GE VERNOVA

PROFICY® SOFTWARE & SERVICES

iFIX

Productivity Tools

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iFIX Productivity Tools Overview

The iFIX Productivity Tools suite provides a host of additional functionality that increases an iFIX SCADA system's security, consistency, and robustness. It can be used even on existing systems and has been designed to allow for the automatic configuration of existing components of a system. For example,

attaching control dialogs to existing objects on a screen is easy with the wizard provided within the system.

Key features of the iFIX Productivity Tools suite are:

- A menu system that allows users to navigate through pictures you have created
- Tools to aid in the drawing of pictures
- Improved multi-monitor support
- List manager
- Zooming and Layering configuration
- An improved database management tool with template support

List Control

The list control provides a common list interface for all list types supported in an iFIX Productivity Tools system. Common facilities include:

- Add a list to any picture
- Single click A>Z and Z>A SORT on any column
- Click and drag column sizing
- Click and drag column positioning
- Advanced multi-parameter SORT
- Configure-time FILTER facility
- Advanced multi-parameter runtime FILTER facility

Supported lists:

- Events (includes Sequence of Events; operator actions, digital change of state)
- Database summary
- Disabled alarms
- Notes
- Shelved Alarms

Operational functionality

Main menu	Including automatic menu population based on picture naming convention
Operator Dialogs	Consistent dialog for each underlying iFIX database type (e.g. DA, AA, DI etc) Automatic population of dialogs. • Example 1: Control tab populates with control command text from iFIX database e.g. ”On and Off”. • Example 2: Alarm tab populates with alarm levels and/or states as appropriate.

	Managing the position of dialog pop-up in multiple monitor systems to ensure dialogs do not display across monitor boundaries. Automatic closing of unused dialogs after (user configured) timeout
Right-click menu	Including pan, zoom, acknowledge picture and silence horn.
Pan and Zoom	
Operational Tools	Alarm Disable
System Management Services	Maintenance of Disabled Alarms data through system shutdown and restart. Prevention of simultaneous control of a single device System Configuration files

Getting started

Installation notes

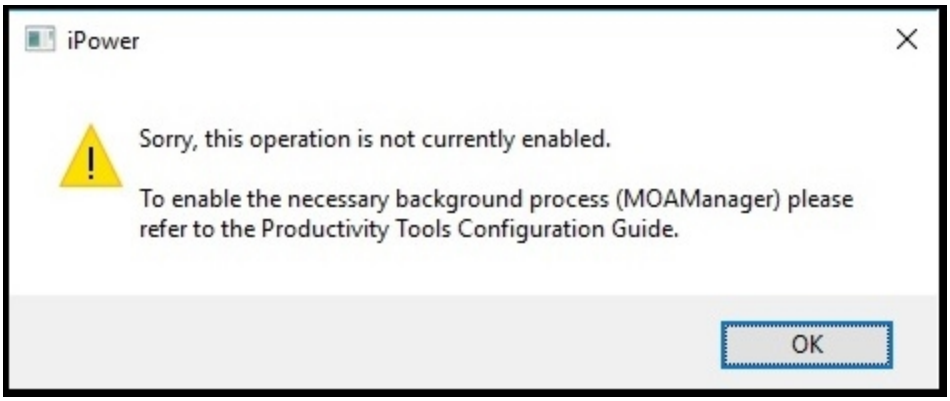
- The iFIX Productivity Tools software needs to be installed on each iFIX server and client
- New picture drawing tools are available, accessible through a new toolbar. See importing toolbars for details.

Suggested items to try:

- Create a new picture and add an iFIX Productivity Tools events list (set the list Mode to events)
- Create a new picture and add an iFIX Productivity Tools data summary list (set the list mode to data summary)
- For an existing system, open an existing picture, and add dialogs to the animated points (note to save the picture beforehand)
- For an existing system, add a floating menu
- For a new system, configure a menu
- Use of naming convention for the database blocks. It is not necessary to have a naming convention, but it is recommended that one is used to make better use of iFIX Productivity Tools.

Enabling MOAManager

Productivity Tools MOAManager is not enabled by default. If MOAManager is not enabled, the following error message when operating Productivty Tools component:



MOA Manager not enabled message

For full Productivity Tools functionality MOAManager needs to be enabled on all iFIX SCADA computers, both SCADA servers and clients.

There are three options to enable automatic MOAManager startup:

1. Using the "Productivity Tools Enable MOA" start menu shortcut

Productivity Tools for iFIX installs two shortcuts in the iFIX start menu group, one to enable MOAManager operation, and a second to disable. Note that iFIX is to be closed down when changes are made.

1. Stop iFIX on the local PC.
2. In the Windows *iFIX* start menu group, run the *Productivity Tools Enable MOA* shortcut.
3. You will be prompted *"Do you want to allow this app to make changes to your device?"*, click Yes to accept.
4. Restart iFIX.

2. Manually editing FIX.ini

To configure MOAManager when iFIX is run as an application, refer to the following instructions:

1. Stop iFIX on the local PC.
2. In the iFIlX.\LOCAL folder, default in *C:\Program Files (x86)\Proficy\iFIX\LOCAL*, open *fix.ini* using notepad, scroll to the [OTHERS] section near to the end of the file, and add line: *RUN-N=%MOAMANAGER.EXE /s*
3. Save the change to FIX.ini and restart iFIX.

```
;
; Monitor (Background) programs
;
[OTHERS]
RUN=%MOAMANAGER.EXE /S /L
RUN=%IFIX_CONFIGHUB_FACADE_SERVICE.EXE run -config ifix_confighub_facade_service.json

;[SESSION INSTANCE]
;INSTANCE0=%PROFICYENABLEFOCUSTRACKING.EXE
```

Configuration example of FIX.ini with MOAManager

3. Manually configuring MOAManager to run as a service

When iFIX is run as a service, MOAManager cannot be started through FIX.ini but must also be configured to run as a service.

For instructions refer to MOA running as a service

◢See Also
MOA running in service mode

Database development overview

iFIX Productivity Tools have been designed to work with existing database blocks in an iFIX system. Standard block types like AI, DI, AO, DO, AA, and DA are all supported and behave as expected.

It is not necessary to have a naming convention defined for the database blocks, but it is recommended that one is used in order to make better use of iFIX Productivity Tools features.

Tag naming conventions

A consistent database naming convention is not essential when using iFIX Productivity Tools, but it does have an advantage allowing for ease of configuration, and ease of operation of the system.

The key reasons for a naming convention are threefold:

- It allows for easy identification of point names – this is important because point names are used everywhere in the system for configuration.
- It makes it easy to duplicate identical (or nearly identical) devices in the system that only differ by location – this speeds up both database development and picture creation.
- Some of the iFIX Productivity Tools rely on naming convention to associate points together – Using a naming convention here greatly improves ease of configuration as you notice later in the program.

When developing a naming convention for a system it is important to keep the following in mind:

- The level of complexity of the convention should be high enough to support all the unique points in your system. However a convention too complex can hinder easy identification of point names. It is recommended to use four sub-fields in a naming convention.
- The naming convention will grow as the system grows. It is important to keep it up to date and consistent throughout the lifecycle of the system.
- Point names are limited to 30 characters.
- All point names must be unique.

The naming convention used in the iFIX Productivity Tools suite is defined in the iPower.ini settings. Refer to the NAMING_CONVENTION setting.

The naming convention is used in a number of instances. Each list includes the separated naming components for each tag name, that can be used for filter and sorting operations.

An example naming convention that could be used for example is:

```
<Location>_<Device>_<Type>_<Text>
```

Where:

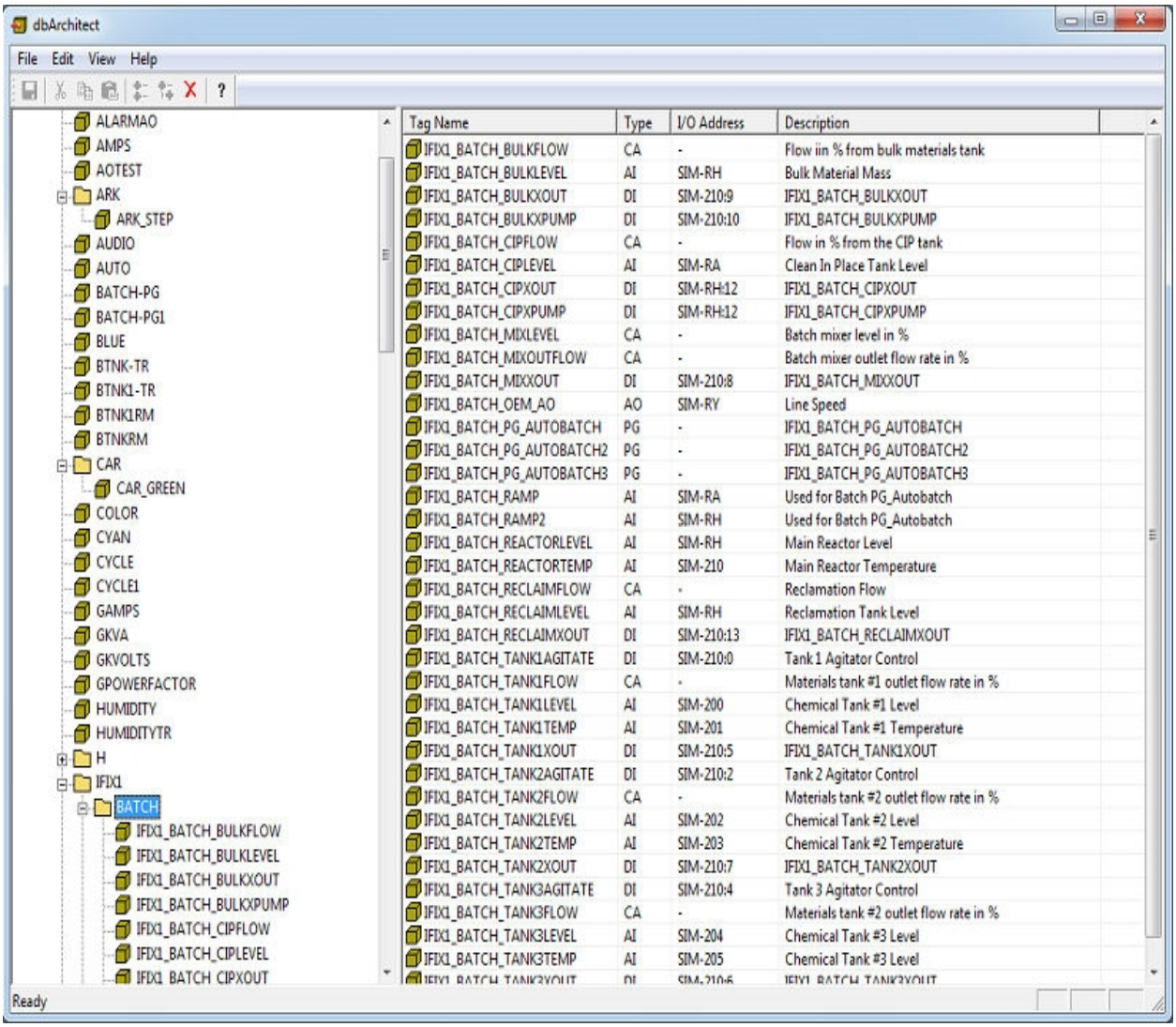
<Location>	Where is the physical location of the I/O (typically either the PLC, or plant name)
<Device>	Denotes the logical device where the I/O resides within the physical location. For example this could be a relay or a pump.
<Type>	Indicates the type of point. For example: AI – analog input DI – digital input This provides for easy identification of the point type directly by name.
<Text>	Additional sub-field level to ensure the point is able to be uniquely named

Note however that this is just a suggestion and can be changed to suit an existing naming convention for your system.

 The total length of the tag name can not be more than 256 characters long

Using dbArchitect

dbArchitect is a database production utility based on templates. With dbArchitect, you can make a template out of an existing item in a database, and then use this template to generate new instances of the item. An "item", in this case, is a logical grouping of data blocks. For example, you can generate a template based on an existing device in the database (e.g. a circuit breaker or a valve), then use that template to generate new instances of the device, or you can make a template from an entire location.



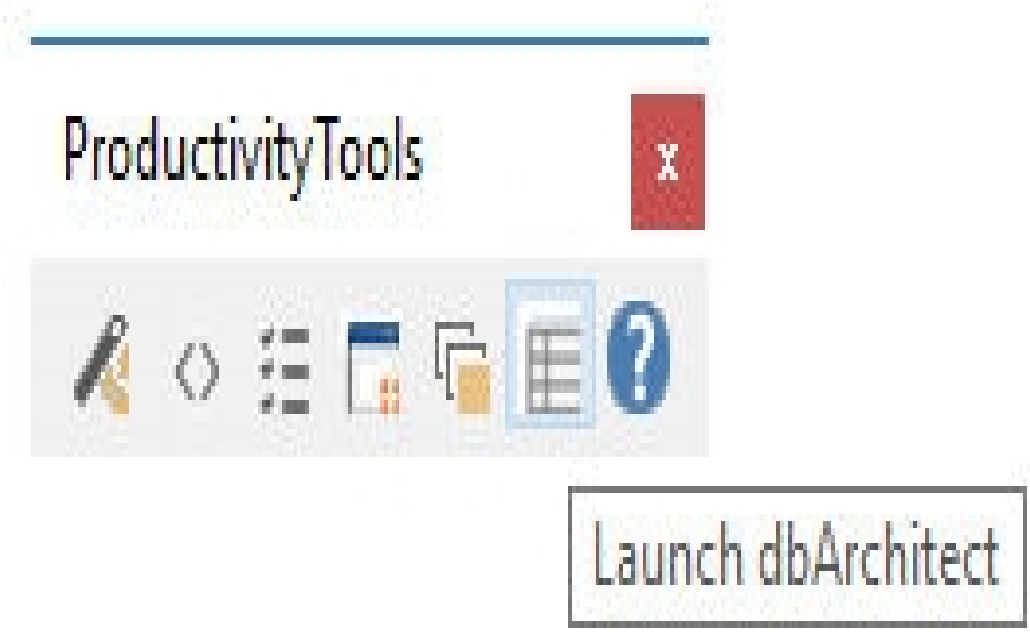
dbArchitect can also be used as a database browser, allowing you to navigate through different levels of the database using the explorer tree. Clicking on a tree item displays the datablocks that belong to that item, acting as a simple filter for datablocks. Double-clicking on a database item also brings up the normal iFIX block edit dialog box, which allows you to make on-the-fly changes to a datablock without leaving dbArchitect.

Lastly, dbArchitect can be used as a database organizer. If a naming convention is used on the iFIX database, you can browse through your database using the hierarchic explorer tree. As you browse through the levels, sub-items display the blocks belonging to those items, until you reach the last level which displays the datablocks themselves. Operations can be performed on any of these levels, including the generation of a template. This means that you can make templates of any level, whether an entire location or a subsection of a device.

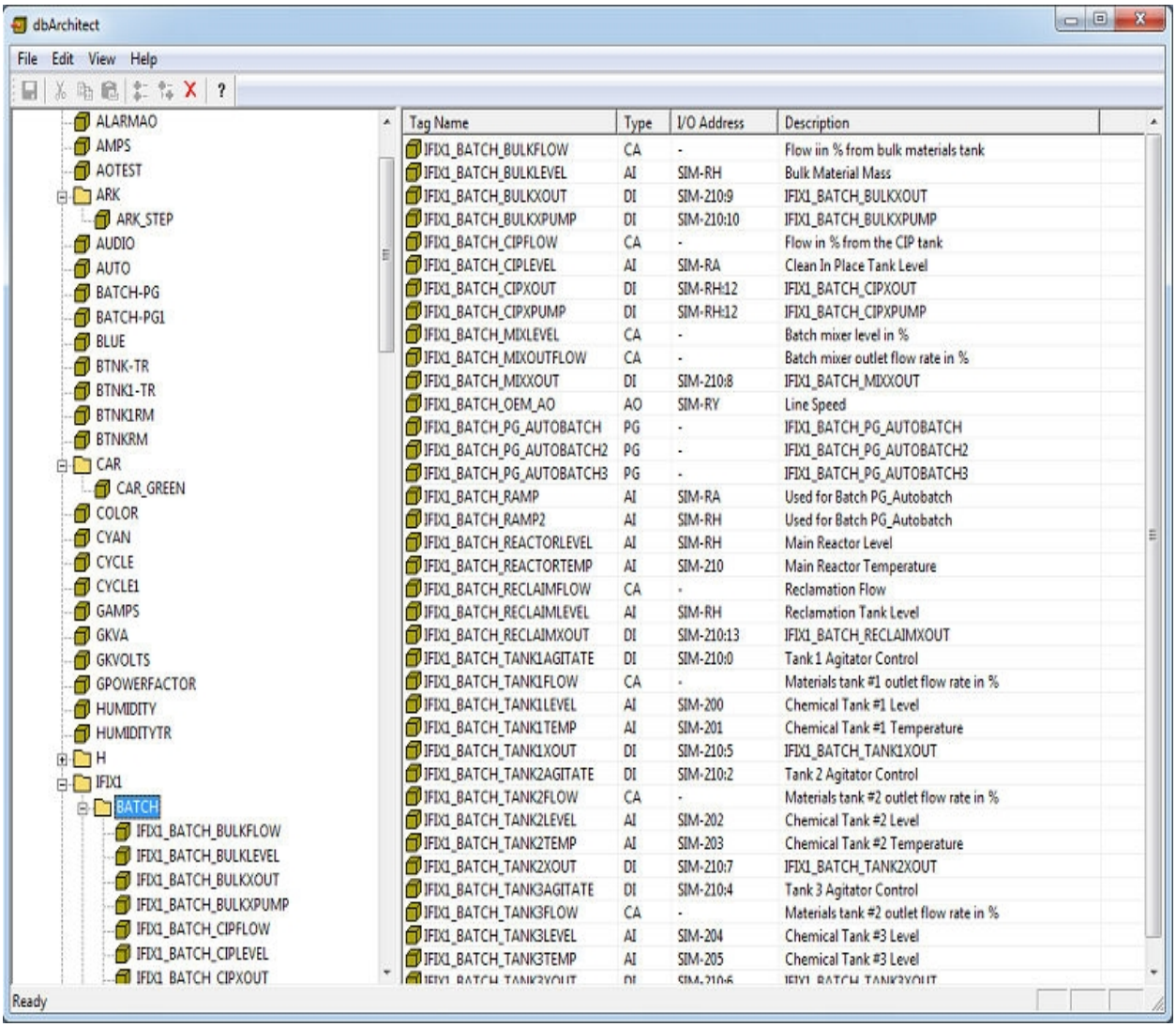
Note that dbArchitect should not be run until the system has settled after startup.

Launching dbArchitect

To launch dbArchitect, click on the dbArchitect button from the "ProductivityTools" toolbar from in the iFIX Workspace configuration mode:

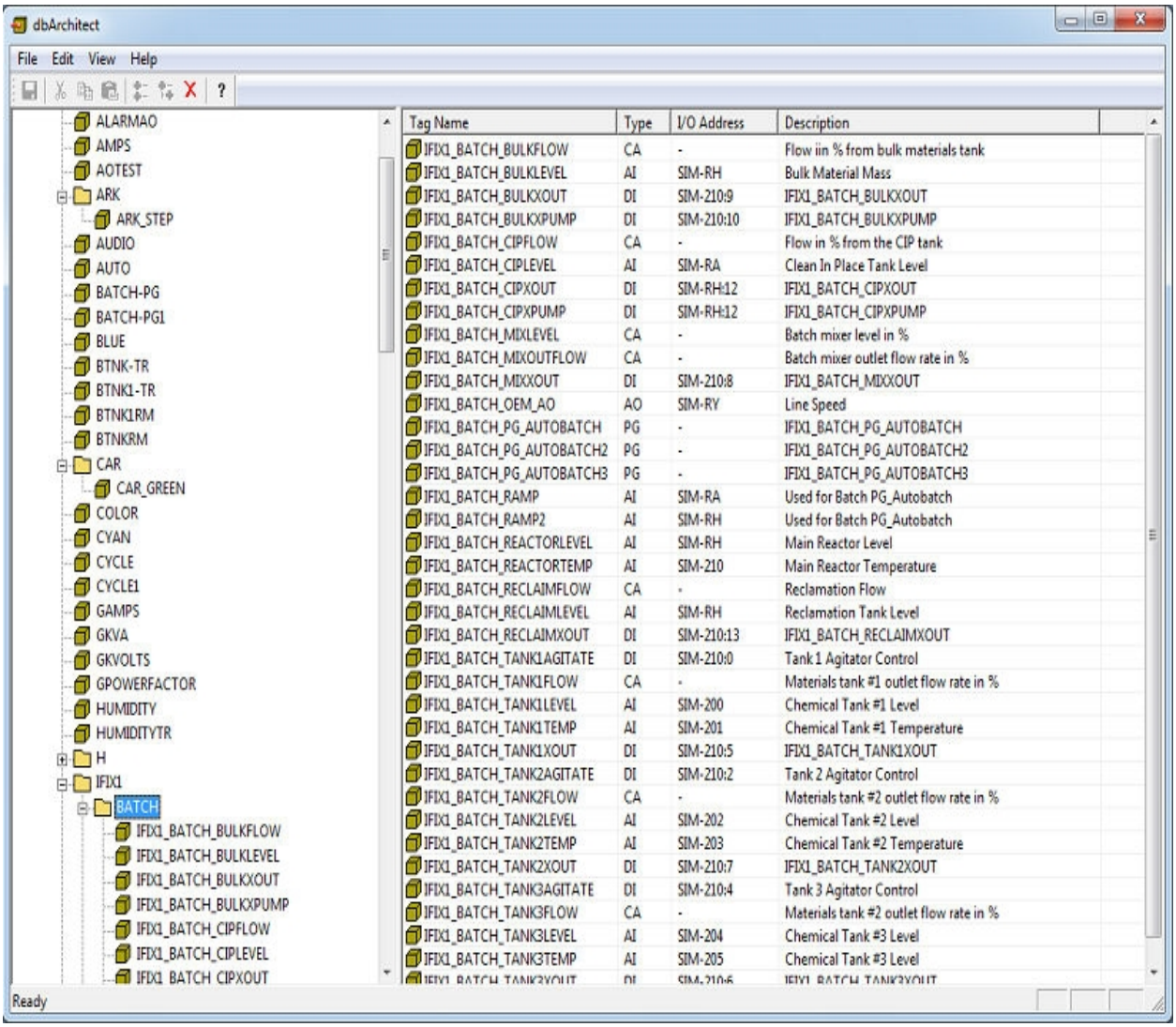


This will launch the dbArchitect application after loading all database blocks.



Navigating dbArchitect

The main dbArchitect window is divided into two sections: The Explorer Tree and the Datablock List. Navigating is done mainly by clicking on specific items in the explorer tree and using the context-sensitive menus. These sections are discussed in detail in the sections that follow.

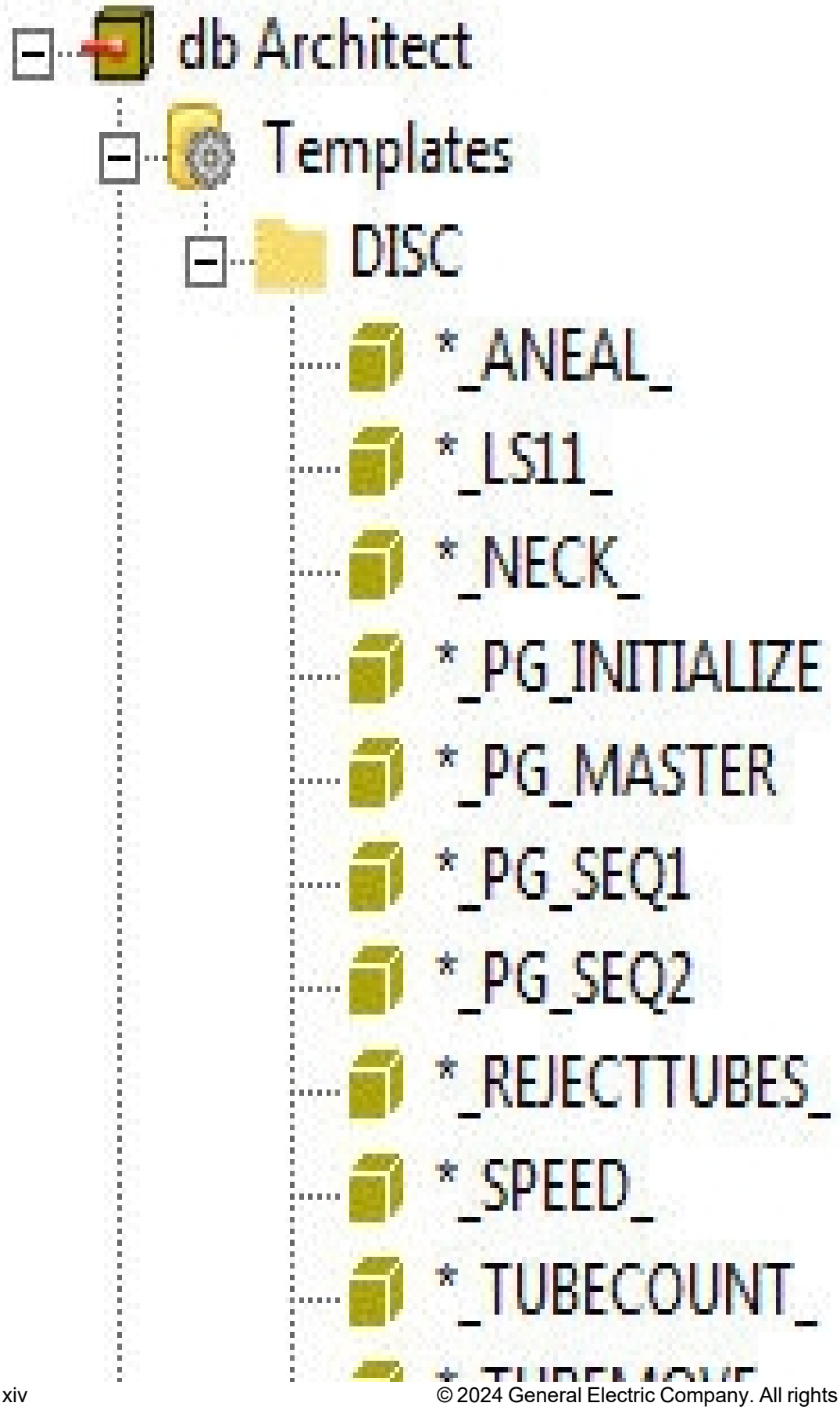


The Explorer Tree

The Explorer Tree gives you an overview into how the system is organized. It is the quickest way to navigate between items and also shows the relationships between the logical items in the system. The explorer tree is further divided into two groups: The Template Tree, and the Database Tree.

The Template Tree

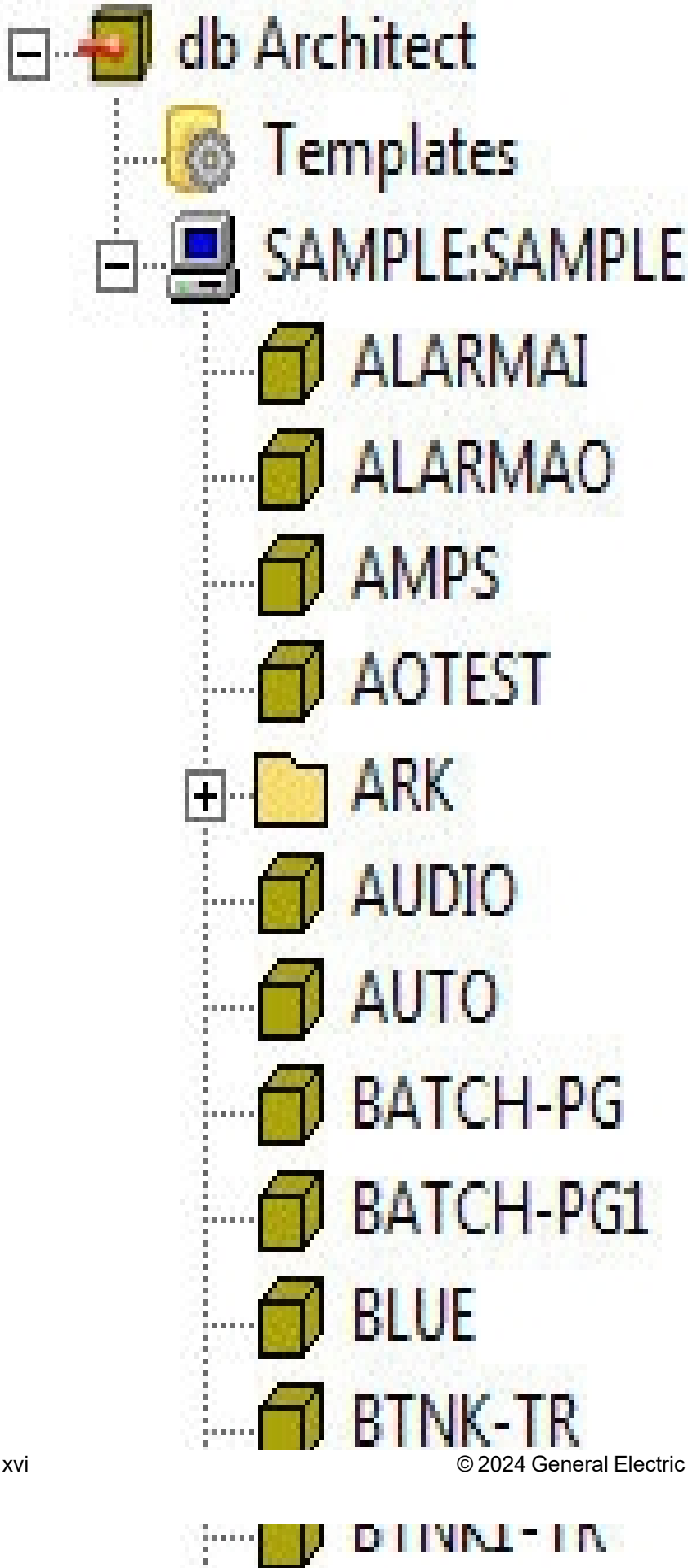
The Template Tree is a list of the templates currently defined within the system.



The Template Tree itself consists of the Template Item as the parent, and the datablocks as its children. Clicking on the template item displays its parameters on the right hand side, while clicking on any of its datablocks will display the field values for that datablock.

The Database Tree

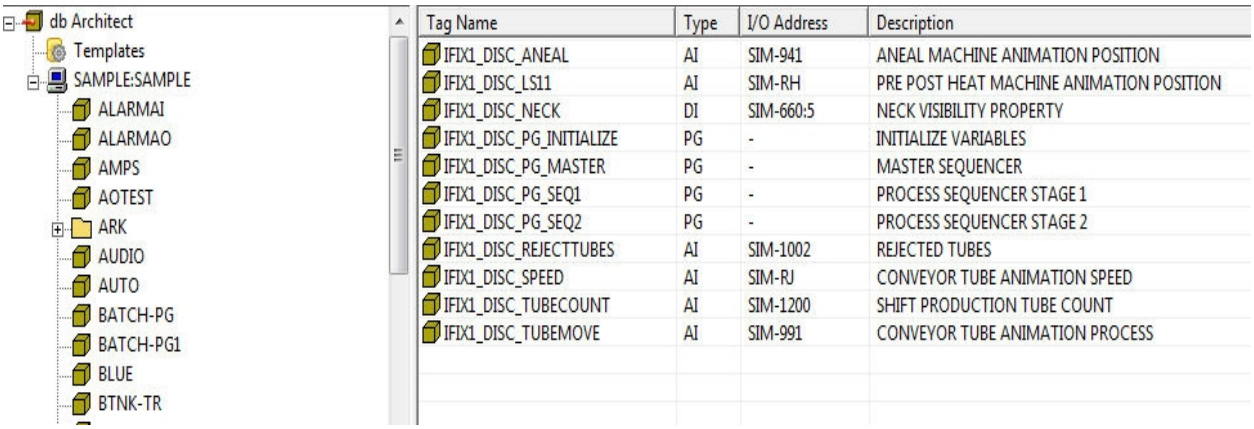
The Database Tree is an organized display of all the datablocks defined in an iFIX database. The tree is organized based on the naming convention supplied. For example, the database tree illustrated below is organized according to the naming convention {RTU}_{DEVICE}_{ASMTYPE}_{POINTTEXT}, which means datablock names have four components separated by an underscore.



As you can see the database tree has four levels, matching the structure of the naming convention, with the last level being the datablocks themselves.

