # / TYPE / VERS < Correct
```

Immediately after every HCN file is converted to RINEX a new method is called to check for this error and fix it if found.

iG5 receivers produced after Sept 2021 will not work without this version or higher.

## B9662: 2021.10.26.9662

New 'Beta OPUS' checkbox added which directs submissions to the Beta OPUS submission site.

New constellation checkboxes added. This allows files intended for submission to OPUS to include constellations other than 'Just GPS'. These checkboxes are replicated on the Beta OPUS submission form, however they currently do not 'go anywhere' in OPUS processing. NGS expects to support additional constellations in late 2022. Exported files, written with the 'Export' button always include the extra constellations.

The bundled TEQC version has been updated to the latest/last version to better support very high PRN numbers.

Range check errors that occur when cleaning files on some heads have been addressed.

A new checkbox allows you to clean files that have not been downloaded. This is useful for heads that have 5-year old data sets with no value.

The UTC time zone selection has been made persistent between invocations of iGx. The time zone: 'local' or 'UTC' in use is now displayed in the column header of the Date column.

The length of the log memo was increased from 300 to 20,000 lines.

## B9663: 2022.2.7.9663

The 'Loosen Filename Match' checkbox has been removed and is effectively always checked. X-PAD allows/encourages non-standard observation filenames. With this box unchecked, iGx\_Download could not find non-standard files. There is now a higher chance that a drive with .HCN files which are not GNSS observation files might be errantly detected as an iGage receiver.

### B9664: 2022.2.11.9664

Spaces are no longer allowed in the name of a project folder. The CHCData program (the RINEX converter) is intolerant of spaces in a file path. Previously, single spaces were allowed. A warning is shown when the program starts if this happens.

The latest version of the OPUS\_Upload tool has been added to the package: Version 2022.2.11.2042.

A service button to launch OPUS-Upload (OU) was added to the Configuration tab. It pushes the entered email address, clears the HI and Antenna overrides and checks the extended checkbox by default. The OU filename is not modified.

### B9666: 2022.6.10.9666

Added IGA173 to antenna description for iG5.

Both the 'Undelete Occupation' and 'Mark GPS File as UnRead' tools now allow multiple file selections.

Allow multiple occupation row selection for: delete, archive and move.

### B9667: 2022.6.10.9667 (unreleased)

Move with 1 file selected was disallowed.

### B9668: 2022.6.13.9668 (unreleased)

The recording interval is now displayed in the 10th column of the grid when 'Show Advanced Settings' is set to 'Advanced'.

### B9700: 2022.6.26.9700 \*\* MAJOR RELEASE \*\*

Full support for RINEX3 added. New installations will default to RINEX2. Existing installations with RINEX2 files cached will automatically recompute RINEX3 files from the original HCN files as needed.

RINEX3 operation will probably be the best choice for all receivers in the future. However, at this time there is no difference between RINEX3 and RINEX2 for OPUS solutions.

Added an 'Expert Mode' that allows the display of the HCN header, the RINEX header and pushing the Operator and Agency defaults to the selected observation. Expert mode also displays the Trim RINEX results if you make the window large enough.

Start and End trim values are now remembered for observations. The Start and End trims are now honored for OPUS, RTX and Export. QC runs always use the entire files. Select Expert mode and make the window wide for assistance debugging Trim options.

Exported files are matched to the selected RINEX version.

It is now possible to start the CHCData tool in RINEX3 or RINEX2 from the settings tab. If you run CHCData, DO NOT change the defaults within the CHCData program!

iGx will use either RINEX2 or RINEX3 observation files to retrieve the occupation information that it needs (Start, End, Interval.) If you change the selection (on the Settings tab) and you

submit a file to OPUS or RTX, or EXPORT then the required RINEX x raw file will be produced at the time it is really needed. This allows you to switch back and forth between RINEX3 and RINEX2 without recompiling RINEX files for every downloaded occupation in the iGx project folder (which could take several hours!)

Support for IGBE, CSRS and AusPos has been completely removed from the iGx download tool. If any system other than OPUS or RTX is needed, export a full rate file and submit it manually.

