Qualisys Track Manager – QTM
Windows-based data acquisition software

QTM is a modern Windows-based motion capture software that allows the user to perform 2D and 3D motion capture in an easy way. Together with the Qualisys line of optical measurement hardware, QTM streamlines all aspects of a sophisticated optical motion capture system, resulting in the easy and fast production of smooth and accurate 2D/3D/6DOF data.

QTM is designed to meet the needs of the advanced as well as the inexperienced users in many application areas ranging from industry to medical research. QTM is also designed with an open architecture which allows users to add their own functions to the QTM motion capture framework. This will give the user the possibility of creating customized solutions.

KEY FEATURES
- Fast communication
- Flexibility
- Automatic marker identification
- High performance calculations
- Support for software plug-ins
- 2D/3D/6DOF data in real-time
- Integrated video capture
- Modern and easy-to-use GUI

SYSTEM REQUIREMENTS
- A Qualisys Motion Capture System
- Runs on Windows 2000 and XP
- A portable or stationary acquisition unit (computer) with the following requirements:
  - A NVIDIA Open GL 1.2 Compliant Graphics Adapter
  - DirectX Version 8.0 or higher
  - Pentium III or higher (or the equivalent)
  - 512 MB RAM or higher
  - One standard serial communications port

Also recommended:
- CD-RW-drive
- > 40 GB hard drive
- Network card
- Sound card and PC speakers

Product Information
HARDWARE SETUP AND CAMERA CONTROL
QTM supports all variants of the Oqus and ProReflex MCU cameras from the Qualisys product line. QTM automatically detects the number of cameras and to which port they are connected.

Hardware and software settings are controlled from the same graphical user interface and are easily saved for future use. The software warns the inexperienced user through visual feedback about all settings that must be used with care.

CALIBRATION
For 3D and 6DOF measurement, the system needs to be calibrated. QTM supports 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 presented visually in a quick, intuitive and easy way. The calibration is ready after approximately 30 seconds.

DATA ACQUISITION AND VIDEO CAPTURE
When measurements are performed, visual, accurate data is presented to the user throughout the whole measurement. Marker data (2D/3D/6DOF) are shown in real-time on the monitor and by connecting a video camera, it is possible to present synchronized video image along with the acquired data.

It is also possible to look at a grayscale image from each camera. This function can be used to see the field of view of the camera and can be helpful to detect any unwanted reflections.

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.
2D AND 3D TRACKING
When the data is collected, tracking is done automatically by QTM. With the 2D and 3D graphics, it is quick and easy to sort and identify data. An automatic identification method (AIM), for identifying markers, is implemented in the QTM software. This function saves the user a lot of time and reduces the process time from capture to analyze.

6 DEGREE OF FREEDOM - 6DOF
The 6DOF tracking function provides 6-degrees-of-freedom (pitch, roll, yaw) 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 TCP/IP in real-time.

VIEWING DATA
When activated, all the camera views are shown on the monitor. 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.
There are several options to view and plot data in the QTM software. 2D positions (x, y components and marker size) from each camera can be plotted in different graph windows.

WINDOW LAYOUT
Within QTM you can save customized layouts, which include the placements of all of the window and its content. The layouts are not saved with the capture file and can therefore be reused on any capture file.

OPEN ARCHITECTURE
QTM makes it possible for users to add customized functionality to QTM through a plug-in architecture. The plug-in architecture is implemented with Microsoft COM technology and exposes QTM-internal data structures to the plug-ins for direct manipulation. Typical plug-ins can be file format converters and specialized analysis functions.
The QTM plug-in architecture is an extremely powerful method used to adapt and extend the QTM program. Users who have specific needs can write a plug-in themselves or have Qualisys or a third-party contractor create a specific plug-in for them.
ANALOG DATA

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.

CALCULATIONS

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

APPLICATIONS

QTM is used in many areas of research and in clinical applications. The main application areas are Medical Science, Industrial and Entertainment.