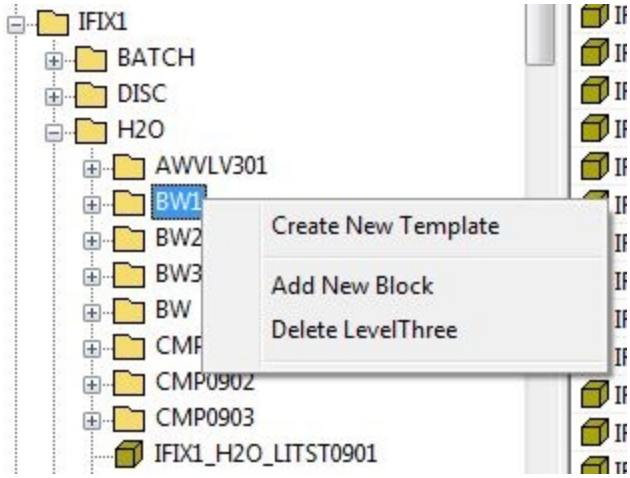
The Item List

The Item List is a context-sensitive display of objects that belong to an item. The list changes based on the currently selected item in the explorer tree. For example, clicking on an item in the database tree will display a list of the datablocks that belong to that item:

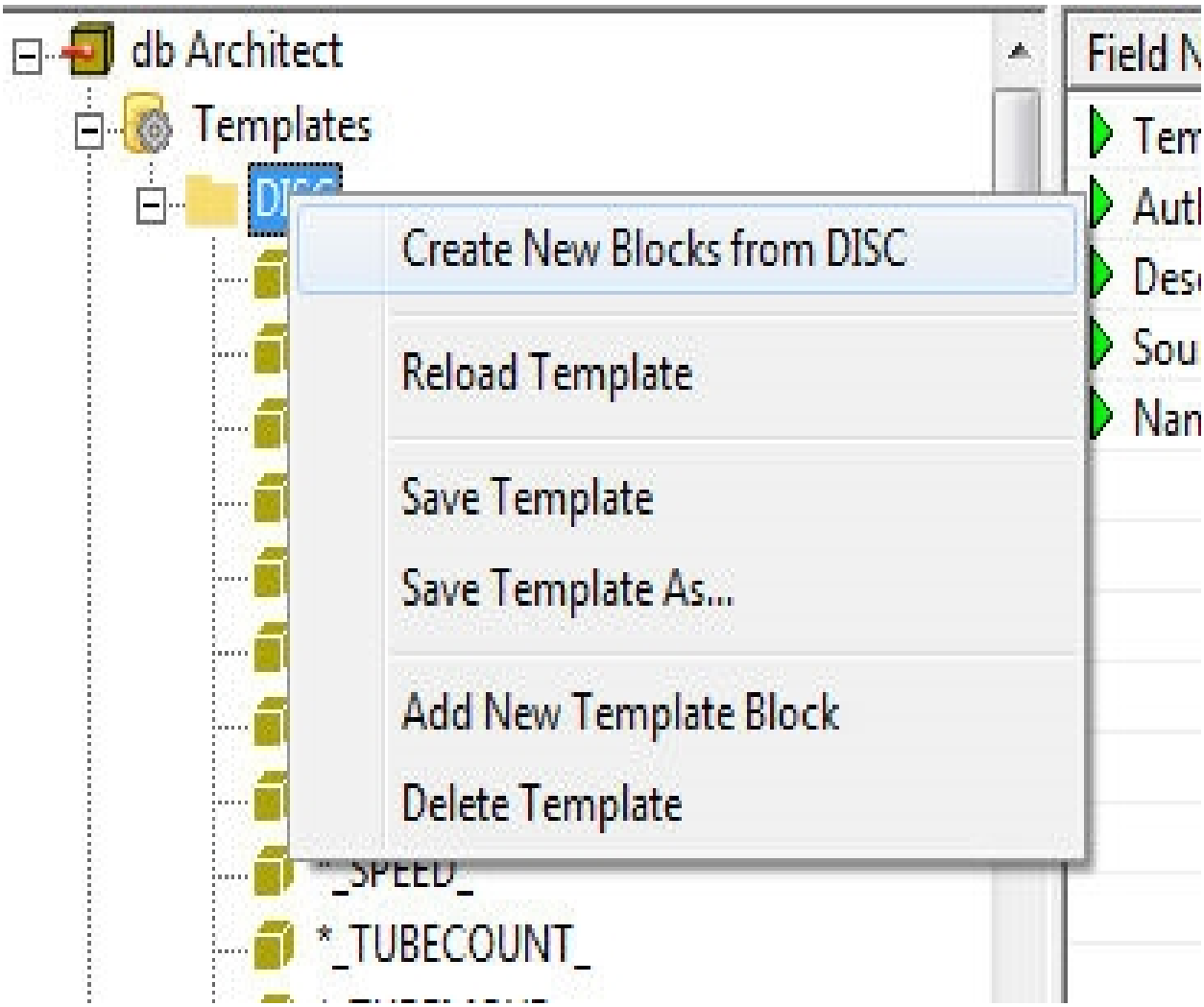


Context Sensitive Menus

Right-clicking on any item brings up a menu of options applicable to that item. Most of the options include basic management functions (add, edit, delete options), along with a specific generation option. For example, right-clicking on a database tree item will bring up the following menu:



While right-clicking on an item from the Template Tree will display the following menu:



Generating a template

A Template is a pattern that can be used to generate logical groups of datablocks in an iFIX database. Typically, templates are usually made from devices (e.g. a Circuit Breaker or a Transformer), but dbArchitect allows you to make templates from larger (e.g. a Location or a Network), or smaller logical groups (e.g. a set of Phase Amps for a Circuit Breaker).

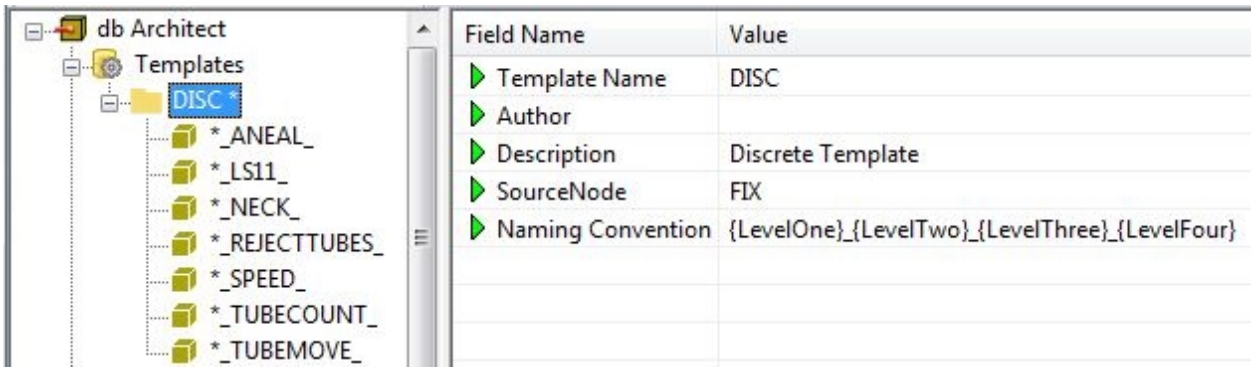
Templates are stored as text files (TPL format) in the designated template folder (see the setting "[DBA Settings] TPLFOLDER" described in 'Settings table' for further information).

Generating a new template in dbArchitect consists of just 2 steps:

1. Select the source item
2. Populate the template's details

Each of these steps is discussed in greater detail in the sections that follow.

Once the new template is generated, a new entry will be added to the template tree:



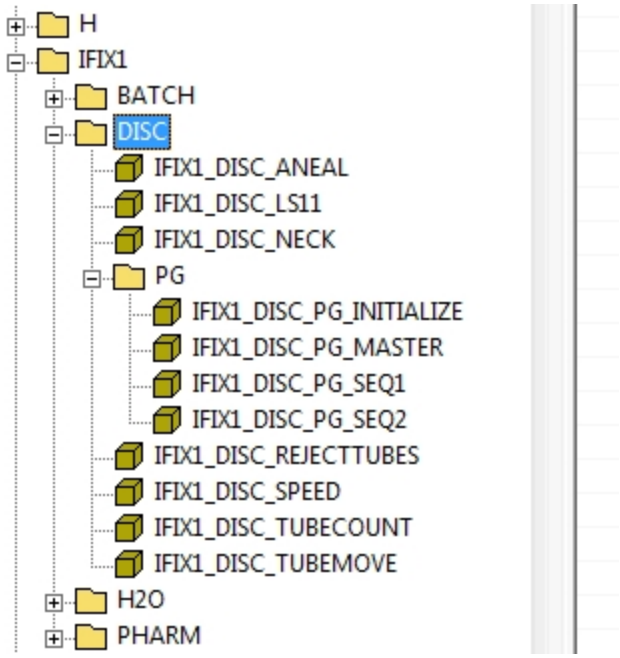
You can now use this template to generate new database blocks in iFIX. This is discussed in the next topic.

Note that the datablock names stored in a template consist only of the suffix for the original source datablocks.

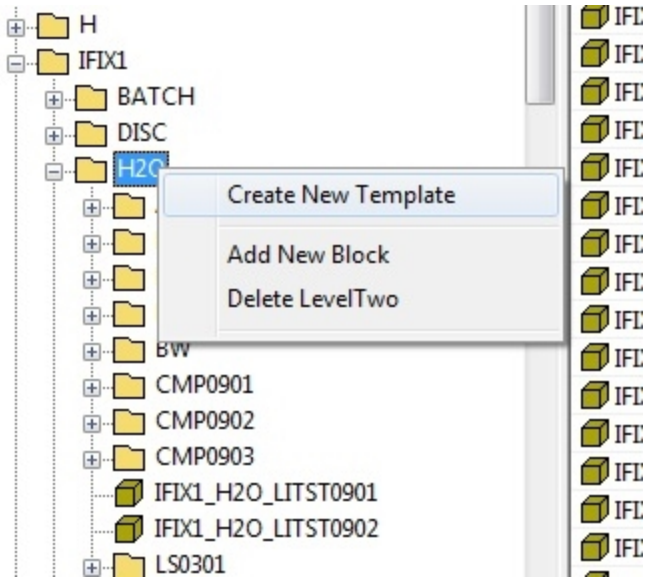
Also note that to be able to generate a template, it requires the datablocks to have at least two levels of naming convention (<levelOne>_<levelTwo>). Refer to naming convention for further information.

Selecting The Template Source

A template's source is the root item of the logical grouping of points in the dbArchitect database tree. For example, given the database tree illustrated below, you could make a template from the BLF location, or any of the devices under it, or any of the sub-groupings under each device.



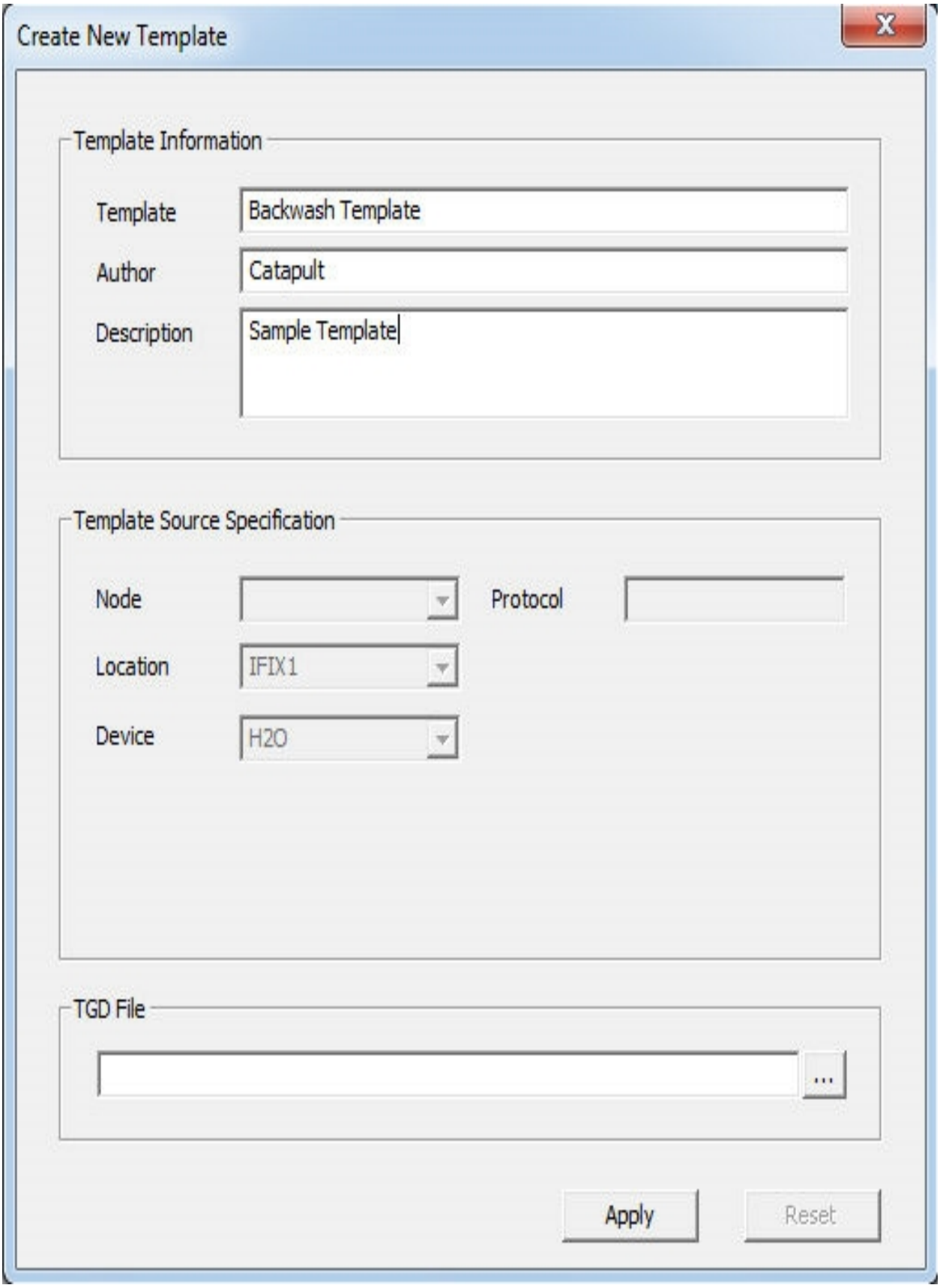
To select the template source, simply right-click on the root item and select the 'Create New Template' option. In this example, we're creating a template from the H2O group.



This will then display a dialog box for specifying the new template's details. This is discussed in the next section.

Populating the template's details

Once the template source has been selected, the following dialog box will be displayed:



Fill out the required fields as follows:

Template : This will serve as the filename for the template. The extension ".TPL" will be added automatically. The folder where the template will be stored is defined in 'Settings table'.

Author
Description

TGD File: If the source item for the template has an associated TGD file, then you can specify it here. The TGD file is used to populate an auxiliary screen that may be attached to the item. For further discussion on TGD file see section "TGD file maintenance".

The Template Source Specification fields are all disabled and cannot be edited. However, it will display the components of the selected source item.

Once the required fields are populated, click on the **Apply** button to start generating the template.

Managing Templates

dbArchitect provides a set of features for managing generated templates. These features include:

- Editing the details of a template
- Deleting a template
- Saving changes to a template
- Saving changes to a different template
- Reloading an existing template

In addition, the datablocks in a template can also be managed using the following features:

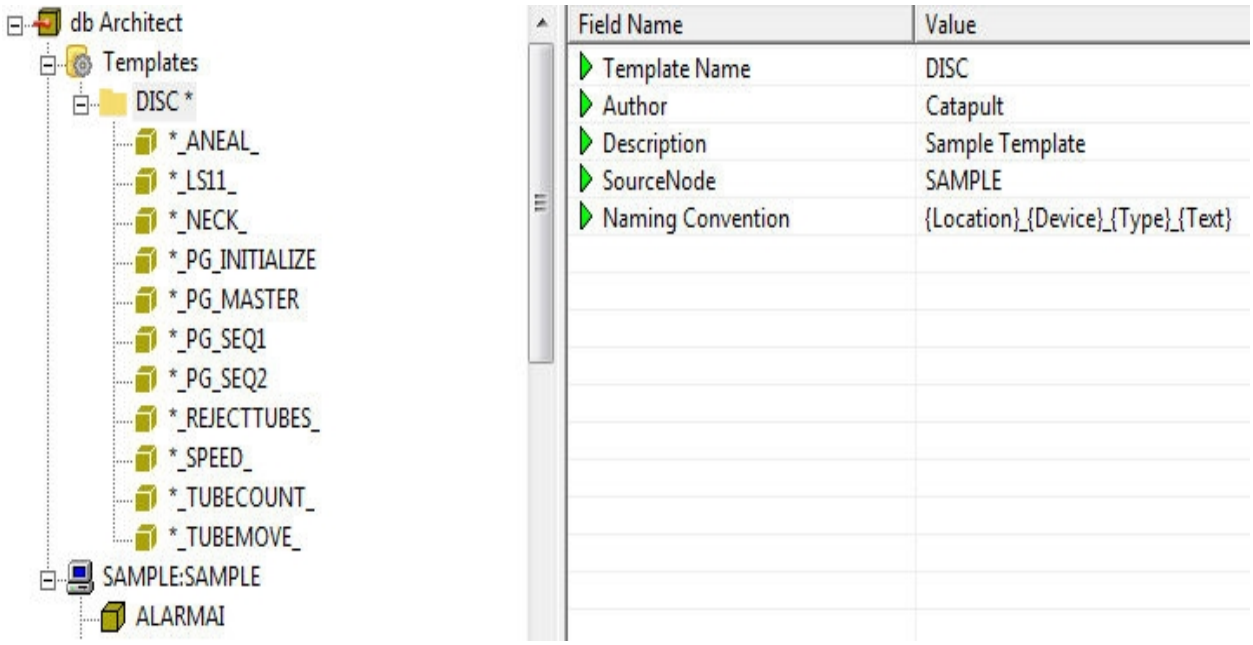
- Add a new template datablock
- Modify the value of a field in a datablock
- Deleting an existing datablock within a template

These features are discussed in detail in the sections that follow. Note that any changes made to a template are not applied to any datablocks that have already been generated using that template.

Also note that to be able to manage a template, it requires the datablocks to have at least two levels of naming convention (<levelOne>_<levelTwo>). Refer to naming convention for further information.

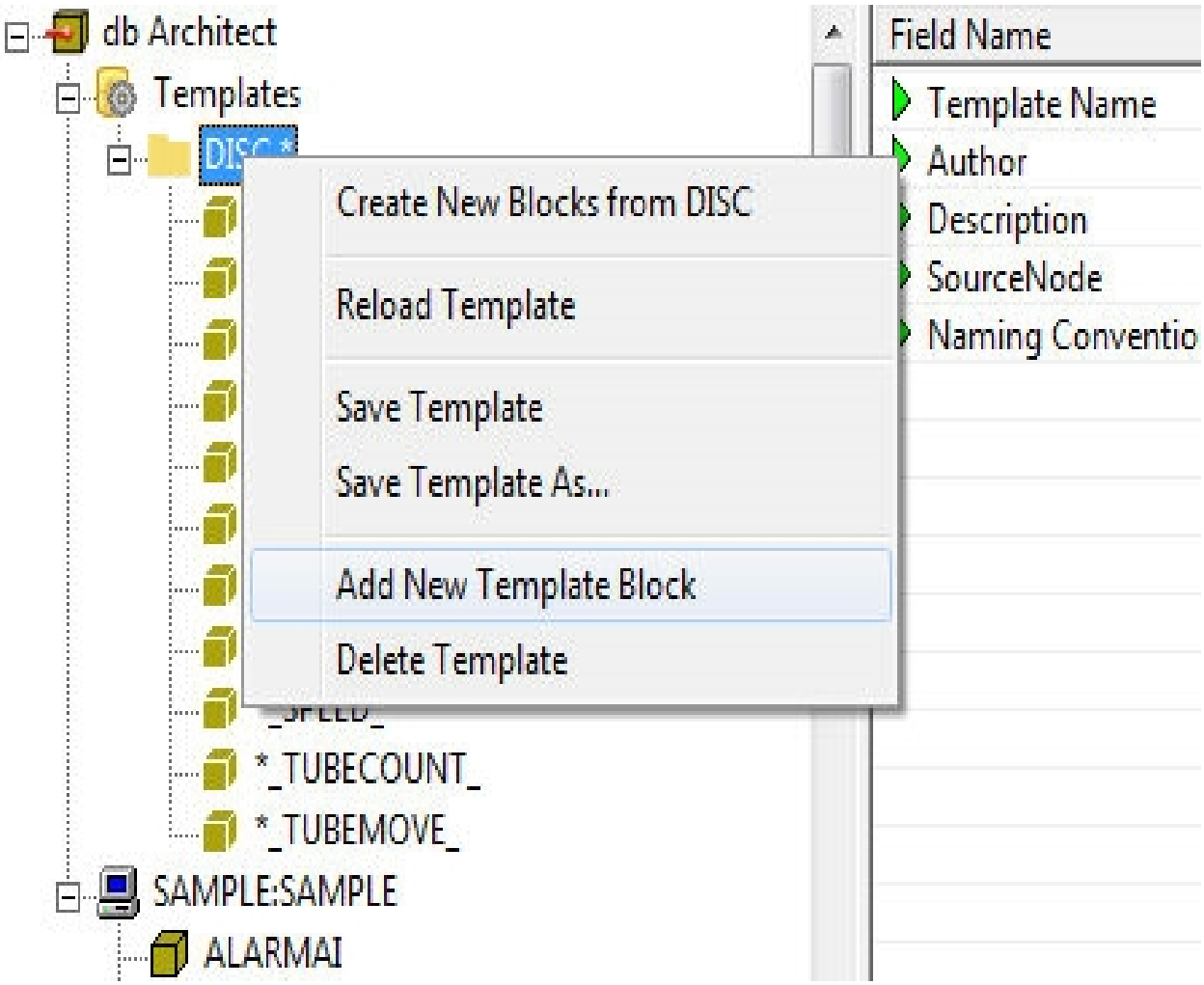
Editing a template

The details of an existing template can be edited. Specifically, the Author and Description fields can be edited. In addition, the datablocks within a template can also be managed (i.e. Add / Delete / Edit operations can be performed on specific datablocks).

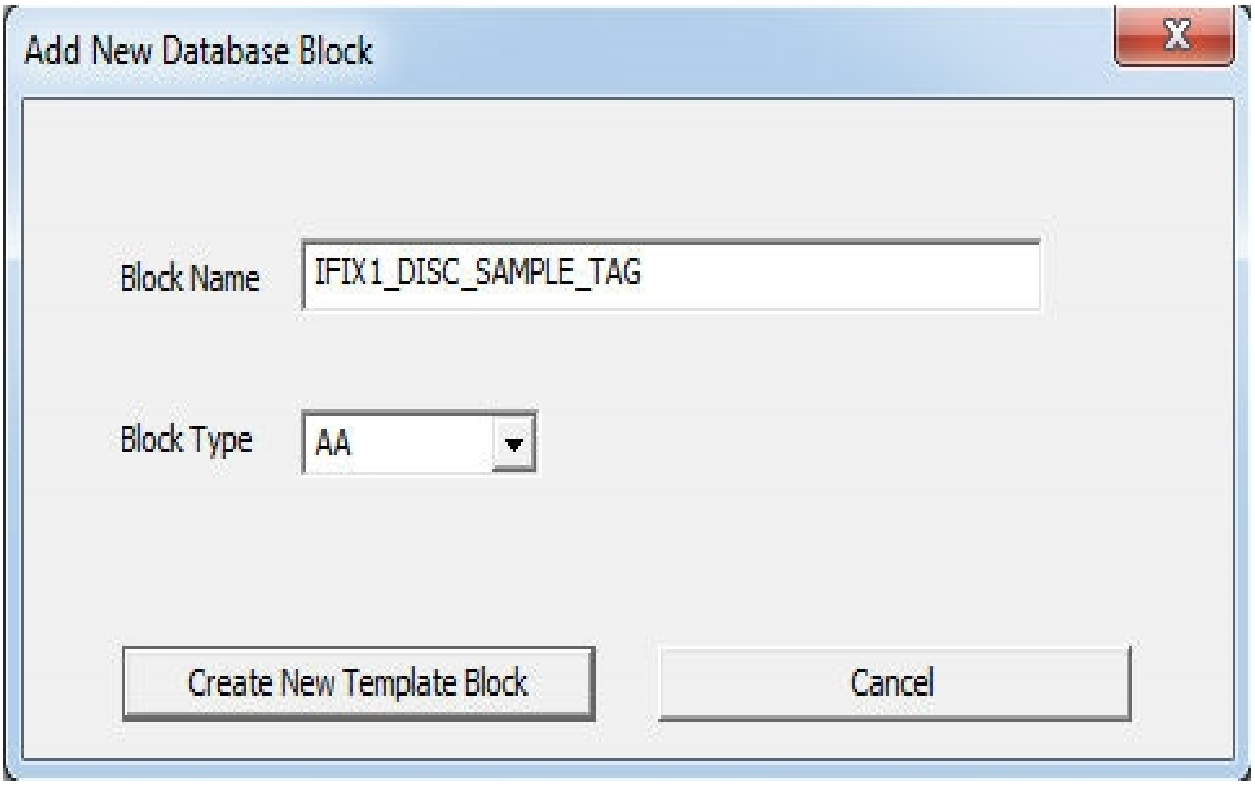


Adding a new template block

While templates are normally generated from an existing logical group of datablocks, you can modify it by adding a new datablock to it. To add a new datablock, right-click on either the template item in the Template Tree, or on one of its datablocks and select the 'Add New Template Block' option from the pop-up menu.

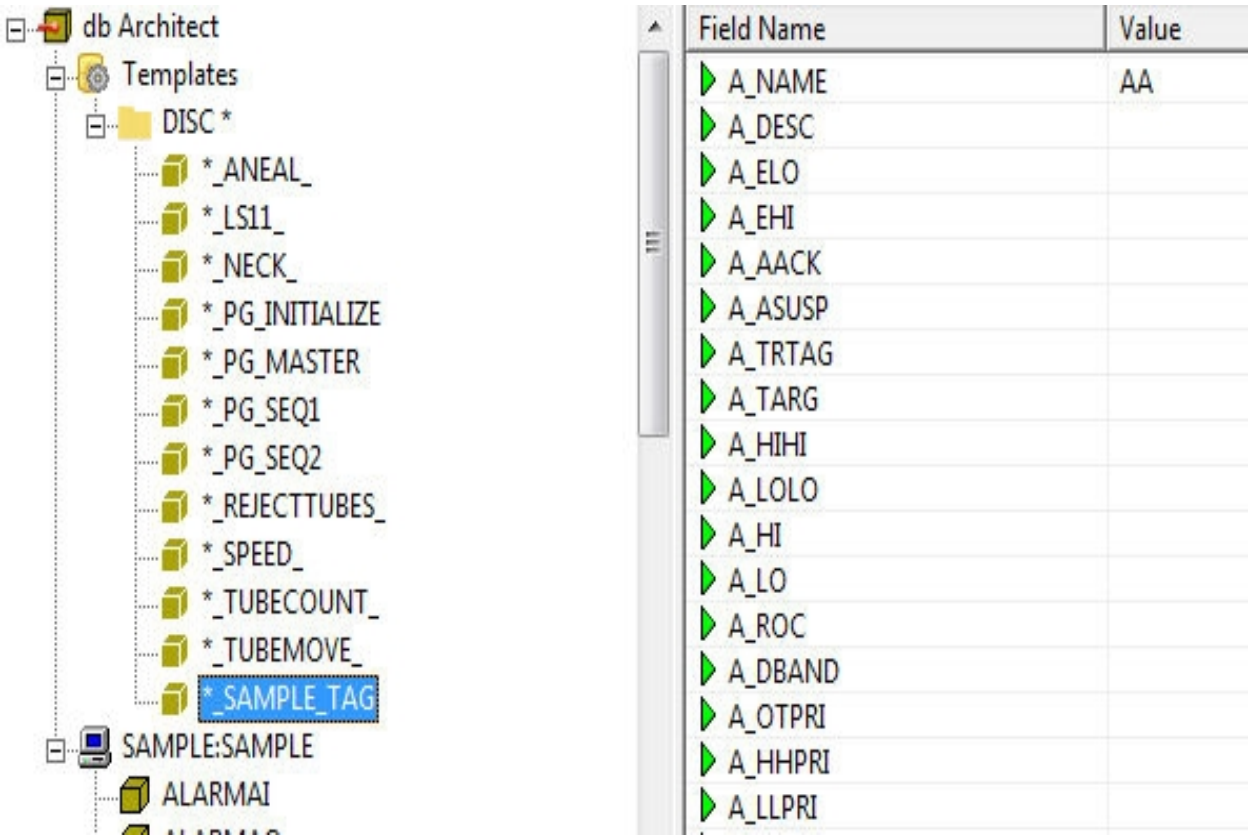


This will display the following dialog box:



Enter the full name of the datablock and select the block's data type. Click on the 'Create New Template Block' button to create a new template block, or 'Cancel' to exit the dialog box without changing anything.

The new template block will be created under the selected template:

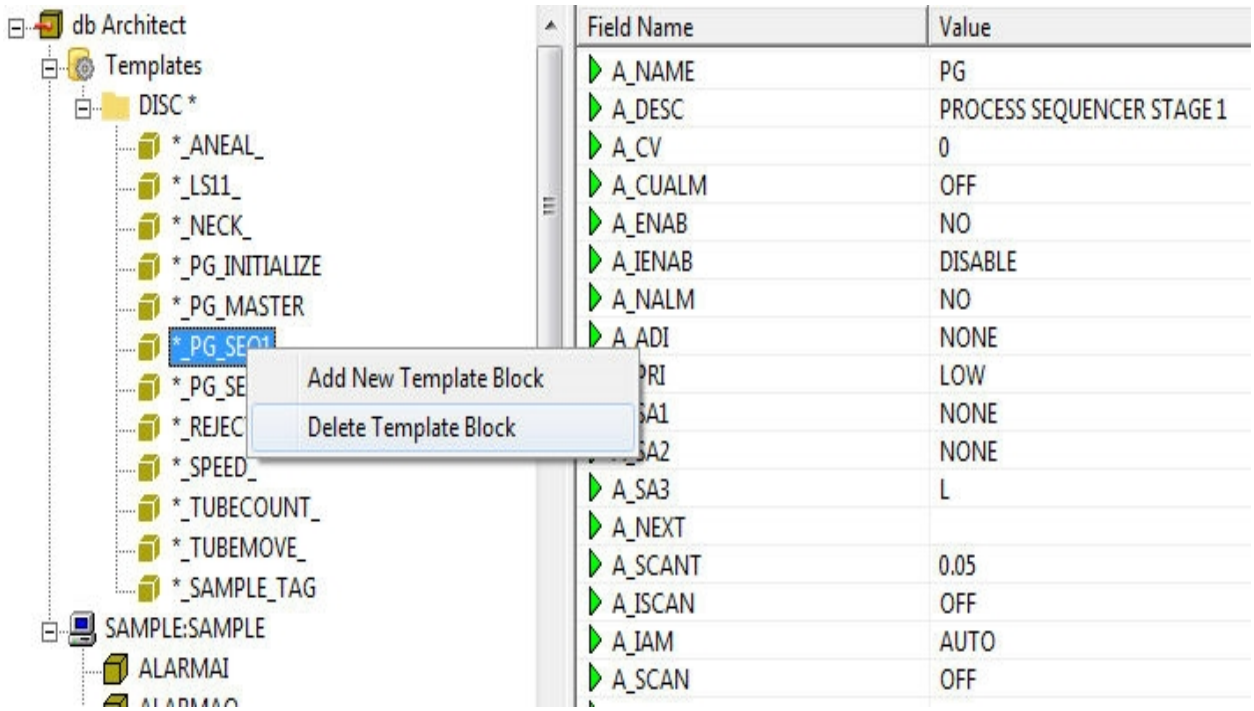


Notice that the only field defined is the A_NAME field, which cannot be changed. The rest of the fields can be edited by clicking on the respective field's 'Value' column.

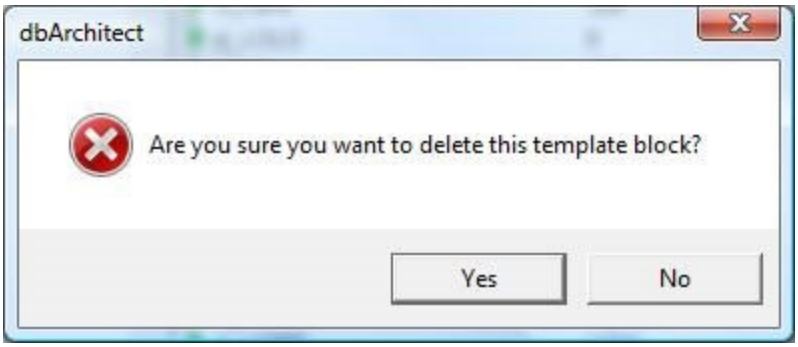
Note also that adding a new datablock to a template does not affect any datablocks already generated using that template.

Deleting a template block

To delete a datablock from a template, right-click on the datablock you want to delete and select the 'Delete Template Block' option from the pop-up menu.



You will then be asked to confirm the deletion.

