

Release 4.33.3 (XP)/5.9.0 (Win7/XP)

Improvements

- Fixed a problem in graphic view when datum is changed.
- Construction positioning now uses full attitude information from sensors or external input for structure orientation.
- Increased maximum range to 13000 m.
- Position Box-in will now synchronize the sound profile when opening the dialog (except when data is loaded from file).
- Position fix now shows previously acquired data from position average.

Release 4.32.0 (XP)/5.8.0 (Win7/XP)

New functions

- Support for cursor measurements in graphical views of the transducer alignment.
- HiPAP can use gyro input from APOS GNSS.
- Globally fixed transponders can be used as aid for HAIN Subsea.
- The Modem now displays transmit, receive and error statistics.
- Trending of update rates.
- File logging of alarm messages.
- Individual logging of position data for SSBL and LBL positioning.
- Reading and displaying logged data as Tracks in UTM view.

Improvements

- The vessel reference point alarm position could only be entered by pressing "Use current position".
- Changing transceiver settings on a remote OS could lead to TrcInfc program restart (only applies for transceivers connected via serial line).
- Fixed a problem with tide compensation of transducer alignment.
- Improved handling of mismatch between APOS/Modem and transponder profiles.

Release 4.31.0 (XP)/5.7.0 (Win7/XP)

New functions

- Support for multiple aiding transponders in HAIN.
- Vessel reference point alarm support.
- Transponder relative positioning.
- Added support for reading TP signal/noise measurements during LBL baseline calibration (requires cNODE transponder sw v 7.08).

Improvements

- Improved structure positioning.
- Improved LBL TP positioning wizard.
- If available, GPS VTG information is used for vessel speed.
- Corrected error for lat/long view during box-in.
- Removed warning message when using emergency channel together with B28, B48, B68.

Release 4.30.0 (XP)/5.6.0 (Win7/XP)

New functions

- Added toolbar icons to start / stop the APOS survey interface program. The icons are only available when APOS is configured to start ASI.
- Added indicator that shows if a new LBL calculation is needed in the LBL baselines dialog.
- Added option to calculate LBL array in 3D as well as 2D (previously it was only 2D). 3D calculation will also influence transponder depths.
- The baseline calculation dialog now shows Unit Variance.
- The user option for automatic start of the APOS Survey Interface (ASI) is now a local setting for each OS.
- Added support for ROV NMEA message for external attitude.
- Improved timestamping for LBL measurements from cPAP.
- The option "Emergency beacon" is now always enabled in APOS.

Improvements

- Using a Gyro on the HiPAP without a roll/pitch sensor on the same input caused the Gyro value not to be plotted in the trend view.
- The windows help window could cause the program to hang if right clicking in the window and selecting properties.
- The suggested LIC channel in the LBL wizard was sometimes wrong.
- Fixed a problem with depth calculation from a combined depth/tilt sensor.
- The Hull unit control dialog now remember last hull unit position.

Release 4.29.0 (XP)/5.5.0 (Win7/XP)

New functions

- Added NMEA VER output option.
- Modem function added handling of serial line break condition.

Improvements

- Remove 60 degrees search sector limit on HiPAP 35x/10x/uPAP.
- HAIN IMU Alignment and Sensor bias update did not work properly on installations with multiple HAINs.
- The restore configuration database function failed with a message "SysBar encountered an improper argument" on Windows 7.
- The alarm system could cause an APOS crash if illegal NMEA messages were received continuously.

Release 4.28.0 (XP)/5.4.0 (Win7/XP)

New functions

- Added alarm for GGA sentence with GPS quality = 0 (invalid data).
- Added support for tide measurement and automatic tide compensation in transducer alignment and LBL positioning.
- Added saving of markers in lat/lon and reading point markers in lat/lon.

Improvements

- The Load transponders menu were not disabled on systems not in control.
- Improved handling of File-Open on systems not in control. On systems with HAIN, the File-Open on the OS in control could lead to a crash on OS'es not in control.
- Latitude sent to HAIN/GP also when aid is inactive.

- Fixed a possible crash when zooming in maximum and doing measurements in the view.

Release 4.27.1 (XP)

- Added two user defined horizontal lines to the trend view.
- The cNODE modem function now supports internal addressing for accessing sensor loggers etc.
- Heave compensation is now on by default for HiPAP mk II SW 2.x.x
- Updated modem with better handling of incoming commands in interleaved mode. Modem control is updated to version 1.4.2.
- LBL TP positioning can now use 8 array transponders in Cymbal mode.
- Added transceiver name to timeout alarms.
- Transducer alignment is expanded to log more information. Several of the NMEA sentences are updated/expanded.
- Added menu for remote support (client must be installed separately.)

Improvements

- PSIMSSR sentence had zero as sound velocity for transponders in fast track mode.
- Increased timeout on TSI sentence from IoServer to 25 seconds.
- Fixed a problem in sound velocity compensation.

Release 4.27.0 (XP)/Release 5.3.0 (Win7/XP)

New functions

- LBL baselines can now be read from file.

Improvements

- Added more information to APOS system report.
- cNODE software version is automatically read before changing between Cymbal and FSK.
- The transponder channel is now automatically displayed together with LBL location name in the graphical views.
- Decoding of external pressure sensors, sound velocity sensors and barometers are improved.
- Improved handling in APOS when retrieving HAIN data or copying APOS data.

Release 4.26.0 (XP)/Release 5.2.0 (Win7/XP)

New functions

- Support for Kongsberg Seatex MGC gyro.

- Support for position average and HAIN reference for External SSBL positioning (other acoustic system).
- Sparse LBL menu and property dialog. This simplifies setup of sparse LBL.
- Added dusk palette.

Improvements

- The ray diagram can now be drawn from 0 degrees (vertical) to 180 degrees (horizontal).
- Displaying Initial positions-Calibrated positions (difference) in LBL Locations.
- New column in LBL baselines for the difference between measured range and expected range.
- Boxin: added editable initial position, setting fixed depth, access to sound profile, and QC parameters.

Release 4.25.0

- Added a remove from Fast Track Context menu to Fast Track Properties.
- Added option for using pressure input and depth conversion for external depth and external sound velocity inputs.
- Added pop up views to monitor external depth, sound velocity and barometer input and converted data.
- Added transducer offset and sensor correction to depth sensors.
- Added offset to Gyro/Compass sensors.
- The transponder sensor logger has been updated with support for Cymbal, new sensor types and trend view.
- Added "Output to SIS" as a predefined output that can be used to selectively send position data to Kongsberg Maritime Seafloor Information System.
- Added commit command in the Utilities menu for ACU30 / TTC etc. This makes it simpler to persist data into registry.
- Transducer alignment now displays more details about the calibration result.