HCN files smaller than 2000 bytes are now flagged as 'probably bad' and deletion is offered.

Extended output is now ALWAYS requested if iGx is in Simple mode and the Extended checkbox is not visible. This will allow new users to utilize the iFeet/USSurveyFeet state plane coordinates listed at the bottom of the extended report.

The 2055 version of OPUS\_Upload, which has also been updated to implicitly support RINEX3 is now included.

### [B9701: 2022.6.27.9701](#)

Trimmer Help button was shown when in Simple, Normal settings.

The initialization splash screen that asks for email, operator and agency no longer requests which service to use. A new installation will always default to OPUS.

Some debugging messages have been hidden from the log.

### [B9702: 2022.7.05.9702](#)

Fixed end time of trim for RINEX2 files.

### [B9703: 2022.7.06.9703](#)

Button '5. Force (re-)deploy of CHCData' added to the Utilities pane. This button deletes both the RINEX2 and RINEX3 tools then re-deploys them.

Fixed an issue with the archive single occupation button failing.

A new iGx Download PDF User Manual has been extracted from the iG5 User Manual and is distributed in the setup. This file is the new target of the 'User Manual' button on the main program tab.

Map 'iG5' to 'iGage iG5/i73' when reading older .HCN files on receivers.

### [B9704: 2022.7.06.9704](#)

Bug: Integer overflow when computing date/time for RINEX2 trim operation.

### [B9705: 2022.8.28.9705 Release Candidate](#)

Button '3. Mark GPS Files(s) unRead' now finds every previously downloaded observation on the attached receiver, builds a sorted list and allows the user to specify a single, multiple or all files for marking as New.

Button '4. Mark all files...' has been removed. This can be accomplished with button 3.

Expert mode buttons now include a view entire RINEX option.  
Additional icons added to many buttons. Button sizes standardized.  
User Manual updated.

### **B9706: 2022.10.23.9706**

X-Pad allows 'crazy' filenames like "King 1210414..Bndry..Srv.HCN" for occupation filenames. And customers have used them. This version adds filename changing to:

convert consecutive spaces to a single underscore

convert '.' to '\_'

Filenames are still stuffed with a unique year and Julian day identifiers, in case the user decides to collect same named files in different years, but they can still generate filenames that the RINEX convertor will not be able to process because of RINEX convertor restrictions on filenames. Hopefully this rename will help reduce issues.

Added column, line number to RINEX viewer.

### **B97010: 2023.01.16.9710**

Added Use and Exclude functionality with a built in tool that sorts NGS CORS stations by distance to the selected observation file. The Use/Exclude lists are automatically entered on the NGS OPUS Submission webpage and pushed to OPUS\_Upload if the OU selection is made.

The Approximate Position from the RINEX file is now displayed in the observation grid in Advanced and Expert modes.

Some small bugs which prevented rebuilding the RINEX files from the HCN source were fixed.

Some small formatting changes were made.

### **B97011: 2023.01.17.9711**

Coordinate editing for the observation position added.

Fixed issue with unknown file locations.

Cleaned tab orders on new interfaces.

### **B97012: 2023.01.12.9712**

Fixed bad XYZ ECEF Position trap.

### **B9713: 2023.02.17.9713**

Fixed 'Use GAL' checkbox persistence.

Added load NGS Webpage, Short-Term Plot and Availability to right-click menu of station list.

### **B9714: 2023.03.10.9714**

Added load Nevada Geodetic Library link for selected station.

### B9715: 2023.08.15.9715

Updated CHCData to version 2.1.251.1327 dated 8/16/2023. Required for latest iG5 version with latest OEM engine and firmware.

### B9717: 2023.08.16.9717

Switched to CHCData version 2.1.251.1390.

Extended TEQC to BeiDou - 65 SV's: '-n\_Beidou 65' when generating RINEX2. The latest iG5's have updated UniCorecom firmware that tracks and exports C43, C44. We expect that C62 will become operational soon. BeiDou PRN's higher than 65 will need to be dealt with at a later time.

Switched to RINEX3.05. See <https://files.igs.org/pub/data/format/rinex305.pdf> for a list of changes from RINEX3.04 to RINEX3.05.