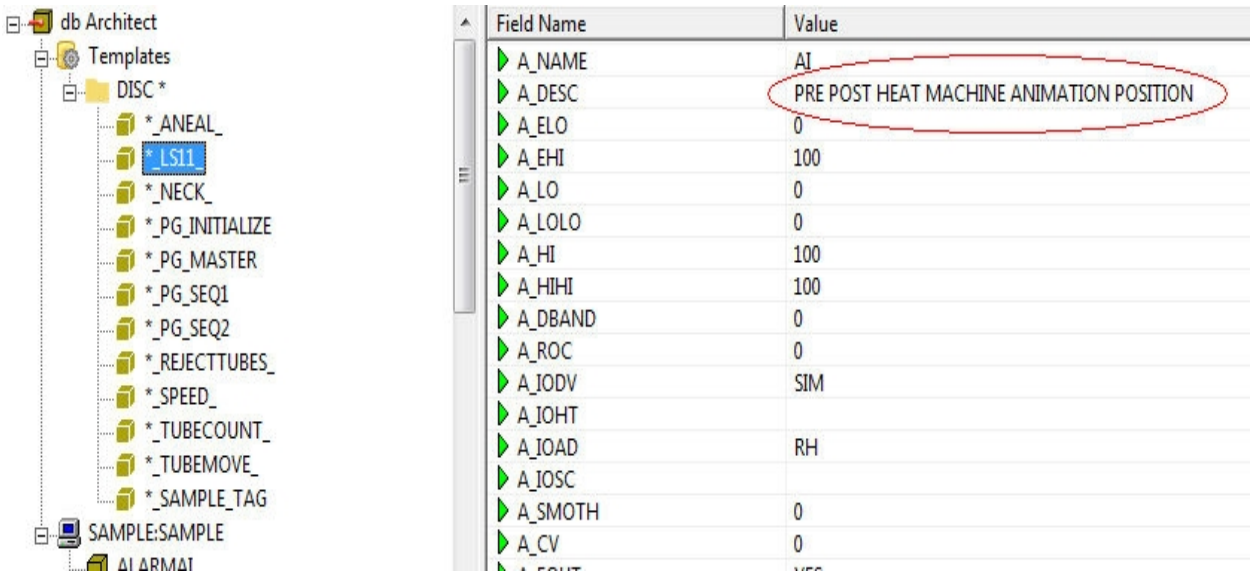


Click 'Yes' to delete the datablock from the template, and 'No' to cancel and exit.

Note that deleting a datablock from a template will not affect any datablocks that have already been generated using the template.

Modifying a template block

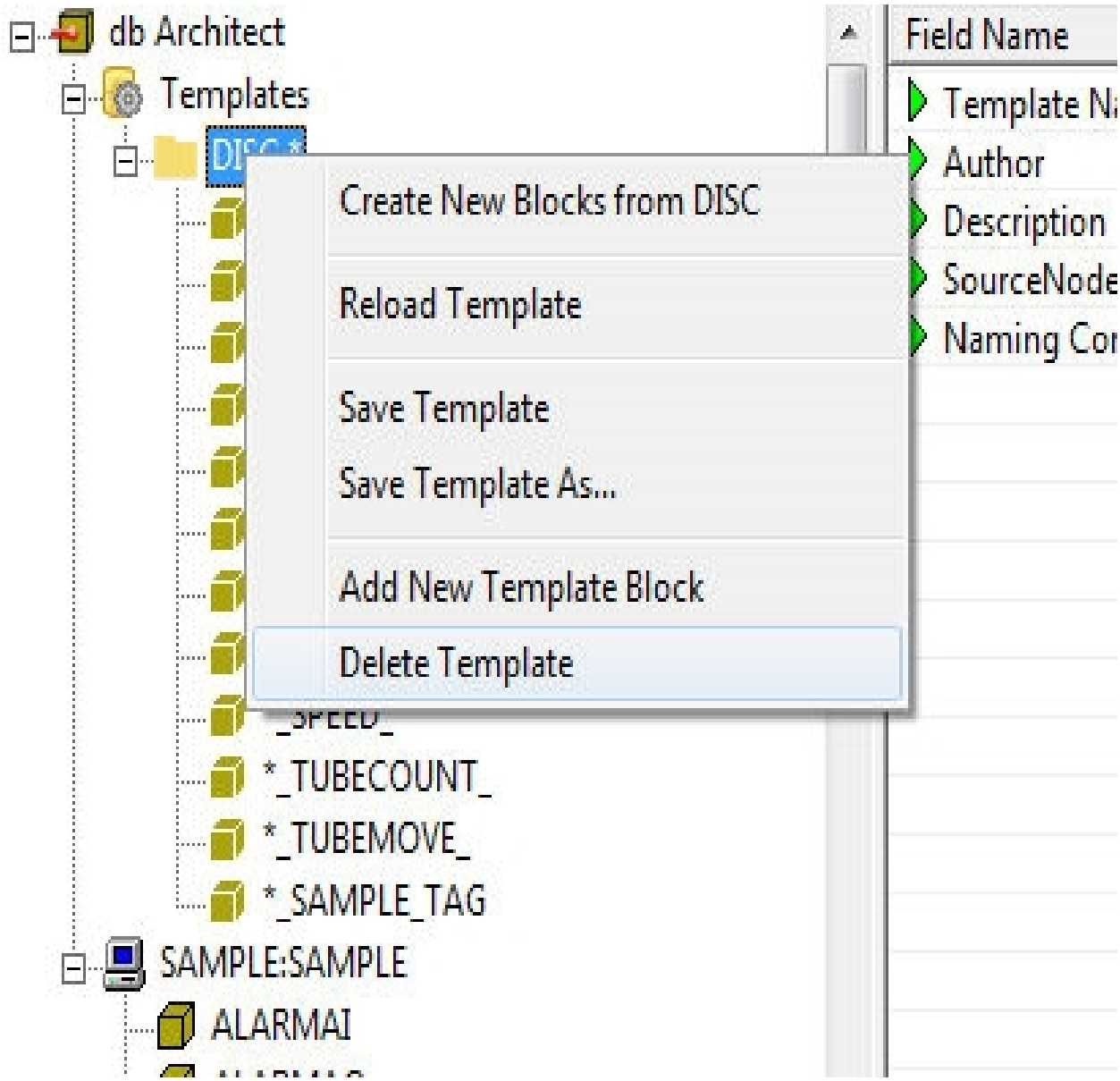
The field values for each template block can be edited within dbArchitect. To edit a value, click on the 'Value'' column for the field to edit. For example, to edit the description of the 'LS11 datablock from the 'DISC' template, click on the 'Value' field on the right-hand side list:



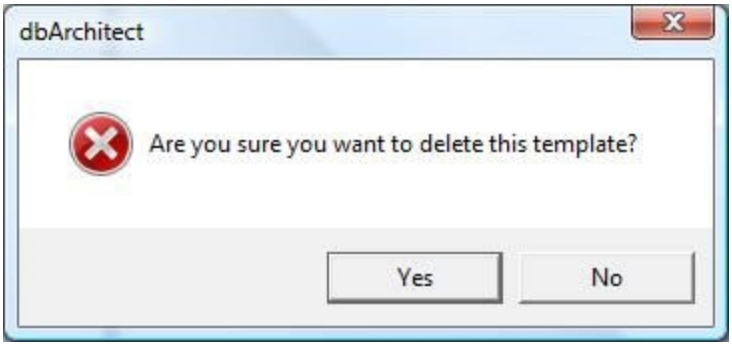
You will then be able to edit the value for that field.

Deleting a template

To delete a template, right-click on the desired template and select the 'Delete Template' option from the pop-up menu.



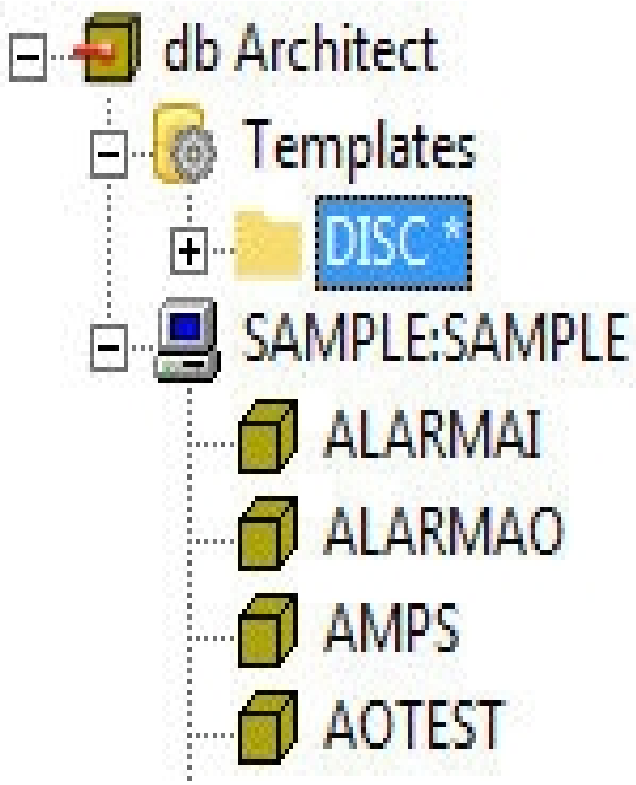
A dialog box asking you to confirm the deletion will be displayed:



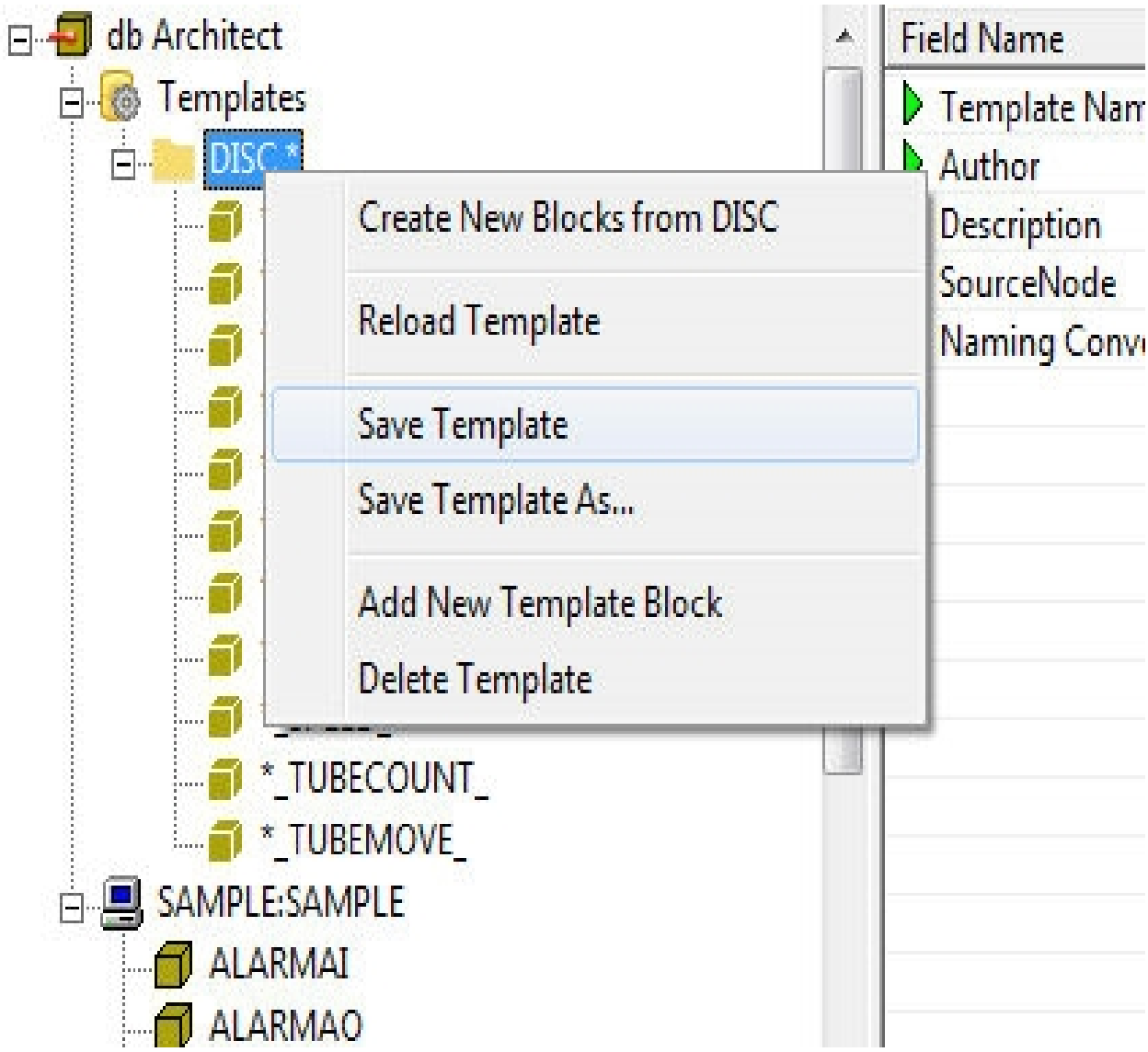
Click on 'Yes' to delete the template or 'No' to cancel the operation.

Saving a template

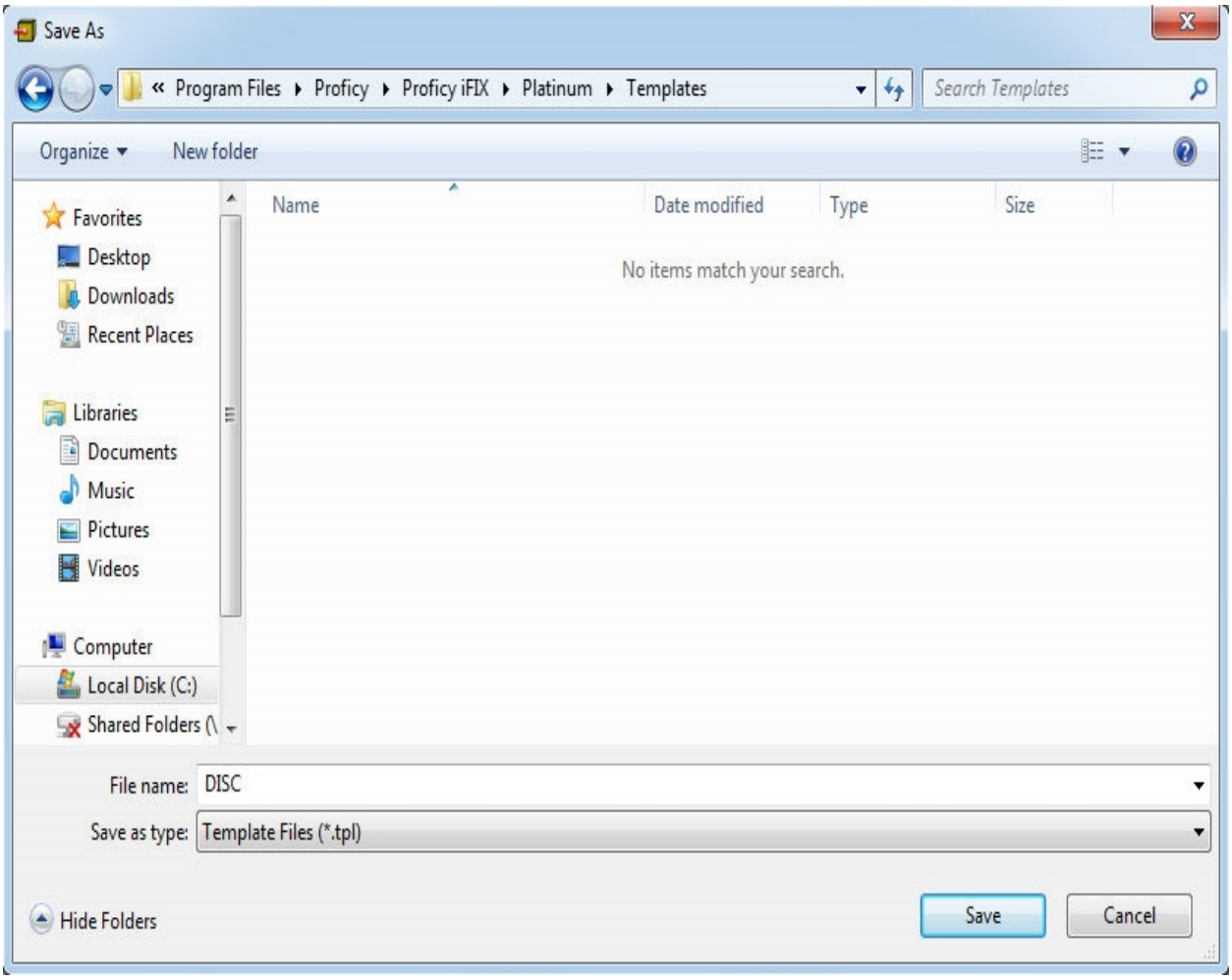
When a template is changed (or any datablock within a template is changed), dbArchitect marks the situation by placing an asterisk next to the template's tree item:



To save the changes to a template, right-click on the desired template and select either the 'Save Template' or the 'Save Template As...; option.

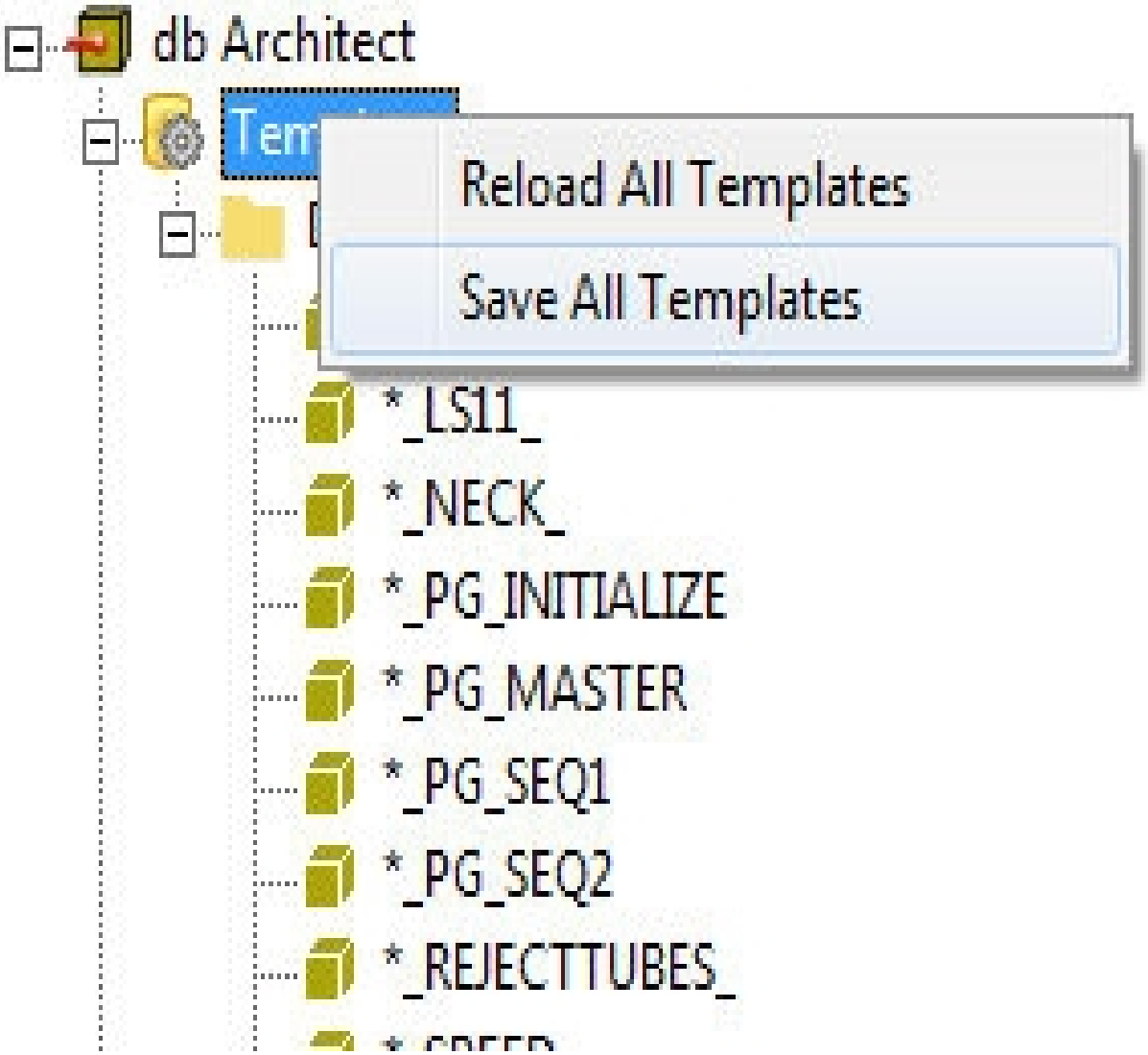


Selecting the 'Save Template As...' option will display the following dialog box:



Type in the new name for the template, or select an existing template to overwrite it.

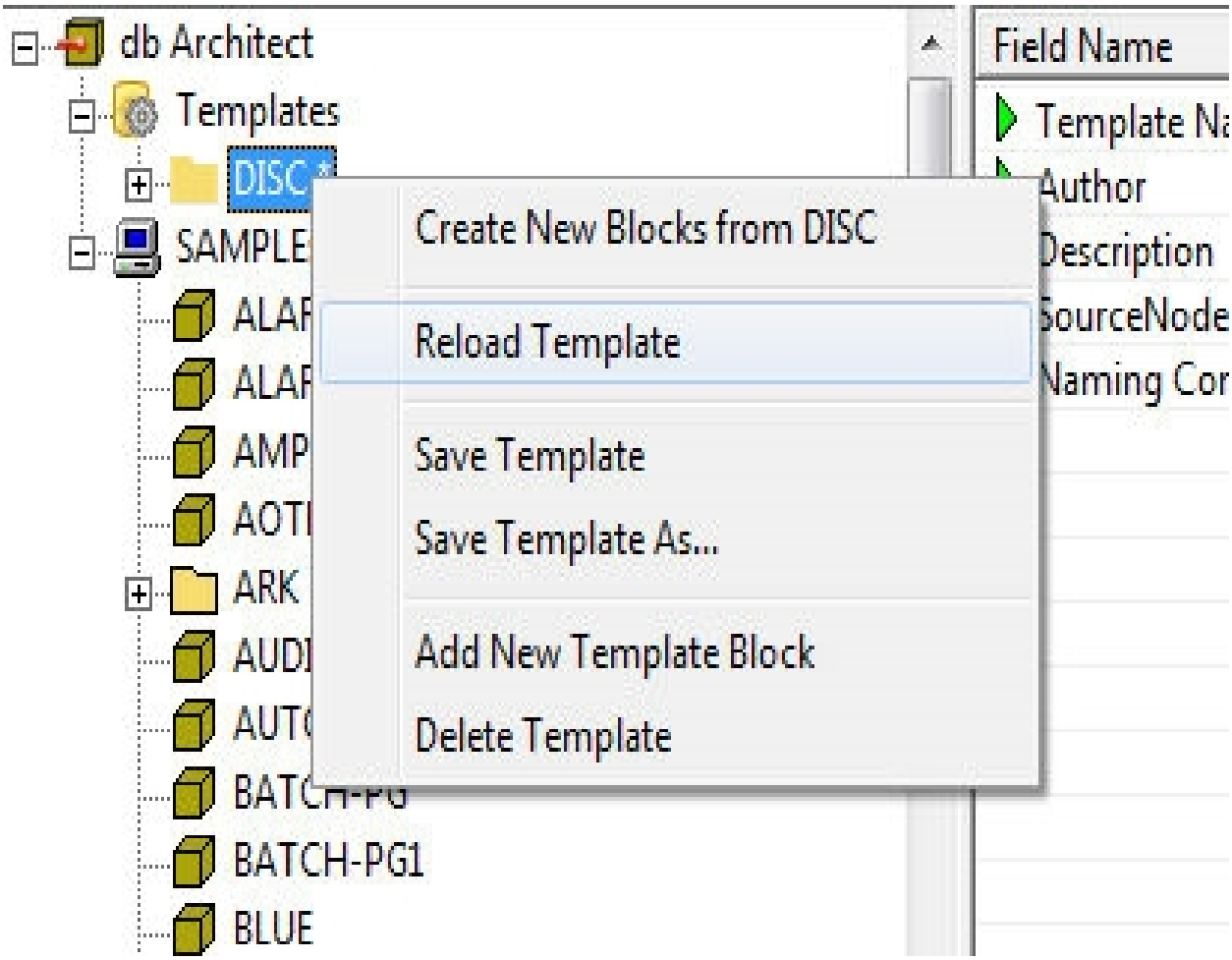
Alternatively, you can also select the 'Save All Templates' option from the Template Root item:



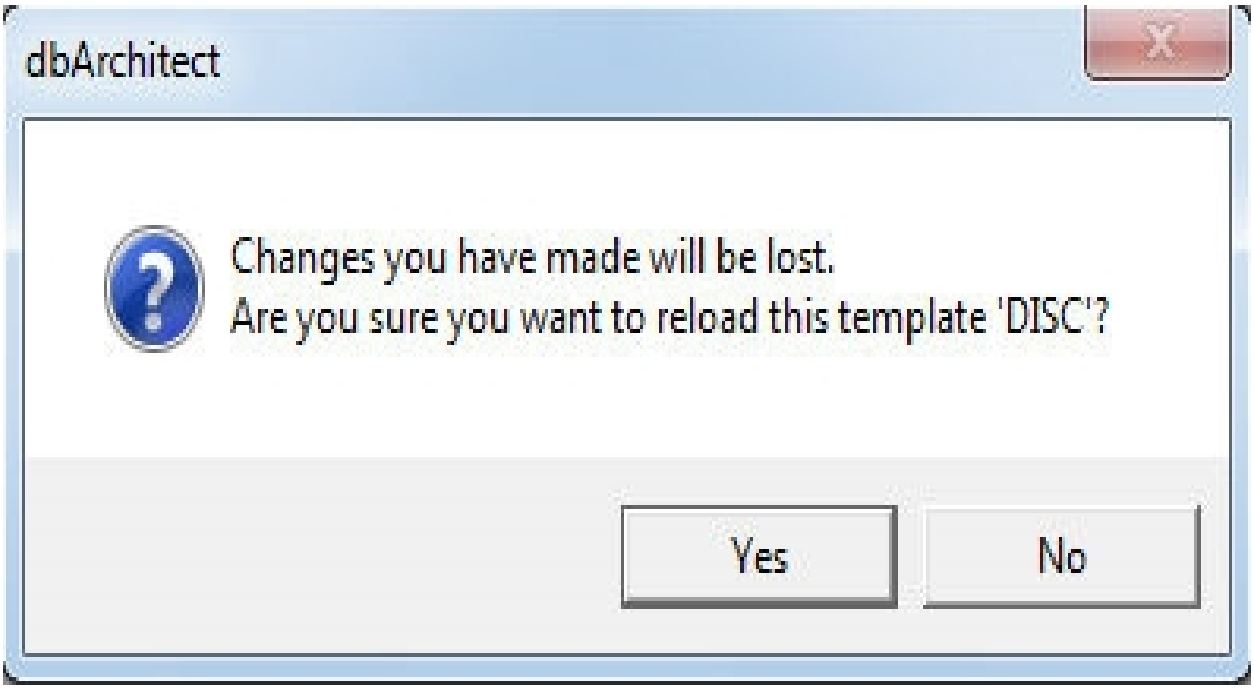
This will save all the templates currently defined in the Template Tree.

Reloading a template

Reloading a template means that all current changes to it are discarded and the last saved definition is loaded. This allows the user to undo all changes since the last save operation on the template. To reload a template, right-click on the desired template and select the 'Reload Template' option from the right-click menu:

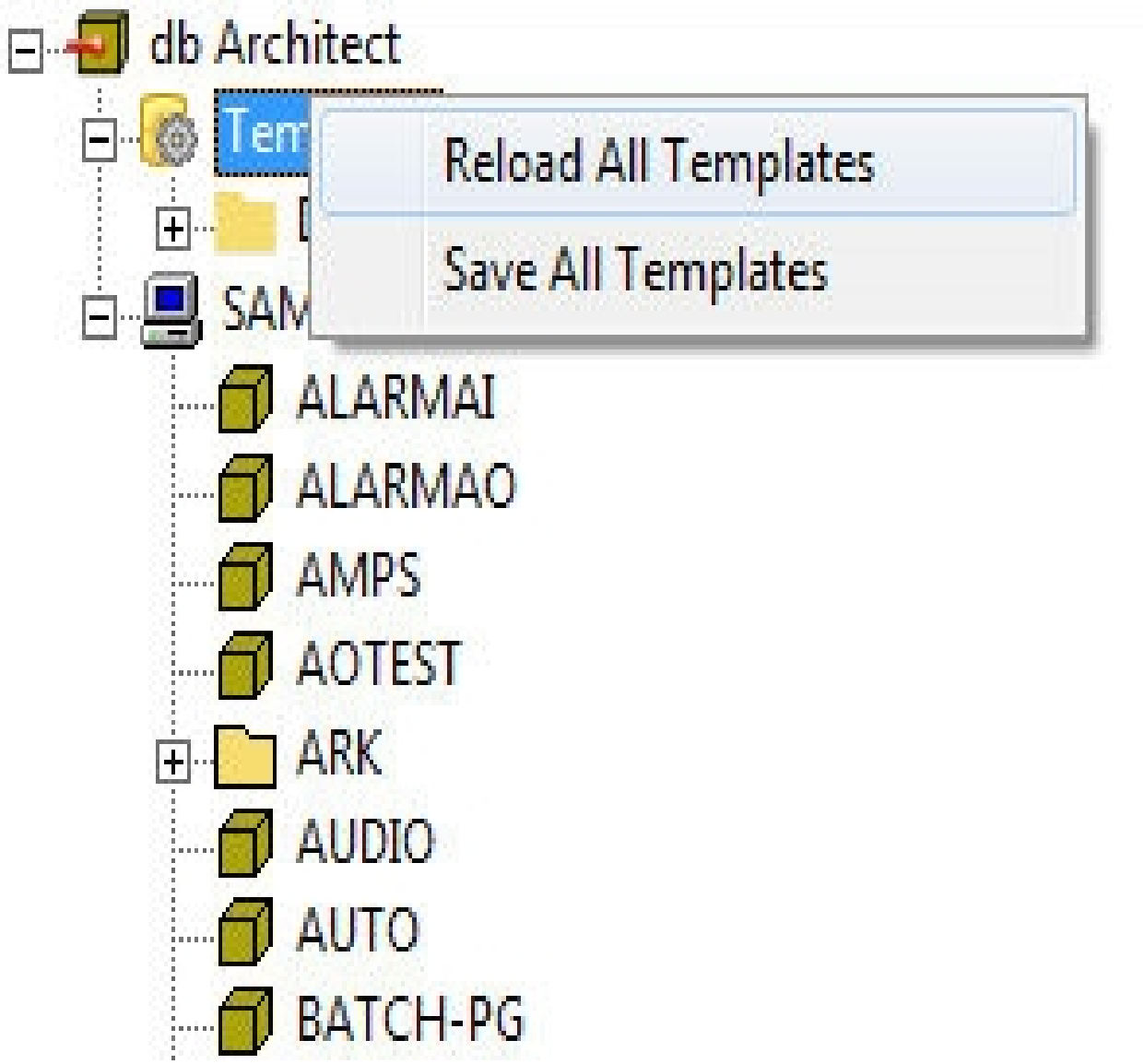


If any changes were made to the template, you will be asked to confirm the operation:



Click 'Yes' to reload the template and 'No' to cancel the operation.