Improvements

- Context sensitive help did not work in the Sound Profile program.
- Error ellipsis scale were not updated in UTM view on change.
- Saving and loading data in the trend views could sometimes fail.
- The Modem control has been improved for use by Hugin.
- Retrieving COM port from HiPAP now deletes previous AvailableComPorts on every update.

Installation

- HuginContr2 is included.
- Modem is updated to release 1.4.1 with support for Hugin.

Release 4.24.1

- Added drawing of LBL Transponder positioning ranges to graphic view and to trend plots.
- Improved drawing of LBL ranges and residuals in the graphic views.
- Improved presentation of measured baselines.
- The measure function in the graphic view now displays a dotted circle in addition to dotted line.
- Added offset option for depth sensor.
- There is now a test to prevent the same LIC channel being used for LBL and fast track.
- Increased size of APOS about box to show more version info from the transceivers.
- Improved communication between modem and APOS.

Improvements

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- IoServer; The time synch indicator was not updated when receiving time synch messages from network connections.
- Fixed some problems with the simulator and multiple LBL's and/or Fast Tracks.
- Multicast for external hull unit control did not work.
- If the external hull unit control transmitted messages to APOS during start up, the hull unit control system failed to operate as expected.

Release 4.24.0/Unicode OSK 3.3.1

- Multi LBL included.
- Added use of Attitude/compass sensor for construction positioning as heading.
- Added support for more than one fast track/LBL item.
- Changed drawing of LBL measurements to show arc intersections.
- The attitude dialogue is updated. See online help for more information.

Improvements

- Improved power save handling.
- Fixed attitude status indicators when using HiPAP release 1.x.x.

- The structure positioning will now always transmit calculated heading as sensor data.
- Added verification of correct Selected Antenna for GPS.
- Fixed a bug in reading large sound profiles from previous versions.
- Fixed a problem with auto select of GPS.

Release 4.23.1

- Advanced boxin settings.
- Support for Goliat updated.

Improvements

- The UTM presentation and the Lat/Lon presentation were incorrect in the system report.
- Attitude inputs were listed as serial even if they were connected by Ethernet.
- The Fixed manual depth did not work on SSBL positioning.
- Loading a new sound profile did not update the actual sound profile in use until APOS was restarted. The error was introduced in 4.23.0.

Release 4.23.0

- New HAIN aid selection dialog is displayed when deactivating the currently active aiding transponder.
- Added support for switching between controls in full screen mode. (For ACU 30)
- Added support for NMEA output data in Lat/Lon degrees.
- APOS now supports sensor data in beacon mode for all sensors. Requires cNODE transponder in Cymbal mode.
- Added support for Lithium Ex battery.
- The system Backup / Restore now has support for use named backups.
- Speed alarm for extended hull unit now has hysteresis both in time (10 min) and value (10 %).
- Configuring Seapath attitude will now automatically apply the same settings for heading on the same input port.
- Better user feedback when the transponder battery change button is pressed.
- Added channel mapping for L channels and M channels from M101 and upwards.
- Added offset option to depth sensor for LBL Tp positioning.
- Added Gyro/VRU status indicators in the transceiver attitude dialogue.

Improvements

- OS not in control displayed system report generation from transceiver.
- Messages in event view from HiPAP transceiver on a different computer could some time have wrong timestamps.
- Adding active transponders or average positions in LBL view always displayed local positions even if the view was set to global.
- The PSIMHST NMEA sentence had double \$ as start character.
- APOS failed to transfer large sound velocity profiles to other OS'es.
- The LBL Tp positioning wizard could cause a program crash. Fixed
- Box-in: when reading saved data files, the GPS-antenna position was incorrect. Fixed
- The box-in standard deviations presented were too large. Fixed
- Box-in: initial guesstimate for transponder position sometimes caused "No Convergence" status. Fixed

ACS 400

- Updated to release 2.6.0.
- Added support for ACU.
- Improved Auto Shutdown interface.
- Increased timeouts.
- Added auto load of XML config file if reading from the sysconf database fails.
- Updated online help.

Release 4.22.4

- Added NMEA PSIMTSL sentence for LBL transponder positioning with sensors for Cymbal.
- Added NMEA PSONALL sentence for LBL positioning.
- Position box-in: GPS and TD offsets saved together with logged data. This enables boxin-calculations on a different APOS than where the data was recorded.
- Position box-in is faster in calculations and has better progress feedback.
- Changed time synch scheme for HiPAP mk II transceivers so that time synchronization of transceivers are not required.
- One can now enter cNODE transponders dual mode with FSK as initial selection.
- Added TSS3 as attitude input format for HiPAP mk II.
- Structure positioning improvements.

Improvements

- Tracking indicator was missing on Vessel LBL 2. Fixed.
- Fixed a time out issue for very long Cymbal telemetry messages.
- The sound velocity program did not skip redundant samples on reading from ASCII file. This is fixed.
- Hull unit speed alarm dialogue is now always topmost window.

Release 4.22.3

- Improvements for modem communication.
- cPAP can now be configured to be used as Vessel reference for Gyro/VRU.
- Added manual entry of base lines.
- Added "Figure of eight" marker.
- Offset added for attitude sensor.
- LBL transponder positioning may now be used as HAIN reference.
- Added sound alarms for vessel speed alarm.

Improvements

- Profile changes now use robust mode for all communication.
- Added more digits to scale numbers in Lat/Lon view.
- Markers were sometimes not displayed at startup.
- A transponder with a sound velocity sensor will now prefer its own sensor for base line measurements if selected (depth is ignored).
- Fixed an error in dual HiPAP responder positioning.
- Fixed an error in displaying Lat/Lon data in LBL geographic position setup.

Installation

- Transponder Tester Control updated.
- ACS 500 updated.

Release 4.22.1

Improvements

- Added better handling of profile setting in modem control.
- Improved handling of active LBL positioning on startup of OS.
- Improved handling of sensor from LBL Tp positioning.
- Fixed a timing error related to transfer of LBL location to remote OS.

Release 4.22.0

- Added support for sound velocity input from transponder sensors and from serial line.
- Added support for barometer input from serial line.
- Added support for transducer alignment with Remus/Benthos transponders.
- Added storing and retrieving LBL location data in Cymbal transponders. Requires transponder SW 5.01 or newer.
- The Sound Velocity program will now read and display downcast and upcast from a SVP along with a smoothed set of both. One can choose which one of the three to use as the active profile in APOS.
- StackAngle view has been updated to support Cymbal channels.
- Position box in based on ranges only. The old function named Box-in is renamed to Position Average.
- Added a function to automatically stop transponder positioning on transponders that is active on the transceiver, but not in APOS.

