

QI Analyst™ 8.0 Deployment Guide

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QI Analyst™ 8.0
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| | |
|---|---|
| Dictionary | 2 |
| Database Considerations | 3 |
| Admin Database | 3 |
| Process Database | 3 |
| Network Considerations | 4 |
| “Native” vs. Link Data | 5 |
| Licensing | 6 |
| Installing License Files | 7 |
| Controller vs. Workstation Licenses | 7 |
| Concurrent vs. Seat Licenses | 7 |
| Miscellaneous | 7 |
| AddWorkstation.exe | 8 |
| QIAdminDBChange.exe | 8 |

QI Analyst 8.0 Deployment Guide

Dictionary

There are a few terms used regularly throughout this chapter that may have different definitions outside the scope of QI Analyst. Please refer to the definitions below for your reference while reading this chapter.

- QI Analyst client - This is any process that instantiates QI Analyst charts and/or objects that interact with the QI databases. For instance, QI Analyst Controller, QI Analyst Workstation and any front end (like InTouch or Visual Basic) are all QI Analyst clients.
- QI Analyst network - This term refers to one or more QI Analyst clients on the same network (LAN, WAN or even a single computer). By definition, the QI Analyst network is determined by machines that point to a single Admin Database. Since there could be multiple QI Analyst Admin Databases on the same LAN/WAN, there could also be multiple QI Analyst networks on the same LAN/WAN.
- Process Database - This is the database that QI Analyst uses to store SPC configuration settings as well as raw and context SPC data. There can be one or many Process Databases in a QI Analyst network. Open a Process Database to show a Data Controller, the interface for both administrators (for setup and maintenance of the SPC program) and users (for SPC charting & alarming, data entry, analysis, etc.).
- Admin Database - This is the database that QI Analyst uses to store global settings, user and rights information and Workspace and Template details. There can only be one Admin Database in a QI Analyst network. Open an Admin

Database to show an Admin Controller, the interface for administrators (for setup and maintenance of the QI Analyst network).

Database Considerations

As described in the chapter entitled “Getting Started,” QI Analyst uses a backbone of databases (Admin and Process Databases). These databases can be Access, SQL Server or Oracle.

At all times QI Analyst clients must have an available network connection to these databases. Even if the user is not interacting with QI Analyst, there may be interactions with the databases (data updates, propagation of new settings and others).

Admin Database

The Admin Database is the center of the network of QI Analyst clients (Controller, Workstation or front end). All QI Analyst clients point to a single, central Admin Database on the network. Whenever a user logs into QI Analyst Controller or Workstation or a front end instantiates QI Analyst charts and/or objects, the Admin Database verifies the user, the rights and the ability to proceed.

The decision to have more than one Admin Database is left to the user. However, the fewer Admin Databases, the less repetition of settings and the less maintenance required.

Please see the chapter entitled “Getting Started” for more information on Admin Databases.

Process Database

The Process Database contains the SPC setup information and SPC data. There can be one or more Process Database on the network. Whenever a user logs into QI Analyst Controller or Workstation or a front end instantiates QI Analyst charts and/or objects, the Admin Database is first “consulted.” Then, the Process Database(s) can be opened individually or in a Workspace.

The decision regarding the number of Process Databases is left to the user. The most common reason to have different Process Databases is to “silo” the information, protecting it from unauthorized personnel from viewing or changing it. The security model in QI Analyst is very granular, allowing a great deal of control over users, their

rights and the Process Databases that they can access, but the decision to silo data in separate Process Databases may be the best choice.