Alternatively you can reload all the templates defined in the Template Tree using the 'Reload All Templates' option from the Template Root item:



Generating Datablocks

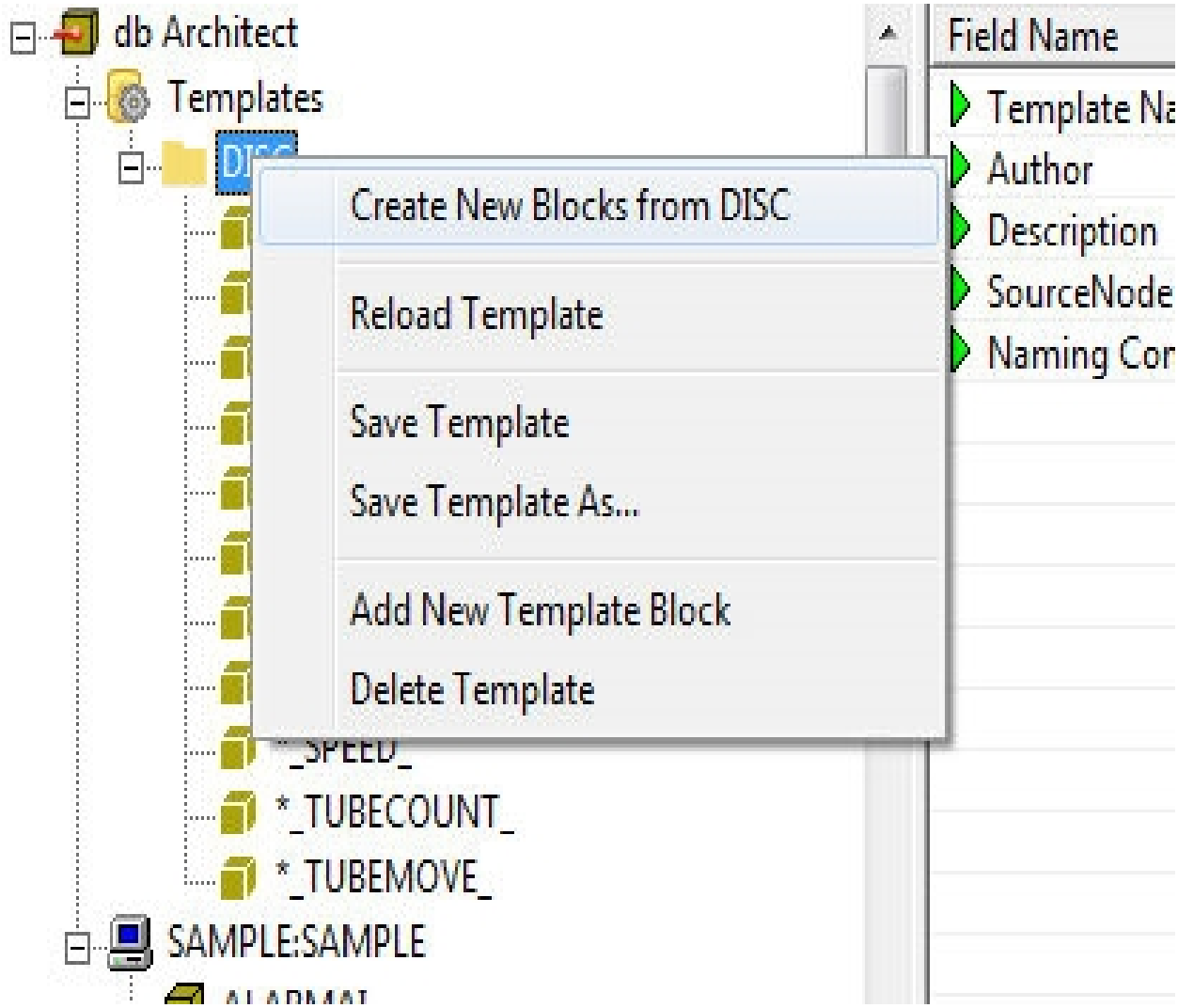
Once you have created a template, you can now generate new data blocks from that template (for details on creating templates, see the previous section). Generating new datablocks from a template involves the following steps:

1. Selecting the source template
2. Specifying the destination datablock name 3. Specifying the destination datablock address 4. Reviewing and/or editing the datablocks to generate 5. Generating the datablocks

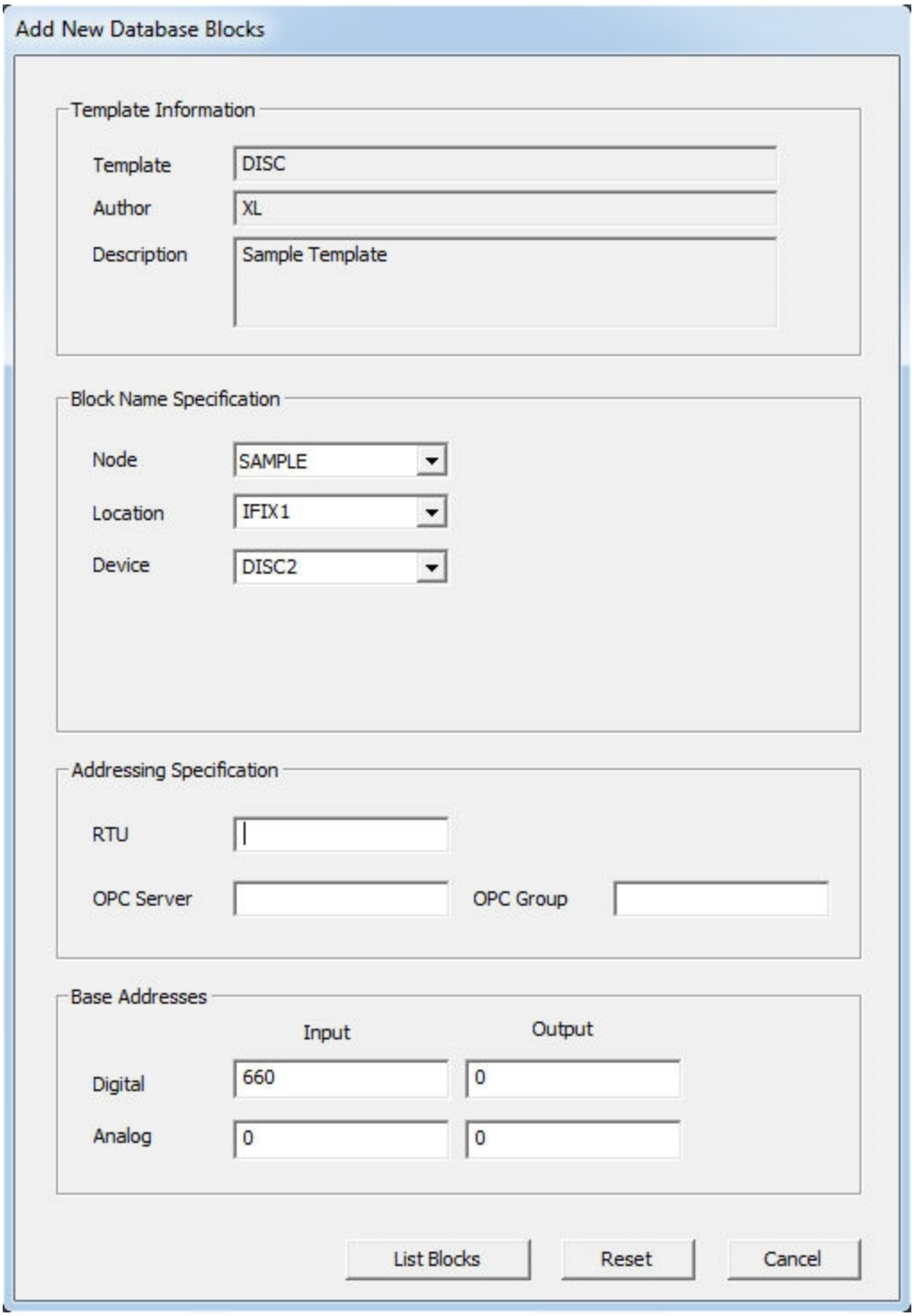
These steps are discussed in detail in the sections that follow.

Selecting the Source Template

The first step in generating datablocks from a template is to select the template itself. From the Template Tree, right-click on the desired template and select the 'Create New Blocks from..." option:



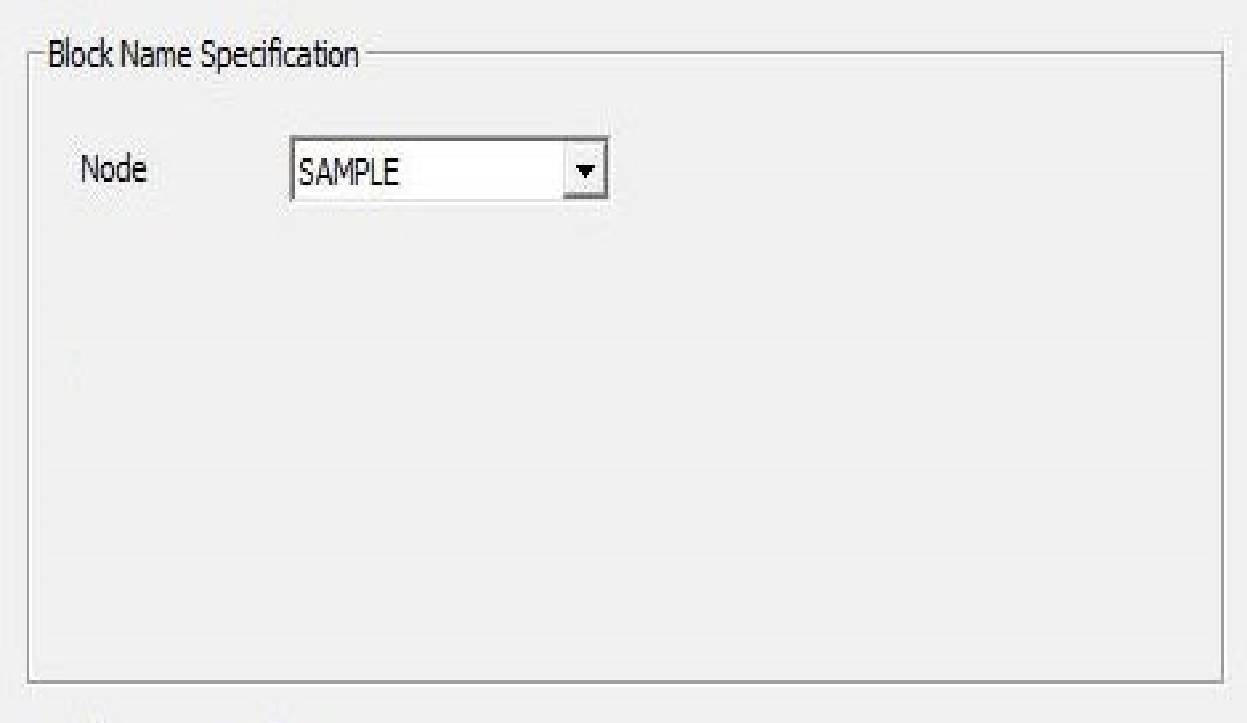
This will display a dialog box for specifying the parameters for the new datablocks to generate.



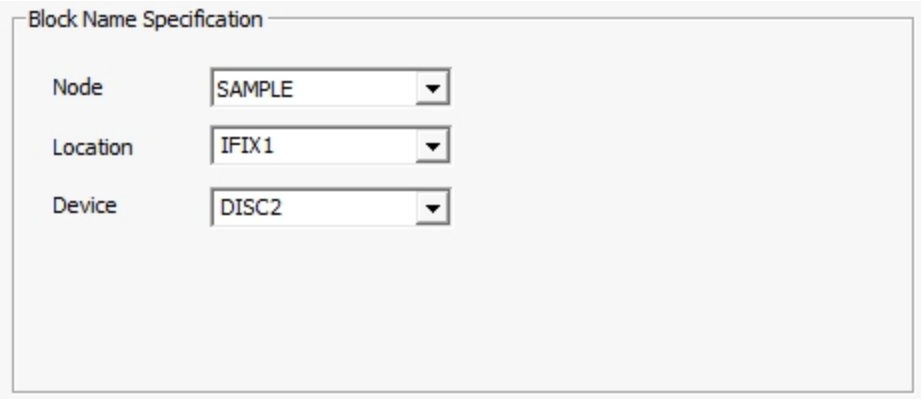
This dialog box is discussed in the next section.

Specifying the destination datablock name

The next step is to specify the destination block names, or to be more precise, specifying the prefix name for the new datablocks. The first step is to specify the name of the node where the new datablocks will be generated.



Once the node is specified, the block name prefix fields will be displayed. These are the fields that need to be specified in order to create a complete datablock name. Recall from the discussion on generating templates that a template stores the suffix of a datablock name based on its level in the Database Tree.

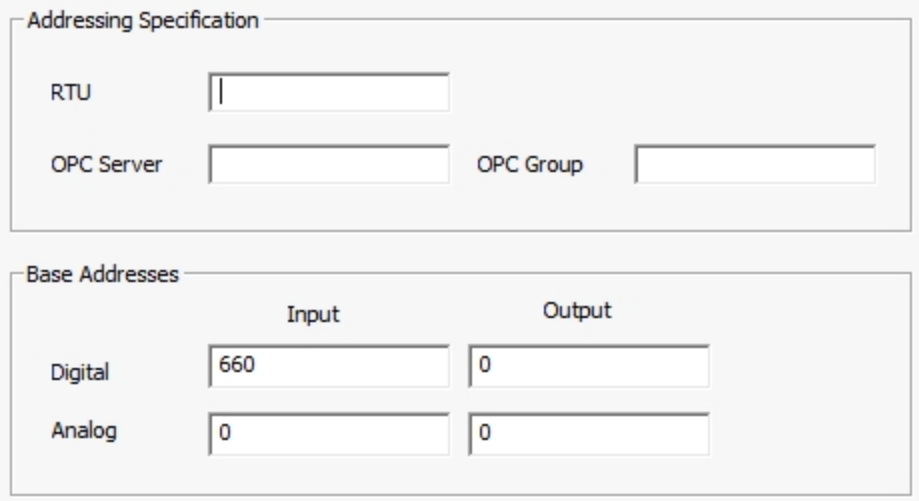


In the example above, we're generating a new group in the location named IFIX1 called DISC2.

Once the block name prefix has been specified, the destination address is next. Note that specifying the destination address is optional. If skipped, the datablocks generated will have the same address as the source datablock points in the template.

Specifying the destination datablock address

Specifying the destination datablock address can be done in one of three ways: specifying an RTU or OPC server, offsetting the base address of the logical group of points, or both. The sections of the dialog that specifies these are as follows:



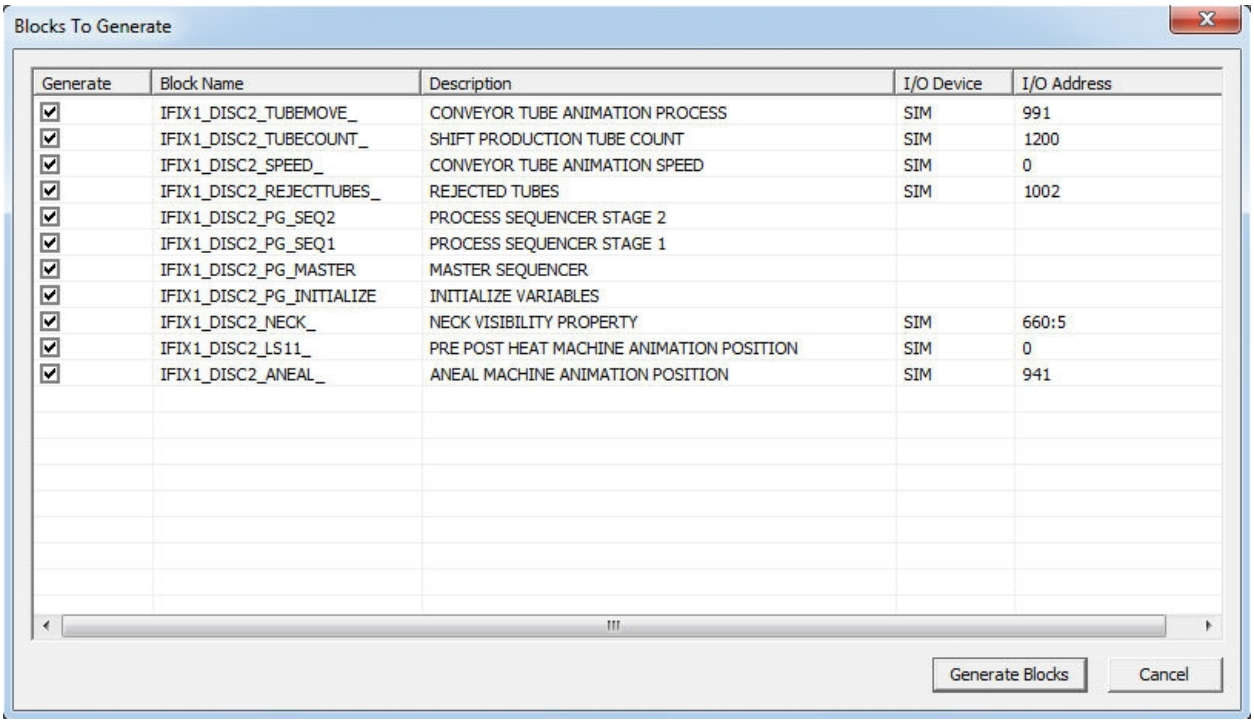
Specifying an RTU name only means that the new datablocks to be generated will have the same register addresses as the source points, but will be located in a different RTU. This is the simplest configuration but requires a 1:1 mapping between devices and RTUs. Similarly, you can specify a different OPC server and/or OPC group if you're using OPC to communicate with iFIX. Note that RTU can still be used even in an OPC address.

A more common configuration, however, is to map several different items in a single RTU. Normally these items are mapped to reserved register addresses. For example, datablocks that belong to Item1 can be mapped to register addresses 0-100, Item2 to addresses 101-200, Item3 to 201-300, etc. With this scheme, you would need to offset the base address of the template points by a given value. Referring to the figure above, the base addresses for the basic datatypes are mostly 0, with Digital Outputs at 56. This means that for digital outputs in the template, the lowest register address found was 56. To offset this by 100, you would need to change the address to 156. To offset all the addresses then, the values would be 100,100,100, and 156. This transposes all addresses within the template by 100.

Once the destination addresses have been specified, click on the 'Generate To PDB' button to create a list of the database points to generate for review. This is discussed in the next section. You can also click the 'Reset' button to clear the values in the dialog box to their original values, or click 'Cancel' to exit the dialog without generating any new datablocks.

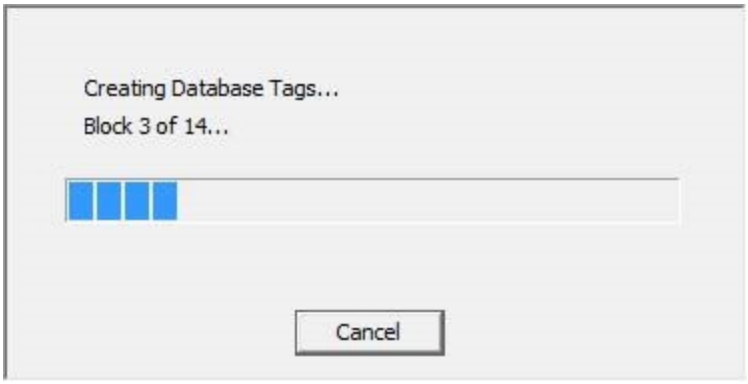
Reviewing the datablocks to generate

When you click on the 'Generate to PDB' button from the dialog box (see previous section), dbArchitect will compile a list of the new datablocks to generate, complete with adjusted I/O addresses and descriptions:



This allows you to make changes to the list before actually generating the new datablocks. You can change the I/O address field if required, or change the Description to a more appropriate value. The Block Name and the I/O Device field, however, cannot be changed. You can also check or uncheck a particular datablock in the list. If a datablock is unchecked, it means that it will not be generated.

Click on the 'Generate' button to start the automatic generation of datablocks, or 'Cancel' to quit out of the dialog and no datablocks will be generated.



Configuring dbArchitect

There are a few options that can be configured within dbArchitect. These include the following:

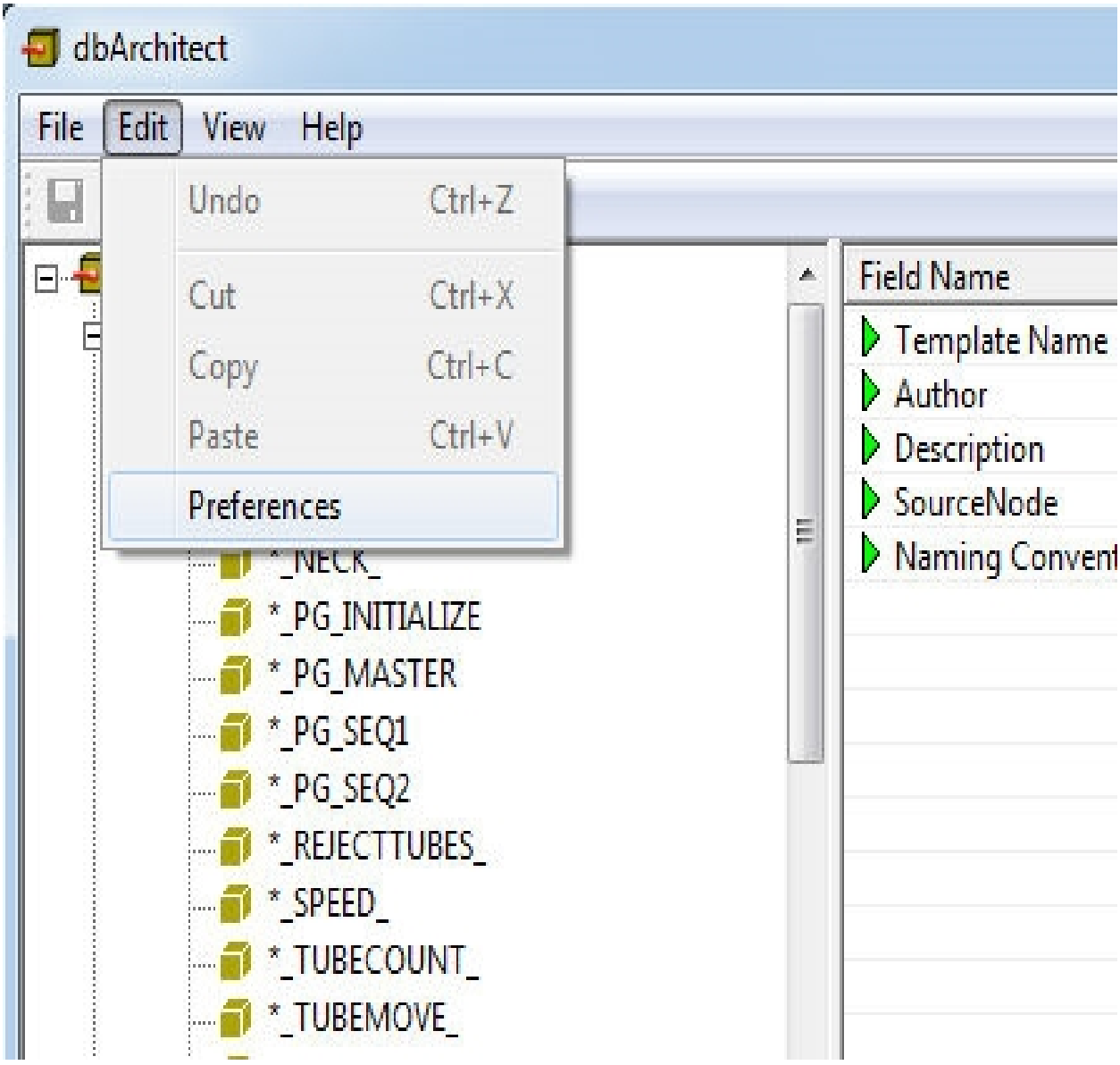
- The address formats for each protocol
- The folder location for templates and logs

These options are discussed in the sections that follow.

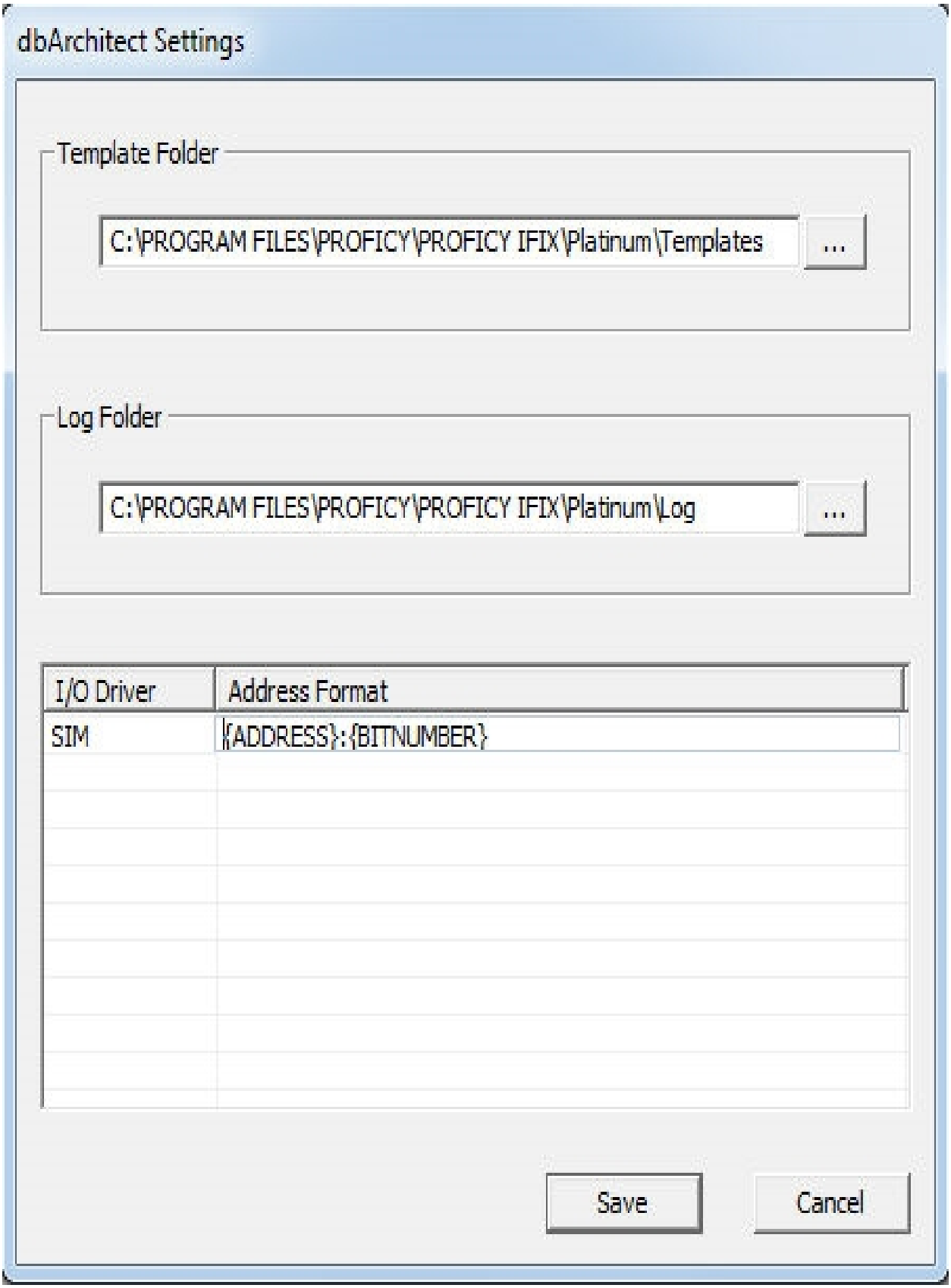
Changing the address formats

dbArchitect uses the address format table to parse I/O addresses defined within a datablock. The formats can vary depending on what protocol or driver is used for a particular datablock. For example, a SIM point uses a simple address format consisting of the register address and optional bitnumber only (e.g. 100:2), whereas a protocol like DNP requires an Object and Variation number along with the register address (e.g. RTU.1.1.0).

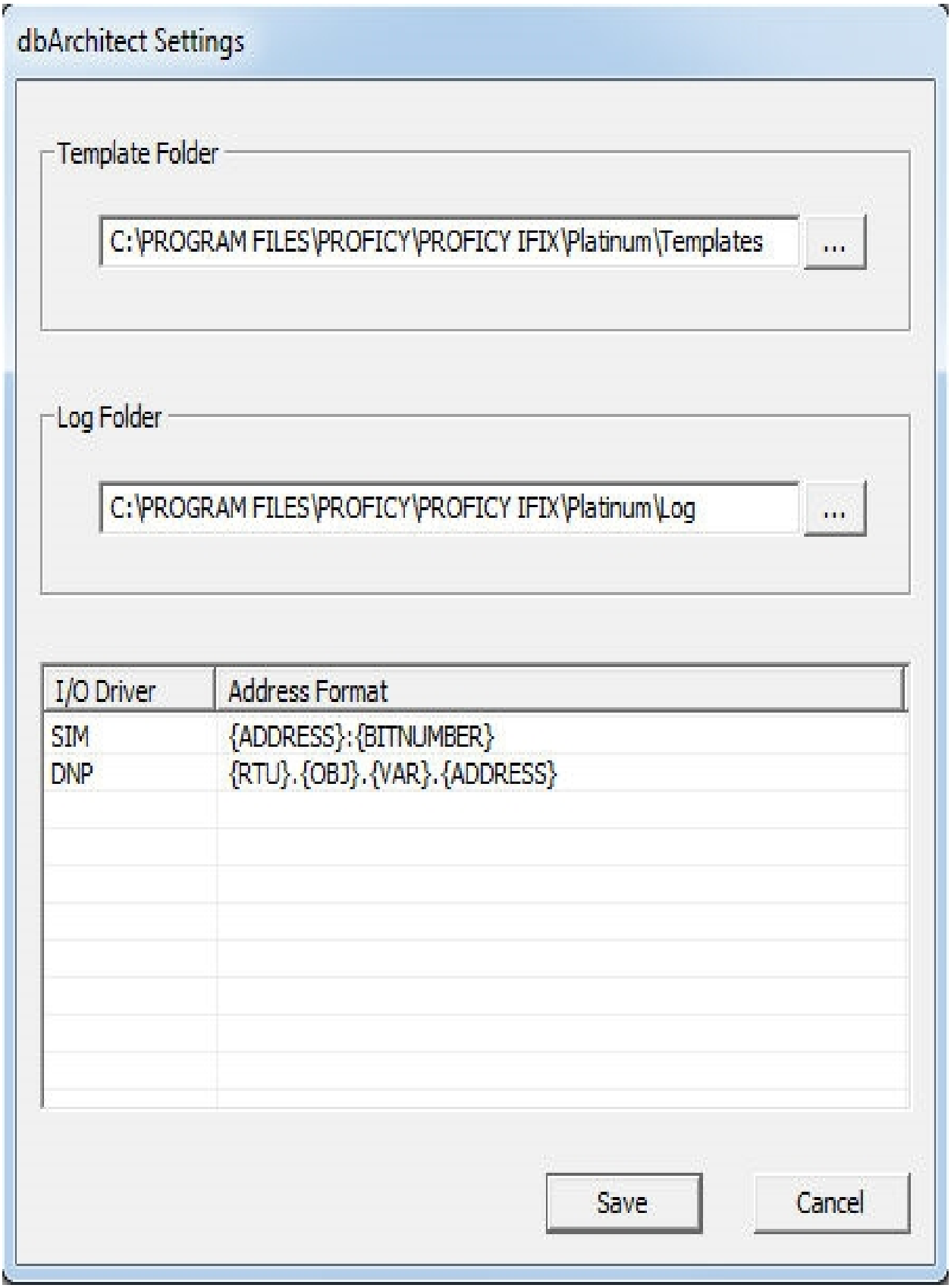
To change the address format, go to the dbArchitect Settings dialog box by selecting Edit --> Preferences from the main menu:



This will display the dbArchitect Settings dialog:



From this dialog box you can change an existing address format or add a new one. To change an existing address format, just click on the field you want to edit and enter the new format. To add a I/O driver and address format, click on the next empty row in the table and edit the I/O Driver and Address Format fields:



When editing the address format, note that there are only two reserved macros recognized by dbArchitect. These macros are {RTU} and {ADDRESS}. {RTU} corresponds to the device name in an address and {ADDRESS} corresponds to the register address. All other macros in an address format are ignored and are used mainly as placeholders. For example, the {OBJ} and {VAR} macros for a DNP address are not used by dbArchitect and are ignored when generating new addresses. The {RTU} and {ADDRESS} macros are used when generating new database blocks from a template. The {RTU} is replaced with the RTU name provided in the generate new datablocks dialog, and the {ADDRESS} is calculated using the offsets provided (see section on Generating Datablocks from a Template). Note also that the I/O driver name must correspond to the value in the A_IODV field.

Alarm and event processing

The Events list displays all the recent events in the system. The list is grid display, with the following columns displayed for each entry:

- Date
- Time
- Node
- Point Name
- Value
- Message
- State
- Priority
- Area
- Source
- Client
- Operator

Event file format

The iFIX Productivity Tools events are held in daily ”E24” files, reset daily at midnight UTC. Field contents as follows:

Field	Description	Event list display
1	Unique number (per file) 10 digits	
2	Date in a form ’YYYY/MM/DD’ where YYYY is four digits Year, MM – two digits Month and DD – two digits Day.	Date
3	Time in a form ’HH:MM:SS’ where HH is two digit hour, MM two digits Minutes and SS – two digits seconds	Time (1)
4	Time fraction started with period or empty if this fraction equal to 0.	Time (2)
5	Source of the message (’ALARM’, ’EVENT’, etc.)	Source
6	Logical Node Name	Node
7	Physical Node Name	
8	Point Name	Point Name
9	Field Name	
10	Message (Alarm text)	Message

11	Engineering Units	Value (2)
12	Value	Value (1)
13	Extra Text 1	Alarm extension field 1
14	Extra Text 2	Alarm extension field 2
15	Operator	Operator
16	Operator Node	Client
17	Performed By	
18	Performed Comment	
19	Verified By	
20	Verified Comment	
21	Application Name	
22	Alarm Message Type	
23	Flag (digits)	
24	Alarm priority	Priority
25	Alarm state	State
26	Typers (digits)	
27	Alarm Area	Area

ALARM and EVENT messages

The iFIX Productivity Tools suite has two primary sources for reporting of change of status event.