Important Note: the number of BeiDou SV's continues to rise. There is now (August 2023) a PRN C62 in-orbit, being tested. TEQC tosses a warning of 'unintended consequences' when the maximum number of BeiDou is set to 65. This version of iGx allows submission of RINEX2 files to OPUS with BeiDou SV's included, however it is STRONGLY recommended that RINEX3 be used for submitting files to OPUS. It is probably prudent to just ALWAYS use RINEX3 unless the external tool won't accept 3.05.

The QC button uses TEQC RINEX2 files and we (iGage) are very accustomed to looking at TEQC QC files. So, for the near future RINEX2 will continue to be supported.

CHCData supports writing 3.04 and other depreciated versions of RINEX3. No automatic provision is made by iGx for supporting them, however it is possible to manually change the RINEX3 convertor output to other versions.

### B9718: 2023.08.21.9718

If RINEX2.x is selected with BDS enabled, a warning is displayed offering to disable BDS.

If RINEX2.x is selected and GPS is disabled, a warning is displayed offering to enable GPS.

### B9719: 2023.09.7.9719

YY Insertion: In some rare instances, raw observation files had unexpected names which resulted in the \_YY\_ tag ending up as the first character of the downloaded file. The first character of a downloaded .HCN file can not be an underscore as that marks the file as ignored. Thus for files ending up with a \_YY\_ tag added to the beginning of the filename, they would never be converted to RINEX (2 or 3). This only occurs on receivers that are set to record by X-PAD which allows any filename.

This \_YY\_ or \_YY tag is added to all .HCN observation files to insure that files from different years, always have different filenames which allows them to coexist in folders (like the \_New project folder). Normally, this is achieved for RINEX files by encoding the YY into the file extension.

B9719 now tries to add a `_YY_` tag before the Julian day in the filename. Filenames like `'_____000A.'`, `'_____000AA.'`, `'_____000A0.'` and `'_____000AA0'` are supported. Otherwise, the year is added with a `'_YY'` tag at the end of the existing filename, before the extension.

RINEX2.11 `fn.bat.txt` An extra file is now produced when RINEX2.11 is built for submission to OPUS or export. The filename matches the RINEX filename, the extension is `.bat.txt`. This file contains the exact command that TEQC was called with to produce the observation file. (If you change the extension to `.bat` and invoke it, it will regenerate the observation file.) Both the standard and error logs are now also kept.

## [B9721: 2023.09.14.9721](#)

Files in the Project folder are no longer considered as Projects.

Second button number 5 label changed to 6: "6. Force (re-)deploy CHCData converters".

RINEX3 is now the default for new installations.

It is now possible to force-set the receiver for blocks of occupations. Set the top occupation to the desired receiver mode. Then highlight the consecutive block you want to set. Click 'Force Rcvr Model', then verify the range.

## [B9722: 2023.11.2.9722](#)

ShowMyPC download now is from secure HTTPS site.

ShowMyPC (SMPC) content delivery tag is used for the destination filename which is now required by the SMPC code signing filename enforcement.

*Force Receiver Model* button is now hidden except in Expert mode.

The QC button should work again for 'many' files.

## [2024](#)

### [B9801: 2024.1.14.9801](#)

#### [Version information is a PDF](#)

This Version Information document is now distributed as a PDF.

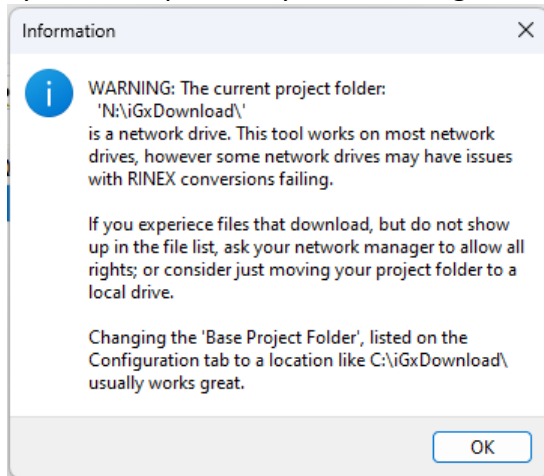
#### [Project folder on a network drive](#)

iGx and the companion tools (CHCData, OPUS\_Uploader, TEQC) work on 'most' network drives. Some network drives are configured to not allow the iGx tool and its companions to modify existing files on the network path. Or modifications are rate limited. Or virus checking is painfully slow. (Because iGx is quickly processing files, updating files, moving files, deleting files during normal processing, it can appear to be a virus.)

