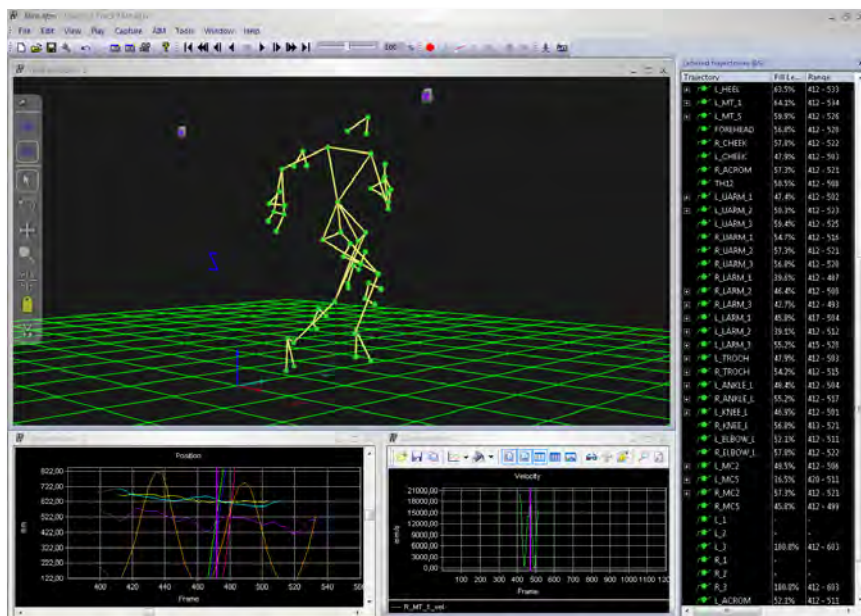




## Qualisys Track Manager – QTM

Motion Capture software for tracking all kind of movements



### KEY FEATURES

- 2D/3D/6DOF data tracking
- Marker/High-Speed Video Data
- Real-Time Streaming
- Latency down to 6ms
- Automatic Marker Identification
- Marker Masking
- Passive and Active Markers
- Video Overlay
- Supports all Qualisys cameras
- Expandable system: simply add more cameras

### SYSTEM BENEFITS

- Runs with portable or stationary computer with Windows XP or Vista
- Facility Licensed - no dongle
- No hub or workstation
- Portable and easy to move
- Single cable from cameras to computer or wireless, WLAN

QTM, Qualisys proprietary tracking software, is designed to work seamlessly with any model of Qualisys camera, ensuring fast and precise data collection. The system allows users to perform 2D, 3D and 6DOF capture of data in real-time, with minimal latency. QTM meets the needs of advanced as well as less experienced users in a range of applications – from medical sciences to industrial ergonomics. Flawless integration and synchronization with force plates and EMG devices as well as real-time streaming into 3rd party analysis software, make QTM a state-of-the art software.

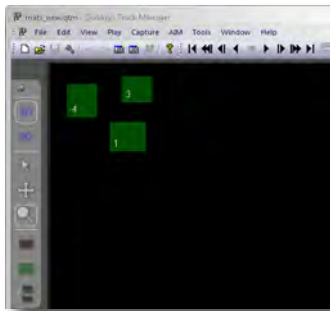
QTM is built and developed around a set of advanced motion capture algorithms ensuring high performance, accuracy and low latency.

### Product Information

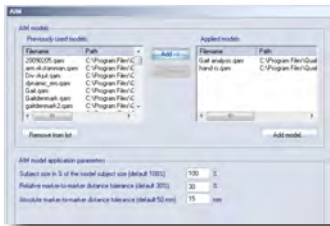




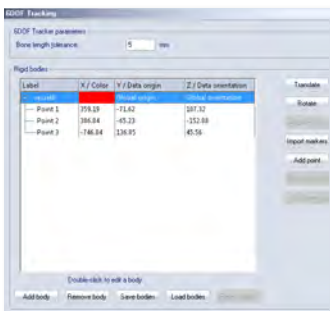
Individual camera settings can easily be fine-tuned to maximize the data quality.



Apply automatic marker masks to cover unwanted reflections.