ALARM

Source: iFIX alarm queue

Digital and analog database updates that result in a change to their alarm state create an event record, with source identified in the event list as ”ALARM”.

Alarm messages received that are 4 hours or more older (for example, old alarms re-reported after a database reload) will be filtered out, ie. not be written through to the events list.

EVENT

Source: database polling

For changes of state in digital points that do not generate alarm messages on transition, with source identified in the event list as ”EVENT”.

The poll rate that the database is checked for these non-alarmed change of state events, is configurable using the following setting. For further information, refer to ’’

[List Manager.Events]

DBPOLLPERIOD= 10

Database type	Configuration	Condition	Alarm and event behavior

DA/DI	”Enable Alarming” flag turned OFF	Change from one state to another	No alarms produced Events recorded
DA/DI	”Enable Alarming” flag turned ON ”None” alarm type selected	Change from one state to another	No alarms produced Events recorded
MDI	”Enable Alarming” flag turned OFF	Change from one state to another	No alarms produced Events recorded
MDI	”Enable Alarming” flag turned ON ”Re-alarm” flag turned OFF	Change from one alarmed state to another	No alarms produced Events recorded
MDI	”Enable Alarming” flag turned ON ”Re-alarm” flag turned ON	Change from one non-alarmed state to another non-alarmed state	No alarms produced Events recorded

Note: if some change of state event messages are not required (for example, a watchdog digital repeatedly toggling state), then there are ”iPower.ini” settings that can be set to suppress digital point (DA, DI) and multi-bit (MDI) value event messages. See Settings table, for details on:

- SUPPRESSDISABLEDCOSEVENTS
- SUPPRESSDISABLEDMDIEVENTS

Excluding events

Default iFIX Productivity Tools events list operation is for every digital change to be reported to the list, either as an ”alarm” generated from the alarms system or as an ”event" if alarming is not enabled. Some change of state event messages are not however required, for example, a watchdog digital repeatedly toggling state.

Suppressing digital (DA, DI) changes

To suppress events for a digital point

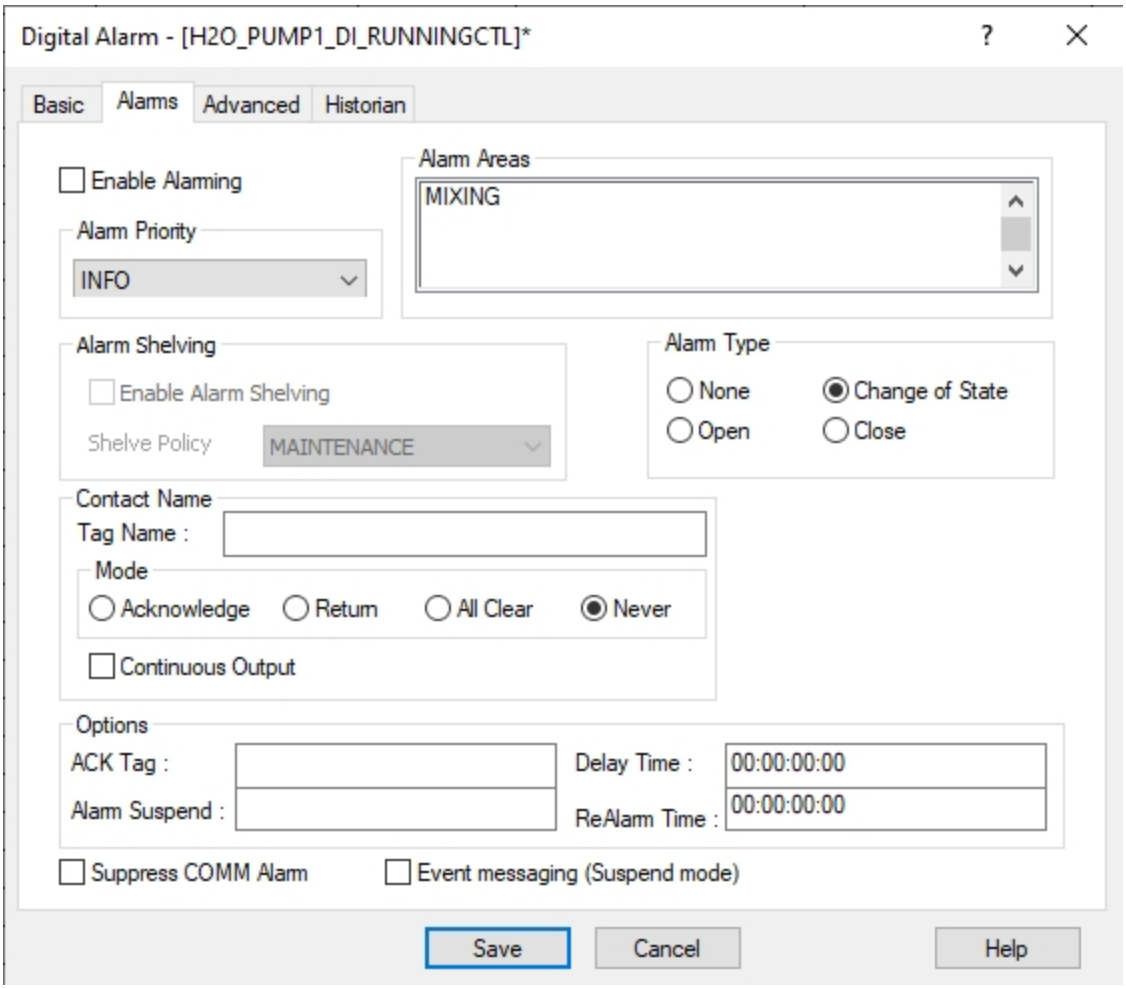
1. The following setting must be made in the iPower.ini file:

   [List Manager.Events]

   SUPPRESSDISABLEDCOSEVENTS = 1

   See the setting ”[List Manager.Events] SUPPRESSDISABLEDCOSEVENTS” described in Settings table for more information.

2. Once the setting has been made, the alarm settings for the specific point must be configured as follows. That is, Enable Alarming must be deselected and Alarm Type must be set to Change of State. See sample figure below:



Database DA point showing disabled events

Suppressing multibit digital (MDI) changes

To suppress events for a digital point

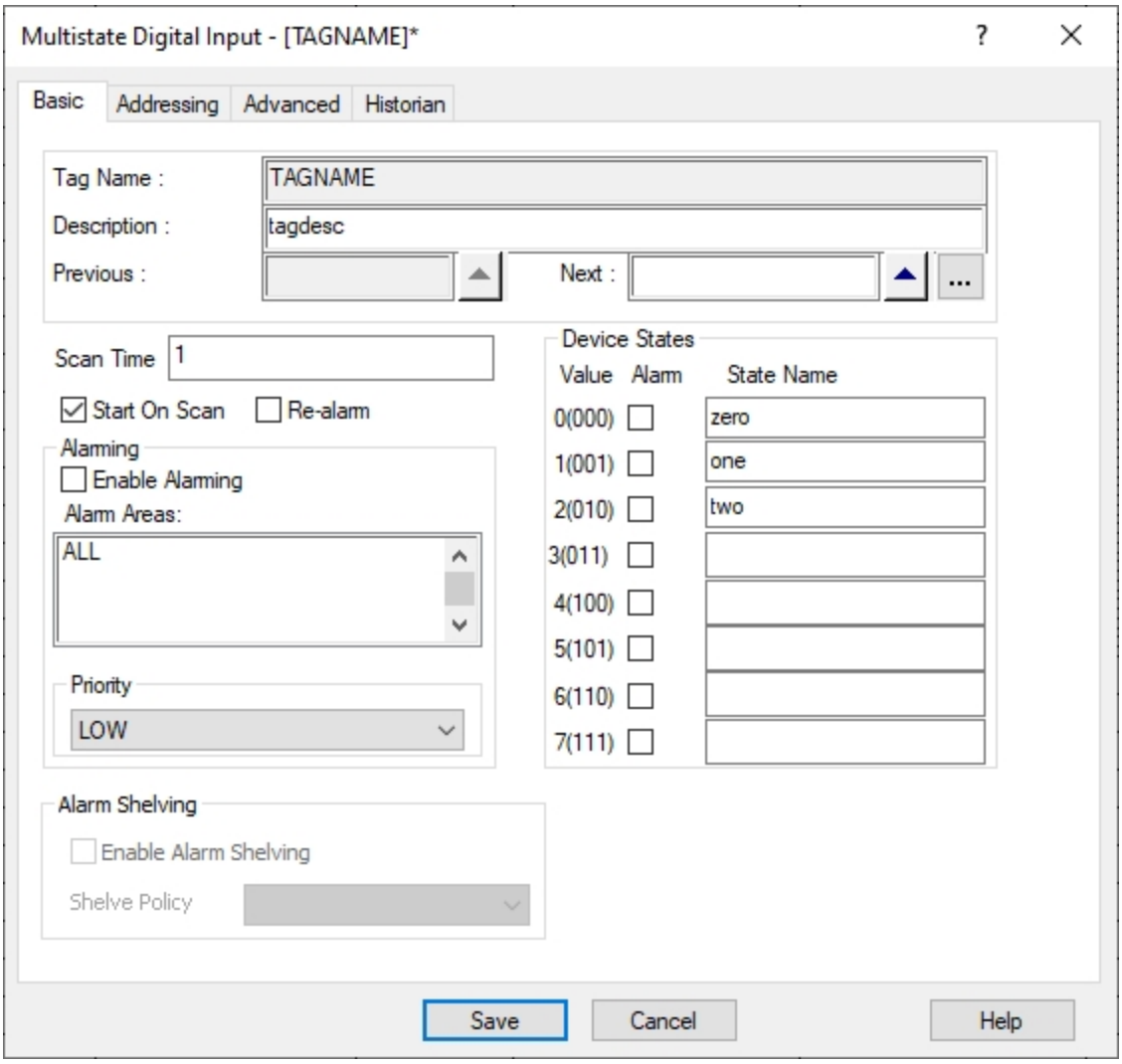
1. the following setting must be made in the iPower.ini file:

   [List Manager.Events]

   SUPPRESSDISABLEDMDIEVENTS= 1

   See the setting ”[List Manager.Events] SUPPRESSDISABLEDMDIEVENTS” described in Settings table for more information.

2. Once the setting has been made, the alarm settings for the specific point must be configured as follows. That is, Enable Alarming must be deselected. See sample figure below:



Database MDI point showing disabled events

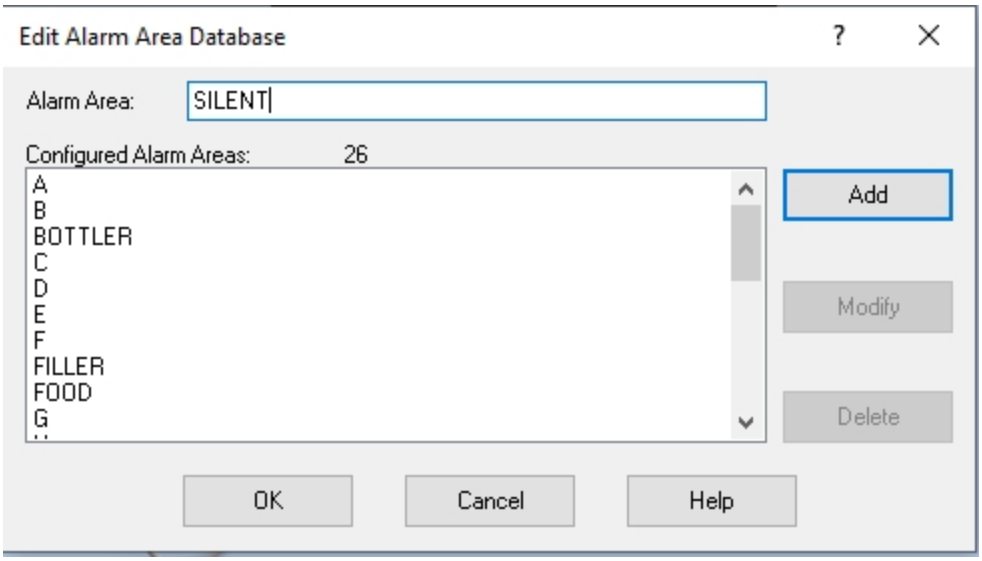
Excluding Alarms by Area

The database supports alarm areas, which can be manually configured using the ”SCU” utility (refer to iFIX electronic books for details). The alarm areas can be used for clarity of data reporting and filtering, for example in the list displays.

Do not create an alarm area ”SYSTEM”. This is used internally and can create problems if configured.

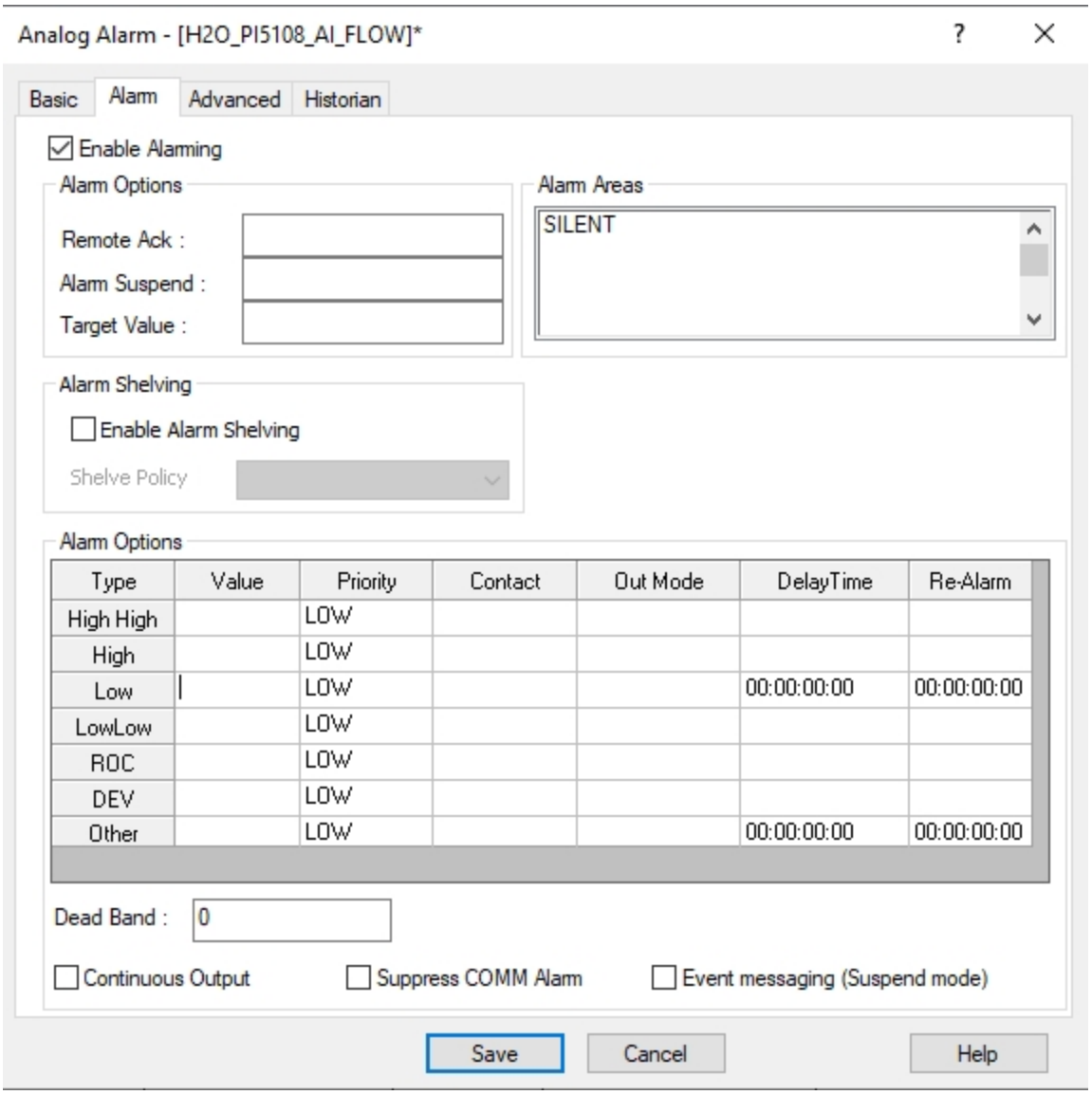
To suppress alarms and events using an excluded alarm area, follow these steps:

1. Add a special alarm area, e.g. ”SILENT” to the alarm area database. Run the SCU, Select *Configure->Alarms …->Advanced->Alarm Area Database* while iFIX is running to edit the alarm area database.



Edit Alarm Area Database

2. Add the special alarm area to all database points that require alarm and event suppression.



Database Point Alarm Areas

3 Add the following settings to the iPower.INI file:

Copy

```
[List Manager.Events]
ExcludeAlarmAreasCount = 1
ExcludeAlarmArea1 = SILENT
```

See the setting ”[List Manager.Events] ExcludeAlarmArea1” described in Settings table for more information.

Suppressing WriteValue event messages

The global subroutine WriteValue sends event messages to the iFIX Productivity Tools event system. If this function is being used extensively to write values to internal points continually, these messages can

flood the event system. To suppress these messages use the BSendMsg parameter in the iFIX WriteValue function.

Silencing alarms across workstations

By default, alarms will sound on all workstations, and each workstation requires independent alarm silencing. The alarm system can be configured such that an alarm silence action on one workstation (such as alarm silence, or alarm acknowledge) will take global affect. Steps to enable global alarm silencing are as follow:

1) Add the following setting to the iPower.INI file:

Copy

```
[ALARMS]
GLOBALHORNSILENCE = TRUE
```

For further information refer to 'Settings table'.

2) On the alarm summary picture add script for two events

a. AlarmAck

b. AlarmAcknowledged as follow:

Copy

```
Private Sub AlarmSummaryOCX1_AlarmAck()
GlobalAlarmHornSilence
End Sub
Private Sub AlarmSummaryOCX1_AlarmAcknowledged(strNode As String, strTag As
String, strField As String)
GlobalAlarmHornSilence
End Sub
```

For further information refer to *'GlobalAlarmHornSilence'.*

Configuring pictures

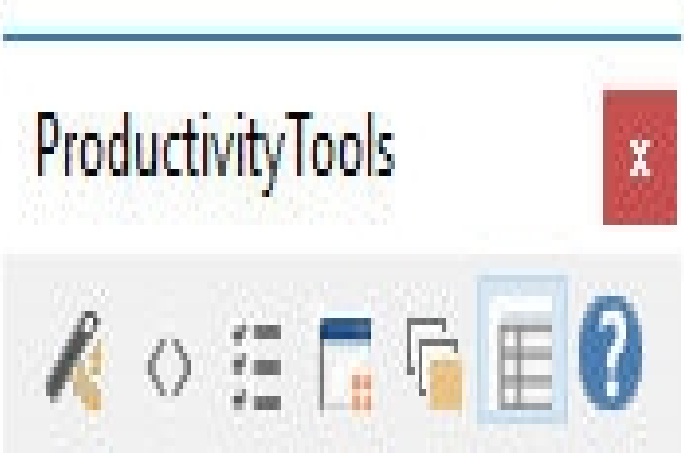
Introduction

iFIX Productivity Tools provides a rich set of features to make configuring pictures easier in iFIX. These features apply to either new or existing iFIX pictures, increasing the amount of information that can be associated with each element of a picture while simultaneously simplifying and de-cluttering the number of displayed elements. It also provides consistency in the user-interface, as well as added security.

Drawing Tools

"ProductivityTools" shown below provides additional facilities designed to assist in production of pictures To display the toolbar:

8 Settings > Toolbars > select 'Picture' > select 'ProductivityTools'



ProductivityTools

From left to right these are:

Function	Use / Comments
Add Zoom Script	Adds zooming functionality and the iFIX Productivity Tools right click menu to the current picture
Menu Control	Drops a Menu Control on the current picture
List Control	Drops a List Control on the current picture
Attach Dialogs	Launches a wizard for automatically attaching control dialogs to dynamic objects on a picture.
Set Zoom Layers	Configure the zoom layers of the currently selected objects
dbArchitect	Launches the dbArchitect application, which is an alternate database manager for iFIX with template support.
Help Guide	Launches the iFIX Productivity Tools Configuration Guide.

Background reading

There are two different iFIX help files to read before continuing on with this section. One is the ”creating pictures” section of the iFIX Electronic Books while the other is ”pictures.hlp” in the *C:\Program Files (x86)\Proficy\ProficyDoc\1033\iFIX* directory. Both these files will give the user a general understanding of how to draw pictures in iFIX.

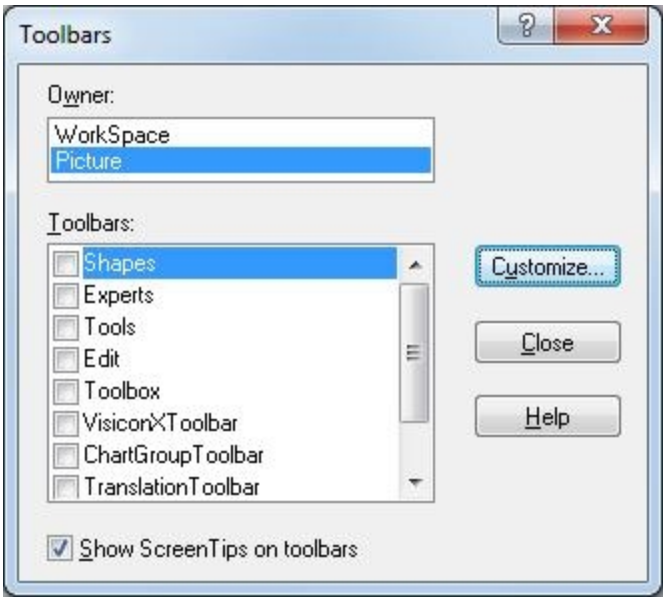
Importing toolbars

iFIX Productivity Tools is delivered with different toolbars that provide short cuts for common configuration tasks. the toolbars include:

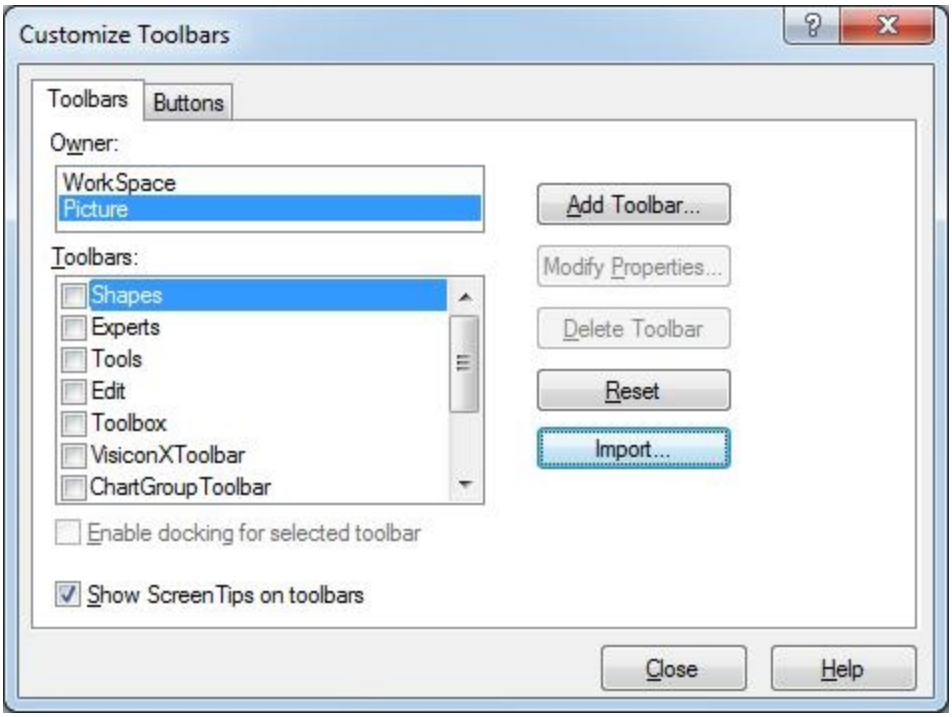
- ProductivityTools
- ProductivityTabDisplay

If one of the toolbars is not visible or accessible, then it may need to be imported within iFIX Workspace. For example, to import the ProductivityTools toolbar:

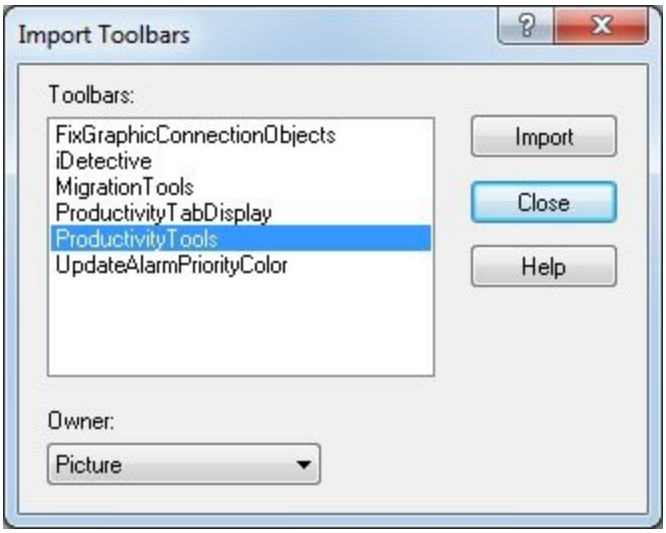
While in configure mode, select Settings > Toolbars from the menu bar:



Then click on the customize button

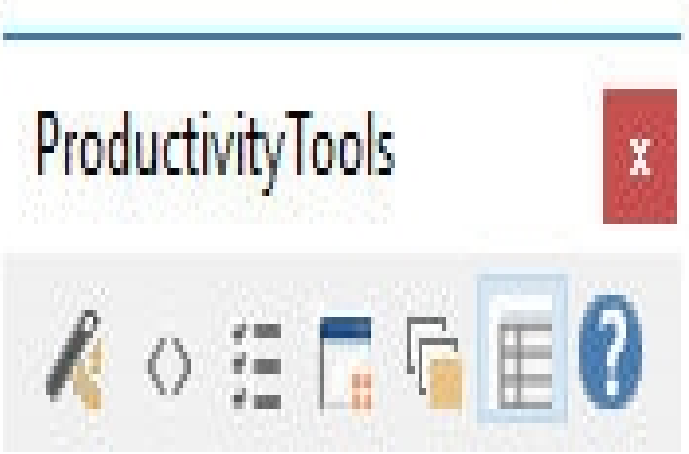


And then the import button.



When you select the ProductivityTools or ProductivityTabDisplay toolbar, you will need to ensure that the owner is Picture as these tools are used when editing pictures.

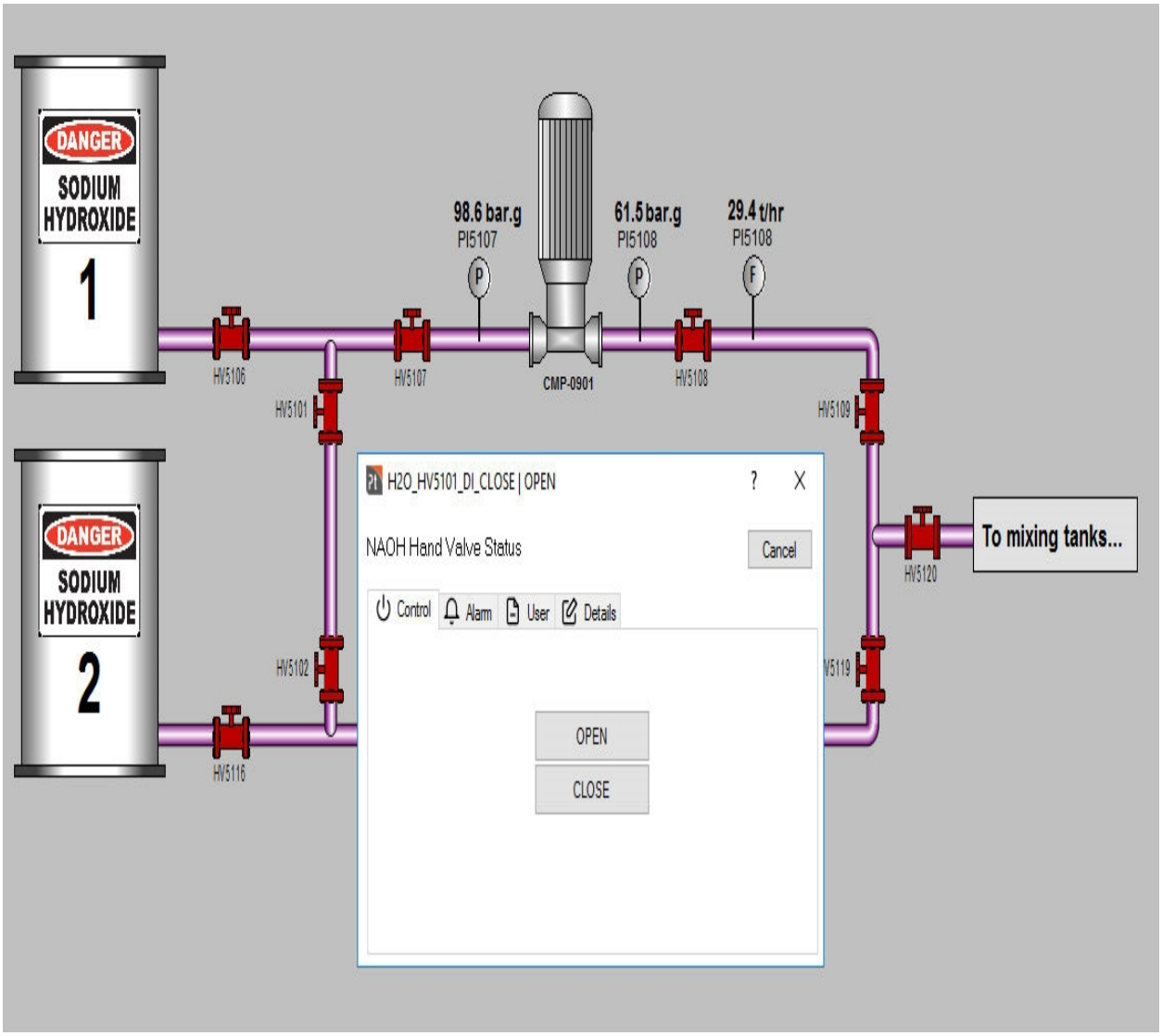
The ProductivityTools toolbar (ProductivityTools.tbx) should reside in the LOCAL directory of the project you are working in. By default, it is installed in the GE iFIX\LOCAL directory.



Attaching Dialogs to Existing Objects

The Attach Dialog interface allows you to easily associate an object on an iFIX picture with a control dialog box through it's CLICK event interface; i.e. when you click on the object on the screen, the iFIX Productivity Tools dialog box appears. The dialog provides a wealth of features from secure controls, to the ability to disable or enable alarms. All the relevant coding is done in the background, and the whole process takes seconds.