When this happens, iGx will download HCN files, but it won't be able to convert them to RINEX and the grid will be empty.



To warn you of this possibility, this warning message is shown when iGx starts:



The message is only shown once.

To move the Project, double-click on the project folder box (on the Configuration tab) and follow the instructions.

### Beta OPUS Static is now full GNSS

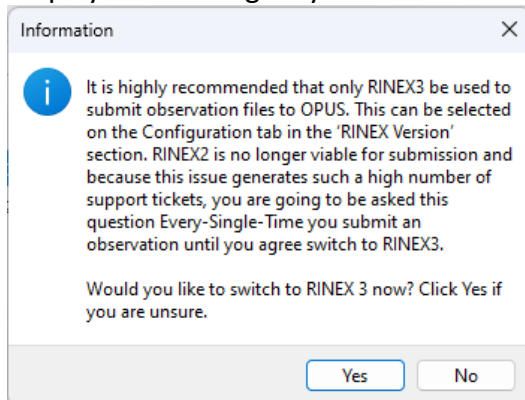
The complimentary OPUS Upload (Build 2071) tool now fully supports constellation selection as required by the new NGS OPUS Beta submission page. This tool is distributed with the iGx tool and is what is used if you check this box:

Use Direct OU Submission

Additional details are available in the *OPUS\_Upload User Manual* available from this web folder: [https://igage.com/out/OA\\_OU/OU/latest/index.htm](https://igage.com/out/OA_OU/OU/latest/index.htm).

### iGx wants you to use RINEX3, and iGx is serious about it!

It is now strongly suggested that you **always** submit RINEX3 files for all submissions. To this end, iGx will display this message if you choose to send a RINEX2 file to OPUS:

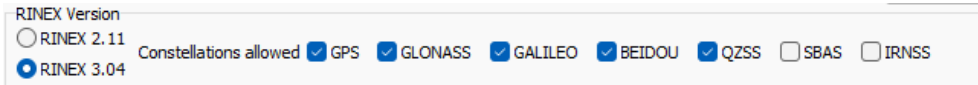


This message will not go away.

iGx is going to do everything that it can to force you to always use RINEX3 going forward. RINEX2 is still available for exported files, however you should not use it for that purpose except as a last resort.

## Constellation checkboxes mirror to OPUS submission page

The constellation selection buttons:



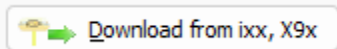
RINEX Version  
 RINEX 2.11  
 RINEX 3.04

Constellations allowed  GPS  GLONASS  GALILEO  BEIDOU  QZSS  SBAS  IRNSS

are now always available. These selections do not strip constellations from generated RINEX3, they only control the checkboxes on the Beta OPUS submission page. RINEX3 files always contain full constellation information.