Improvements

- LBL Tp positioning Sequence mode had wrong timeout.
- Clock synchronization of transceiver sometimes failed. This is only important on retrofit HiPAP XX1 systems.
- Fixed an error in the sound velocity estimate using UNESCO calculations in transponder configure for depth sensors.
- Barometer compensation for depth calculation was incorrect.
- It was impossible to switch to transponder FSK mode if the initial FSK channel were not set.
- The spectrum analyse dialogue had an error in parameter validation.
- The hull unit laser depth interface did not work on HiPAP XX1 release 2.x.x.

Release 4.21.2

- Added trend view for temperature from transponder with depth and temperature sensor.
- The transponder channel is now visible in the LBL turn around setup page.
- Increased resolution of travel time in PSIMLBR sentence.

Improvements

- The transducer alignment properties dialogue would "hang" the system if invalid no of data sets were entered in Termination criteria.

- The context menu for LBL Tp positioning for Cymbal array now works as expected.
- APOS 4.21.1 introduced a bug in the configuration of HAIN versions 3.3 and 3.4. This is now fixed.
- The presentation of delta scale geodesic parameters were wrong. This has been changed to ppm (calculation values were correct).
- cPAP attitude values will not update vessel attitude.

Release 4.21.1

- The HAIN LBL QA setting "Maximum missing measurements" is changed to "Maximum missing locations".

Improvements

- It was impossible to remove the K-Chief hull unit interface.
- When creating a new HAIN position object, only the default Rx and Tx port values (47777 and 47778) were propagated to HAIN ini files. This was introduced in APOS 4.21.0.
- HAIN Properties Help did not work for HAIN versions older than 3.3.0.
- In some cases, transponder locations read from a file were not sent to remote OS'es.
- Responder activation was not working.
- Calculated sound velocity was not updated when opening the Cymbal depth sensor transponder functions tab.

Release 4.21.0

- An error message was displayed when adding emergency channels on HiPAP XX1 transceivers.
- Diff inclination transponders using offsets showed unstable inclination values. Fixed.

Release 4.20.2

- Transducer depth offsets are now allowed to have negative values.
- Added support for new Cymbal channels.
- Added External Vessel positioning.
- Added option for defining circular vessel symbol.
- The minimum value for error ellipse is now set to 0.1 for BCD output.
- Added support for MSM (multi-sensor module) on cNode transponder in Cymbal mode.
- Added bargraph display for LBL baseline measurements.
- Added trend plot for LBL range measurements.
- Added function to measure distance between any two cNode Cymbal transponders.

- Drawing of baselines in the graphic view shows now only baselines for the selected array.
- Added a LBL wildpoint range filter.
- Added support for sound velocity sensor.
- The Sound velocity profile can now be updated automatically from transponders with a Sound velocity sensor.
- Added depth sensor 1 sigma parameter for LBL.
- Increased position resolution in NMEA sentences.

Improvements

- Fixed a bug in numbering of external NMEA inputs.
- It was possible to delete a user defined datum that was selected as input or presentation datum. This is now prohibited.
- Inserting active transponders into an LBL array with no geographic origin caused wrong initial positions to be used.
- LBL positioning did not work on transducer 2 on cPAP.
- On-Screen Keyboard is now reactivated if already running when pressing the On Screen keyboard menu.
- Utility -> Copy logged data, failed when the vessel was configured as reference for HAIN.
- The Td_id field in the NMEA LBM sentence was incorrect for LBL transponder positioning.
- Transducer selection were not available for Remus channels.
- Fixed a bug with negative values for transducer offset on cPAP.
- Scan for channel on HiPAP XX1 Release 2.x.x executed too slow.

ACS 400 control

- Progress bars were not visible using night palette. Updated to version 2.4.8.30

Sensor Logger control

- Added support to run on multiple computers.
- Added support for Yme (Serial output). Updated to release 1.1.0.

cPAP portable

- Added support for switching between APOS and Transponder tester.

Release 4.20.0

- Added support for sensor data in LBL positioning and FastTrack. NOTE! This requires HiPAP 2.5.0 or newer.

- LBL ranges drawn in the graphic views are now marked with location names.
- Extended LBL ROV positioning to 8 items.
- Added Cymbal multiuser support. NOTE! This requires HiPAP 2.5.0 or newer.
- Increased maximum zoom by a factor of 10.
- EM3000 attitude data can now be used by the cPAP transceiver.
- Obtain HAIN log files from APOS computer.

Improvements

- The interrogation rate was not set as selected in the SSBL wizard.
- FSK diff inclo range was not set correct.
- Responder drive no in the system report were reported with a number one too high.
- cPAP SSBL and LBL range measurements were incorrect due to wrong sound velocity.
- LBL TP positioning Manual depth did not work.
- LBL insert active transponders moved the array origin even if the user replied no to the question about using current position as origin.
- The LBL move origin to current position moves the origin only.
- Fixed Add transponder to array so that the correct position is inserted as location.
- IoServer skips sending PSIMTSI to APOS when running in depth sensor mode.
- LBL range drawing missed one range when using ranges only and free calculated depth.
- Fixed missing IMUs when using APOS with HAIN versions older than 3.2.0.

Sensor Logger control

- Added Version information display button.
- Added Exit button in full screen mode.
- Several fixes for subsea logging.
- Added Clear Memory button.

OSK

- Fixed missing error reporting when Net A or B is lost.
- Included some improvements / security fixes.

Installation

- The Dnet2 installation question is suppressed if Dnet is already installed and for upgrade.
- The default installation now has two HiPAP transceivers.

Release 4.19.1

Improvements

- The LBL wizard suggested A channels for when B channels should have been selected.

Release 4.19.0

- Added a test for presence of calibrated positions on LBL activation.
- Added an error message if MuLBL select master fails.
- Added trend view support for LBL major / minor /direction of error ellipsis and normalized RMS residuals.
- Added open PDF in the Help menu.
- Added save/load transponders to/from XML file.
- Updated ERA properties to have view selection for inclination view.
- Added 115200 as an option for baud rate selection for Gyro/VRU, HiPAP mk II. (Requires HiPAP release 2.4.5 or higher.)
- Added support for retrieving HAIN options from the HAIN computer.
- Added support for Benthos LF transponders (must be enabled as an option).