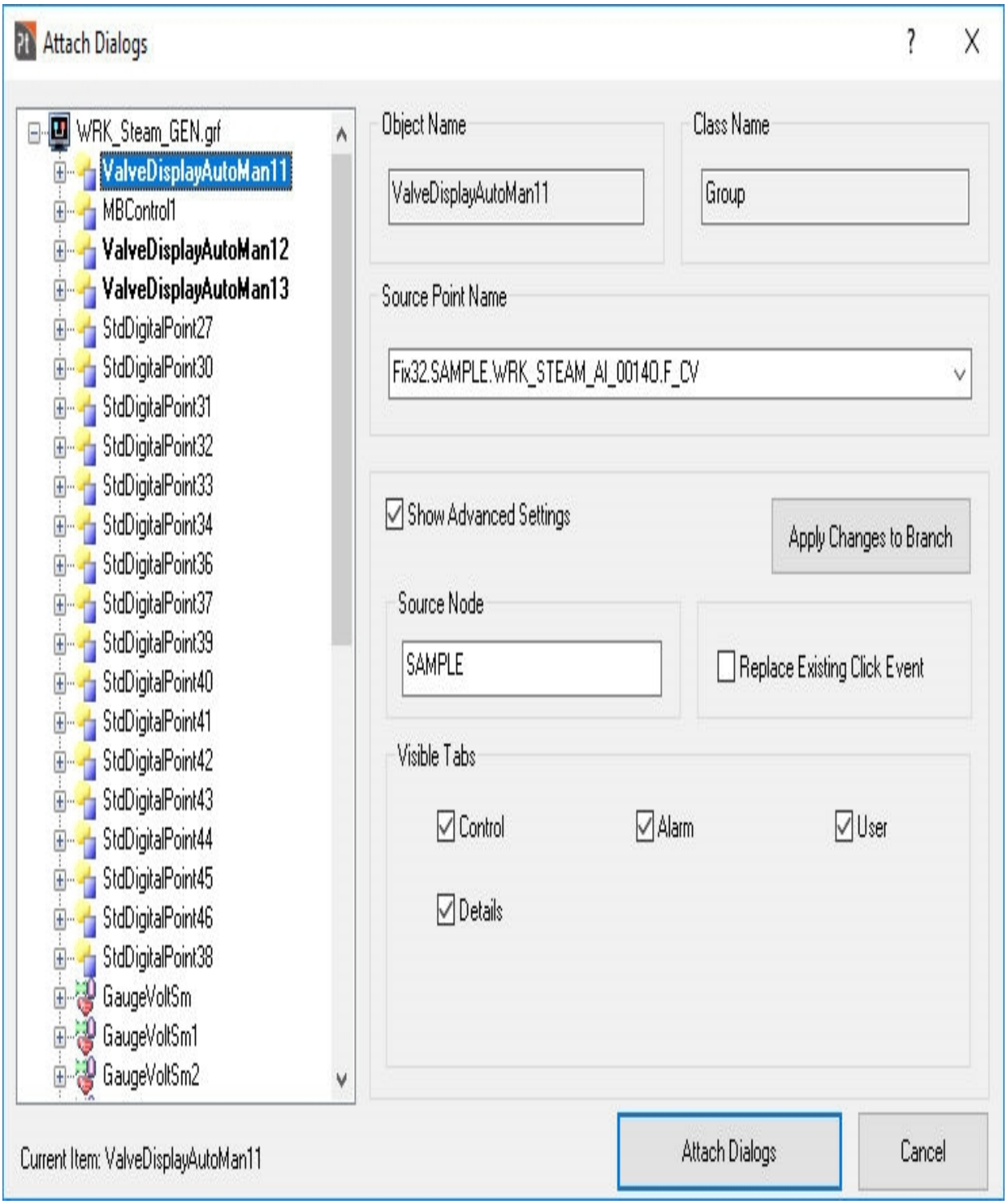
The interface dialog is a consistent method for operators to read and write data to objects on an iFIX picture. By clicking on an object on the screen, an operator can send controls, enable or disable alarms, or acknowledge alarms for a point. Additional information like notes, database information, and linked data can also be accessed from the same dialog interface:



The attach dialog interface makes it easy to attach these dialog interfaces to pre-existing pictures. It determines what interfaces are available depending on the type of the point being attached. For example, the CONTROL tab will not be available to Analog Input or Digital Input points since they are READ-ONLY points.

Launching the Attach Dialog Interface

Before launching the Attach Dialog interface, you will need to select the objects on a picture where you would like the dialogs attached. The interface will check the objects that were selected and determine if there is a data source associated with each one. The interface will then display the relevant objects found in a dialog box.

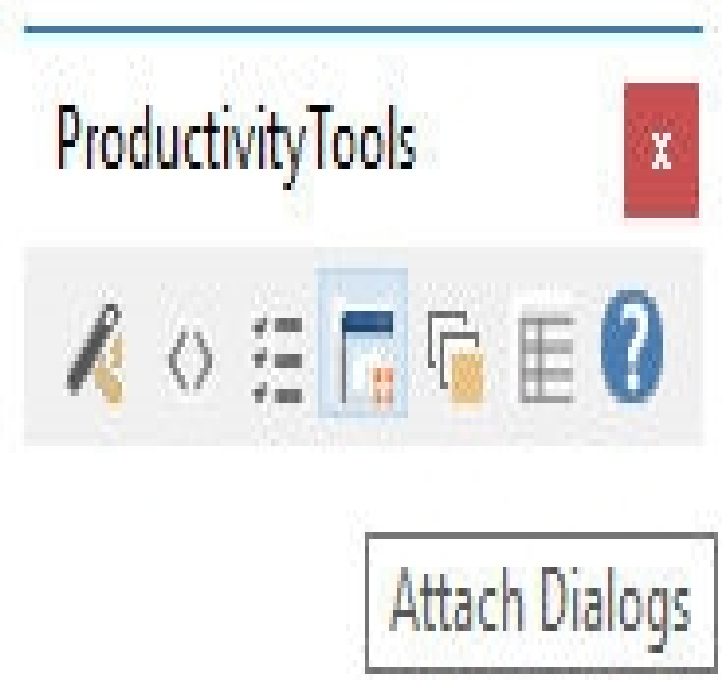


Note that the check is performed recursively; i.e. if the selected object is part of a group, then the interface will check all child elements for data sources and will use any children it finds that have an associated data source. This means that you don't need to manually select the actual object in a group that you would like to use, you will only need to select the whole group and the attach dialog interface takes care of the rest for you. In fact, you can just select ALL the objects in a picture (using Ctrl-A or the 'Select All'

option from the right-click menu) and let the interface determine what valid objects can have dialogs attached to it.

Note also that the interface only checks for the CURRENT VALUE field (i.e. the F_CV, A_CV, and/or E_CV fields), and other data sources are ignored. So for example, a data link displaying the engineering units for a point (A_EGU) cannot have a dialog attached to it.

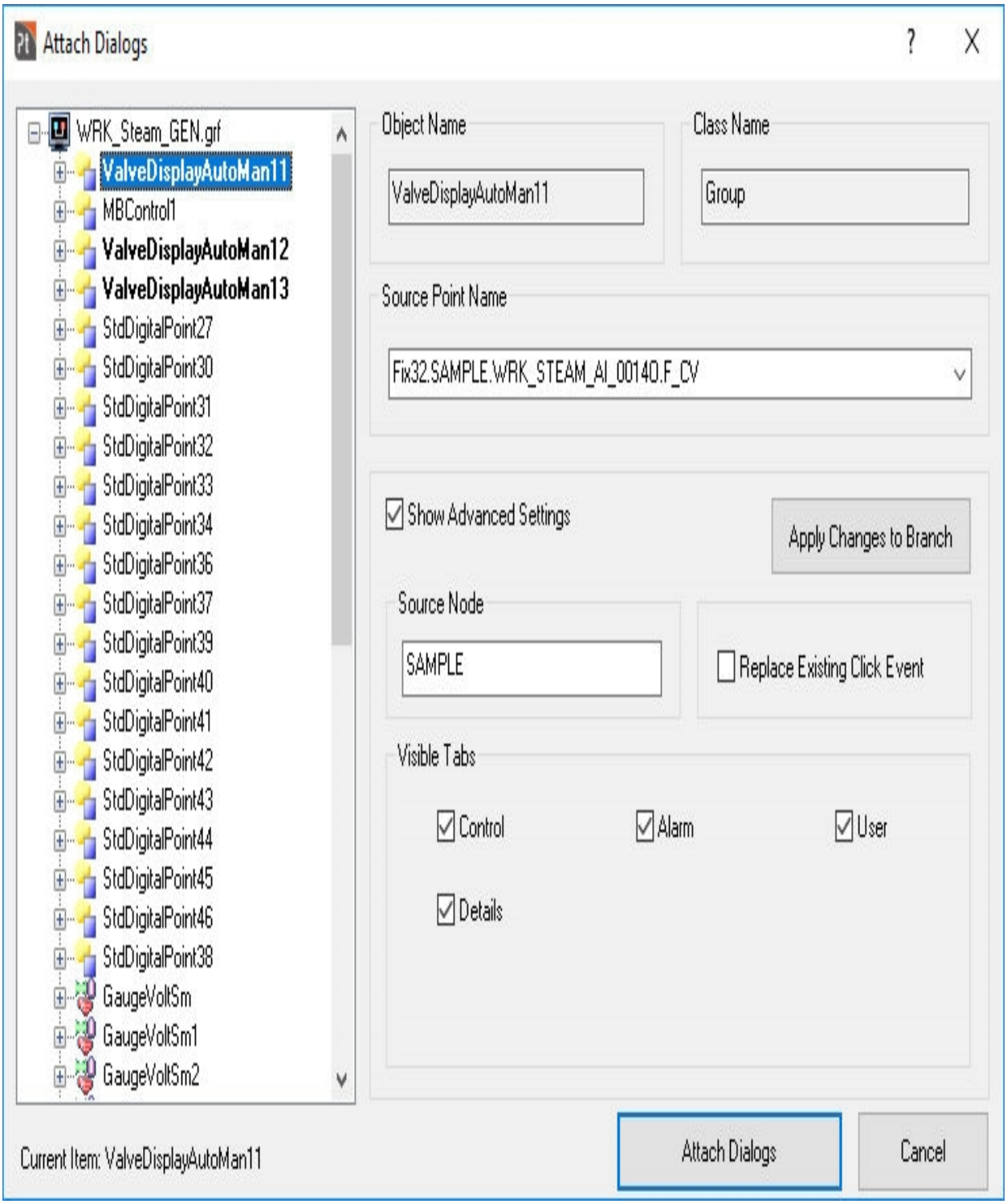
Once the relevant objects are selected, launch the Attach Dialog interface, go to the "ProductivityTools" toolbar and click on the 'Attach Dialogs' button:



This will launch the 'Attach Dialogs' application interface

The Attach Dialog Interface

After launching the interface, the Attach Dialogs interface is displayed



The interface dialog is split into several parts:

- The Object Tree
  The Object Tree, displayed on the left-side of the dialog, shows the objects that were selected for which dialogs will be attached. It resembles the object tree of the Workbench, but differs in that the tree only shows objects that either have a child, a source point, or both. Static elements like text or

shapes, or objects that do not have a CURRENT VALUE source point, are omitted from the tree, which allows for a simpler interface. Clicking on objects in the tree will update the information on the right-hand side for the respective object.

- The Object and Class Name
  These fields are for your information only and cannot be edited.
- The Source Point Name
  The Source Point Name field displays the name of the database point that is associated with the currently selected object in the tree. During the attachment process, only those objects that have a source point name will have dialogs attached. Note that the Source Point Name field is also a drop-down selection box. This allows you to change the source point for an object to a different one if required. The list of possible source points for an object is the summation of all source points for its children. Note though that if there's only one source point for all the children of an object, then that source is automatically applied to the parent object. The field can also be directly edited, though care should be done to ensure that the correct point name is used, otherwise the attachment procedure for that object will fail.
- Apply Changes to Branch

When a tree view item is selected that is collapsible (with a + or – icon) then the Apply Changes to Branch button is visible. This button behaves in a similar manner to the tree view right click “Apply Changes to Branch” contextual menu but with an extra warning dialog to help stop unwanted changes. The purpose of this button is to apply the current Visible Tabs checked/unchecked items to all the children in the selected branch on the tree view. A verification dialog will pop up highlighting the selected branch whilst automatically expanding and selecting all children under it.

- The Source Node Name
  This is the node name as it appears on the source point name, if one was provided. The node name can be changed however if required.
- Replace Existing Click Event
  This check box determines whether any pre-existing scripts associated with the object should be replaced or not. Since the attachment process associates the object with the dialog through its CLICK event, then any existing script that uses the CLICK event for the object will be overwritten if this option is enabled. By default, however, the option is DISABLED, which means pre-existing scripts are left as is.
- Visible Tabs
  The visible tabs determine which of the available tabs for a dialog will be displayed at runtime. So for example, disabling the "Alarm" tab means that it will not be displayed on the dialog at runtime.

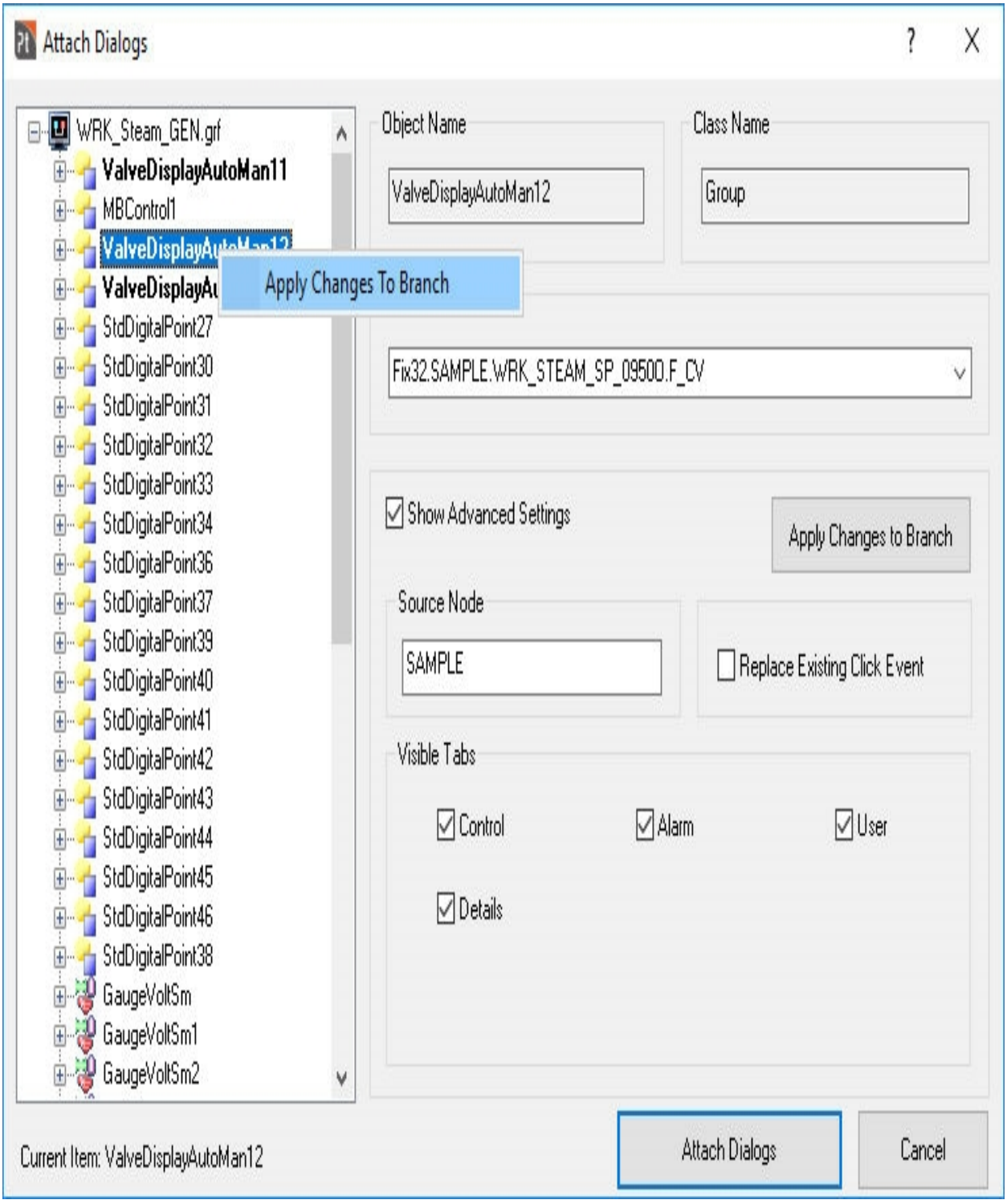
Running The Attachment Process

By default, every object on the tree uses the same settings, which are:

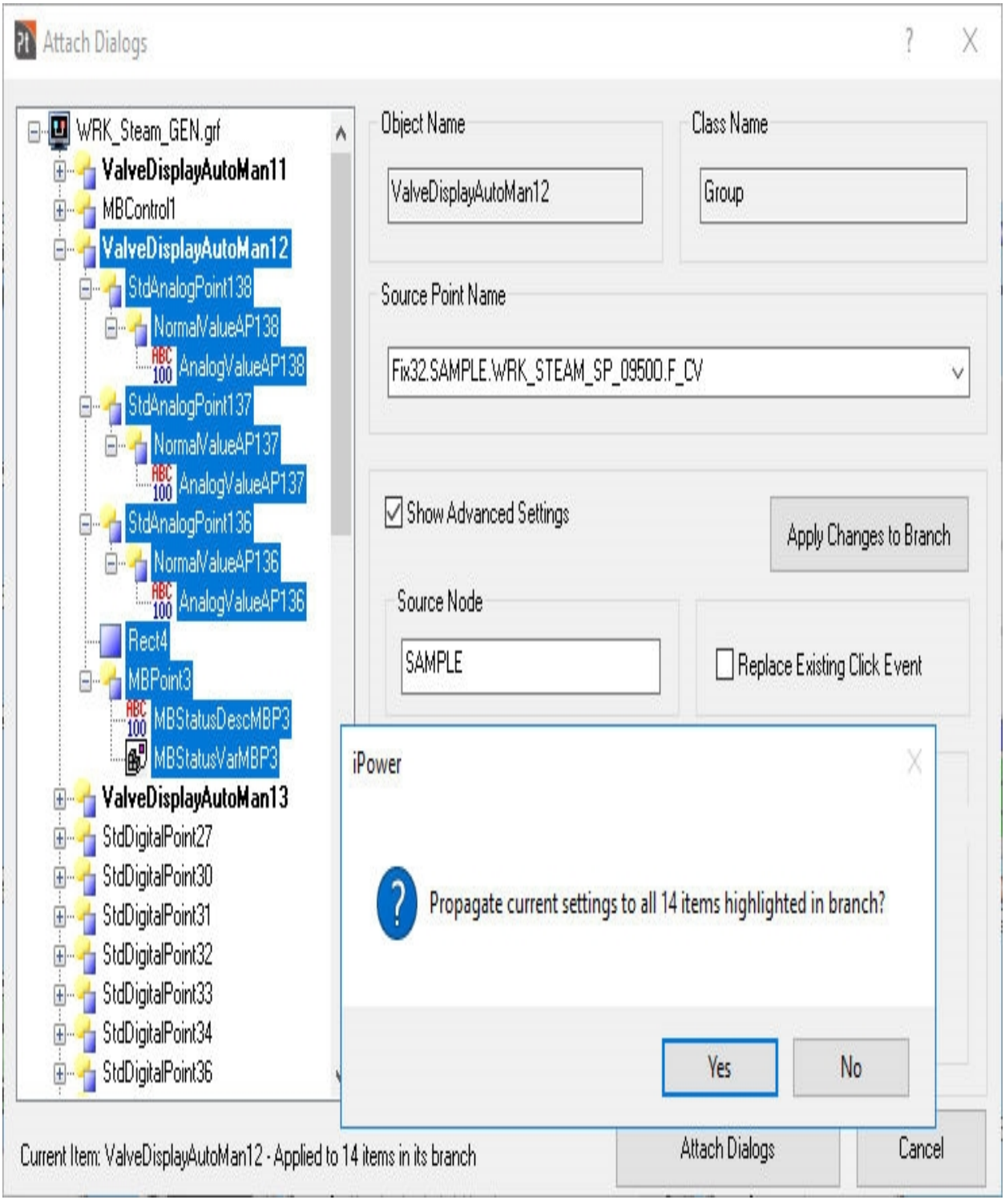
- All tabs are visible
- Node name is taken from the source point name
- Click events are not replaced

However, the configuration for each object in the tree can be changed to suit particular needs. Moreover, it is possible to globally propagate settings to all items in a branch. For example, if you wanted to replace CLICK events for all objects belonging to the TankWLadderD1 group, you only need to change the setting

on the TankWLadderD1 node itself, then right-click on the node and select the 'Apply Changes To Branch' option:

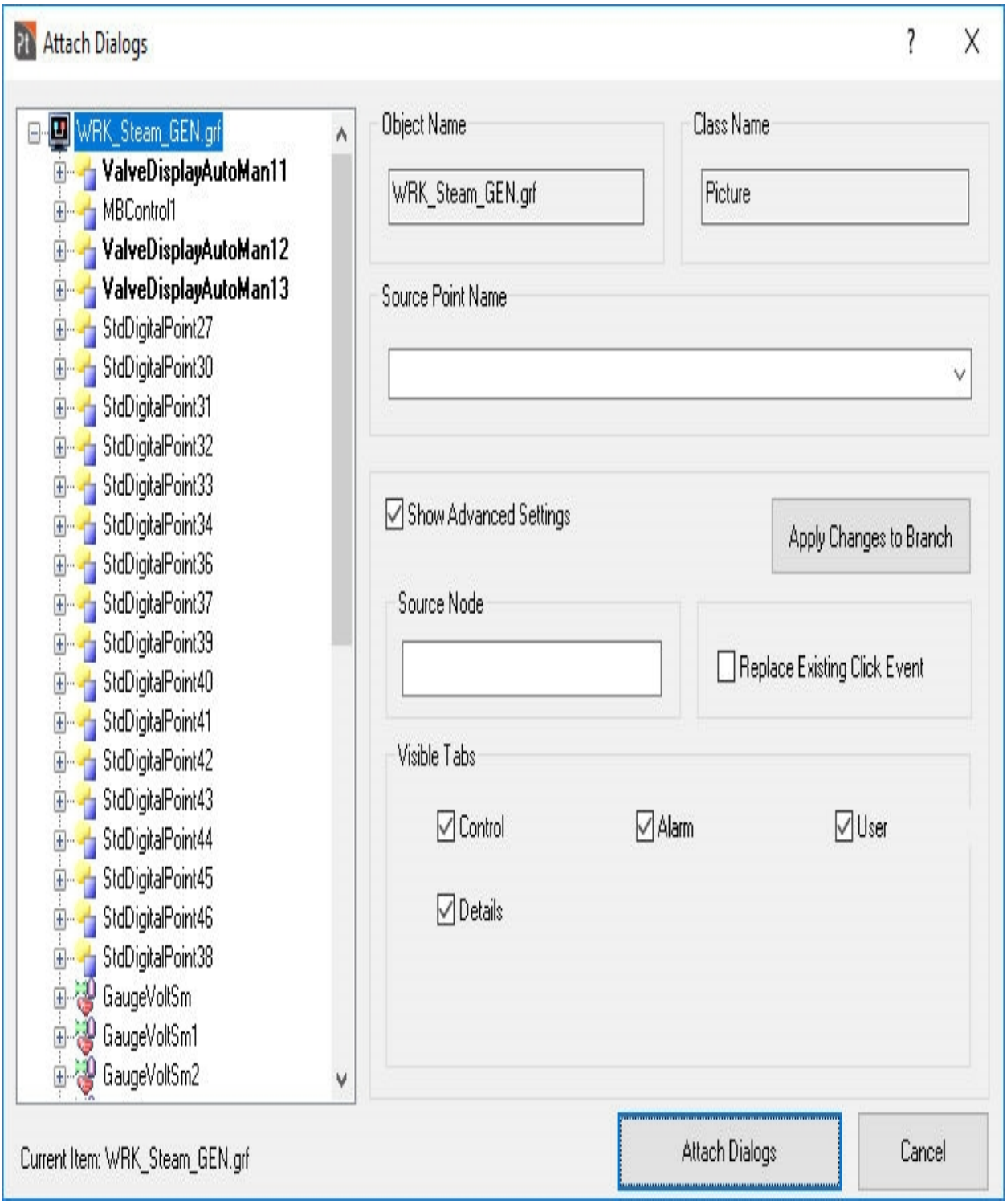


Note that if the equivalent button "Apply Changes to Branch" is clicked instead of the right contextual click on the tree view, then the following additional warning dialog will prompt to confirm the apply changes whilst highlighting all effected child items in the tree view:



Regardless of which"Apply to Branch" action is used, any checked "Replace Existing Click Event" option is propagated to all the objects under the TankWLadderD1 object. The same is true for all the configurable options of an object.

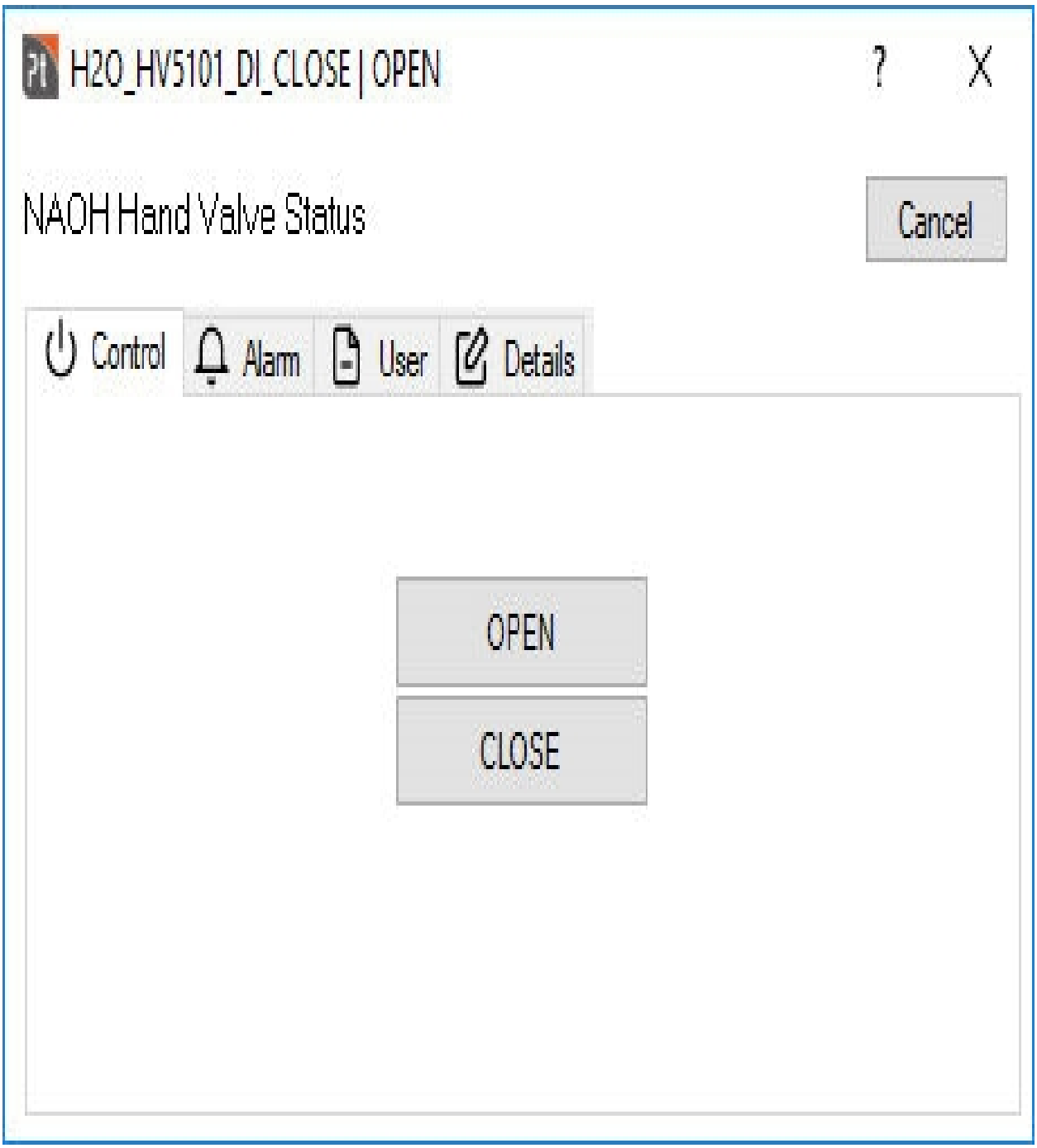
Once the objects are configured to the desired settings, then the attachment process can be run. To do so, just click on the root object of the tree (i.e. the Picture object) and click on the 'Attach Dialogs' button:



This will start the attachment process. After it finishes, the dialog will exit automatically. You can then review the changes by editing the scripts in behind the objects that were selected.

Dialog runtime tabs

The iFIX Productivity Tools Dialog consists of several tabs, each providing a different function to the user.



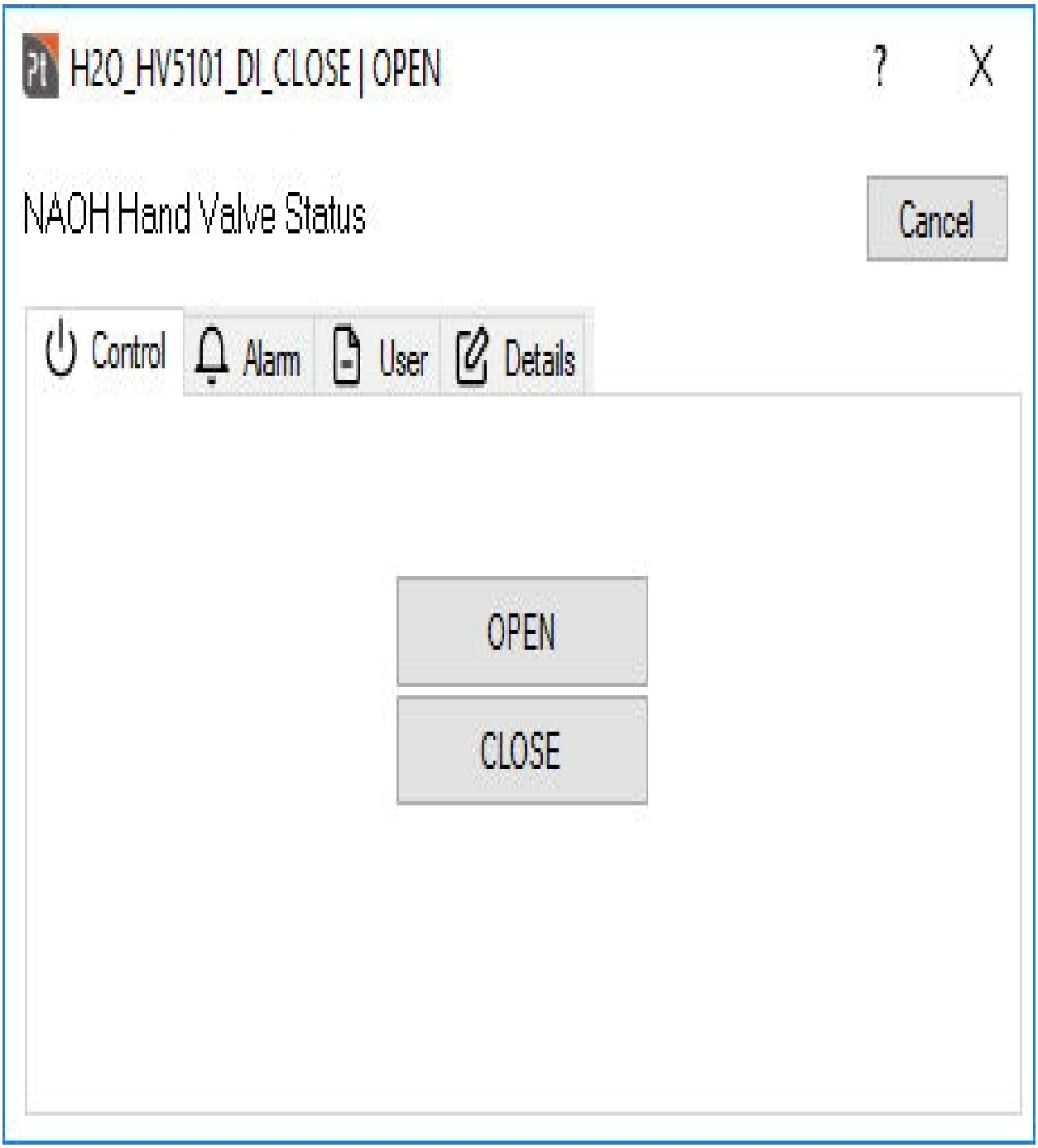
These tabs are:

- Controls
- Alarms
- User
- Details

Each of these are discussed in detail in the following sections.

Control

Control tab presents the available control options to the operator, and provides the ”Operate” command button to initiate the control action.



Control tab dialog

Operation notes:

- Control tab is not available if the user does not have necessary privilege to write to the datablock.