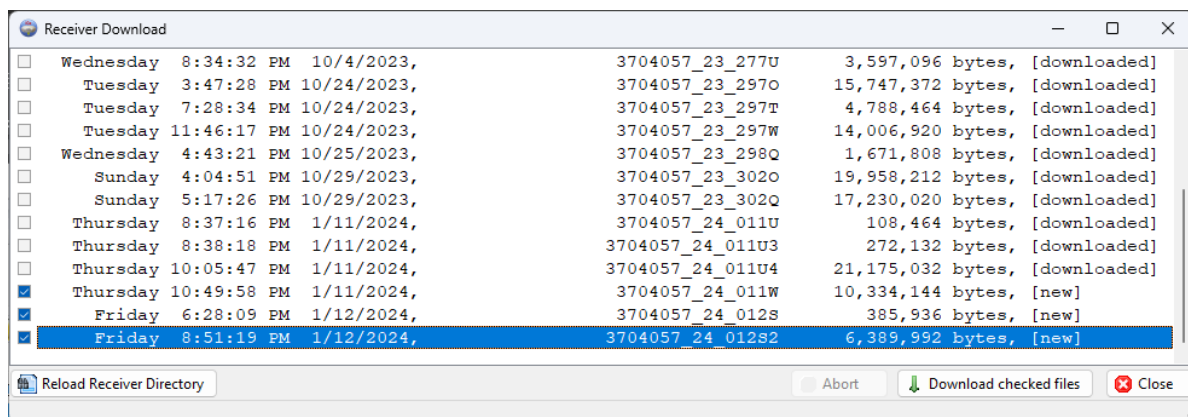
## Read-Only-Receivers

The standard download button:



now checks if the USB attached device is write protected and launches a new dialog set if the files on the receiver can't be modified. The new i89, i93 and iBASE receivers are read-only so iGx can't mark files on the receiver as 'already downloaded'. Nor can iGx help cleanup old occupations on a receiver. (Use the Clear buttons shown below in the receiver web interface.)

iGx now keeps a text file in the settings folder which lists all the files that have been previously downloaded. New files are listed in date order at the bottom of the list and automatically checked:

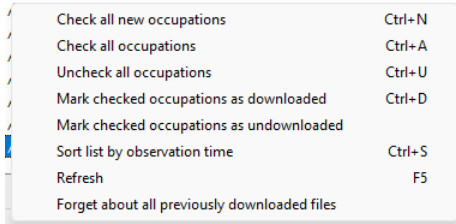


Day	Time	Date	File Name	Size	Status
<input type="checkbox"/>	Wednesday	8:34:32 PM	10/4/2023,	3704057_23_277U	3,597,096 bytes, [downloaded]
<input type="checkbox"/>	Tuesday	3:47:28 PM	10/24/2023,	3704057_23_297O	15,747,372 bytes, [downloaded]
<input type="checkbox"/>	Tuesday	7:28:34 PM	10/24/2023,	3704057_23_297T	4,788,464 bytes, [downloaded]
<input type="checkbox"/>	Tuesday	11:46:17 PM	10/24/2023,	3704057_23_297W	14,006,920 bytes, [downloaded]
<input type="checkbox"/>	Wednesday	4:43:21 PM	10/25/2023,	3704057_23_298Q	1,671,808 bytes, [downloaded]
<input type="checkbox"/>	Sunday	4:04:51 PM	10/29/2023,	3704057_23_302O	19,958,212 bytes, [downloaded]
<input type="checkbox"/>	Sunday	5:17:26 PM	10/29/2023,	3704057_23_302Q	17,230,020 bytes, [downloaded]
<input type="checkbox"/>	Thursday	8:37:16 PM	1/11/2024,	3704057_24_011U	108,464 bytes, [downloaded]
<input type="checkbox"/>	Thursday	8:38:18 PM	1/11/2024,	3704057_24_011U3	272,132 bytes, [downloaded]
<input type="checkbox"/>	Thursday	10:05:47 PM	1/11/2024,	3704057_24_011U4	21,175,032 bytes, [downloaded]
<input checked="" type="checkbox"/>	Thursday	10:49:58 PM	1/11/2024,	3704057_24_011W	10,334,144 bytes, [new]
<input checked="" type="checkbox"/>	Friday	6:28:09 PM	1/12/2024,	3704057_24_012S	385,936 bytes, [new]
<input checked="" type="checkbox"/>	Friday	8:51:19 PM	1/12/2024,	3704057_24_012S2	6,389,992 bytes, [new]

Buttons: Reload Receiver Directory, Abort, Download checked files, Close

It should be sufficient to click the **Download checked files** button and all new observations will be downloaded. However, if you have multiple machines downloading from a head, when you first plug a receiver into a new computer, every single file will appear to be unread.

You will want to right click on the file grid:



And play around with the download options.

This sequence:

Check all occupations

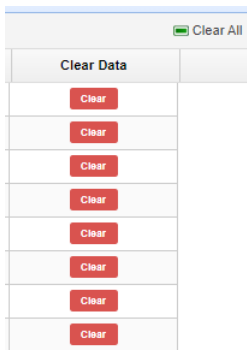
Mark checked occupations as downloaded

then checking the last few (new) files at the bottom of the list, should fix receivers so that every single file does not need to be downloaded.

