



# Frequently Asked Questions

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*For in-depth information you are recommended to search the documentation provided with the product.*

## How To...

### Get started using AQUIS Operation?

There are several approaches to starting a project in AQUIS Operation.

- **Startup file:** As of V4.0 you can use a pre-configured file to start your project. This file contains for example a model layer and a number of dashboards with direct access to key actions.
- **From scratch:** You can create a model from the very beginning and where there are no settings whatsoever.
- **Use legacy data:** You can export data from the old (legacy) AQUIS application and subsequently import it into AQUIS Operation.
- **Model Manager data:** Use a Model Manager project to start a new AQUIS Operation model.

You can find a description to each of these approaches in the documentation.

### Analyze the water quality?

The water quality simulation contributes to monitoring the network under changing conditions.

You can analyze the water quality in various ways:

- Source tracking

This method allows you to track the sources of the water in all supply nodes in the network. You can track the flow of the water in your network from when it is first entered till it gradually moves further into the pipe system and blends with other sources.

- Trace

This method simulates the propagation and concentration of a trace inserted in the network. A trace simulation tracks a conservative fluid injected at a user defined location. The concentration is defined to a value of 1.0 at the injection point. The concentration changes if water from other pipes is mixed with the trace water at node level. The reduced concentration is calculated based on the weighted massflow.

- Substance interaction

You can follow the progress of the water quality based on a user-defined substance. The simulation process for the water quality tracks the growth or decay of the user-defined substance concentration as it progresses throughout the network.

Reactions from the tracking process can occur both within the substance itself and with materials along the pipe wall. You can for example decide to simulate the injection of free chlorine (HOCl) and observe how it reacts with an organic substance (OS) in the substance phase. You can then observe how it is transported through the boundary layer at the pipe wall to oxidize iron (Fe) released from pipe wall corrosion. Fluid reactions can also occur within reservoirs.

- Age

Simulates the minimum, maximum, and average age of water in all locations in the network at any time. The water age is calculated as the time passed since the water entered the model at a source. The water age changes at nodes with more than two supply pipes. The average age is calculated based on weighted massflow. The maximum age is calculated as the maximum incoming age of incoming water. The minimum age is calculated as the

minimum age of incoming water. You can show the age results for the entire model, a reservoir or a flow control zone.

- Water Balancing

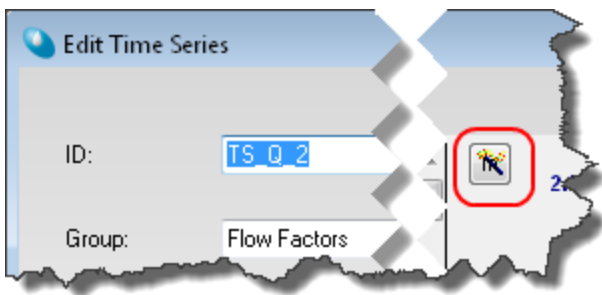
AQUIS Operation provides a water balance calculation tool for a improved overview of the water status in a given area.

You can define values in a standard International Water Association Model (IWA) to calculate key figures for the water usage in your networks. You can only define values for the water balance on the active Scenario layer.

## Combine a time series with a measurement?

Time series can be defined directly as a table of time, setpoint, or measurement. Or, it can be a result of a calculation. For in-depth information on time series you are recommended to study the documentation provided with the application.

In the following you can find a description on how to use a measurement from the Data Manager on a time series using the Time Series Wizard.




You will typically use the current approach if you want to add a time series on a global level, such as a scenario or a model.

### **Before**

Before you add the measurement check the following actions.