Improvements

- Adding Cymbal transponders could cause a warning message about ACS interference if ACS were installed on the system. The message is incorrect and has been removed.
- Improved drawing of Lat/Lon grid.
- Fixed an error in text string for MuLBL backup master.
- Creating a dual SSBL transponder on the controlling OS did not transfer all parameters to the uncontrolled OS'es.
- The LBL wizard suggested B channels as LIC for LBL array.
- Reading data for LBL2 could sometimes fail when starting APOS or reading from a file.
- Setting a Cymbal transponder to SSBL mode in the LBL Array -> Position Setup failed to update the status in APOS to SSBL only. (The actual telemetry to the transponder were correct.)
- Using a gyro no different from attitude no caused wrong position in LBL positioning.

Installation

- Added Modem.
- Added sensor logger

- Added APOS/HiPAP/Transponder documentation as PDF files.

Release 4.18.2

Improvements

- A change introduced in APOS 4.17.0 prevents FSK LBL positioning to enter tracking mode. This only happens with HPR400 / HiPAP XX0 and HiPAP XX1 running HiPAP 1.x.x software. HiPAP 2.x.x software is not affected.
- Improved handling of transponder channels in SSBL wizard.

Release 4.18.1

- Added online help for Cymbal telemetry transducer.
- Improved handling of sensor values from inclo and diff inclo sensor from Cymbal transponders.
- Added option to force a transponder to use external depth sensor regardless of vertical angle.

Improvements

- Loading CAD files caused "Evaluation version" displayed on the CAD image.

Installation

- ACS500 included is release 1.5.2.0

Release 4.18.0

- Changed Depth sensor name to Depth/Temperature.
- Added more realistic timing for Wakeup in simulator.
- LBL initial to calibrated and calibrated to initial is now limited to the selected array.
- Added check for preventing the same LIC channel in two arrays.

Improvements

- The simulator should now work with LBL array 2.
- Fixed an error that could cause a GP connection to be created on a slave system in HAIN mode (this triggered a dialogue asking for Latitude at regular intervals).
- The LBL dialogue required that Array 1 were present and configure in order to display transducers.
- Fixed a crash error when deleting an LBL array or deleting all locations.
- Fixed symbol change on slave system when LBL is removed on master.
- Fixed an error in transferring changes in external interfaces to OS's not in control.

- The LBL measurements were not shown if depth calculation were different from "Free".
- The LBL measurements were not shown for LBL2.
- The Riser monitoring position was not displayed correctly in the graphical views.
- The mouse position in the status bar were incorrect if Lat/long were configured the a datum different from WGS84.
- Options were missing in the system report.

Installation

- Includes TpRadiusMon

Release 4.17.2

- Added support for EM3000 format as input for external ROV heading.
- Added scan for channel for Cymbal transponders.

Improvements

- Manual depth input did not work for LBL.
- The default depth calculation parameters were not used in calculations when changed.
- The MST transponder were missing the responder option.
- Fixed a bug in displaying Antenna offsets in Global Position dialog.
- External trig now disables the interrogation interval field (the interval is determined by the external system).

Installation

- ACS500 included is release 1.5.0.7

Release 4.17.1

- Changed automatic attitude change to an alarm.
- Changed automatic GPS change to an alarm and added info about which units are involved.

Improvements

- Calibration of the cNode Tilt sensor did not work. Fixed.
- Allowed any transponder without a fixed geographic position to be used as ref for HAIN Subsea. (APOS 4.17.0 excluded mobile transponders.)
- Fixed calculation of FastTrack transponder position.
- The system will now give an error message if one tries to switch a transponder to a channel already in use.
- Added channel mapping for HAIN and Dual positioning.

- The LBL properties dialog did not show selected ranges and angles if not "Use all" were selected.
- Made transponder properties resizable. The dialog also preserves position and limits maximum height to screen size.
- Changing default telemetry power changed the transponder transmit power instead of the transducer power.

Release 4.17.0

- cPAP now supports Responder / Transponder simulation.
- Added a menu for zipping and copying logging files.
- The extended NMEA sentences (SSB and GPS) introduced in 4.16.0 must now be enabled by an option (ExtendedNMEA). Can be switched on/off in the Configure -> User Options dialog.
- Added support for Alternate transducer reply from Cymbal DUB transponders.
- Added Remus LF channels.

Improvements

- Fixed the behaviour of the Cancel button in the LBL measure baseline dialog for Cymbal.
- Showing Tp channel for identification in Battery Life Time dialog.
- Sending a sound profile to APOS (SVT NMEA message) with decreasing depth values caused the sound profile to contain 0 values. This again lead to non-functional positioning. Decreasing depth values are now ignored, but the rest of the profile is accepted.
- Adding transponders to arrays did not check for Cymbal or FSK. Add location now, let the user choose which array to add.
- Using external depth could fail if several inputs were defined.
- Fixed transducer selection so that only allowed transducers are shown for SSBL and LBL etc.
- Displaying error message when failing to load CAD file.
- Transceiver/transducer selection could fail when switching to the default transceiver/transducer.
- Mobile transponders will now be excluded as source for HAIN.
- Changes of Transceiver/Transducer settings were not propagated to OS'es not in control. Changes required a restart (this bug was introduced in 4.16.0)
- Turret positioning failed to start. Fixed.

Installation

- ACS500 included is release 1.5.0.5

Release 4.16.0

- The HiPAP signal strength in the HAIN status view is now displayed normalized to the median value. The possibility to test on absolute signal strength is removed. Use the median test instead.
- The depth aid to HAIN Reference now takes into account also the depth of the vessel reference point.
- Added support for alarm when hull unit is extended and vessel speed exceeds a limit.
- Added support for drawing LBL ranges in the graphic views.
- Added support for LBL Tp positioning for HiPAP 2.x.x. and Cymbal
- Audit Logging of user changes are now supported.
- Changed LBL multiuser default to be 4 sec PRF and 16 LIC interval.
- Added indicator for transponder sensor enabled/disabled.
- Changing sensor type in position properties will now display a warning message and optionally activate/deactivate the sensor.
- Added support for cNode built in tilt sensor.
- Added support LBL runtime calibration on LBL2.
- Added support for UNESCO standard depth computation, added default depth calculation parameters and restructured depth calculations in transponder configure.
- Added functionality fo switching between Cymbal and FSK mode. NOTE! This requires cNode transponders with SW 3.10 or higher.
- Improved functionality for remote Hull Unit and Gate Valve control. (Requires HiPAP 2.3.4 / HiPAP 1.5.15)
- Added K-Chief interface for status and control of HiPAP hull unit and Gate valve.
- Added tagging of GPS and SSB NMEA sentences.
- Added some additional fields to the GPS NMEA sentence from the incoming GGA sentence.
- Added a context menu in LBL Array Locations to move LBL origin to the current position.
- Positioning on transponders will now be deactivated if the channel is changed or a reset message is sent.

