

WinFrog v3.8 New Features

We have made numerous enhancements to WinFrog for the latest release. Below is a summary of the new features, refinements, and corrections.

Vista Compatible

WinFrog v3.8 has undergone extensive testing for Windows Vista (32 bit) compatibility. As a result, some changes to the way WinFrog operates have been required.

- Initialization File
 - The initialization file is no longer winfrog_3.ini located in the Windows system folder. The initialization file is now called winfrogini.wfg. If WinFrog is operated on a Windows 2000 or Windows XP system, this file is located in C:\Documents and Settings\All Users. If WinFrog is operated on a Vista system, it is located in C:\Users\Public.
 - When launched, WinFrog v3.8 looks for the new initialization file in the respective location and if found loads it. If this file is not found, WinFrog looks for an existing winfrog_3.ini file in the systems folder and if found copies it to the new location with its new name and then loads it. If neither is found, WinFrog loads with default settings.

New Module - Multibeam Data Logging and Coverage Maps

Now that several multibeam echo sounder manufacturers have enabled their devices to perform the precise data time stamping and include this time with the data output, we are able to include certain multibeam echo sounder support in WinFrog. WinFrog now supports a UDP interface for the Reson SeaBat 7125 and 8000 series multibeam bathymetry echo sounders that are configured to include the precise data time stamp with their data output. To compliment these sounder interfaces, WinFrog has expanded its existing Applanix POS MV support by adding UDP and TCP/IP interfaces for the binary data outputs. As a result, WinFrog is now able to support the following:

- POS MV binary data input
 - Position
 - Attitude
 - Heave
- SeaBat data input (depending on the availability of data types from the respective system)
 - Bathymetry
 - Snippets
 - Sonar
- XTF data logging of the raw data for third party processing
- S7K data logging when using the SeaBat 7125
- Sounding coverage map
 - Creation and display in real time
 - Automatic saving to file
 - Multiple coverage map files can be loaded to augment the display

- Clicking with the cursor inside a map coverage area retrieves the depth to be displayed in the status bar with the position
- QA/QC window displaying the beam pattern, sounding coverage, snippet coverage and sonar coverage.

The POS MV data can, of course, also be used for standard vehicle positioning and navigation while the multibeam echo sounder nadir depth can also be used as a standard sounder depth.

NAD83 Datum Support

In the past, the NAD83 datum was considered to be essentially the same as the WGS84 datum and when NAD83 was the Working Ellipsoid in WinFrog (i.e. when SPCS 83 is selected), a datum transformation was not applied. This is no longer the case and the magnitude of the difference between the WGS84 and NAD83 coordinates for the same point can be as large as 1.5m. A 7-parameter transformation is required to transform coordinates between NAD83 and WGS84. These parameters are time dependent and therefore must be recalculated regularly. This also affects the use of NAD27 as the Working Ellipsoid if the NADCON datum shift method is selected because this shift method is dependent on the relationship between NAD27 and NAD83.

Support for the WGS84/NAD83 datum shift has been implemented in WinFrog. WinFrog calculates and maintains a current set of WGS84/NAD83 datum transformation parameters. These are used to transform coordinates between WGS84 and NAD83 as required when SPCS 83 is selected or when SPCS 27 is selected and configured for the NADCON shift method. In addition, a NAD83 ellipsoid option has been added to the Geodetic configuration options. This implementation supports the basic map projections: Lambert, Mercator, Oblique Mercator and Transverse Mercator.

The support for the NAD83/WGS84 has also been extended to the following GPS devices: NMEA GPS, NMEA GPS (Sercel), INTUICOM MASTER, NOVATEL OEMV-3, POS/MV (NMEA), POSMV (BINARY-TCP) and POSMV (BINARY-UDP). In the case of all but the NOVATEL OEMV-3 device, you can specify between WGS84 and NAD83 as the datum/ellipsoid that the position from the receiver is on. This addresses those cases where due to the corrections source (and when not configured otherwise) the receiver may automatically output on NAD83. The OEMV-3 includes the datum with the data and addresses the NAD83 to WGS84 transformation automatically as required.

It is important to note that the WGS84, ITRF00, and ITRF05 datums are very similar. A given point's coordinates in each datum will be within a few centimetres of each other, thus WinFrog does not differentiate between these datums; it considers them all the same datum which it terms WGS84.

