MT Software Suite 4.1.5 - Public release notes

New version	MT Software Suite 4.1.5; MTi FW 1.3.1; MTw FW 2.0.1
Previous version	MT Software Suite 4.1/MT SDK 3.8.1; MTi FW 1.2.0/MTw FW 1.0.10
Release date	May 24th, 2013
Meaning of icons	+added, ^changed, !note, #fixed, -removed

1. Notes

- !XsArray_copy(dest, src) used to be XsArray_copy(src, dest). This may cause some issues when using the C interface. The compiler should generate a warning though.
- !GoToMeasurement in the Radio Enabled state will go directly to the Measurement state, skipping the Operational state of the MTw. Review MTw SDK documentation for information on this subject.

2. Major improvements and features

- Support for MTw
  - +[6759]: MTw fully supported in MT Manager 4.1.5
  - +[6759]: MTw fully supported in Xsens Device API (XDA) 4.1.5
  - +[6920; 6940; 6942]: All MTw examples (except C# and LabView) are implemented for XDA 4.1.5
  - #[6805]: Access to MTw recording stream
  - ^Documentation of communication protocol improved with respect to MT SDK 3.8.1

- Improved performance of MTw:
  - ^[6039]: Power usage optimization increased battery life of the MTw to 4 hours (+15%).
  - ^[6464]: The start-up time of the Awinda station has decreased with 1-2 seconds per connected MTw.

- Firmware MTi:
  - +[6756, 6757]: Now possible to poll data from MTi devices (instead of continuous mode)
  - +[6724]: UART interface implemented

- Improved user interface in MT Manager
  - +[3688]: Data message terminals to view low-level XBus communication with Motion Tracker and communication with XDA.
  - +[6668]: KMZ/KML exporter for MTi-G-700 and legacy MTi-G
  - +[0282, 6747]: Possibility to save and load MTi configuration files
  - +[6664]: Possible to scroll through an entire file (back and forth) in graphs

- Sensor fusion algorithm for MTi-G-700
  - ^[6883, 6856]: Filter performance optimization
    - ^[6691]: GPS measurements with worse accuracy estimate than 5 meter are now used as well
    - #[6653]: filter profiles using magnetometer updates will continue to use magnetic field when GPS reception is lost
    - #[6667]: Heading jumps in initialization now minimized

3. Bug fixes

- MT Manager
  - #[6618]: ASCII exporter doesn't export rows any more that only contain packet counter, time and/or status.
  - #[6906]: Y-scale Euler angles plot no longer runs from 0 to 360 deg, but from -180 to +180 deg
  - #[6694]: Now possible to export Lat-Lon position when no altitude is available
  - #[6790]: Corrected UTC clock initialization
  - #[6869]: Correct number of column headers in exported file when the GPS message is exported while there are less than 16 satellites in view.

- Firmware MTi
  - #[6899]: when using SyncIn (Send Latest), the MTi-G now outputs correct altitude data
  - #[6844]: when using SyncIn (Send Latest), the MTi-G now sends the GPS message as well only on a received trigger.
  - +[6621]: Free acceleration implemented in MTi
  - #[6666]: Manual gyro bias estimation is available for MTi-G-700; heading is locked during procedure.
  - #[6968]: TriggerIndication can now be outputted at other frequencies than 400 Hz only
  - #[7075]: accelerometer signal of MTi-G-700 no longer jumps to ~2g after a Reset command is initiated

- XDA
  - +[6726]: Now possible to use two devices simultaneously in COM-object
  - #[6753]: No crash when not entering serial key in XDA
  - +[6978]: XDA can now compute and output rate of turn and acceleration from delta_q and delta_v.

- Firmware Updater and Magnetic Field Mapper
  - #[6882, 6727, 6879]: MTi devices with a failed firmware update now stay detectable and can be updated again.
  - #[6700, 6729]: Fixed connectivity of MTi RS422 devices with Magnetic Field Mapper and Firmware Updater

4. Minor updates

- Improved performance of MTw:
  - #[6095]: Retransmissions now implemented properly
  - ^[6796, 6434, 4859]: Jumps in accelerometer signal after a period of being out of communication range are less likely to occur
  - ^[5470]: More robust orientation performance after a retransmission that contains clipping of sensors
  - ^[5423, 5751]: DLPF and SDI performance improved.

- Firmware MTi:
  - +[6370, 6751]: Now possible to set a UTC time in the MTi, even when there is no GPS. Allows for more convenient time stamping. The time is stored in the non-volatile memory as last known date and time.

- MT Manager
  - +[0706]: Error and warning message pane
  - +[6926]: ASCII Exporter now shows firmware and filter profile version
  - +[6720]: More information and possibilities when loading files into MT Manager

    - +[6952]: Short keys for Start/Stop recording, Rewind to beginning and play/pause playback
    - +[6878]: Menu items for opening/closing sub-dialogs (graphs)
    - +[6705, 6707]: GPS Clock Sync is now shown and selectable in Synchronization Configuration dialog
    - +[6699]: Possible to alter the file name during exporting of a file.

5. Known issues

- ![6635]: When the MTi is configured for XDA processing with SDI data (dq/dv enabled and orientation disabled), the Rotation Matrix for the sensor, RotSensor, is applied to dq/dv data onboard the MTi. When orientation is calculated, RotSensor is applied again. When RotSensor is not the default unity matrix, this means that the orientation is incorrect. Not setting the RotSensor or outputting orientation directly from the MTi with RotSensor applied solves the issue.
- -[6773]: MT Software Suite 4.1.5 doesn't have a C#-interface
- ![6640]: when toggling between the different devices in the Device List with the Output Configuration dialog open the dialog may not always be correctly updated.
- -[7060]: No LabView example anymore.
- ![7050, 7061]: MTw heading needs to be more robust. Sometimes this is obvious in MT Manager, when the MTw 3D orientation box spins. Current workaround requires a rescan, which re-estimates the gyro bias.
- ![7057]: Instability when two Awinda Masters recording in one instance of MT Manager.
- ![7091]: Source example code on 64-bit systems running Windows produces a warning message because of a number conversion. The warning may be ignored.
- ![7080]: Status window is incorrect (data itself is correct, only display has an error)