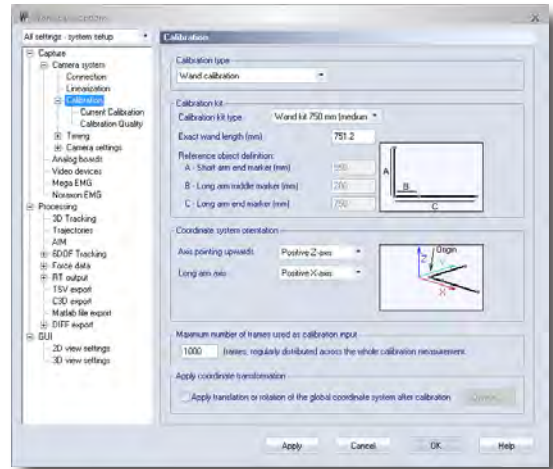
AIM - Automatic Identification of Markers allows users to identify a model in a few clicks.



Definition of rigid body, 6DOF. Translate, rotate and set tracking parameters.

## HARDWARE SETUP AND CAMERA CONTROL

QTM supports all Oqus and ProReflex cameras. Once cameras are connected, QTM automatically detects the number of cameras. Hardware and software settings are controlled from one intuitive graphical user interface and are easily saved for future use. Visual feedback guides the user through each step in the process - from setup to analysis of data.



## CALIBRATION

For 3D and 6DOF measurement, the system needs to be calibrated. QTM uses a dynamic calibration method. A wand is simply moved around in the volume while a stationary reference object in the volume defines the coordinate system for the motion capture. All settings for the calibration are controlled by QTM and the result of the calibration is visualized in a quick and intuitive way. The calibration is done within 15-30 seconds.

## 2D AND 3D TRACKING

When the data (x, y) from the cameras are collected in 2D, QTM calculates the 3D (x, y, z) positions. Qualisys tracker is a real time tracker that combines marker occlusion and merging detection techniques with an exceedingly fast and highly accurate tracking algorithm.

## 6 DEGREE OF FREEDOM - 6DOF

The 6DOF tracking function provides 6-degrees-of-freedom (pitch, roll, yaw, x, y, z) data from user defined rigid bodies. The 6DOF data gives information about the position and rotation of a moving body. QTM can both save 6DOF data and send 6DOF data over UDP in real-time.

## AUTOMATIC IDENTIFICATION OF MARKERS - AIM

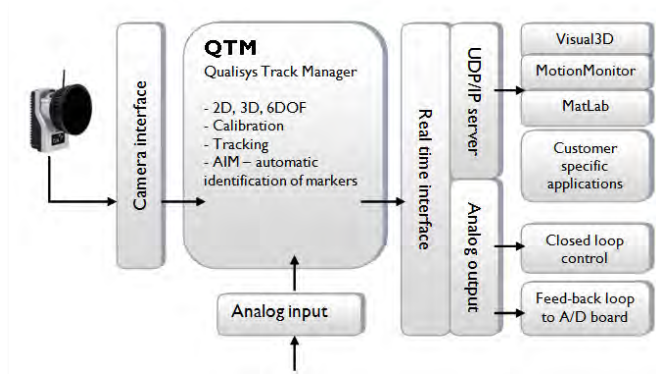
The AIM model is created from an identified file and can then be applied to any measurement that captures similar motions compared to the model or just a part of the motions in the model. The AIM doesn't have requirements on human body model mapping for each frame in real-time. After the model has been identified in real-time, the tracker keeps tracking the model with frame rate independent performance.

## PASSIVE AND ACTIVE MARKERS

Qualisys offers the only system on the market that can measure passive or active markers and high-speed video, with the same software.

## REAL-TIME OUTPUT IN 2D, 3D AND 6DOF

QTM tracks objects automatically in real-time and 2D, 3D and 6DOF marker data is displayed on screen allowing instant confirmation of accurate data acquisition.



The data is then transferred over UDP/IP to any third party software running on a computer connected to the same LAN. It is even possible to have more than one

computer connected to the real-time server of QTM at the same time. For example, the user can run real-time calculations on one computer simultaneous to visual feedback on another computer.

The Oqus cameras have an architecture adapted for low latency which, together with the frame rate independent latency of the QTM processing pipeline, provides an exceptionally low latency down to 6ms, to a third party software.

## VIDEO AND VIDEO OVERLAY

By connecting an ordinary video camera, it is possible to present a synchronized video image along with the data acquired in QTM.

Using an Oqus camera with high speed video, the 3D data can be overlaid on the Oqus video data to show the 3D view from that camera's viewpoint. The Oqus video will always be synchronized with the marker data.

## ANALOG CAPTURE

Analog data, such as EMG and force plate data, can be recorded and collected along with motion capture. Individual channels and range settings can be easily selected and changed. The user has options to view and plot analog data in different window layouts. QTM supports up to 128 channels of analog data.