Hint: To delete/cleanup these read-only receivers you log into the Web interface, click on [Log Settings](#):



Then use the [Clear](#) buttons:

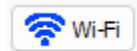


to clear the recording bins or 'Clear All' files on the receiver.

## Wi-Fi Only Connection Receivers

Some new receivers don't have USB connectors. The CHC iBASE is a good example of this new style of receiver. The only way to download files is via the Wi-Fi interface using an FTP transaction.

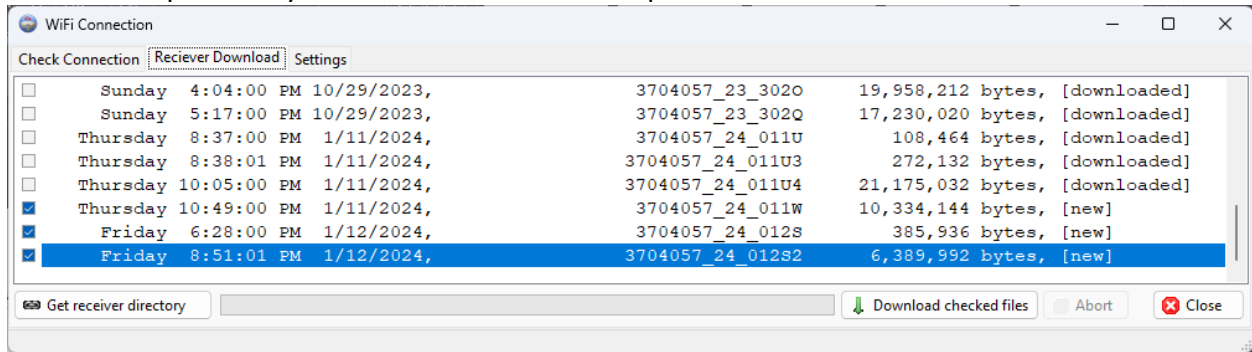
A new Wi-Fi download button:



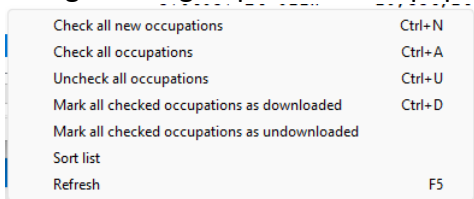
will trigger an over-the-air download.

If you connect to the receiver's Wi-Fi prior to pushing the button, iGx will automatically test the connection and immediately download all of the file information from the receiver.

The FTP connection is read-only, so files are presented in a similar list with the new files at the bottom and previously downloaded files at the top:

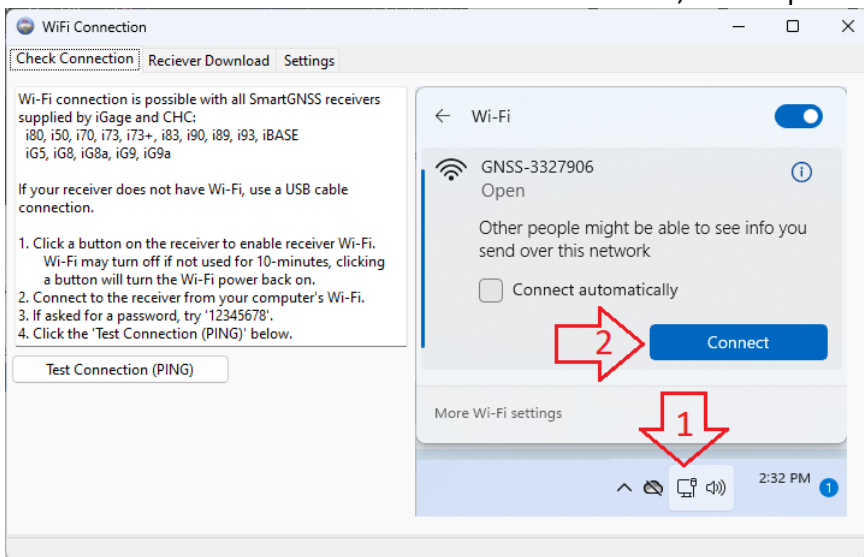


Right-clicking on the grid presents this pop-up menu:



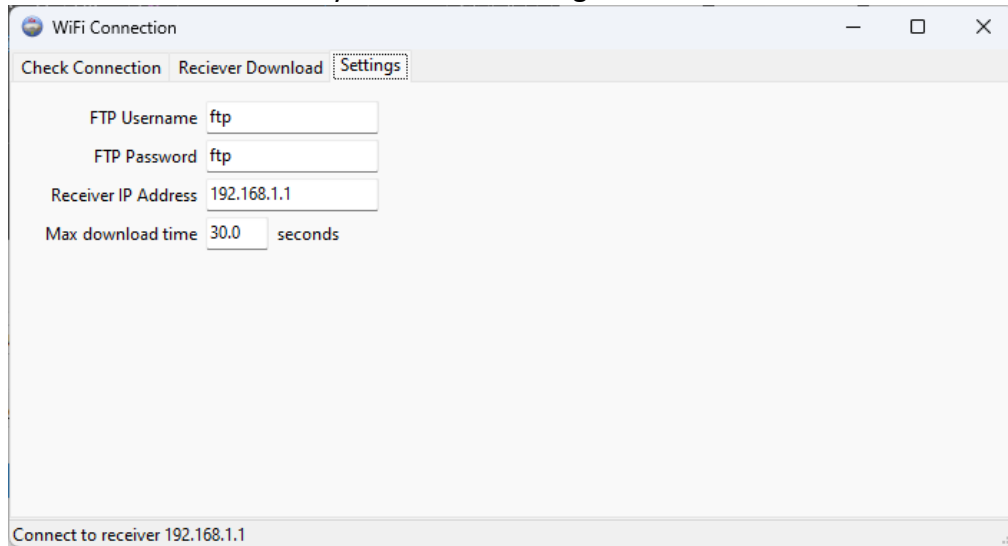
and you can use a similar strategy to the Read-Only-Receiver for controlling downloaded files on heavily used receivers. (The downloaded list is common between Read-Only-Receiver and Wi-Fi-Only-Receiver.)

If a receiver can't be found on the current Wi-Fi connection, this helper screen is shown:



