

Qure Data Management Platform

a flexible suite of software components for carrying out studies

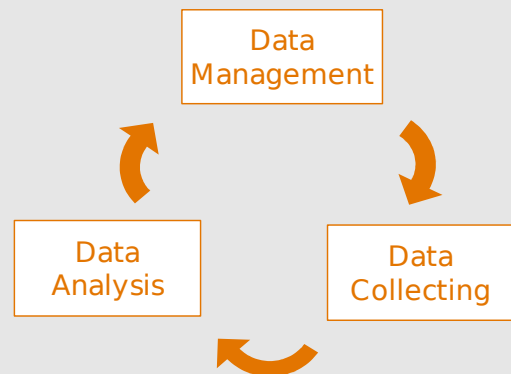
What is it?

Qure Data Management Platform (Qure DMP) is a powerful and flexible suite of software components for carrying out studies with high requirements. It includes components for

- data collecting
- data management
- data analysis

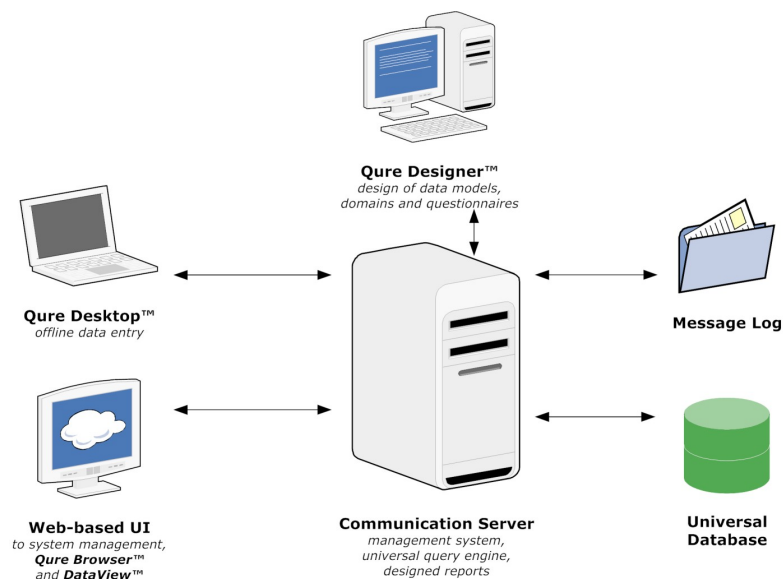
Qure DMP is highly customizable to fulfill the most complex needs. The platform is used in most demanding projects.

Qure DMP is fully developed by Quretec Ltd.



The main components of Qure DMP

Qure DMP is a client-server platform which has a central server connected to database and several client applications which communicate with the server.



Database

Database is the main unit for storing all study related data. It consists information about

- Studies and questionnaires
- Users and their certificates
- Collected data

The data is held in universal database model which enables to easily make modifications to the questionnaires. The data can be converted to relational database also for making fast reports.

Communication server

Communication server is the core of Qure DMP, it is the central application to communicate with all other components. It

- Exchanges the data between database and other components
- Deals with user access and security

Data collecting applications

There are different data collecting applications for different environments and back-end technologies.

QureBrowser

- Powerful web application for collecting and managing data online

QureSurvey

- Web application for collecting data online
- Useful for simplified surveys where data is not modified after collecting
- Invites could be sent to unlimited number of e-mail addresses

Many other data collection components are available depending on the back-end technology (Java, PHP) and availability of internet access. For example, QureDesktop can also work offline in Windows platform and synchronize the data with server whenever the internet connection is established.

Data analysis

After the data is collected you need to start analyzing it. Currently we provide two simple components for this – DataView and Reports.

DataView

- For making data queries
- Data export into different file formats

Reports

- Different file formats (PDF, DOC, etc)
- Report design can be adjusted to your needs

In case you are willing to use any other software for data analyzing, you can always export the collected data from Qure DPM to various file formats.

QureDesigner

QureDesigner is a separate application for designing data models and questionnaires. It allows you to upload them into server at once you have completed the work, even if your studies are being answered at the same time. This is very helpful in case you have to make minor fixes.

We are adding new functionality to all components regularly, software updates can be downloaded and installed automatically.

What is a study in context of Qure DMP?

Most studies have the following requirements:

- Gathered data must be stored in structured way
- Different questionnaires for the same study
- Check for validity of the answers
- The next questions depend on the previous answers

All this can be done with Qure DMP!