## BATCH CAPTURE AND PROCESSING

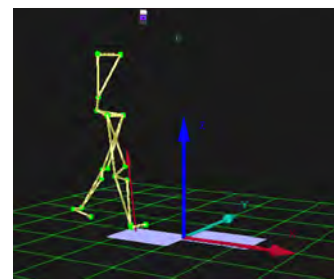
The batch capture function allows the user to capture a set of measurements in a row in an automated way. The measurement files will be automatically processed and saved.

Captured measurement files can also be processed many at a time by using the batch processing function. The batch capture and processing functions are great tools to speed up the time from data acquisition to analysis.

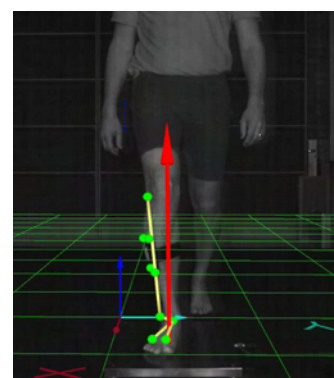
## VIEWING DATA

The markers are shown in real-time on the monitor in 2D, 3D and 6DOF. This function makes it very easy to place and adjust the cameras to cover the desired measurement volume.

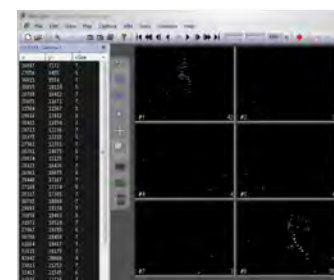
Within QTM you can save customized layouts, which include the placements of all of the window and its content. The layouts are saved separate from the capture file and can therefore be reused on any capture file.



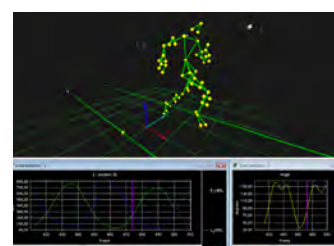
3D view in QTM with force plates



Video overlay in QTM using Oqus High Speed Camera.



All the cameras in 2D view with marker information.



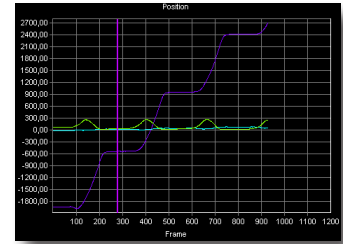
Customized window layouts can be saved within QTM.

## FEATURES

- Flexible, user-friendly Graphical User Interface (GUI)
- Fast communication with both laptop and desktop computers
- Calibration control and reprocessing
- Streaming and recording of 2D, 3D and 6DOF data
- Batch capture and processing
- Easy to synchronize to external time base
- Automatic identification of markers
- Supports all Qualisys cameras
- Active and passive markers
- Integrated video and audio capture
- Integrated analog capture, e.g. EMG and force signal
- Integrated force plate calculation
- Batch export and processing of motion capture data
- Export to C3D format
- Export to MAT format
- Direct export to Matlab
- Export to TSV format
- 6DOF analog export
- Stream in RT to Matlab
- Integrated analysis functions

## EXPORT AND ANALYZE

With the QTM analysis function, trajectory data can be filtered and some specific calculations, such as positions, angles, velocity, acceleration and distance, can be performed. All data is easily exported from QTM to different formats such as TSV, C3D and directly into Matlab. The exported data can then be further analyzed in a third party software such as Visual3D from C-Motion.



Force vectors plotted in QTM

## INTEGRATION AND PLUG-IN

QTM makes it possible for users to add customized functionality to QTM through a plug-in architecture. The plug-in interfaces are written in C++ and support direct manipulation of the measurement data. New data can be constructed by the plug-ins and visualized in, or exported from QTM. Typical plug-ins can be input plug-ins for specialized hardware, specialized analysis functions and export or import converters for new file formats.

## FACILITY LICENSED SOFTWARE

We offer a facility licensed copy of QTM which means that each computer in a department can have its own, fully functional, copy of QTM. This makes QTM the ideal software to use for both research / clinical work and teaching.

## APPLICATIONS

The main application areas for QTM are:

- Gait Analysis & Rehabilitation
- Sport Science
- Psychology
- Neurology
- MRI
- Industrial
- Marine & Underwater
- Media & Entertainment

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