All you need to do is turn your computer's Wi-Fi on, find the correct receiver which will be identified by Serial Number and **Connect**. Then click the **Test Connection (PING)** button. If the receiver is available, iGx will automatically download the file listing.

It is possible to change the IP address, the FTP username and password on a receiver. The Settings tab allows iGx to match your custom settings:



We strongly recommend that you not change receiver defaults. If you do, you will be responsible for remembering that you changed them.

### HCN Files Required

In all the new receivers that support Wi-Fi and ROR connections, you can configure them to directly build RINEX2 or RINEX3 files.

The iGx tool does not read or transfer these RINEX files. If you want to use the iGx tool, you HAVE TO ENABLE HCN file generation. It is also possible to generate compressed HCN files with the HRC extension on some receivers. HRC files are NOT supported by iGx.

Only HCN files are supported by iGx.

### Enable Log Screen

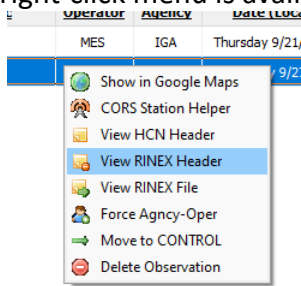
There is a new checkbox on the **Configuration** tab:

Show log for Wi-Fi and ROR

If you check this box, the logging screen will be shown behind the ROR and Wi-Fi tools while they are active. This is primarily for debugging connections. (It is complicated!) The box defaults UnChecked and most users won't want to change it.