Improvements

- Fixed the context sensitive help for HiPAP mk. II DRP dialog.
- Disabling the possibility to change GPS selection when TD alignment is active. Also, starting TD alignment when GPS selection is set to Auto has been disabled.
- Showing correct sensor type in battery lifetime dialog.

- The APOS file logger did not delete the contents of an old file of the same data upon startup of APOS. This could cause that log files contained logging from a previous data before logging from current date.
- The Transponder configure dialogue "Change function" dialogue did show or accept changes in depth or inclinometer ranges.
- Possible to enter fraction of CAD-unit when positioning a marker file.
- APOS crashed if the help button on transponder configure Tx Rx test page were pressed.
- The Transducer Alignment dialogue did not show correct channels in some cases. The selected transponder changed if the transducer were changed.
- Fixed a bug in GPS logging. All GPS's were corrected with the antenna offset from the selected GPS.
- Fixed a bug in setting LIC channel for cNode FSK only.
- Reading battery status runtime from MPT/SPT transponders could fail if the transponder was not active in SSBL mode.
- Fixed errors in the LBL configuration for Cymbal.

Installation

- Added 331070ad_HiPAP_commissioning_check_and_verification to \APOS\Documents.

Release 4.15.5

- Added selection for transducer 2 for cPAP 34 (subsea transceiver).
- Added support for ERA calibration.
- Added support for Cymbal Depth / Temperature sensor.
- Added temperature (Cymbal only) and pressure (Pascal) as PSIMSSB sensor data. Corrected velocity from current sensor to be m/s.
- Added SIRGAS2000 datum (Geodesic.dll updated to release 1.0.2.3).

Improvements

- The telemetry timeout were too short for cNode transponders in FSK mode when retrieving battery status.
- The transponder channel were not restored to original on the position icon after a transponder reset command.
- Fixed a problem with transceiver/transducer selection for cNode Cymbal transponders.
- Added protection against having more the one SSBL position active on the same channel.

AMS control

- Added support for saving all measurements in the measurement page to a disk file. Updated to release 1.6.3.

Release 4.15.4

- Adds an addition to the accelerometer bias, and uses the sum as the QA spec for GP. This is done to make GP more robust.

Improvements

- Fixed some problems related to Cymbal and diff. inclo transponders.

Installation

- The keyboard driver for PS/2 keyboards with backlight dimmer control has been removed.

Release 4.15.3

- Responder trig latency can now be set to negative values. (maximum is -5 ms.) The values are now included in the system report.
- Removed PSIMHRP sentences for un-configured attitude inputs.
- Support for gyro compassing with IMU is added. Enable this by turning on the GyroCompassing option and turn off the HAIN option. In addition the gyrocompassing application must be installed.
- Improved computation of battery depletion trend.
- The update of compensation values from the HAIN Sensor biases... dialog in APOS is improved. It now also updates the ini files in the HAIN computer and restarts the HAIN programs to use the new values.

Sound

- The Set Active profile icon failed. This is fixed.

AMS control

- Added configuration option for show/hide subsea logging. Some configuration options are now only available in service mode. Updated to release 1.6.2.

Installation

- Support for installing as a transponder tester is included.
- The Current-meter View files are now included.

Release 4.15.2

- It is now possible to change turn around delay on one LBL array while another LBL array is active.
- Added compensation for responder latency.

Improvements

- For inclo and diff inclo transponders in HPR400, the sensor values were always 0.
- If the TpBoxin dialog was closed before the plot window, APOS crashed.
- It was not possible to configure a transponder without a serial no as responder.
- Input of latitude/longitude skipped seconds in geographic mode dd mm ss.ss.
- Tracking info symbol were displayed for LBL transceivers without this information:
- Fixed an error in channel assignments for the LBL wizard.
- "General error" messages flooded the event view when the transceiver were in power down mode.
- A customer reported that loading a HPR file on the controlling OS with two LBL arrays, resulted in only one array on the remote OS'es. This is fixed.

AMS control

- Some telemetry functions did not use the max range setting and the timeout could be too short. Updated to release 1.6.1.14.

Release 4.15.1

- Added support for Current Velocity sensor on transponder.
- Changed addition of external interfaces to distinguish between GPS and NMEA.
- Reading transponder power setting was missing in the transponder status message.

Improvements

- Positioning properties could not be changed if originally created without a transponder.
- The transceiver status field displayed "Battery Lifetime" when the transceiver is in Power down mode. Corrected to "Power Down".
- Fixed a crash in updates of global position setup on slave OS'es.

Release 4.15.0

- Added support for up to 3 concurrent VRU/Gyros. This requires HiPAP release 2.1.0 or newer.
- Added trend view support for concurrent GPS/Gyro/VRU's.
- Auto select UTM zone is now default on new installations.
- Added support for Remus transponders.
- Changed default even LBL LIC channel for even arrays to B24.

- Warning dialog text for ACS channel frequency collisions changed.
- Added more details and Timesynch data to system report.
- Automatic GPS selection: Using the HDOP parameter in the GGA NMEA sentence as selection criteria.
- Adding support for Hydril ERA.
- Added drawing of dual positioning in UTM view.
- Added BoxIn for dual positioning.
- Added option of fixed global position to dual position.
- Added "Max rms of residuals" as a new HAIN Position QA parameter.
- Changed the HAIN Position QA parameter telling the required number of LBL measurements to "Max # of missing LBL measurements".
- Added SPT319/E, SPT319SIE, and SPT319SiHE transponder types in Transponder Battery dialog.
- HiPAP mk. II transceiver status is now shown as power down in green colour.
- Added the NMEA sentence PSIMLBA. It is written to the file logger.
- Added transponder battery life time dialog for MPT and SPT transponders. In order to facilitate this, battery specification has been added tot the New transponder dialog.
- Added support for Lat/Long coordinates to Markers.
- APOS can now be configured to use either NTP (by setting the NTP option) or OSKTimesynch (by setting the OskTimeSynch option) or an external program for time synchronisation by seting both options to false.
- The LBL quality parameters are modified. The lower limits of the acoustic white noise is changed to be more realistic, especially when in Cymbal mode
- A LBL quality factor for the measurements is added as a filtered value. It is used to reduce the weight of the measurements when they in average are less accurate than expected.
- The HAIN default time constant for the HG9900 accelerometer is reduced to 600s.
- The HAIN Properties dialog is extended to handle setup of the UDP parameters for the EM3000 output on network.

Improvements

- Markers were not drawn in UTM view if Lat/Long presentation were selected.
- The online help index was missing.
- Improved error status of attitude in numeric view.
- Fixed a bug in GPS position filter.
- Fixed bug in CAD open/preview Local North/East resolution.