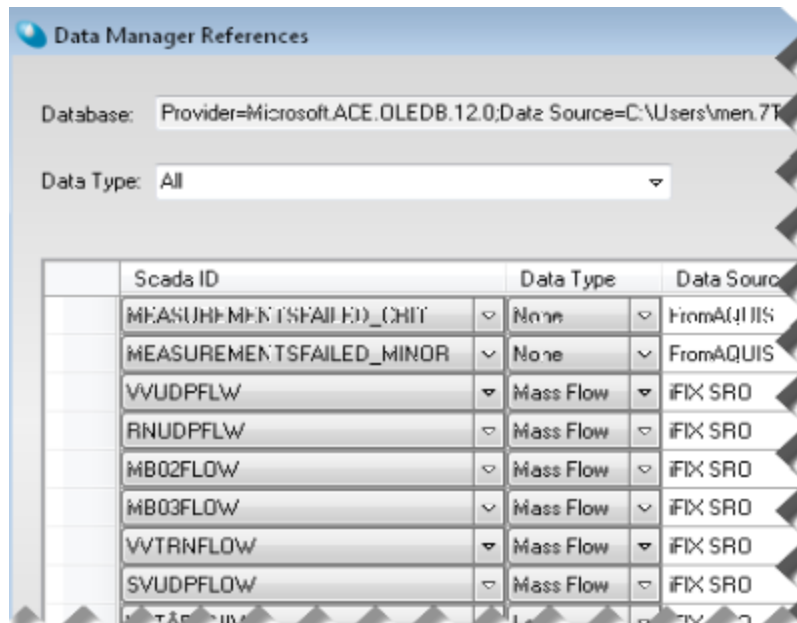
- You are recommended, but it is not required, to properly configure Data Manager.  
You are also recommended to study the documentation provided with the Data Manager application.
- Validate that you have a working data connection to a database.

### **To select a Data Manager measurement**

1. From the menu bar select **Edit** and then **Time Series**.
2. Select the time series ID for which you want to set the measurement. This opens the **Edit Time Series** dialog.
3. Ensure that you have selected the correct **Phys Type** (filter) for the measurement, such as Fraction, Pressure, velocity, Power, etc. The type is defined in Data Manager.
4. Click the icon  to open the **Time Series Wizard** and select **Measurement**.  
This opens the **Select Data Manager Measurement** dialog.
5. Under the **Select Data Manager Measurement** dialog highlight the appropriate ID from the list and press **OK** to add the measurement to the time series. You may need to scroll the list to find the required measurement, if

there are many items in the list.

The SCADA ID and Data Type fields are read-only. You can edit these lists under the menu **Data Manager References**.



You can customize the view of the dialog and only show as many columns as you need.

Right-click one of the columns and point to **Select Columns**. Clear and/or select the relevant checkboxes.

## Change language for the application?

1. From the menu bar select **Configuration** and then **Configuration Parameters**.
2. Under **Graphics, Language** select the preferred locale from the drop-down list in the rightmost pane.
3. Press **OK** to save your changes.
4. Close the application and open it again to view the change.

## Delete pump or valve objects?

- Locate the pump or valve object that you want to delete, make a right-click and select **Delete** from the right-click menu. When you delete an object adjacent pipes are joined to avoid a model with short pipes.

Notice that if the system cannot identify the node with the prefix `_ups` or `_dws`, the object is replaced by a short pipe section.

## Delete (entirely) an attribute?

If you want to delete an attribute altogether so that it doesn't appear anywhere in your model, you can do so from the Attribute Editor.