- Define the complex data structure of the study by **data model**. Data model is the “heart” of the study.
- Data model can have various type of attributes and objects: texts, numbers, files, dates and timestamps, boolean values etc.
- You can build unlimited number of questionnaires for the same data model. Questionnaires can be split into different pages, tables, trees, selections etc.
- Can build unlimited number of checks and scripts for
 - validity checks of an answer
 - cross-checks over multiple answers
 - automatically calculate values according to answers

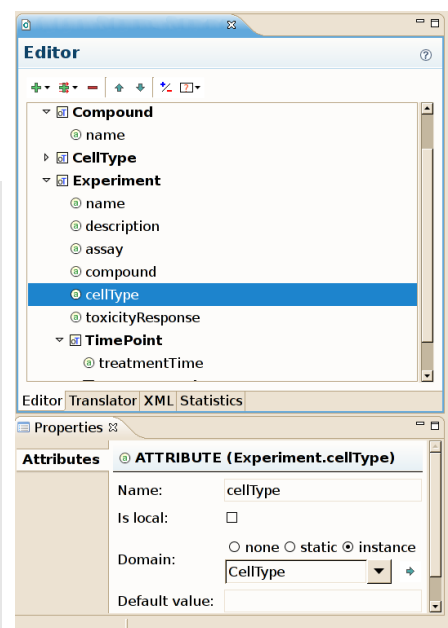
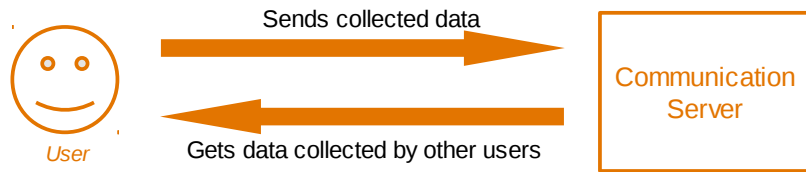


Illustration 1: Example of designing data model with QureDesigner

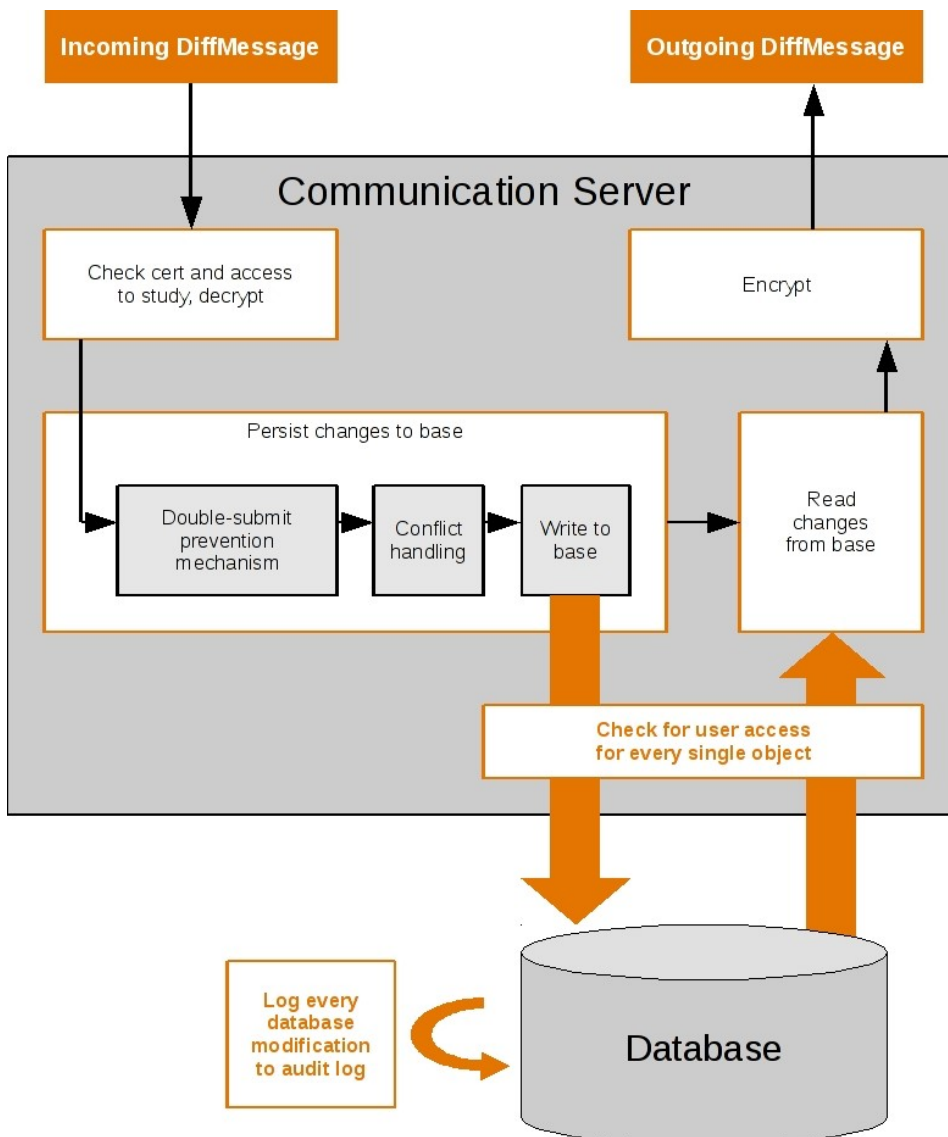
DiffMessage – a powerful data exchange protocol