- Removed HiPAP mk. II dual positioning warning messages in event view.
- The timeout for retrieving data from an Octans sensor were too short.
- GPS position was time stamped with wrong date in the time interval of the time zone bias.
- The HAIN GP orientation was not compensated for IMU alignment before it was displayed in the APOS trend view. Now it is.
- The LBL error ellipsis in the geographical view was not displayed with correct size. Now it is.

ACS 400 control

- Fixed an error in the More status dialogue. Some analogue status fields were not displayed when sequences were defined. Updated to release 2.4.6.

Installation

- OsPrep is now included.

Release 4.14.2

Improvements

- The Geographic Position Setup dialog disabled the antenna offsets when only one GPS was defined.
- APOSFL: Moved logging file name from caption to dialog. (Otherwise APOS started several instances.)
- Geographic positions were sometimes not displayed for the vessel. (This problem was introduced in 4.14.0 with multi GPS input.)
- Cymbal transponder mapping were missing in the BCD sequence telegram.

Release 4.14.1

- Added support for external gyro input for new subsea transceiver.
- The file logger now displays current file name in the caption.
- GPS selection is now located in the System->Geographic Position setup menu.
- The system report now contains antenna offsets for all configured GPS'es.

Improvements

- Fixed a layout bug in numeric view when switching from geographic to local position.
- The selection of default GPS could sometime fail. (Introduced in 4.14.0)
- Selection of default GPS were not transferred to remote OS'es. (Introduced in 4.14.0)
- Fixed a possible crash when changing pens in the custom symbol dialogue.

ACS 400 control

- Copying log files to selected old log files. Updated to release 2.4.5

Release 4.14.0

- Added "Structure positioning". Several transponder positions may be combined to position a structure. Heading is calculated.
- Added Cymbal transponder mapping in for NMEA, BCD and HPR400 binary output.
- Matrix Transponders/Cymbal channels supported.
- APOS now supports more than one GPS input.

Release 4.13.0

- Drawing of Error ellipsis scale if error ellipsis is turned on in UTM view.
- The "Slave" send to DP checkbox in the configuration dialog for NMEA and BCD output is renamed to Remote Control send. The functionality is changed so that it now controls the output regardless of its destination.
- The transfer of HAIN activation and mission folder after HAIN restart is made more robust. The change was necessary due to long delay in the startup of the Dnet2 interface.

Improvements

- APOS 4.12.0 had a bug when defining new HAIN objects. This is fixed.
- APOS 4.11.0 to 4.12.0 had a bug when creating a new HAIN object. The error was triggered only if the operator stayed more than a minute in the network configuration dialog. This is fixed.
- APOS OS'es not in control crashed when activating a transponder if the transducer depth was set to 0 and a sound profile was used.
- Tranponder BoxIn dialog now shows time in UTC. This is consistent with the file name and file data which are all UTC.
- It was allowed to change turn around delay while LBL positioning was active. This is now blocked.
- APOS crashes when deleting certain transponders from transponder configure.
- HAIN network configuration was not transferred from master to slave.

AMS control

- Added support for analogue output via ADAM-6024.
- Added support for data and settings synchronization.
- Updated to version 1.6.0.13.

ACS 400 control

- Incontrol was dependent upon serial control when not defined as surface BOP. Updated to 2.4.4.27.

ACS500 control

- Updated to release 1.4.0.4.

Hugin control

- Online help added

Seaclam control

- Updated to release 1.0.1 (recompiled to use Wincom2).

Installation

- Dnet2 is now included in the installation. NOTE! Only for Windows 2000 or Windows XP.
- Added support for ACU installation.

Release 4.12.0

- The HAIN post-processed depth is now displayed in the trend view when so is requested.
- Added graphic visualization of measured baselines.
- One can now transfer Boxed In positions to LBL array initial position. This can either be done from the BoxIn dialog or from the LBL array properties.
- The status bar colours for transceiver status, now reflects the status of the physical transceiver for HiPAP mk II. I.e. red colour means that there are now contact with the transceiver boards (requires HiPAP 1.5.1 or newer).
- Added support for MRU (EM3000 format) data as upper riser inclination (URI).
- Added second inclination sensor to inclination view.

Improvements

- The SSBL deskew parameter "Vessel move" shall be ignored when the transponder is in the beacon mode. Earlier the range was modified, but this is now corrected.
- The HAIN local Fwd and Stb co-ordinates in the trend view were not correct. This is now fixed.
- The HAIN depth aid "From APOS" was the depth from the vessel reference point. This is now corrected to be the depth from the sea surface.
- The transceiver Online/Offline status now reflects the status of the physical transceiver. (Requires HiPAP 1.5.1 or newer)
- Is was possible to change the active sound profile on an OS not in control. This is fixed.

- APOS 4.11.0 did not allow change of HAIN mission on the fly when the user was logged in as Operator. This is fixed
- The APOS database was not updated when a HAIN Transponder lever arm not in use was changed. This is fixed.
- The lever arms in arms.ini and preproc.ini for HAIN GPS shall be zero because APOS does the lever arm compensation. They were not, and this is now fixed.
- NMEA SSBL status for filtered data now reflects the status of positioning. Goes to invalid data after 5 minutes without input data.
- LBL error ellipsis were incorrectly drawn in unfiltered display mode.

ACS control

- Updated to release 2.4.3.23. Displays a warning when activating a sequence command and the system is not armed.

Installation

- The HiPAP system check and verification procedure is now included in the installation. Installed in the \APOS\Documents folder.

Release 4.11.0

APOS 4.11.0 requires HAIN 3.00 or newer version.

- The system report now includes system reports from all HiPAP mk. II transceivers.
- The transducer dialog now has a field for last change data/time and a comment field.
- HAIN 3.00 and newer versions has implemented the Gyrocompassing function. The function is activated when the APOS gyrocompassing option is set.
- The HAIN Properties dialogue is extended with the following features-
 - IMU type : Simulator; The HAIN ImuRec program is requested to simulate IMU measurements
 - Depth type: From APOS; The measured acoustic depth is used as Depth aid for HAIN Subsea
 - Heading type: Gyrocompassing; The heading calculated by the HAIN gyrocompassing program is used as heading aid.
 - The Change mission name button in the Output page is replaced with a similar functionality in the OK button. (HAIN 3.00 deletes the files in the unnamed folder after one week.)
- The HAIN Gyrocompassing attitude and heading are added as possible sources in the trend view.