Related configuration settings (see '*Settings table*'):

General control operation:

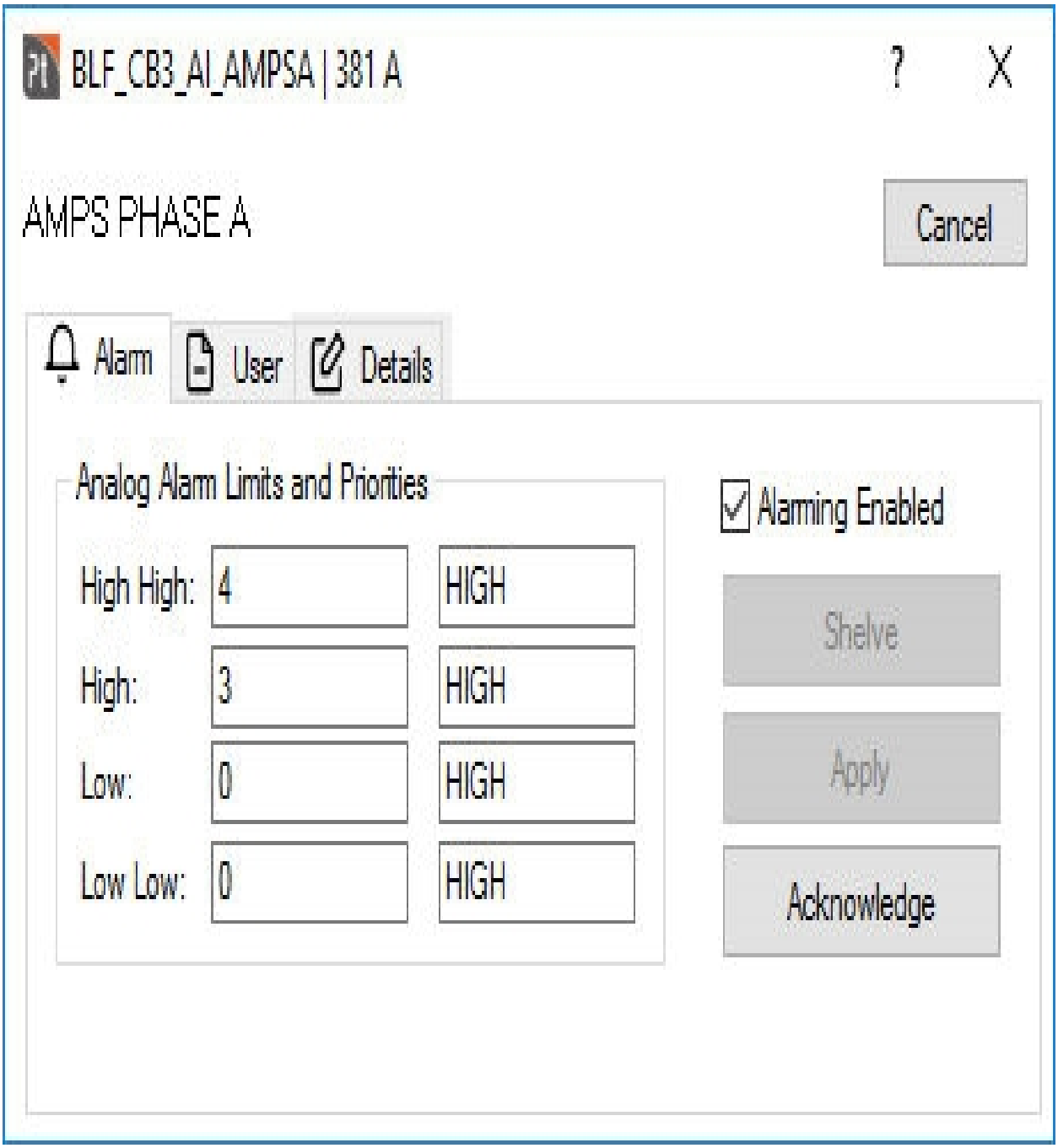
[Dialog] EventCon- Determines whether point description is included in events messages

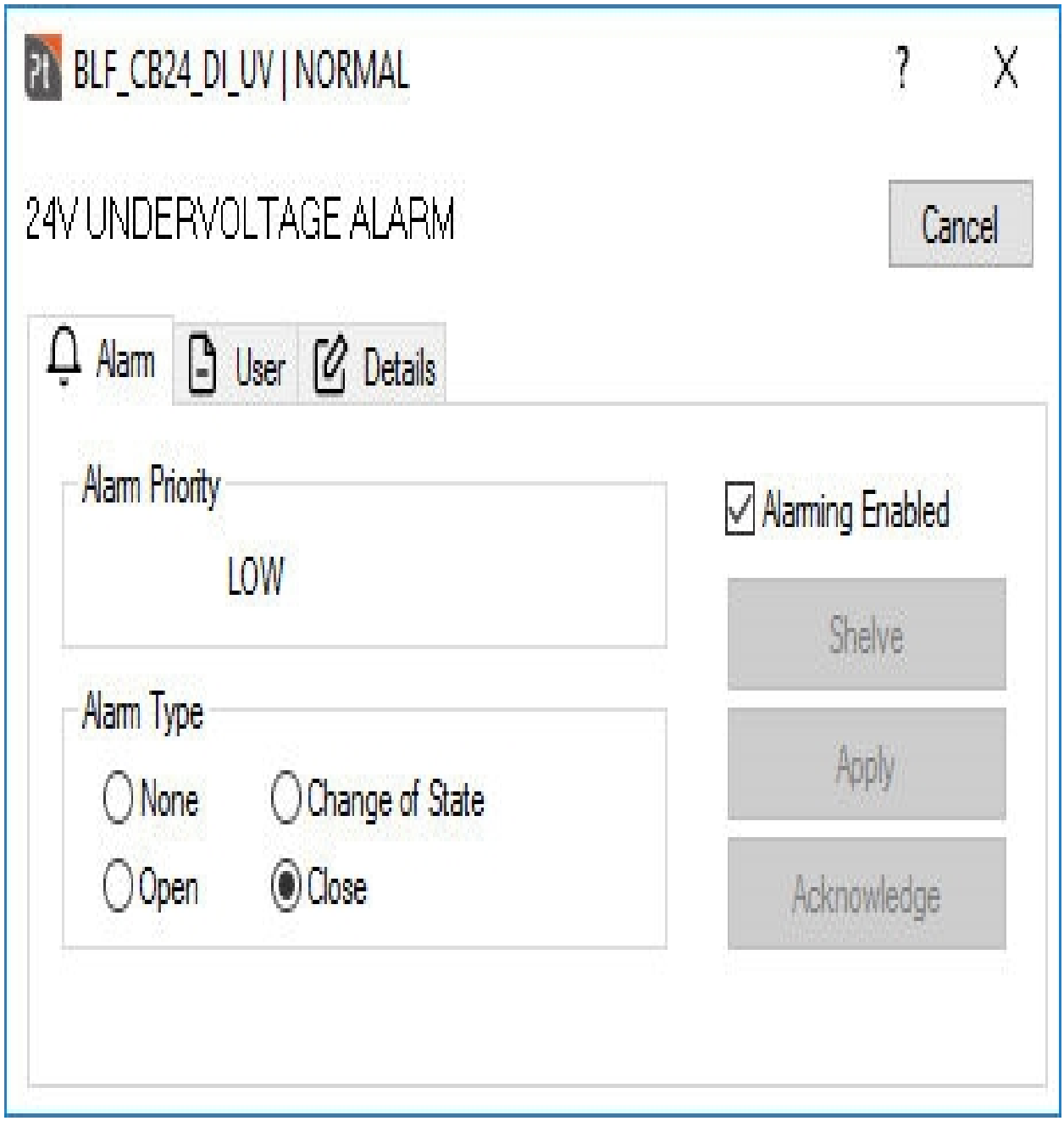
trolUseDescription	reporting operator control actions.
Control list behavior:	
[List Manager] ShowControlTab	Configure whether control tab is accessible in the dialogs opened from general lists.

Alarm

This tab is present if the device’s database point is configured with alarms enabled.

The alarm tab also displays the key alarm categories for the point. The tab displays the alarm priorities, and for an analog the HIHI, HI, LO, and LOLO limits and for a digital point, indicates which states are alarmed.





Alarm dialog

Operation notes:

- Alarm tab is not available if the user does not have ”Operator” privilege
- The tab provides operator control options to:
  - Acknowledge an alarm.

o Disable (or re-enable) the alarm processing. For example, an operator may wish to disable alarm processing for faulty equipment. When an alarm is disabled, the operator is prompted for a reason which is logged and recorded with the alarm disable action.

o Shelve an alarm, which is a temporary disable of alarm processing. The option is only available if a shelving policy has been defined for the database point (from the iFIX Database Manager).

o Optionally, analog alarm limits can be modifiable by the system operator at runtime. Changes to the alarm limits are automatically saved to the database. This facility can be optionally enabled via a system configuration setting.

Related configuration settings (see '*Settings table*'):

General alarm operation:

[Dialog] AnalogAlarmLimitChanges	Needs to be enabled, to allow operator to make runtime changes to analog alarm limits. Note that a change forces an automatic database save. If the database had been left with uncommitted changes, then these will be saved.
[Dialog] EDITTIMEOUT	Configure timeout to enter alarm reason text.

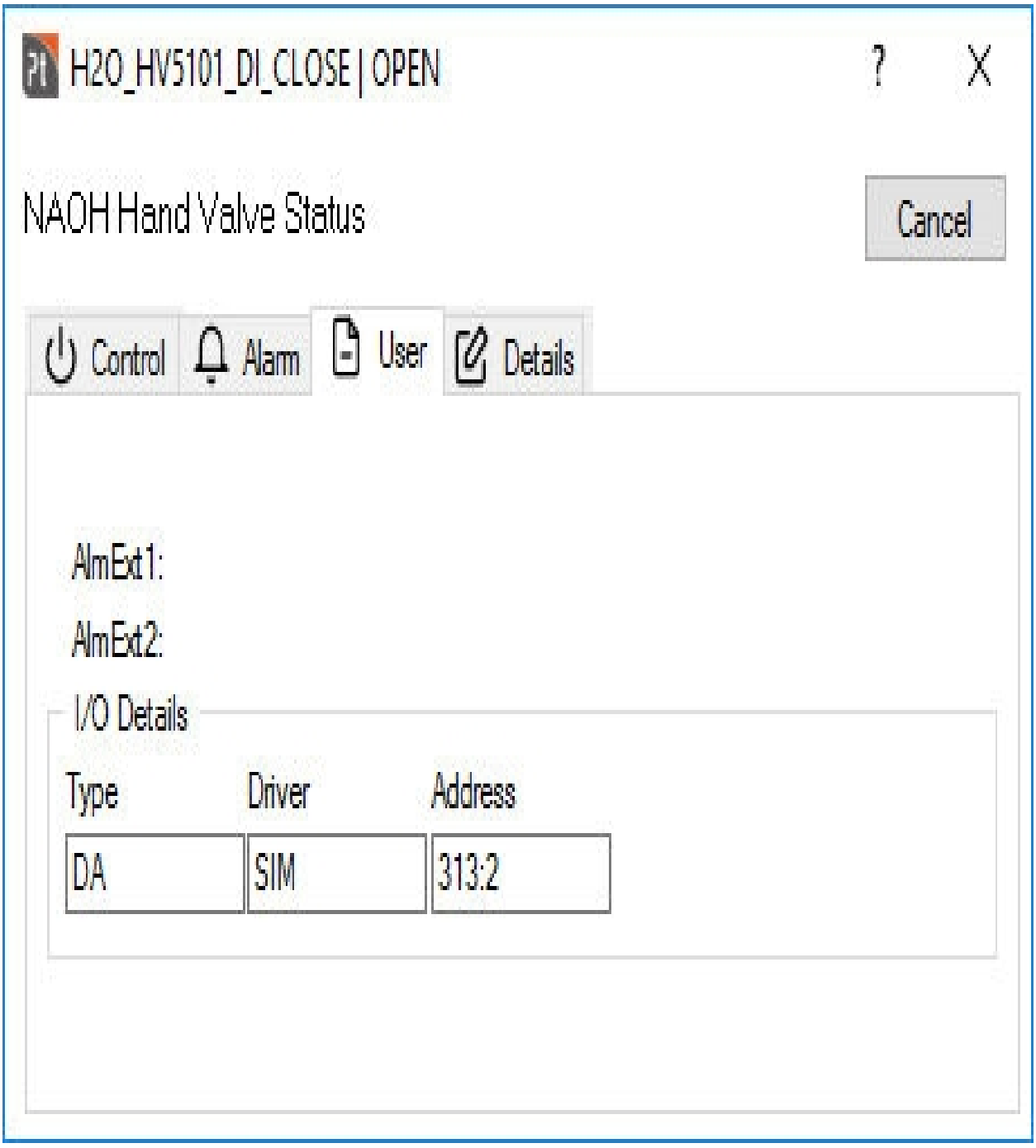
Alarm list behavior:

[List Manager] ShowAlarmTab	Configure whether alarm tab is accessible in dialogs opened from general lists.
[List Manager.DisabledAlarms] ShowAlarmTab	Configure whether alarm tab is accessible in dialogs opened from disabled alarms list.

User

The user tab displays miscellaneous information from database point definition. By default the alarm extension fields are shown, although the system integrator can configure which database fields and labels are to be displayed. For example, the alarm HIHI or LOLO levels can be displayed.

The associated I/O details can also be displayed, including the database point type, driver name, and the I/O address details. The display of the I/O details can be enabled or disabled by the system integrator.



User dialog

Operation notes:

- User tab is not available if the user does not have ”Operator” privilege

Related configuration settings (see ’*Settings table*’):

General user operation:

[Context Help] FIELD1 .. FIELD2 Fields selected from the database for display.

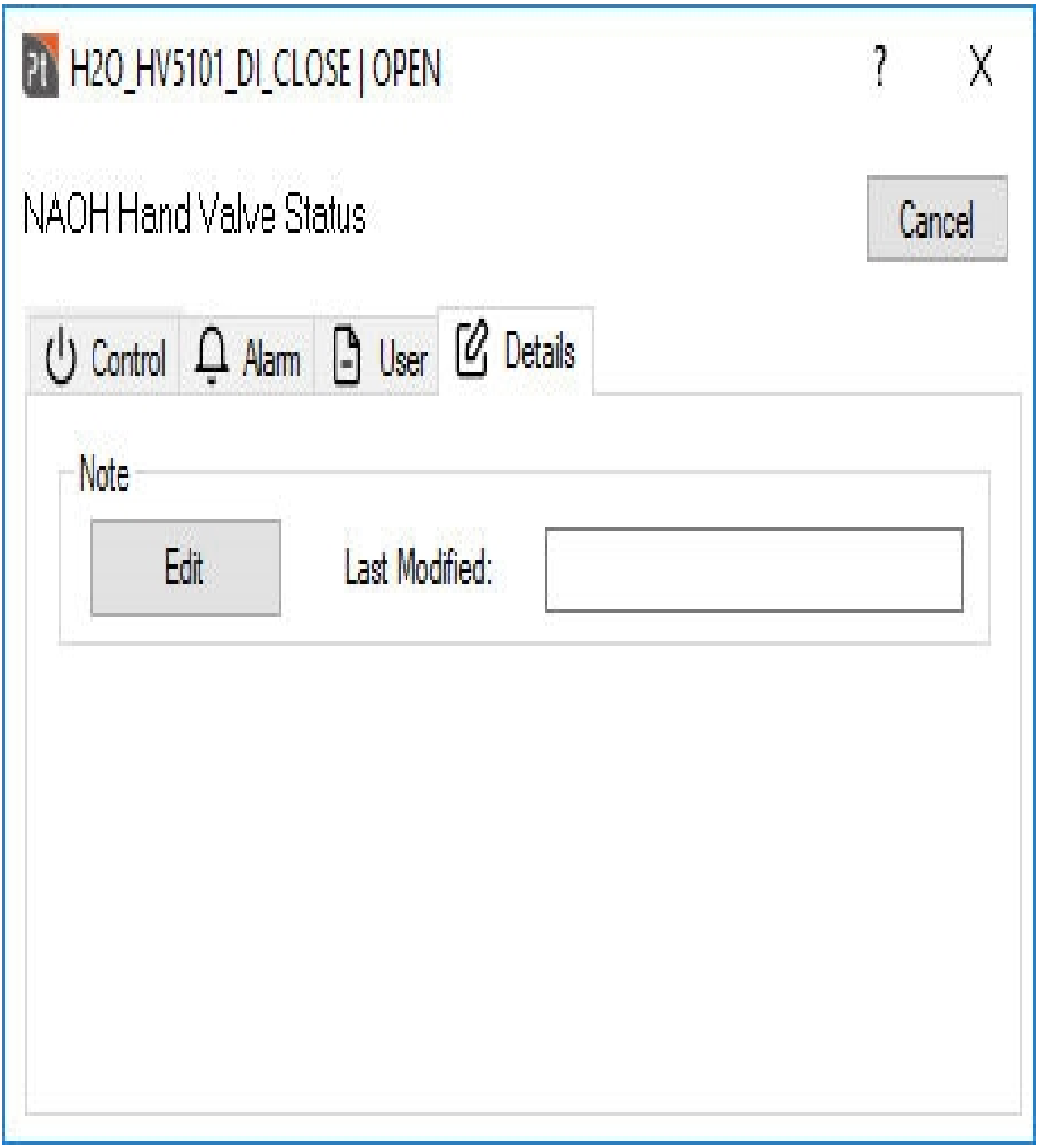
	”A_ALMEXT1” and ”A_ALMEXT2” by default.
[Context Help] LABEL1 .. LABEL2	Labels for displayed database information. ”AlmExt1” and ”AlmExt2” by default, as in the dialog shown above.

User list behavior:

[List Manager] ShowUserTab	Configure whether user tab is accessible in iFIX Productivity Tools dialogs opened from general lists.

Details

The details tab allows users to bring up iNotes associated with the selected device.



Details dialog

Related configuration settings (see '*Settings table*'):

General user operation:

[Dialog] TrendButtonLabel To change the "trend" label.

Note that the "Trend" information screen is only enabled if one ore more trend points are configured within the associated TGD file.

Details list behavior:

[List Manager] ShowDetailsTab	Configure whether details tab is accessible in dialogs opened from general lists.

Menu Control

The iFIX Productivity Tools Menu Control is an ActiveX control that provides a configurable menu system for the iFIX environment. It can be placed inside a "static" header, footer or margin picture, or it can be placed in its own floating picture as in the sample below. In both cases the menu resides in its own small picture, and opens and controls the main pictures that occupy the rest of the monitor.

The menu options are all configurable as are the graphics for each. You can even place static bitmaps on the menu (e.g. displaying the company logo on the menu). Each menu option can have a default action associated with it, as well as a sub-menu, which in turn can have its own sub-menus. The menu can also be configured to display either horizontally or vertically, depending on the requirement.

Note that the menu control is intended to be inserted into its own picture and to then control other pictures around it.

This means:

- The menu picture is a standalone picture that is intended to remain permanently open

- The menu picture opens and closes other pictures in response to the operator requests

- On a single monitor system, typically only one picture will contain the menu object

- On a multi-monitor system, expected operation is for one picture containing the menu object to be configured for each monitor. eg.a picture "MenuLeft" will be configured to open in the left hand monitor, and a picture "MenuRight will be configured to open in the right hand monitor. Each menu picture will control pictures on its own monitor. If only one monitor is configured to run iFIX workspace, then it should be run on the primary monitor.

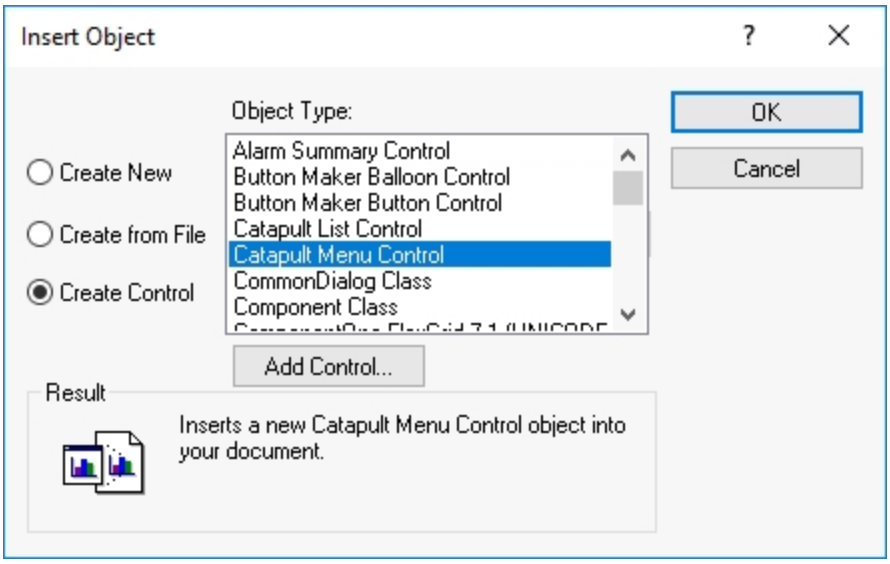
Creating Pictures for the Menu Control

The Menu control is designed to run in a picture separate from the main display pictures. The menu picture can be a header, footer or margin picture. More than one menu picture can be used on the same monitor.

Use the iFIX create picture wizard to create the desired picture layout for the menu(s) and main display picture(s).

Inserting a Menu Control

To insert an iFIX Productivity Tools Menu Control, select the Menu Control on the ProductivityTools tool-bar or select Catapult Menu Control from the Insert | Objects/Links | OLE Object menu.



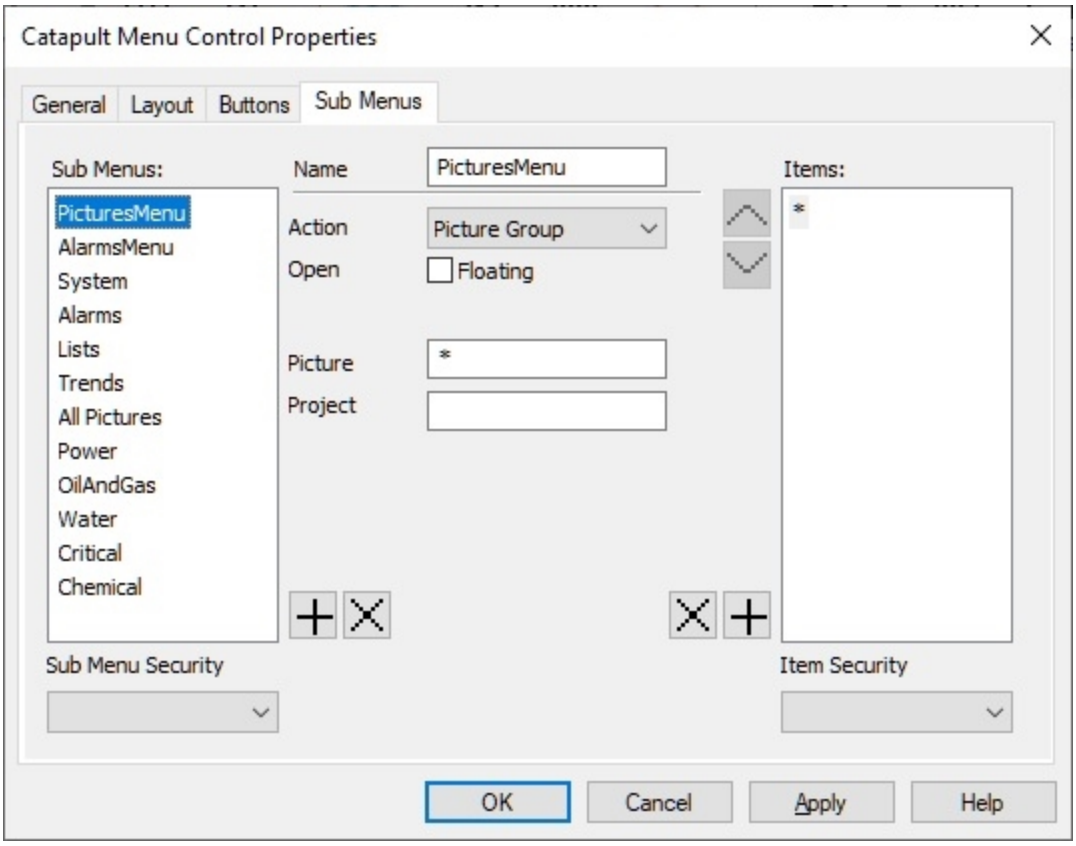
Insert OLE object dialog - Menu

Configuring the menu control

To configure a menu control, double click on the menu control object. This will display the property configuration window.

1. Sub Menus

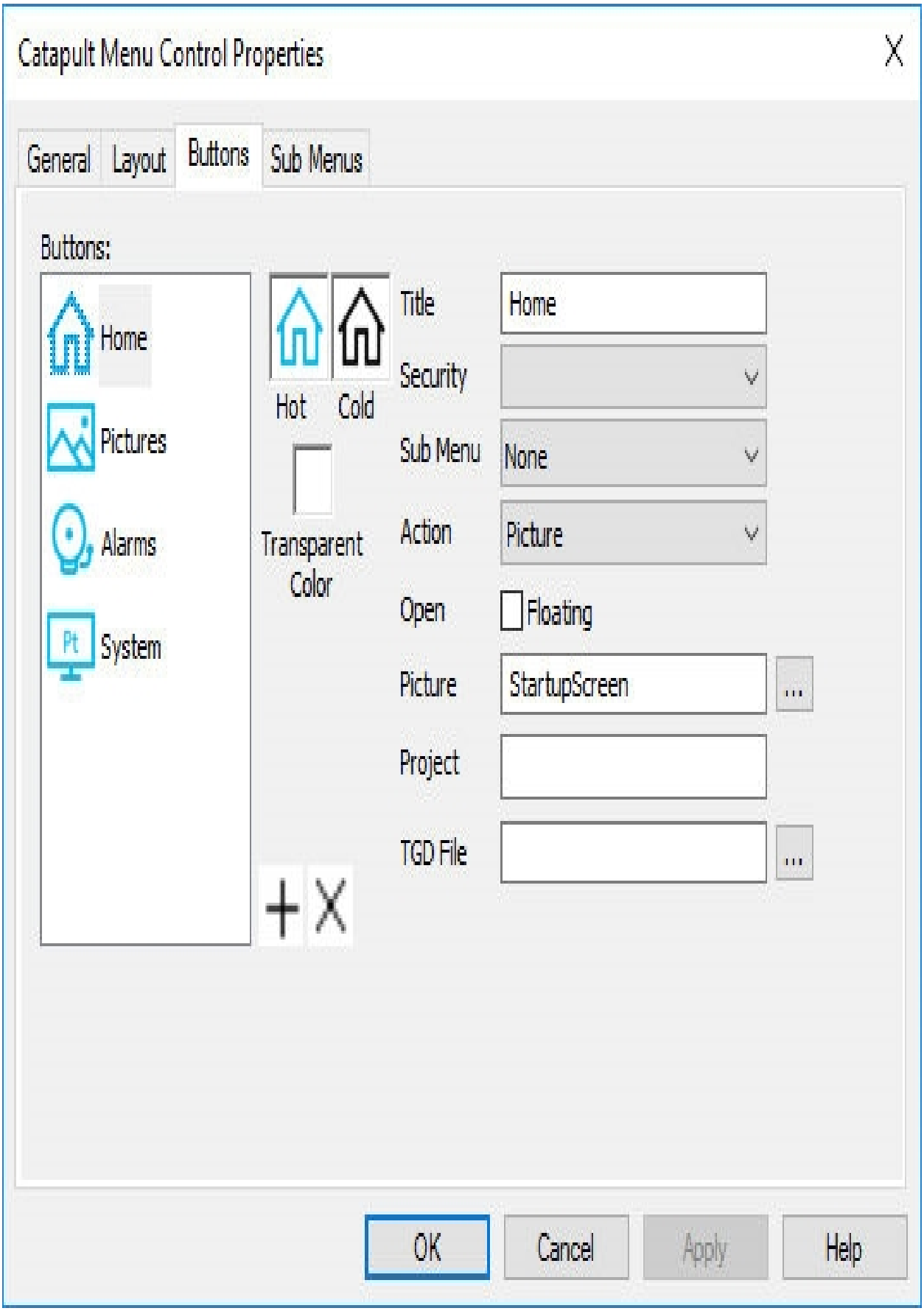
First select the Sub Menus tab to add, remove and configure sub menus.



To create a new sub menu, click the "+" on the left hand side of the page. To create new items in a sub menu, click the "+" on the right hand side of the page. The *Action* drop down specifies the item operation. Select *Picture* in the action drop down to specify a single picture. The *Picture Group* action can be used add multiple pictures by using a wildcard filter. For example, ”TANK*” will add all pictures beginning with ”TANK” to the sub menu. If the action is set to *Sub Menu* a nested sub menu can be configured.

2. Buttons

Next select the Buttons tab to add, remove and configure custom buttons.



To create a new button, click the "+" on the left hand side of the page. Buttons can have an action and/or a sub menu. The action is activated by clicking the button itself. The sub menu is displayed if the drop down is clicked.

The button images can be selected by double clicking on the hot and cold images. The image files must be 20 pixels x 20 pixels, true color (24/32 bit) bitmaps. The *Transparent Color* is the color that will be masked as transparent in the hot and cold images. The "cold" image is that shown normally by the menu, the "hot" image is shown when the operator moves the mouse over the button.

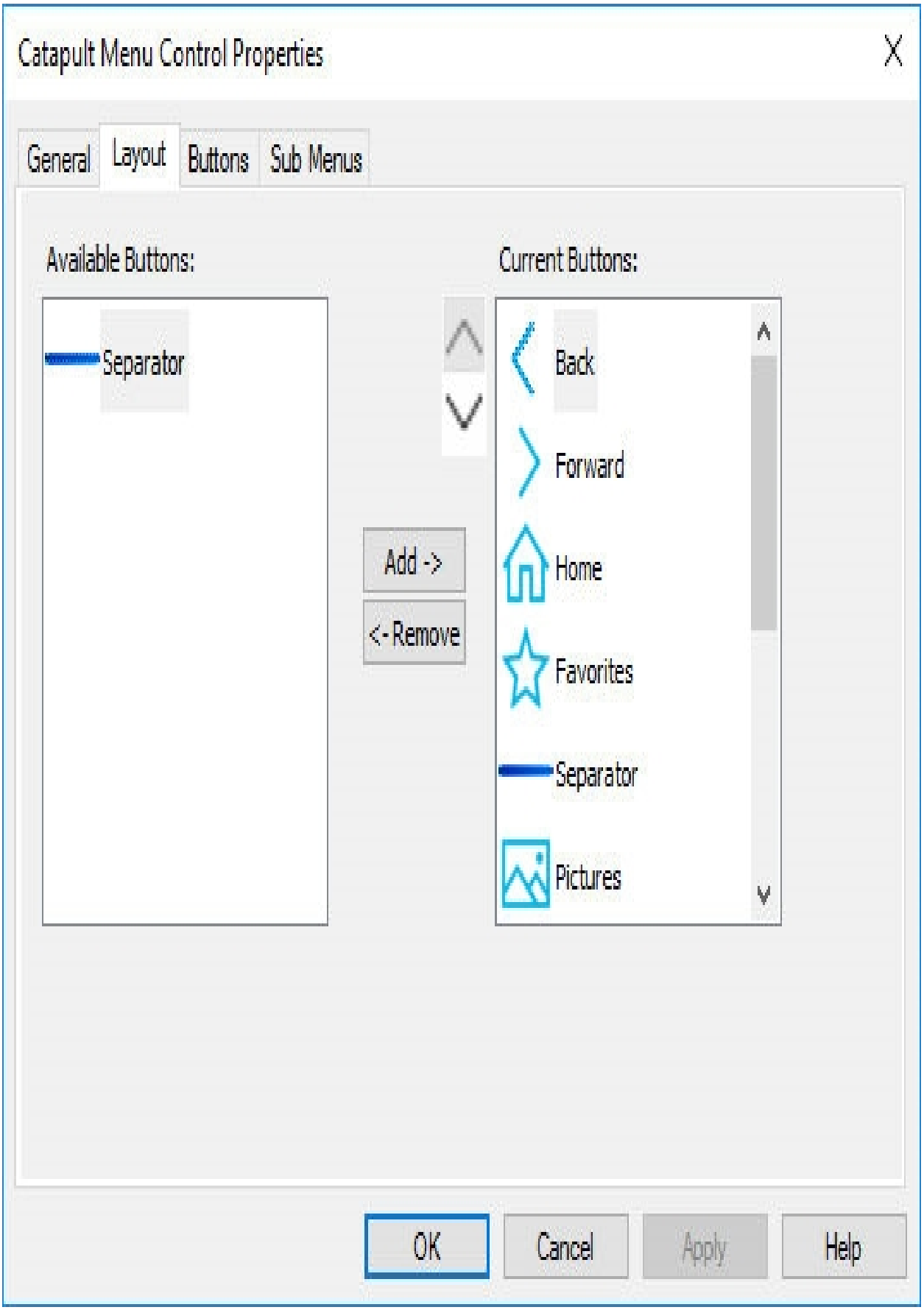
The button can be linked to a security area so that only user who has that security area privilege can see that button in run mode. Set to blank indicating the button is not tired to any security areas and can be accessed anonymously. The button is always shown in configure mode.