Enhanced GPS QA/QC Monitoring

To provide a more complete GPS performance monitoring capability, WinFrog has introduced a new GPS QA/QC window to supplement the existing Calculation window options, including the LOP display. Currently only certain GPS devices process the necessary data for the display and

the GPS receiver must be configured to output this data. The new window provides the following displays:

- Graphic display of SV visibility (sky plot)
- Text display of position and error ellipse information
- Text display of SV status including azimuth, elevation, SNR, etc.
- Graphical display of reliability, including actual error ellipse, operator applied error, etc.
- Bar chart display of SV status information
- Time series display of SV status information

Other New Items

- Operator Window features
 - Graphics Window
 - ◆ Implemented a new vehicle-based centering option to enable the automatic screen redraw to place the vehicle at a specified distance from the screen edge instead of at the center. This allows the redraw of the graphics screen such that the reference vehicle can travel from one side of the screen to the other rather than just from the center to the edge before a redraw. Alternatively, this can be configured to ensure that a towed vehicle and its reference vehicle are both still displayed after an automatic redraw.
 - ◆ Implemented option to select all vehicles or a specific vehicle for which to display DAT files, manual fix (LOG) files, and manual cable event files.
 - I/O Device Window
 - ◆ The option to display the Terminal tab in the I/O Device window is now part of the I/O Device window configuration.
 - General
 - ◆ Eliminated all hardcoded use of red for display of information to enable use of a red screen cover for night-time operation.
- Devices
 - Improved data validation and monitoring for NMEA inputs, including GPS, sounder, and gyro, and the commonly used attitude devices.
 - Improved Paroscientific Digiquartz depth calculations.
- Data Logging
 - The configuration of raw data logging has been separated from the automated eventing setup.
 - Increased the size of the Manual Event comment to 255 characters.
- General
 - The Utilities are now executed from modeless dialogs. These dialogs can be left open without preventing you from performing other WinFrog tasks.
 - Inclusion of Soccer as an installation option. Soccer is a communication program that allows data on physical ports to be made available on TCP/IP sockets and vice versa. This enables the sharing of resources over a local network using COM ports or sockets or to one PC running several programs concurrently.
 - Implemented correct version identification for the WinFrog exe and DLL files that is now displayed when these files' properties are checked.

- Security
 - Updated CrypKey to v7.1, build 7108. This addresses Vista compatibility.
 - Updated DesKey to v2.01.0.2

Bug Fixes

- Operator Windows
 - Corrected Calculation window initialization to display for the correct vehicle after loading an initialization or configuration file.
 - Corrected the refresh of the Calculation window LOP display to only display currently tracked SVs.
 - Corrected saving and loading of Attitude window configuration so this window opens on loading of an initialization or configuration file.
 - Graphics window
 - ◆ Eliminated the option to select the color with which to display Manual Fixes.
 - ◆ Implemented the drawing of cable events without the need to refresh the graphics screen.
- Working Survey Lines
 - Corrected the Working Survey Line Vessel Approach Alarm to test the complete vessel shape for proximity to the lines, including curves.
 - Corrected multiple issues associated with the use of Manual Segment Selection when tracking a multi-segmented line.
 - Corrected shortening of line names when creating parallel lines or grid patterns when the distance units are non-metric.
- Graphical Route Design Tool
 - Corrected entry of Route Survey Line Name to support the correct maximum length of line name.
 - Corrected use of long line names when naming the waypoints created for the line nodes eliminating the problem of all waypoints having the same name.
- Data Logging
 - Corrected misreporting of available disk space on drives larger than 2GB when files for data logging are being opened.
 - Implemented check for existing raw data logging file when the raw data logging setting loaded from an initialization or configuration file is such that raw data logging is to start immediately (i.e. Always) and the file name is set to use the survey line name. Addresses the problem of not testing for duplicate files that resulted in the existing file being overwritten.
- Geodetics
 - Refined the monitoring of problems encountered with a datum transformation, such as a coordinate lying outside the NADCON area, resulting in the failure of the transformation and the associated operator alerts. You are now alerted with a pop-up message box only upon the first failure with the status being displayed in the respective window (e.g. if the problem is due to the transformation of a WGS position associated with the POSITION data item, the status is displayed in the Calculation window).

- Devices
 - Corrected COM port setting options to support all legal combinations of data bits, stop bits, and parity settings.
 - Simrad SDP21 WP. Corrected the problem of outputting an extra line segment to DP system.
 - Dual-port counter devices.
 - ◆ Corrected the problem of WinFrog crashing when editing the serial port parameters after the device has been added.
 - ◆ Implemented checking of selection of the same port when adding the device.
 - LBL Sonardyne PAN. Icon in I/O Device window now turns dark green if no communications have been received for five minutes when no data is expected rather than turning yellow and then red indicating a problem.
 - LBL Sonardyne FUSION. Corrected calculation of map convergence to apply to a grid heading to use FUSION coordinates and geodetic settings, not those of WinFrog.