## Disable flow adaption?

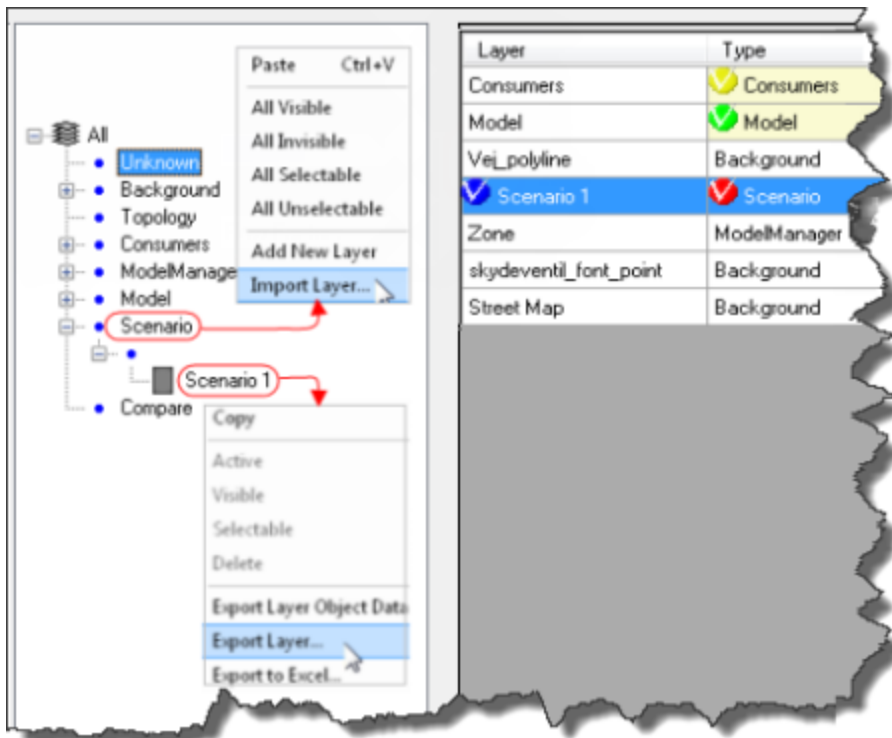
Make sure to clear the check box for the configuration parameter **Exclude Flow Adaption**.

## Export or import layers?

You can reuse data across the models using the import/export facility under the **Layers** dialog box.

### From the Layers dialog

- Right-click a group and select **Import layer**.
- Right-click individual layers and select **Export layer**.



## Find the exact ID of an object?

When you edit an object attribute under the generic object editor and need to capture the correct ID, you can follow these guidelines to find the exact ID.

1. Under the generic object editor, right-click the attribute and select **Map Object ID**.
2. Then point to the object whose ID you want to capture.

Notice that the ID is added to attribute cell.

## Import data?

You can extend the functionality of your model through the import of data.

There are several ways in which you can import data to create a new project or extend the existing model for example with new layers or new attributes.

Notice that the import of data requires a valid database connection using the appropriate driver.

You can import the following data:

- **DWG files:** Import of 2 or 3 dimensional drawings as AutoCAD files.
- **Shape files:** Import .shp files as GIS vector data.
- **Model Manager files:** Import data from a Model Manager project to extend the functionality or even start a new project.
- **External data:** Import new attribute values from an external database.
- **Data Manager:** Import data such as measurements used as boundary conditions.
- **Database files:** Import data from a database to create an entirely new layer.

## Import layers?

You can import data from a database and create an entirely new layer.

### *To import a new layer*

1. From the menu bar select **File**, then **Import**, and point to **Database**.
2. This opens the **Import from Database** dialog.
3. Under **Data Connection**, click the browse button to the right to locate the appropriate database.
4. Under **Data Link Property** dialog, select the database provider.