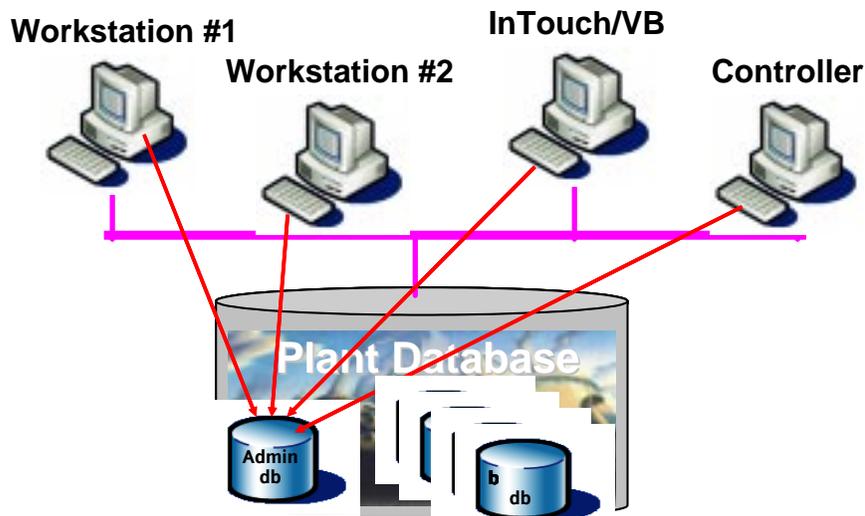
Please see the chapter entitled “Getting Started” for more information on Process Databases.

Network Considerations

QI Analyst is a network compatible application, supporting many users at the same time. QI Analyst uses OLEDB to communicate with its own databases. However, QI Analyst abstracts the complexity of network issues from users, making its use simple and straightforward.

QI Analyst is network ready, flexible, with a database backbone, and many features and capabilities. Below is a figure of a typical small QI Analyst “network” of Controller, Workstations and a “foreign” front end.

Figure 0-1A *Typical SQL Server-based QI Analyst “network”*



As you can see from the figure, all the QI Analyst clients point to the single, central Admin Database. Once the login and authentication is complete, a user can open Process Databases for the purposes of data entry, charting, analysis and reporting.

“Native” vs. Link Data

In the chapter entitled “Getting Started,” there is a list of the many methods to access data for SPC charting and alarming. These methods can be divided into two main categories: “Native” Data and Linked Data.

“Native” Data

“Native” data means that the SPC data is actually stored in a Process Database. In addition to the raw measurement data (Variables and Attributes), context data like Sample Time, Batch Number, Serial Number, Username, etc. can be stored as Notes in a QI Analyst Process Database. An administrator must create and configure Data Tables (logical groupings) and Columns (Variables, Attributes and Notes) before “native” data can be stored.

Like network and database considerations, QI Analyst abstracts users from the complexities of data access. The only indication that the data is Linked is the chain graphic on in the icons on the Data Tables and Columns tabs in the Data Controller window. For instance, the following data entry methods are considered “native” data:

- Manual data entry via the Data Editor (spreadsheet) or the Data Entry Assistant.
- Import data from Wonderware’s InTouch application by using the FSGateway (via OPC, DDE, SuiteLink or MX).
- Insert data from any OPC Server. Many electronic devices have OPC Servers written by their developers.
- Use OLE Automation scripts in order to insert the data into the QI Analyst Process Database.

A significant advantage of leveraging “native” data is that QI Analyst has complete control over it. There are greater flexibility in many areas, including subgroup sizes and Product/Part definitions.

“Linked” Data

“Linked” data means that the SPC data is **not** stored in a Process Database. Instead, the data is read from an external data source and then is rendered into charts, calculated into statistics and presented in Data Editors. Linked data supports Variables, Attributes and Notes, but none of this data is ever stored in a QI Analyst Process Database. This avoids the complications resulting from redundant data. An administrator must create