- The HAIN semi-realtime smoother attitude and heading are added as possible sources in the trend view.
- Checks are added in the transponder box-in function to make it safer for use as position aid to HAIN. This includes an alarm if the transponder seems to be moving.
- WinHPR is now starting OSKTimesynch. Either OSKTimesynch or ntp is started, depending upon the options settings. As standard, OSKTimesynch is started. If the HAIN option is set, NTP is started. However if the NTP option is set to false, OSKTimesynch will be started even when the HAIN option is set.
- Added NMEA HiPAP SSBL RAW data sentence.
- Improved display scale in UTM view to use rounded numbers. Also fixed error when refpoint had fractions.
- Added header text from sound profile to system report.

Improvements

- When a marker was removed from the controlling OS, it was not removed from the screen of slave OS'es.
- APOS could crash when activating HAIN and HAIN aid used frequencies that collided with ACS.
- The graphic views were not redrawn after changes in Global positioning settings.
- Improved drawing of position toolbar when using large system fonts.
- Added a warning when trying to spectrum analyse at horizontal scan of 0 degree.
- The hull unit depth dialog did not show correct colours when night palette was selected.
- A bug in the generation of the transducer alignment sentences PSIMTPP and PSIMVEP is corrected. The GPS antenna lever arm was not handled correctly when generating these sentences. The bug did not influence the calculations, the results or the graphical views on APOS.
- An error in the sound velocity compensation in beacon mode is corrected.

Sound

- Fixed file open dialogue so that txt files are displayed.
- Fixed drawing of ray diagram when zoomed.

OSK

- OSKTimesynch.exe can now be configured to use a different UDP port for communication. Edit the Timesynch.txt file. (Make sure you select a free port.)

Installasjon

- ACS500 1.2.5.1 is now included in the installation.

- ACS400 is updated to 2.4.0.23
- Version 2.0.0.10 of Hugin Control is included.

Release 4.10.0

- When new data has been collected for transducer alignment, you are asked if you want to save when exiting the transducer alignment dialog.
- The transducer alignment results dialog now shows the transceiver / transducer in the title.
- The transponder box in dialog now shows the transponder channel in the title.
- The transponder Box In position can now be transmitted as an NMEA sentence.
- The external depth inputs can now be named by the user.
- Support for hull unit control and sluice valve control are now included. This requires HiPAP rel. 1.5.0 or newer.

Improvements

- OSKConfigure updated with default Daylight Savings time changes.
- APOS system report showed wrong values for HiPAP search sector.
- Spectrum analyse should now work as expected on HiPAP XX1.

Other

- ACS 400 now has support for EDS recoil output.
- ACS can now save / load configuration files as XML.
- The ACS log files are now preceded with the same name as displayed in the APOS menu.
- ACS updated to version 2.3.0

Release 4.9.4

- The IMU alignment angles are transferred to the HAIN computer, allowing NavP to rotate the EM3000 telegram angles to the vehicle co-ordinate system.
- The HAIN semi-realtime smoother is enabled as a trial option for HAIN subsea until the end of June 2009.

Improvements

- The HAIN Change mission name on the fly command now updates both the NavHMI.txt file in the HAIN computer and the cdb file in the APOS. Earlier it did not do that, causing a warning with respect to parameter difference the next time the HAIN properties... dialog was entered. The change was not remembered by APOS after reboot, and the APOS slaves were not informed. This is now corrected.

- There was a bit-collision between NAVLab and APOS in the usage of the use of the status word in the clock synchronization telegram between APOS and HAIN. It could inhibit NavLab from using the timestamp corrections in these telegrams. This did not happen when the APOS IoServers were set up correctly. The collision is now fixed.
- The question in LBL about setting GPS position as origo, did not reset it when the answer was no.
- Output on serial lines sometimes failed on startup.
- APOS did not send default parameters to transceiver at startup. This bug was introduced in 4.9.1. NOTE! All APOS version from 4.9.0 to 4.9.3 should be updated.

Release 4.9.3

Improvements

- Selection between Mobile/Fixed in transponder properties dialogue were disabled.

Release 4.9.2

- Added a window filter on depth measurements (depth sensor in transponder). This filter will remove random errors.

Improvements

- Slave only OS did not work as expected. The Take control button is now disabled for Slave Only OS.
- Transducer selection from ACS did not work correctly for transducer 3/4.
- CAD marker did not work in local views.
- Power selection on transducers were not limited in display.

Release 4.9.1

- CAD-file import and properties dialog with easy-to-use interface and preview is implemented.
- Survey OS flag now disables activation/deactivation of LBL positioning.

Improvements

- Drawing of Easting scale in UTM view when CAD file is loaded was missing.
- Warning message displayed when hull unit depth measurement is used together with sound velocity profile and depth reads zero. Removed message when hull unit depth measurements are enabled.
- On a HiPAP transceiver, only channel B01 and B09 are allowed if the HiPAP300Channel option is enabled. (Earlier versions allowed all 300 channels, but only B01 and B09 actually works.)

- Initial state of roll/pitch/heading data is now error (red) on startup. When real data is received, status will be OK (green).
- APOS 4.9.0 contained 3 errors that prevented it to be used together with HAIN. This is corrected. The errors were:- The HAIN\NavSettings dialog in the HAIN computer is not present after installation on an "empty" HAIN computer. APOS 4.9.0 required the folder to be present when it compared the APOS and the HAIN settings.- The APOS clock ahead value in the HAIN status dialog was not updated when the clock difference was more than 3 minutes.- The IMU com port was not set to None when a HAIN vessel object was created. This is necessary after we changed the default HAIN vessel IMU to be the HG9900.

Release 4.9.0

- The clock synchronization handshake between the APOS and the HAIN computer is implemented. The handshake requires a HAIN version newer than HAIN 2.0.1.
- Added support for a second command group for ACS.
- APOS reads the parameter settings in the HAIN computer when the HAIN Properties... dialog is entered. If there is a mismatch between HAIN and APOS parameters, the operator is asked which ones to use.
- The CTD profile to HAIN... command in the HAIN context sensitive menu is implemented.
- APOS and HiPAP mk II now support external synchronization. This requires HiPAP 1.5.0 or newer.
- A warning message is displayed if one tries to install/activate a transponder that conflicts with ACS. There is an option called ShowAcsWarning that can be used to turn off the warning messages.
- Master / Slave is now removed as a name. The Master is now called the Controlling OS, slaves are called Remote controlled OS'es.

Improvements

- Disabled some functionality when survey OS.
- The Dual HiPAP may now be used as position aid for HAIN.
- APOS now updates no of COM ports if the HiPAP transceiver reports so.
- The Riser Monitoring positioning did not report active transponder correctly in the BCD telegram.
- Fixed a bug that could cause remote OS'es to crash when activating positioning on the controlling OS.
- Updated the PSIMPBI sentence (Position box-in) to contain correct residual. The PSIMPBI sentence is added to the on-line help.