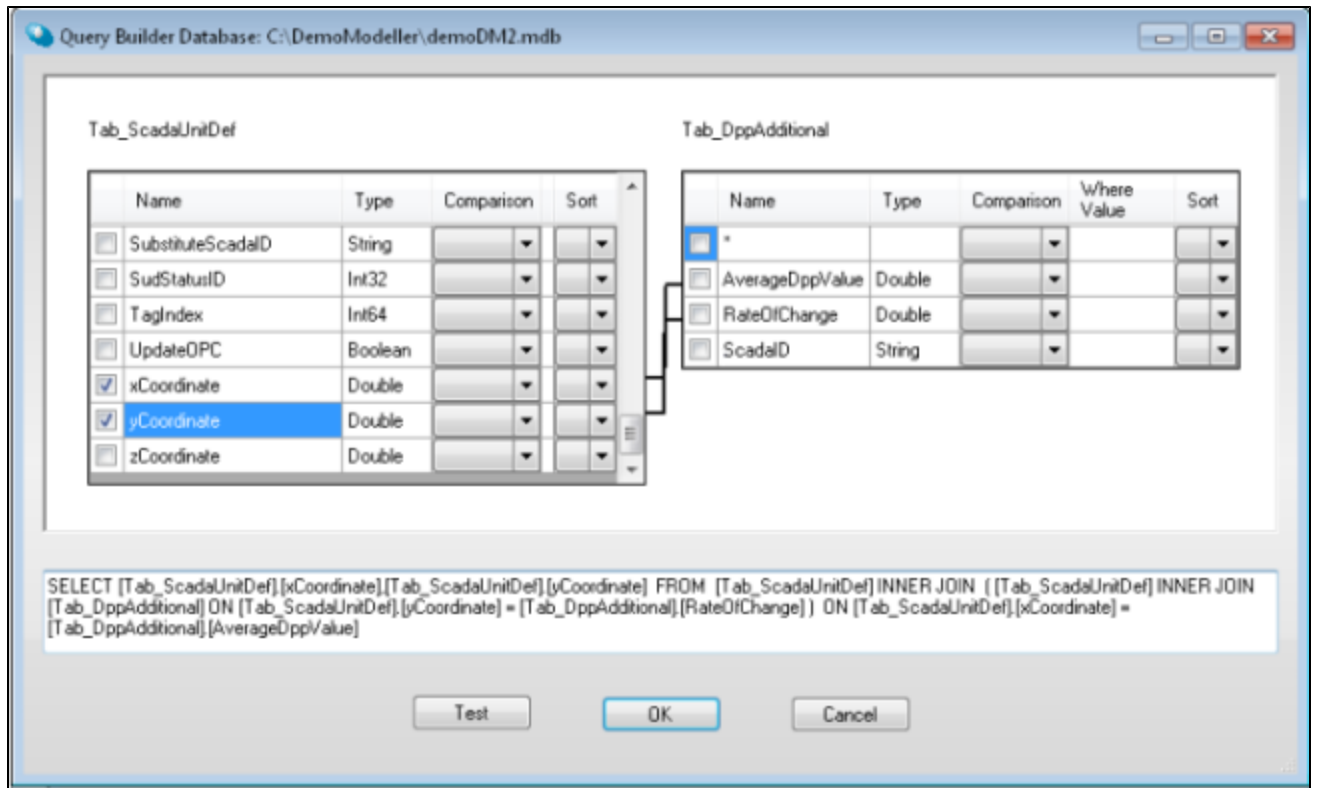
For 32-bit version, select for example the Microsoft Jet 4.0 OLE DB Provider for a Microsoft Access database.

For a 64-bit version, you can apply the Microsoft 12.0 Access Database Engine OLE DB Provider.

You are recommended to test the connection before you proceed. Press **OK** to exit the dialog.

5. Under the **SQL** entry field, select the wizard button to the right to open the **Select Table Query**. Select options from the **Table** tab. This opens the **Query Builder Database** from where you create the necessary joins between the database tables.
6. Right-click the **Query Builder Database** and select **Add Table**.
7. Select the appropriate Table and make the appropriate joins.

As a minimum you need to select the X and Y coordinates from the table.



To reduce the burden on the performance level, you are recommended to define the ID and the table you reference from as keys.

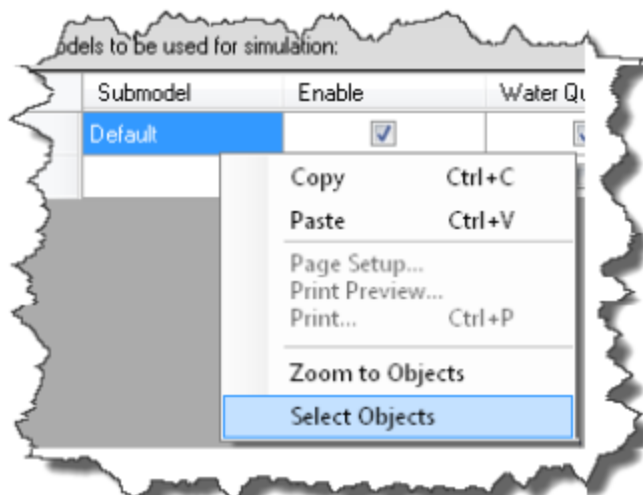
8. Press the lower pane in the **Query Builder Database** to generate the **SQL statement**.
9. Press **OK** to exit the **Query Builder Database** dialog.
10. Back in the dialog **Import from Database**, provide the appropriate values according to your requirements.

### Select all objects that contain measurements?

- From the **Search** field located in the upper-right side of the interface enter **MEA**.