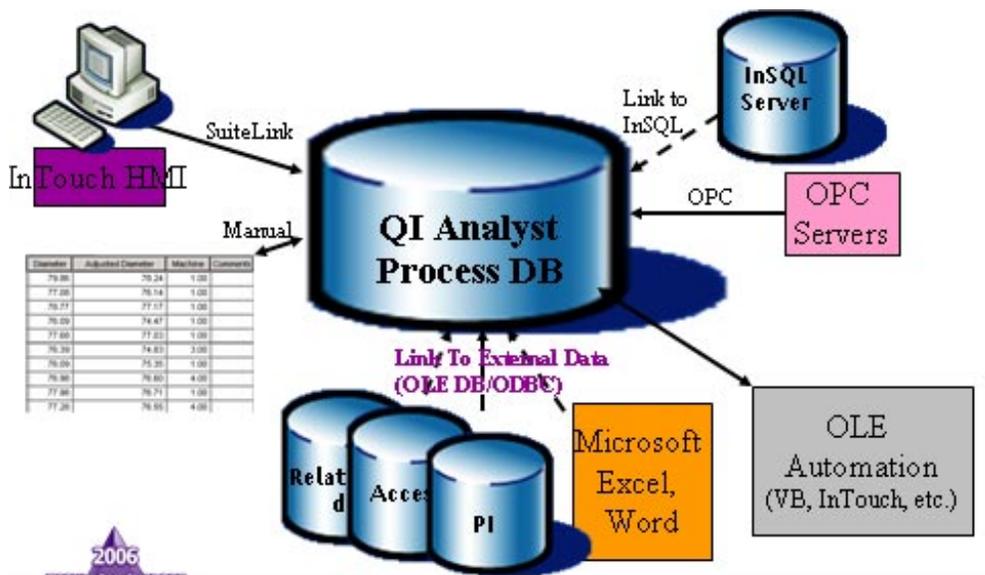
the Links before the external Linked data can be accessed in the form of Charts and Data Editors. The following data entry methods are considered “Linked” data:

- Link to Wonderware’s InSQL data historian.
- Link to virtually any electronic data source that has OLE DB or ODBC support.

While there are some limits in flexibility when linking to external data sources, a significant advantage of leveraging “Linked” data is the ability to leverage existing data repositories. By quickly defining a Link, users can perform real-time and historical SPC on the data. The data is read into QI Analyst Charts and Data Editors, with real-time updates.

Please note that the Product/Part “layer” that is new to QI Analyst Version 8.0 does NOT support Links to external Data.

Figure 0-2 Methods for Entering Data into QI Analyst



Licensing

QI Analyst uses the standard Wonderware licensing model. It supports both Concurrent and Seat licenses. All QI Analyst clients (Controllers, Workstations and front ends that leverage QI objects and ActiveX controls) require a valid license.

Installing License Files

Like all other Wonderware applications, QI Analyst uses the License Utility to install, maintain and un-install licenses. The License Utility can be found in the following locations:

Start>Programs>Wonderware>Common>License Utility

To install a license, run the License Utility, select Install License File from the File menu and browse to the QI Analyst license file.

The license information is registered with the QI Analyst Admin Database.

Controller vs. Workstation Licenses

A license of the appropriate type (Controller/Workstation) and version are required to open QI Analyst. So the Controller requires a Controller license and a Workstation requires a Workstation license. A front end that leverages QI Analyst charts and objects requires a Workstation license at a minimum, but would work with a Controller license, too.

Concurrent vs. Seat Licenses

QI Analyst is licensed by the seat or concurrently. A seat license is installed on a machine and any number of users can use QI Analyst on the machine. A concurrent license allows QI Analyst to be installed on many machines. The, when a user starts QI Analyst on one of those machines, the concurrent license is confirmed. A concurrent license always includes a number of authorized concurrent -- or simultaneous -- users.

When QI Analyst is opened (Controller, Workstation or front end with QI objects and/or charts), the Admin Database is contacted to verify if a seat license exists for that machine. If not, then a concurrent license is sought. If neither of these exist, then the QI Analyst session will be closed.

Miscellaneous

There are a variety of miscellaneous considerations, utilities and behaviors in Version 8.0 that are documented below.

AddWorkstation.exe

This utility was useful for adding a machine to the QI Analyst network, i.e., pointing to the Admin Database, if there was a problem during installation. However, in Version 8.0, this program should not be run by administrators or users. Instead, use the QIAdminDBChange.exe utility (which does use the AddWorkstation.exe). This allows an administrator to change and of the network connection string details, like server name, user name and password.

QIAdminDBChange.exe

This utility is still an important one in Version 8.0. Use it to “point” a QI Analyst Controller or Workstation at a central Admin Database. After completing the Provider and Connection tab information (don’t forget to check “Allow Saving Password on the Connection tab), press **OK** to redirect the machine to the new Admin Database.