DiffMessage protocol is the “blood” of Qure DMP which connects different software components. It is used by all components to exchange data with Communication Server.



DiffMessage is a very simple XML protocol containing encrypted data and developed by Quretec. All collected data is synchronized to Communication Server by using DiffMessage protocol.

How DiffMessages are processed?



New components can also be developed as long as they use the DiffMessage protocol

System requirements

Database	Communication server, QureBrowser, Dataview (all in one)	Other
<ul style="list-style-type: none">Oracle 10G, Oracle 11G or PostgreSQL 8.4	<ul style="list-style-type: none">Linux or Windows operating systemJava 1.5 JDK or greater, with Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy installedJBoss 4.2 application serverAt least 1 GB RAM and Pentium 4 CPU or equalCan be run on cluster server	<p>QureDesigner</p> <ul style="list-style-type: none">Java 1.5 or greater, with Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy installed <p>QureDesktop</p> <ul style="list-style-type: none">Windows XP or Vista <p>WebCollector, QureSurvey</p> <ul style="list-style-type: none">PHP-capable web server

Privacy and security

- Qure DMP uses **encrypted passwords** to authenticate the identity of users that communicate with the system
- Communication between Qure DMP components lies on secured **HTTPS and SSL protocols**, thus the data is highly encrypted and invisible to others. The user can be sure that the data comes and goes to Qure DMP.
- All database updates and changes can be logged for audit** so that it is possible to detect who and which modification was made.
- All users have a role which specifies their **rights and permissions**
- All Quretec developers and employees are required to sign a **confidentiality agreement**, acknowledging they understand and continue to follow all company security policies

Where Qure DMP is already used?

Estonian Genome Center

The Estonian Genome Center (EGC) is a research venture of the University of Tartu. The aim of the EGC is to create a database of health, genealogical and genome data representing 5% of Estonia's population. The database will make it possible for researchers both in Estonia and outside to look for links between genes, environmental factors and common diseases. The results of this research are likely to lead to new discoveries in genomics and epidemiology, and will be instrumental in increasing the efficiency of health care. The main units of the information system of gene bank of EGC is built on Qure DMP and it currently contains data about more than 40,000 gene donors.

Population and Housing Census Of Estonia 2011

In 2011 the eleventh Population and Housing Census in Estonia (PHC 2011) will take place, in the course of which all permanent residents of Estonia and the dwellings will be enumerated. For the first time in the history of the Estonian population censuses in addition to face-to-face interviews at home also the e-census is used for data collection, which enables persons and their households to enumerate themselves by filling out e-questionnaires on the Internet. It also means that in conducting the PHC 2011 Statistics Estonia has moved on from formerly used paper questionnaires and the enumerator enters the information directly in the laptop, from where it will be immediately forwarded to the server via secured channels. Thus we face the first paperless census during the 130-year long history of population censuses in Estonia. All data is collected using Qure DMP.

Quretec is a data management and bioinformatics research partner in EU FP6 Network of Excellence Enabling Systems Biology (ENFIN), EU FP7 project Embryonic Stem cell-based Novel Alternative Testing Strategies (ESNATS) and a subcontractor in EU FP6 Functional Genomics of Embryonic Stem Cells (FunGenES) project.

Where can I get more information?

Do not hesitate to ask more information from Quretec about Qure DMP. We are proud to introduce our platform and answer to your questions.

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