### Select objects belonging to a submodel?

- Right-click the submodel under the **Run** dialog and point to Select Objects.



## Show arrows, measurements, boundary conditions?

If for example you cannot see the arrows in your model, you should check the following settings.

1. Right-click the main model and select **Layers**. Under this dialog, select the **More** column and under the **Layer Display Options** dialog ensure that you have selected the check box for the required element, such as arrows.
2. From the menu bar select **View**, then **Show**, then point to and select **Arrows**, or whichever element you want to display.

## Show service point?

Each consumer must be connected to a pipe in the network. In general, the affiliation is done to the pipe closest to the service point, and the service point projection on the affiliated pipe is referenced as the consumer affiliation pipe point. The consumption from the consumer is included in the consumption for the node situated closest to the pipe point for the consumer affiliation.

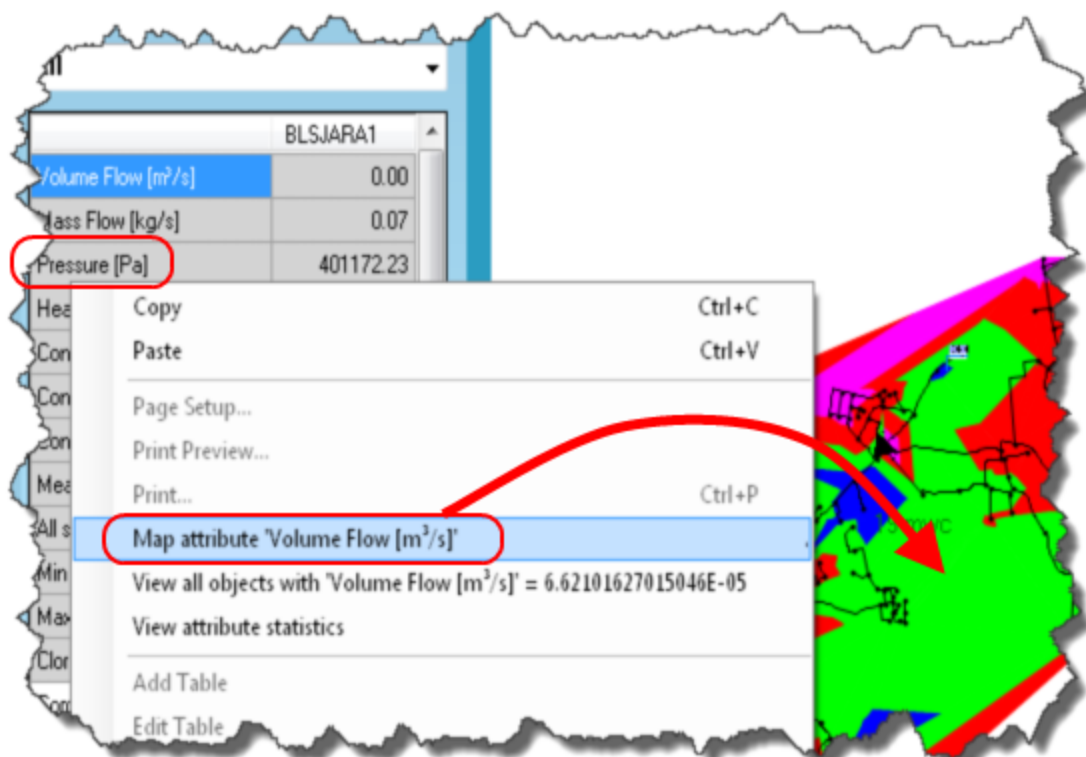
To view the service point you must activate the display of the consumer affiliations. From the menu bar, select **View**, then **Show**, then point to and select **Consumer Affiliations**.

## Show attribute value display in the network?

You can make a visual display of the attribute values in the network, such as temperature, source, pressure, etc.

- From the **Object Data** dashboard point to the relevant object, locate and right-click the attribute you want to display, and select **Map Attribute**.

The figure in the ensuing displays the attribute values for Pressure at a specific time.



