# **Release notes MITK-IGT 2018-04**

## **What’s new?**

Since the 2016.11 release the following features have been added / changes have been made to MITK-IGT.

### **Support of Polhemus Liberty electromagnetic tracking system**

Polhemus Liberty electromagnetic tracking system (<https://polhemus.com/motion-tracking/all-trackers/liberty>) was added to the tracking systems supported by MITK-IGT.

Related tasks: [T22854](https://phabricator.mitk.org/T22854), [T23350](https://phabricator.mitk.org/T23350)

### **Support for NDI Aurora joint tools**

NDI Aurora allows tracking of multiple tools connected to one physical port. This functionality has not been implemented within the mitk::NDIProtocol class and is added with this release.

We thank Martin Klemm for this contribution.

Related tasks: [T24685](https://phabricator.mitk.org/T24685)

### **OpenIGTLink support**

OpenIGTLink support for streaming data from and to MITK has been improved and UI support been added.

Related tasks: [T23018](https://phabricator.mitk.org/T23018), [T23544](https://phabricator.mitk.org/T23544), [T23550](https://phabricator.mitk.org/T23550), [T24037](https://phabricator.mitk.org/T24037), [T24051](https://phabricator.mitk.org/T24051), [T24345](https://phabricator.mitk.org/T24345)

Known issues: [T24038](https://phabricator.mitk.org/T24038), [T24039](https://phabricator.mitk.org/T24039), [T24047](https://phabricator.mitk.org/T24047)

### **Redefinition of tracking tool coordinate system**

The local coordinate system of a tracking tool has been redefined to follow a clear convention that is also applied by other software tools in the field:

- The main axis of a tracking tool (e.g. the needle axis of a needle shaped tool) is defined as the negative z-axis of the tool coordinate system

- The representation object of a tool (e.g. a surface) has to be created such that its main axis points along the negative z-axis of the local coordinate system

- The default representation object of a tracking tool is now a small coordinate system rendered at the tool position.

A detailed overview of the coordinate frames associated with tool tracking can be found here:<http://docs.mitk.org/nightly/classmitk_1_1TrackingTool.html#details>

Related tasks: [T22996](https://phabricator.mitk.org/T22996), [T23699](https://phabricator.mitk.org/T23699), [T23727](https://phabricator.mitk.org/T23727), [T24227](https://phabricator.mitk.org/T24227)

### **Enhancements of NavigationToolCalibration**

The NavigationToolCalibration plugin was adapted to the changes in the tool coordinate system and cleaned up to provide only tested functionality for tool tip and tool axis calibration

Related tasks: [T23633](https://phabricator.mitk.org/T23633), [T23725](https://phabricator.mitk.org/T23725), [T23728](https://phabricator.mitk.org/T23728), [T23730](https://phabricator.mitk.org/T23730), [T23952](https://phabricator.mitk.org/T23952)

Known issues: [T23732](https://phabricator.mitk.org/T23732)

### **Serialization of custom properties of NavigationTool**

Custom properties of the navigation tool can now be serialized and deserialized with the NavigationToolWriter / NavigationToolReader.

We thank Federico Milano for this contribution.

Related tasks: [T24703](https://phabricator.mitk.org/T24703)

### **Removal of class mitk::InternalTrackingTool**

mitk::InternalTrackingTool has shown to not be necessary in the current structure of MITK-IGT anymore as all functions provided within this class can also be moved to its parent class mitk::TrackingTool. Subsequently, the InternalTrackingTool class was removed from the repository. For users of MITK that have defined their tracking tool deriving from InternalTrackingTool, replacing code occurrences of InternalTrackingTool with TrackingTool should be sufficient to migrate to the new structure.

Related tasks: [T23733](https://phabricator.mitk.org/T23733)

### **Performance improvements for Kinect data stream**

The update rates for Kinect data acquisitions were increased.

Related task: [T23735](https://phabricator.mitk.org/T23735)

### **Bug fixes and minor enhancements**

In total, 75 bug fixes and other enhancements contributed to this release. A complete list of tasks can be found here:<https://phabricator.mitk.org/maniphest/?parentIDs=24059#R>

## **Plugins supported in this release**

The following MITK workbench plugins have been tested and are supported in this release:

- IGT Tracking Toolbox

- IGT Navigation Tool Manager

- IGT Navigation Tool Calibration

- IGT Navigation Data Player

- IGT Fiducial Registration

- OpenIGTLink Manager

- Ultrasound Support

- ToF Util

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