## Occupation Grid Pop-Up Menu

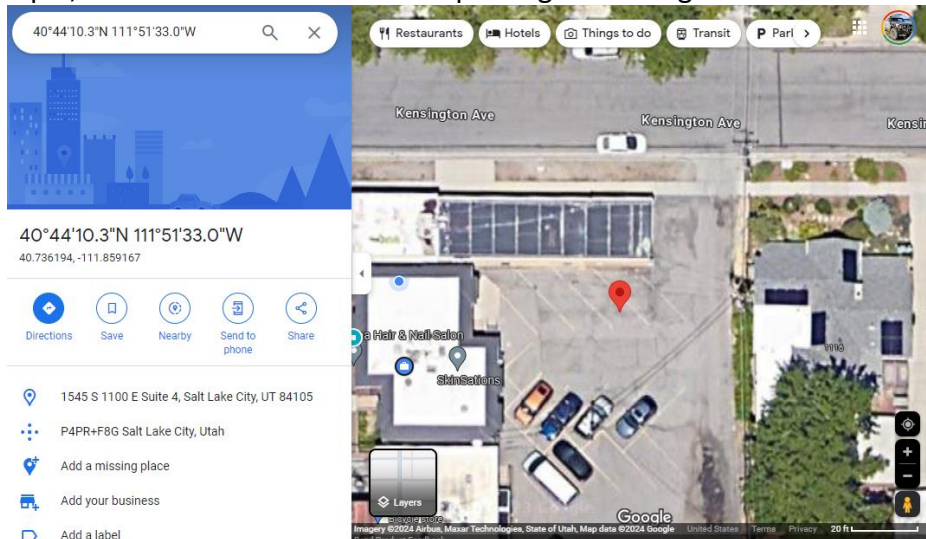
A new right-click menu is available from the main occupation list:



This menu is always available with all the debug functions, even if iGx is set to **Simple** mode.

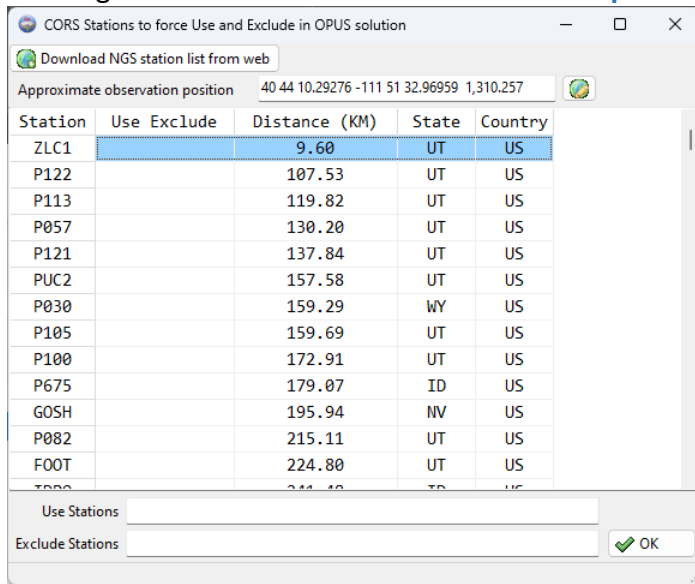
Notice that you can select an occupation and right-click to directly spawn off Google Maps with a placemark at the apriori occupation position.

For example, here is a file collected in the parking lot at iGage:

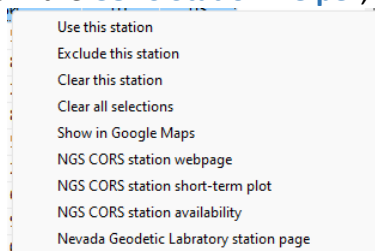


Support at iGage uses this function to see if occupations really are collected in the open.

You can also right-click to access the [CORS Station Helper](#):



And from the [CORS Station Helper](#), you can right-click:



to Include, exclude stations, show their locations in Google Maps, inspect the NGS station short-term plots, availability and directly view the Nevada Geodetic Laboratory station page for the CORS station.

If you are not a current user of the NGL:

<http://geodesy.unr.edu/index.php>

take a look around. It is the best tool available for evaluating the health and suitability of CORS stations, worldwide. It also allows you to correlate crustal motion (earthquakes) with stations.

**B9802: 2024.1.19.9802**

OPUS\_Upload updated to version that fixes OPUS-BETA issues. There are continuing issues and changes with the OPUS-BETA submission form and processing by NGS. Expect additional changes as they are addressed.