## Update the consumption?

You can update the consumption using the function **Update Consumer Affiliation**. This process calculates the values defined for certain specific attributes and provides a result for the current consumption in your network. It is important to notice that one of the prerequisites for a properly working model in regards to updating your consumption is exactly to establish a correct and appropriate configuration for the consumer affiliation. The AQUIS Operation documentation provides in-depth information about this subject.

- To update the consumption select the menu **Model** and point to **Update Consumer Affiliation**.

## Validate data?

You can monitor the values in your network for critical points.

Validate the configuration of the value settings for critical points to ensure that your network is operating according to your requirement and specifications. These values can for example be the minimum pressure and maximum temperature.

To validate the data you can apply the following measures:

- Insert a validation object.
- Define an event.
- Alternatively, you can validate the current scenario prior to simulation. From the menu bar select **Model** and point to **Validate Current Scenario**.

### **Validation object**

A validation object is an object that validates a logical expression, typically including attributes from another object; for example whether the pressure in a node is within certain boundaries.

### **To insert a validation object**

- From the main menu area right-click and point to **Insert Object** and then point to **Validation Object**.

### **Events**

To monitor the values, you can define events to run on various critical locations. If the value in a certain location drops to a critical level, or even below the required level, the system generates an event log that contains all relevant data to get an overview of the critical situation.

### **To define a new event**

1. From the menu bar select **Edit** and then **Event Definitions**.
2. Place the cursor in the empty field next to the asterisk (\*).
3. Confirm the definition of the new event. For regrets press No.

This launches the **Event Definition** dialog.

*The dialog will also open if you place the cursor in an existing event definition. This allows you to make modifications, if any, to the existing definition.*

4. For each option provide the appropriate values according to your requirements.

## View object data in the model?

If you want to view the object data other than using a tooltip or a label, you can decide to view all or selected object data in the model. Too many showings tend to clutter the display.

1. Under the **Layer Data Configuration** dialog go to the rightmost column **Display**, and select the check box for the attributes to display.
2. From the menu bar select **View**, then **Show** and point to and select **Object Data**.

The model now displays the selected attributes. Use the Object Data check box to toggle the display.

## **What is...**

### **A unit?**

The application provides a list of physical types (phys types) with a number of defined units. Select the appropriate units for the phys types in your model. You can add more units if required.. .

### **A DEMANDTYPE?**

The DEMANDTYPE is the definition of a consumer type. A consumer can be anything from a single family residential to large factories. Each consumer type has a designated value. To view the consumer type right-click the consumer point and select Demand. Locate the attribute name for the consumer type. This type is typically associated with a consumer time series, such as Q\_TS\_Factory, etc. The data for the DEMANDTYPE is typically stored and maintained in a database.

### **Commit status?**

The transfer of actual status values of model objects (such as pipe, valve, and pumps) from the Operator station to the Master station.

## Dashboards

### Change background color in dashboard

1. Right-click the dashboard area and click **Properties** to open the **Control Data** dialog box.
2. Under **Appearance** (to the right), select a background color that matches your requirements.
3. In the color palette you can alternate among Custom, Web, and System colors.
4. Press **OK** for the changes to take effect.

*You can assign a color for each dashboard for easy identification or similar categorization.*

### Restore deleted default dashboard

1. From the menu bar select **File** and then **New** to create a new model. This will only work as a temporary model.
2. Select the required dashboard and make a right-click within this dashboard and select **Tools** and then **Export**.
3. Provide a name for the dashboard. The file extension is .7ug.
4. Open the model where you want the default dashboard.

There is no need to save the changes from the temporary model.

5. From the menu bar select **View**, then **Dashboards**, and select **Import Dashboard**.
6. Point to the dashboard you exported from the temporary model.

The dashboard now displays in the list of available dashboards.

## **Troubleshooting**

### **Error when logging on as an Operator?**

If you get an error when you try to log on to the AQUIS Operation application as an Operator, you may not have the correct access credentials. The Operator must be properly configured.

### **Error when running in Master/Operator setup?**

Make sure to enable the Windows Net.Tcp port sharing service on the Master machine.

### **When running flow or temperature adaption, why are some of the nodes not adapted?**

Nodes that contain a measurement will not be adapted.