Release 4.8.6

- The HAIN PSIMHRT sentence is always written to the APOS system log. The PSIMSSB and PSIMLBP sentences are no longer written to this log.
- The HAIN PSIMHRT and PSIMHPP sentences are extended with 2 spare fields. The filtering of the Apos_clock_ahead value in these sentences is improved.

Improvements

- The "Properties" button for controls are now disabled when not a master.

Installation

- The install drive/path dialogue has now been changed to only a selection between drive C: or D:

Release 4.8.5

- The PSIMHRT sentence is added as the HAIN NMEA output. It is selected when "Output as" HAIN is chosen in the HAIN Properties... dialog.
- The APOS support for the HAIN semi-realtime Post-processor is added. The functionality itself will later be released as a beta version in HAIN 2.02. The functionality is an option in the cdb file. When HAIN 2.02 is released, it will be available for HAIN subsea applications in 2008 for test and trial.
- The file name for the screen dump jpg files has been changed to APOS_yyyymmddnnn, where yyyy is year, mm is month, dd is day and nnn is a running number that starts at 1 for each day.
- When APOS is interfaced to a HiPAP mk. I transceiver, the transceiver serial line configuration is sent to APOS at start up. In earlier releases, this was a problem when the HiPAP transceiver settings were uninitialized. (Replacing the transceiver (HTC-10)). From now on, APOS will ask the user when a difference is detected. The user may override the HiPAP configuration by answering Yes in the dialogue displayed. NOTE! This happens only when a difference in configuration is detected between APOS and the HiPAP transceiver.

Improvements

- The new Attitude dialogue for HiPAP XX1 could sometimes show gyro / VRS selections disabled. Fixed (exit and entering the dialogue a few times will normally fix the problem).
- Normally a screen dump is saved in the \APOS\data folder. However using a file save in APOS to another directory, redirects the screen dumps to the same directory and only one screen dump is saved. This is fixed.

- The NTP option was not read OK from the cdb file. This is fixed.
- The HAIN pushbutton on APOS slaves was depressed when the name was changed on the APOS master. This is fixed.
- LBL baseline measurements configuration dialogue now checks that the max range is greater than the minimum range.
- The hull unit depth settings were not stored in persistent memory.
- The calculation of HAIN Subsea local positions with SSBL as aid failed when the GPS positions were missing. The status was not set to invalid, and the position itself got a very great spike. This is corrected.

Release 4.8.4

Improvements

- Correction of an error in the covariance matrix for the global positions. The error caused the drawing of the error ellipses in the APOS UTM view to fail.
- Deleting a transponder with a sensor could cause a crash.

Release 4.8.3

Improvements

- File open / File new caused the program to crash. Fixed. (This error was introduced in the 4.8.2 release.)

Release 4.8.2

- The following changes are done in the HAIN Properties; property sheet:
 - Return with no action if no significant changes are done
 - Give the operator the possibility to regret the OK tick before the ini files are updated in the HAIN computer.
 - All mission names, except unnamed, get a date Time prefix.
 - The Change mission name on the fly button is added.
 - The Initial accuracy page is renamed to Advanced. Debug Trace and IMU orientation parameters are moved to this page.
- Added option IgnorePortNoWarning. Set this to true to suppress warning about duplicate use of UDP ports. (NOT recommended to enable this option.)

- Added option AllowLblDubBeamSelect. Enabling this option will enable the DUB beam selection button in the LBL array dialogues.

Improvements

- Fixed an error causing the system to select wrong default IP addresses when no address was configured.
- Fixed an error causing settings in the System -> Sound velocity dialogue to be ignored sometimes when running more than one OS.
- The "Master lost" dialogue box didn't pop up, fixed.
- The Logging light in the HAIN status view now turns red when the HAIN disk is full.

Release 4.8.1

- Added a section in the online help about HiPAP attitude input formats.
- Added On screen keyboard to the Utility menu.
- LBL measured baselines are now presented with 3 decimals.
- The LBL algorithm is made more robust when the ROV and the transponders are at almost exactly the same depth.
- The on-line help is updated with the HAIN graphical user interface that was introduced in version 4.8.0.
- The Heading and the Heading accuracy in the "HAIN Position QA and sensor status view" dialogue has now got an extra decimal (2 and 3, respectively).

Improvements

- LBL Tp positioning did not work. Fixed.
- Improved time stamping of TBL Tp positioning. Timestamp is now compensation for transfer time from the transponder to the transceiver.
- Remote control interrogation interval were not checked. These are now limited from 0.8 to 60 seconds.
- The LBL measure baseline dialog did not use changed settings when right clicking and select start measure.
- The telemetry dialog had wrong timeout for LBL calibration.

- The HAIN ini files are extended with update of more parameters:
 - HAIN NavHMI.txt file is extended with HAIN computer port numbers
 - The preproc.ini parameters wp_posm_velocity_limit, DVL_Scale_Factor and DVL_Latency parameters are updated.
 - The aiding position lever arm is also written to p_Bref_Bposm_Bx in preproc.ini. It is necessary when the ini file is used without OneClick.
- An error in the comparison of the aiding position with the HAIN estimate is corrected. The error was introduced in APOS 4.8.0. The error is not critical

Release 4.8.0

- The HAIN properties dialogue is extended to include all values in the HAIN and navlab ini files that the operator may change. Updated ini files are automatically transferred to the HAIN computer. The details are in the On-line help for the dialogue. The new dialog is sometimes referred to as the "HAIN HMI" or the "HAIN front-end".
- The HAIN estimated biases and compensation values in the "HAIN sensor Bias and Compensation" dialog are displayed normalized to their specification. A normalized value is less than 1.0 if the real value is less than the specification of the coloured noise (bias) for that sensor. I.e. it is greater than 1.0 if the real value is greater than expected.
- The limits for the HAIN "Bias supervise" function is now calculated automatically. The limits are the specification in the HAIN properties dialogue multiplied with 6. The old dialog, into which the operator inserted the values, is removed.
- The parameters Max Speed and Accuracy factor are removed from the HAIN aiding position QA check dialogue. The values are fetched from the corresponding parameters in the HAIN Properties dialogue.
- The HAIN Show monitor window is moved to the Network configuration dialog.
- The name of the HAIN object is displayed after the dialogue name for the two HAIN modeless dialogues HAIN Position QA and Sensor status view and HAIN sensor Biases and Compensation view.
- Added a check for duplicate use of UDP ports for External interfaces and Transceivers.

Improvements

- The Gyro/VRU error messages were not handled correctly from HiPAP systems.
- The transponder functions dialogue was missing a status field for magnetic compass transponders.

- APOS now works correctly with Internet Explorer 7.
- The HAIN heading in the Sensor status view is now compensated for IMU alignment.