The MENU inbuilt button icons can be customised if required. To change the default button icon, copy a *png* or *bmp* with following file name(s) in the PIC folder:

"back_hot", "back_hot", "back_cold", "back_disabled", "forward_hot", "forward_cold", "forward_disabled", "favorites_hot", "favorites_cold", "favorites_disabled", "window_hot", "window_cold", "window_disabled", "help_hot", "help_cold", "help_disabled", "home_cold", "home_hot", "picture_cold", "picture_hot", "alarm_cold", "alarm_hot", "system_cold", "system_hot"

3. Layout

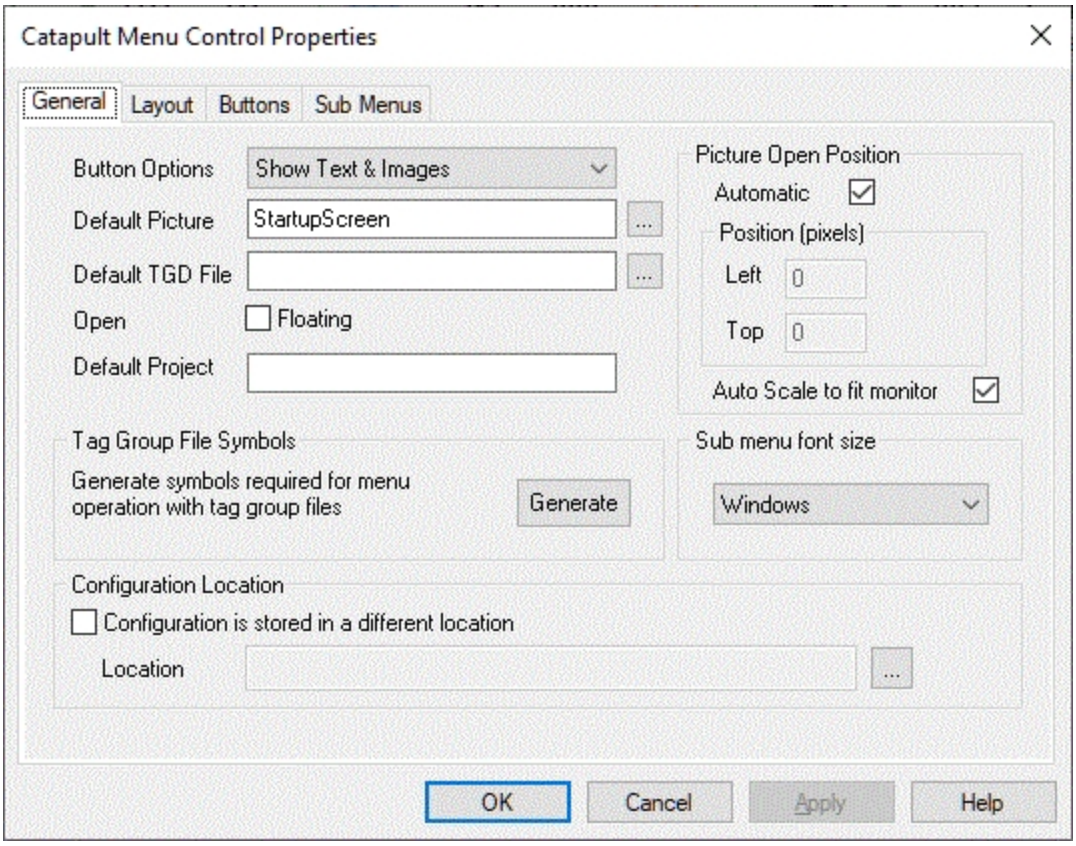
Next select the Layout tab.



This tab allows you to add and remove buttons between the current button list and the available list. The available list contains a set of predefined buttons and the new buttons that have been created using the Buttons tab. The current button list contains all the buttons that are currently displayed on the Menu Control.

4. General

The last tab to configure the menu control is the General Tab.



The *Button Options* drop down allows the button images or button text to be removed.

The *Default Picture* is the picture that is loaded when the menu is opened in run mode. If this picture needs to be opened with a corresponding Tag Group Data (TGD) file, then this can be specified in the *Default TGD File* field.

The position that the menu opens pictures can be determined automatically by the menu control (based on the menu picture position), or can be specified explicitly in pixel co-ordinates if required. For multi-monitor operation, all co-ordinates are in reference to the current monitor, i.e. 0, 0 will refer to the top left hand corner of each monitor.

The submenu font size is as configured by *Windows* defaults. If required, a custom font setting can be applied using the *Sub menu font size* pulldown menu

If pictures to be opened by the menu use tag group data files (TGDs), then the menu requires two additional TGD symbols to be configured. These are:

- CSPictureDescription – used to populate the menu ”Picture Description” property for a picture opened with a TGD file. For a non-TGD picture, the standard picture description property is

accessed.

- CSTaggroupFile – used to identify which tag group file is associated with a currently opened picture.

5	CSPictureDescription	"SAMPLE DEV CB0201 MB POS C"		Picture description used by Catapult Menu
6	CSTagGroupFile	"SAMPLE_DEV_CB0201_MB_POS_C"		Tag group file name used by Catapult Menu

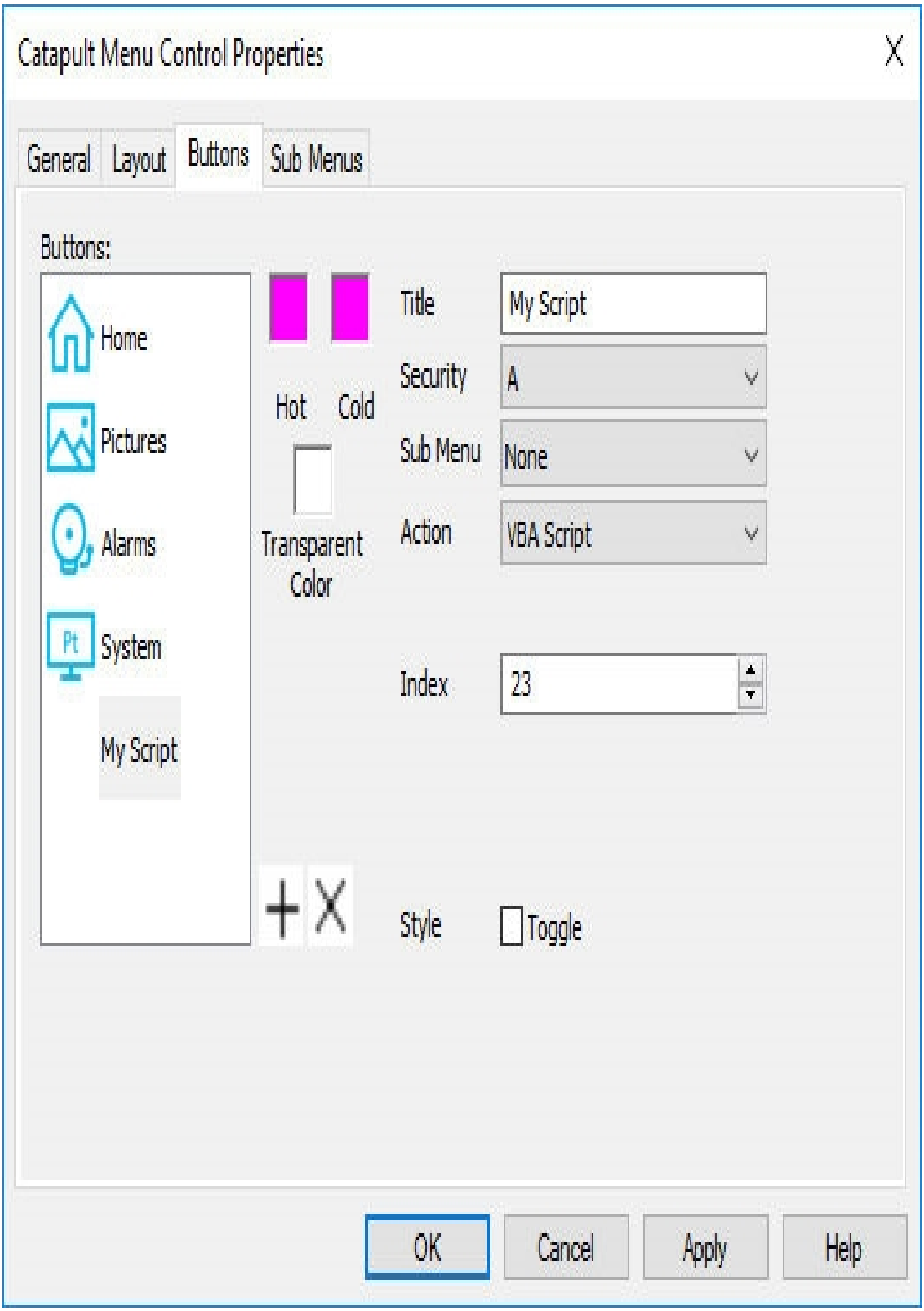
Tag group file symbols used by Menu control

The Configuration Location is the directory where iPower.ini resides, The CSMenu refers to iPower.ini for some specific configuration information. In most scenario, this does not need to be configured and the LOCAL folder is referenced. For machines which may be mapping network drives however an option to specify alternate folders is required.

VBA Scripts

The menu control can be configured to fire VBA events to run custom scripts when a button or sub menu item is clicked. To configure custom scripts follow these steps

1. Select the button or sub menu item *Action* to be ”VBA Script”.



2. Right click on the menu control object and select edit script.

This will create a VBA event. Edit the script to include the desired code.

Copy

```
Private Sub CSMenu1_CustomAction(ByVal lIndex As Long)
  '*** My Custom Script ***
  'This will display a message box with the number 23
  'when a user clicks on the "My Script" Button
  MsgBox Str(lIndex)
End Sub
```

Properties and Methods

Properties

The menu control has read-only properties that can be useful for configuring a menu picture. *CurrentPicture, CurrentPictureDescription, CurrentUserName, CurrentUserID and CurrentUserGroup* are all properties that can be used to animate a text object in a menu picture. Use a ”object” data conversion animation to connect a text object to these properties.

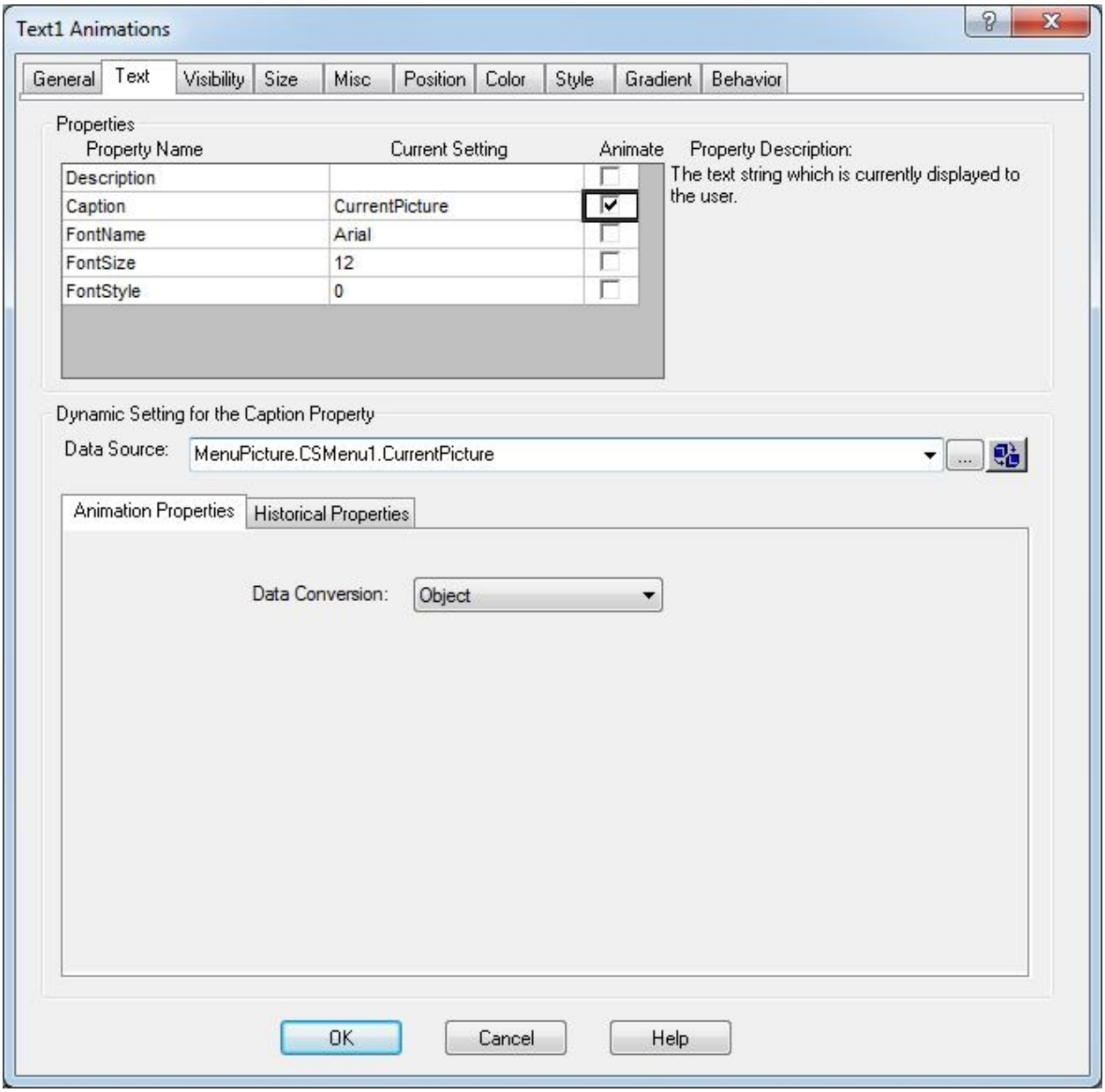
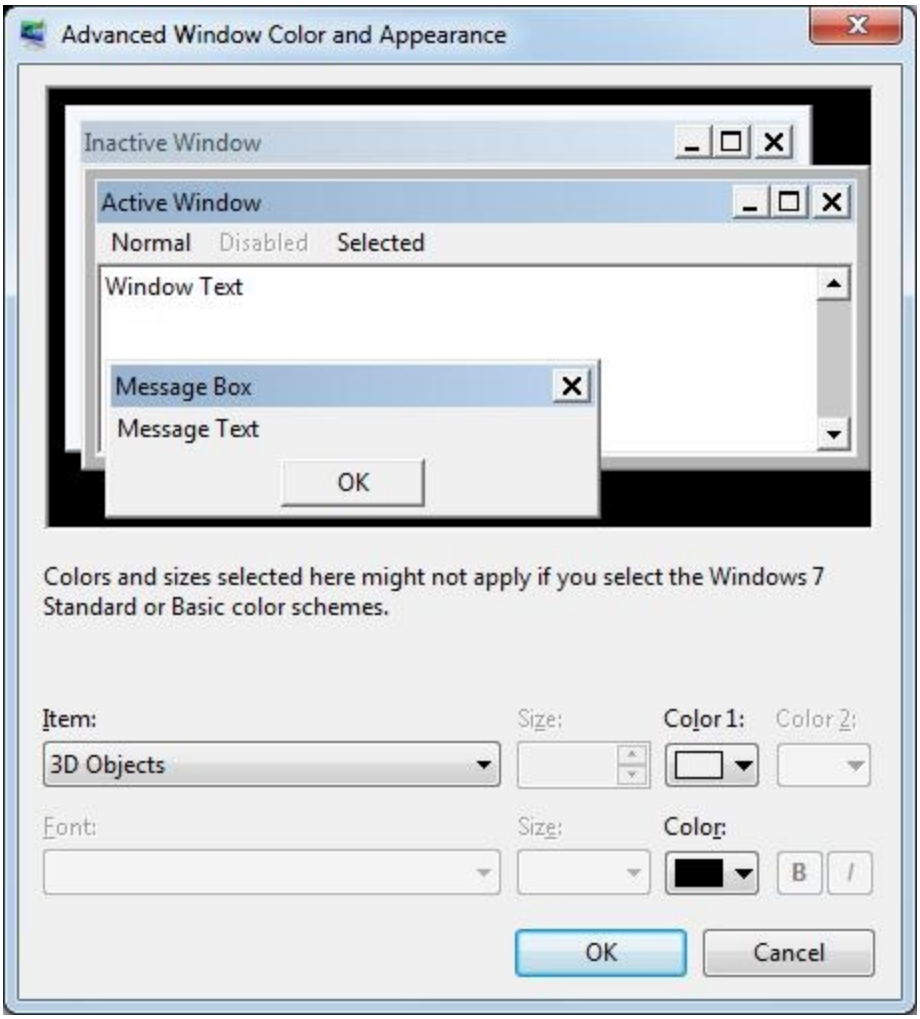


fig. Text Animation Example

The *MenuColor* property is a read-only property that shows the current color of the menu. Set the menu picture background color to the same value so that the picture is one homogenous color.

Note the menu color is matched to the windows appearance setting, "3D Objects" color. Provided that Windows themes XE "Windows themes:CSmenu color" are not enabled, changing this color setting changes the menu color to match.



Windows Advanced Appearance ’3D Objects’ color setting

It is recommended to set the *HighlightEnabled* property of the menu control to ”false” to ensure there is no highlight box in run mode.

Methods

OpenPicture

Interface to be called to navigate to a different screen when clicking on an object. By using this menu interface the iPower menu 'forward' and 'back' history is correctly maintained. The example script below navigates to a screen by clicking on an object but going via the iPower menu where "TrialMenu” is the screen name and "CSMenu1” is the menu control:

OpenPicture[1] is a method that can be used to open pictures in VBA. This method differs from the standard ”OpenPicture” global subroutine in that it will open pictures in the correct position for the menu object. It also will replace the current picture if it exists.

Syntax

OpenPicture Picture

Picture. String. The file name of the Picture you want to open.

Example:

Copy

```
Private Sub CommandButton1_Click()
Dim oPic As Object
Set oPic = System.FindObject("TrialMenu.CSMenu1")
If oPic Is Nothing Then
Else
          oPic.OpenPicture ("Brown_Sub")
End If
End Sub
```

OpenTGDPicture

Similar to the OpenPicture method, but supports specification of an associated TGD file.

OpenTGDPicture[1] is a method that can be used to open pictures with asscociated tag group files in VBA. This method differs from the standard ”OpenTGDPicture” global subroutine in that it will open pictures in the correct position for the menu object. It also will replace the current picture if it exists.

Syntax

OpenTGDPicture Picture TagGroupName

Picture. String. The file name of the Picture you want to open.

TagGroupName. String. The tag group file name. Do not specify a path for this parameter

ClearMenuHistory

There is a single interface which removes both forward and back history entries. The code example below is where "Example_HeaderMenu" is the screen name and "CSMenu1" is the menu control:

Syntax

ClearMenuHistory

Example:

Copy

```
Private Sub RoundRect1_Click()
Dim oPic As Object
Set oPic = System.FindObject("Example_HeaderMenu.CSMenu1")
If oPic Is Nothing Then
Else
oPic.ClearMenuHistory
End If
End Sub
```

Note

1. If the VBA code is to be invoked by a picture click event, then directly calling the standard iFIX "*ReplacePicture*" is simpler and will work correctly. As the calling picture is known to be open and on the desired monitor, otherwise the code can not be run. Alternatively when calling *OpenPicture* or *OpenTGDPicture* from a source other than the menu picture, it is a more little complicated as

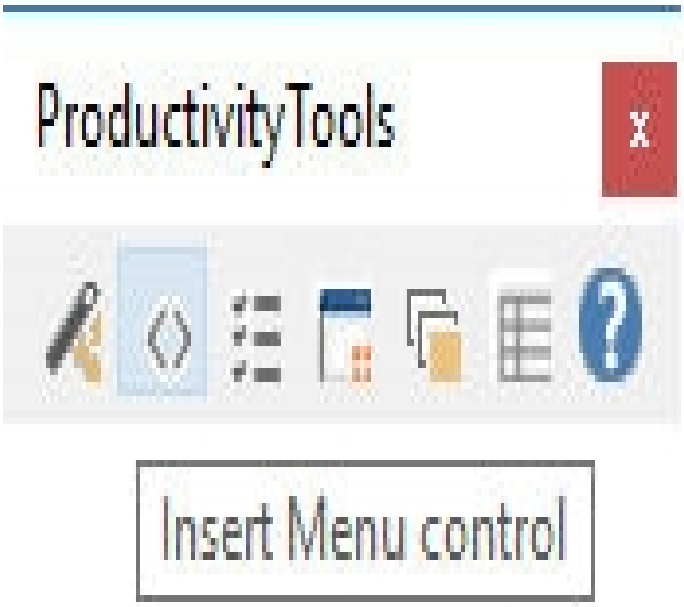
first the menu picture, and then the CSmenu object must be found by looping through a collection list of contained objects.

Creating a Floating Menu

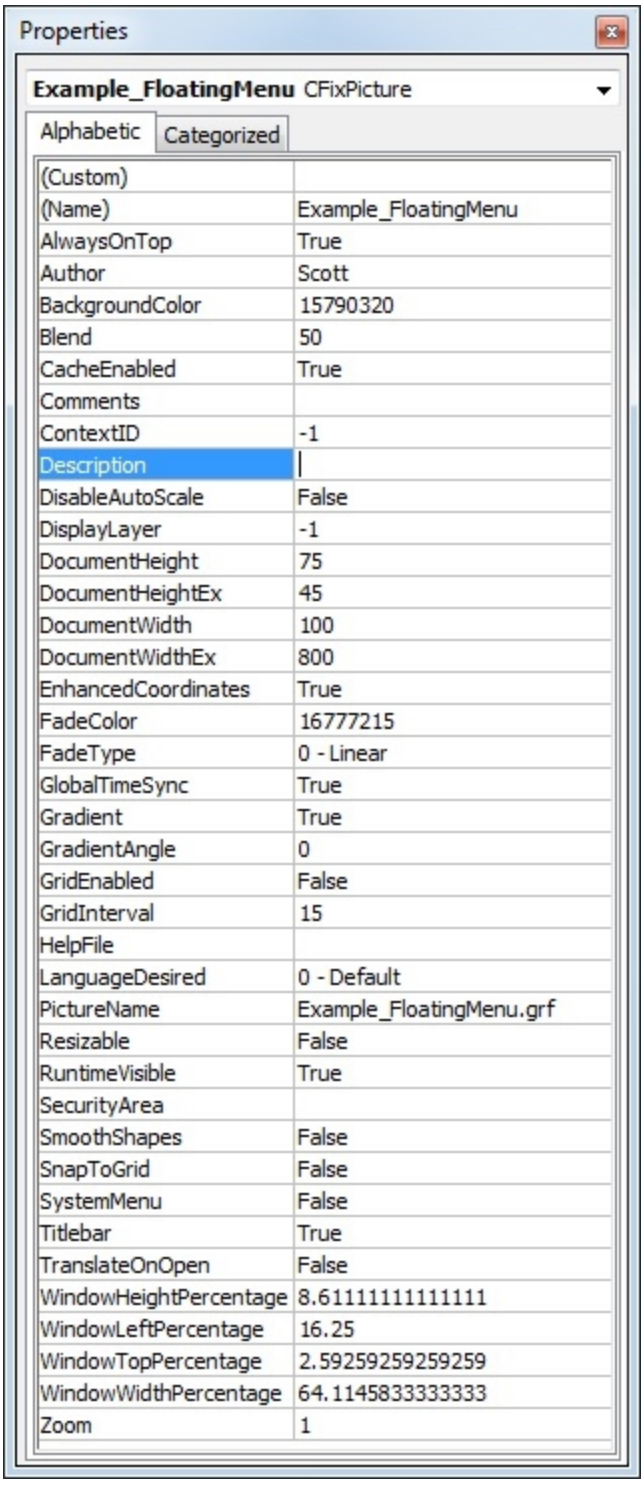
The iFIX Productivity Tools menu can be incorporated into every picture in an existing iFIX system, but can also be configured as a standalone floating picture. This has the advantage that the menu only needs to be configured once, and the space that would otherwise be occupied by the menu can be freed for other purposes.

To create a floating menu, follow these steps:

1. From the iFIX Workspace configuration mode, create a new blank picture
2. Insert an iFIX Productivity Tools Menu control into the new picture by selecting the menu control from the "ProductivityTools" toolbar.



3. Configure the new menu as needed. Refer to the previous section (Configuring the Menu Control) for details.
4. Once the menu is configured as needed, right-click on the menu control and bring up its Property Window. Take note of the Height and Width settings for the control



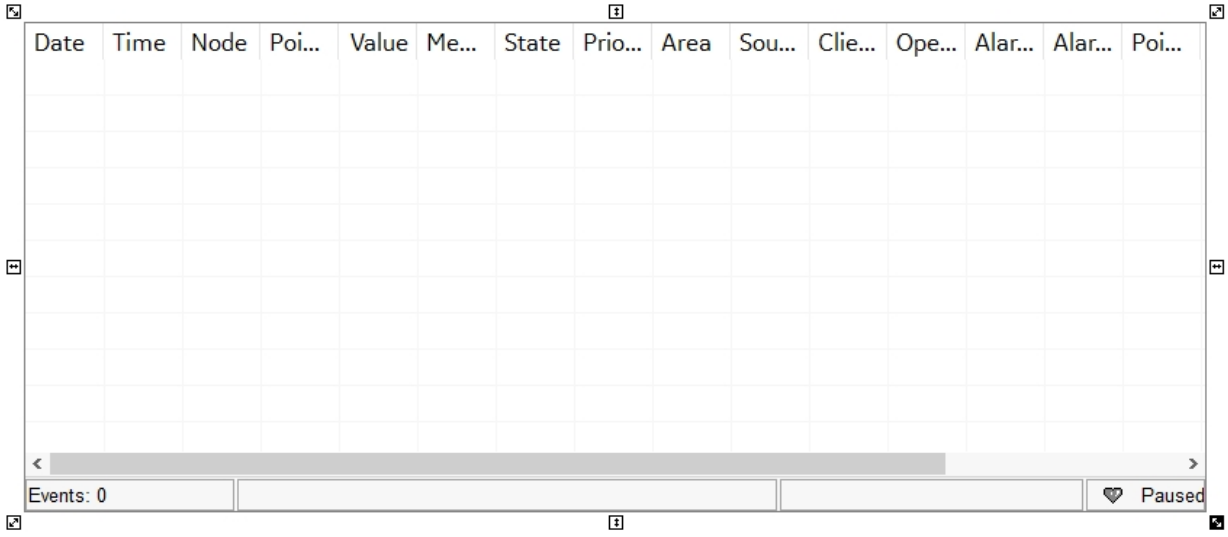
Bring up the Property Window for the new picture itself, and apply the Height and Width settings of the menu control to the picture itself. If done correctly, the new picture should be re-sized to the same dimensions as the menu control.

5.

6. Save the new picture under the desired name. You can then use this new picture as the startup picture for iFIX Workspace.

List Control

The iFIX Productivity Tools List Control is an ActiveX control that provides a facility to display data summaries, events lists, and key operator actions.



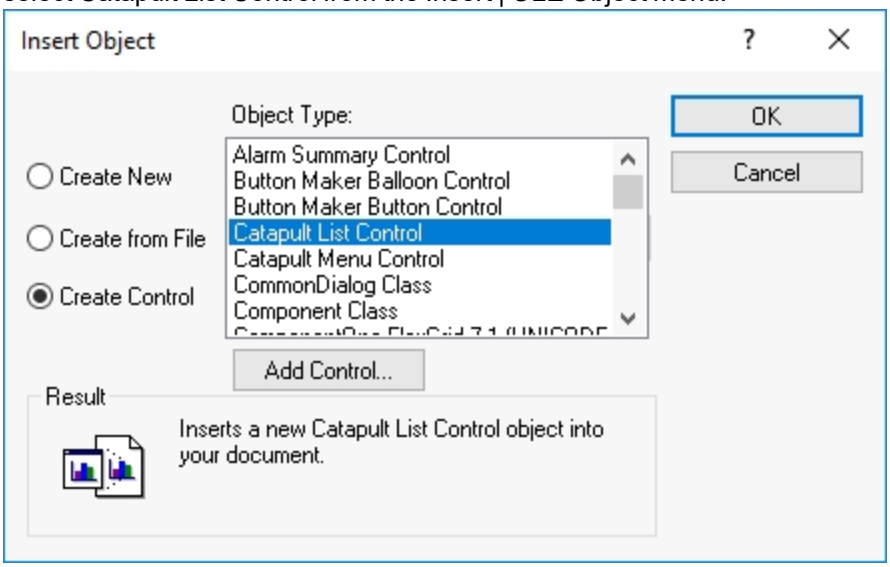
The List Control can be added to any new or existing iFIX picture. It supports the following modes:

- Event List - a list of all events in the system, including operator actions and comments
- Alarms List - a list of the currently active alarms in the system
- Alarm Disabled - a list of database points where alarms have been disabled
- Data Summary - a list of the points in the iFIX database
- Applied Notes - a list of comments that have been applied by an operator to database points
- Shelved Alarms - a list of database points where alarms have been shelved (i.e. temporarily disabled based on a shelving policy defined in the iFIX Database Manager)

The list can be filtered based on several criteria including node and point name, date and time, or any field of interest to the list. Furthermore, the type of data displayed by the list can be changed at runtime, allowing operators easy access to relevant data at any given time.

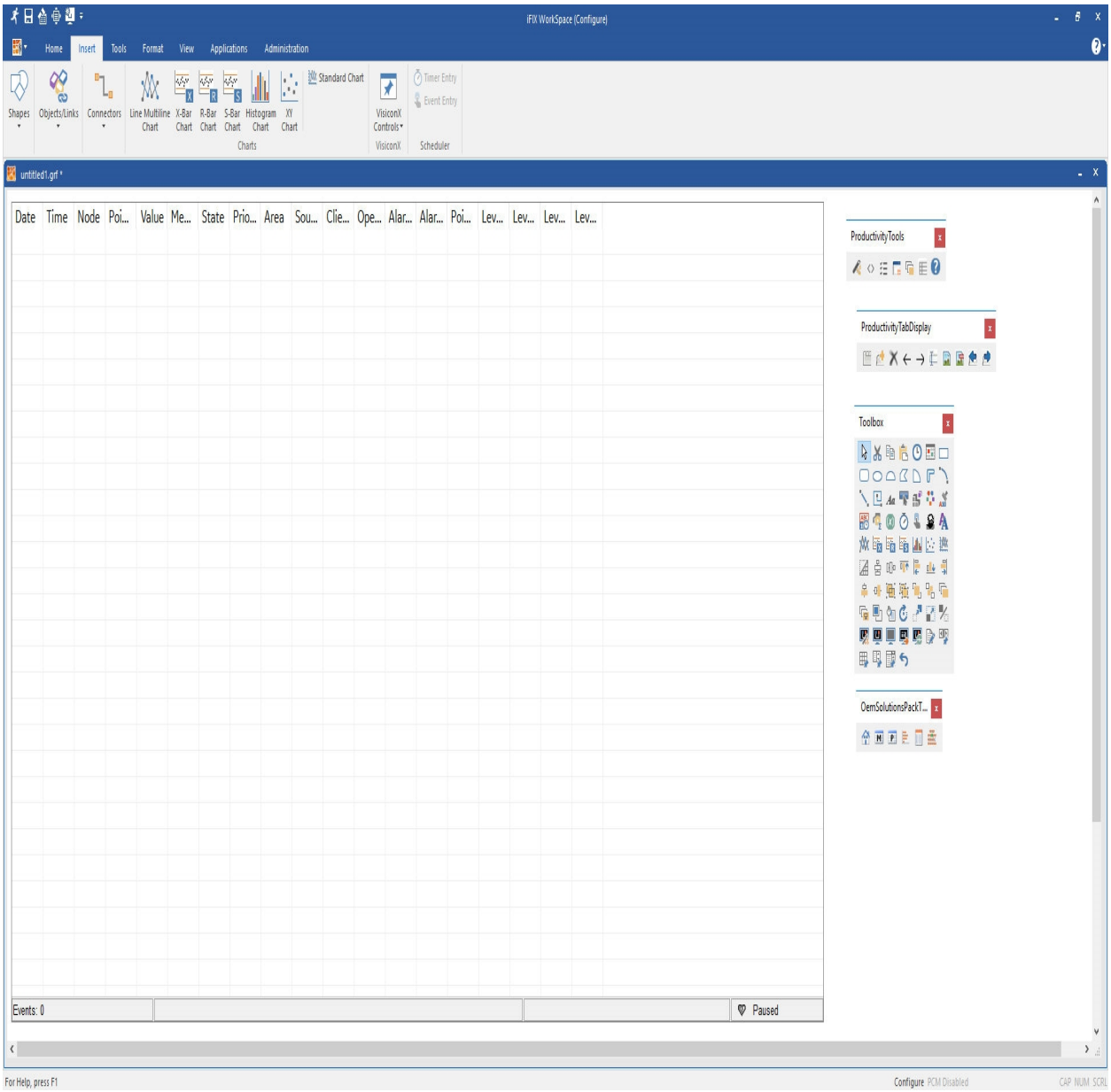
Inserting a List Control

To insert an iFIX Productivity Tools List Control, select the List Control on the ProductivityTools toolbar or select Catapult List Control from the Insert | OLE Object menu.



Insert OLE object dialog - List

Once the object is selected, it can be placed and sized on the picture as shown below. The list object can be resized by dragging the corner markers, and moved around the picture as any standard object.



Newly dropped list object, showing re-sizing arrows

List Control properties

The properties specific to the List Control are:

- PointNameRestriction
- NodeNameRestriction
- AlarmAreaRestriction
- BaseFilter
- UpdateInterval
- ListMode
- HeaderVisible
- StatusBarVisible
- Primary Sort
- Secondary Sort

- Color
- Font Scale
- Show Filter
- Fix Filter Position
- Column order and visibility flags

The first four properties are elements of the filtering system. Settings from these properties are added to the filter created from the run-time pop-up menu. This functionality allows the creation of lists that have predefined (filtered) sets of output values. For example a list filtered for a substation and included on a substation single line diagram.

UpdateInterval specifies a time interval in which the Current Values are updated

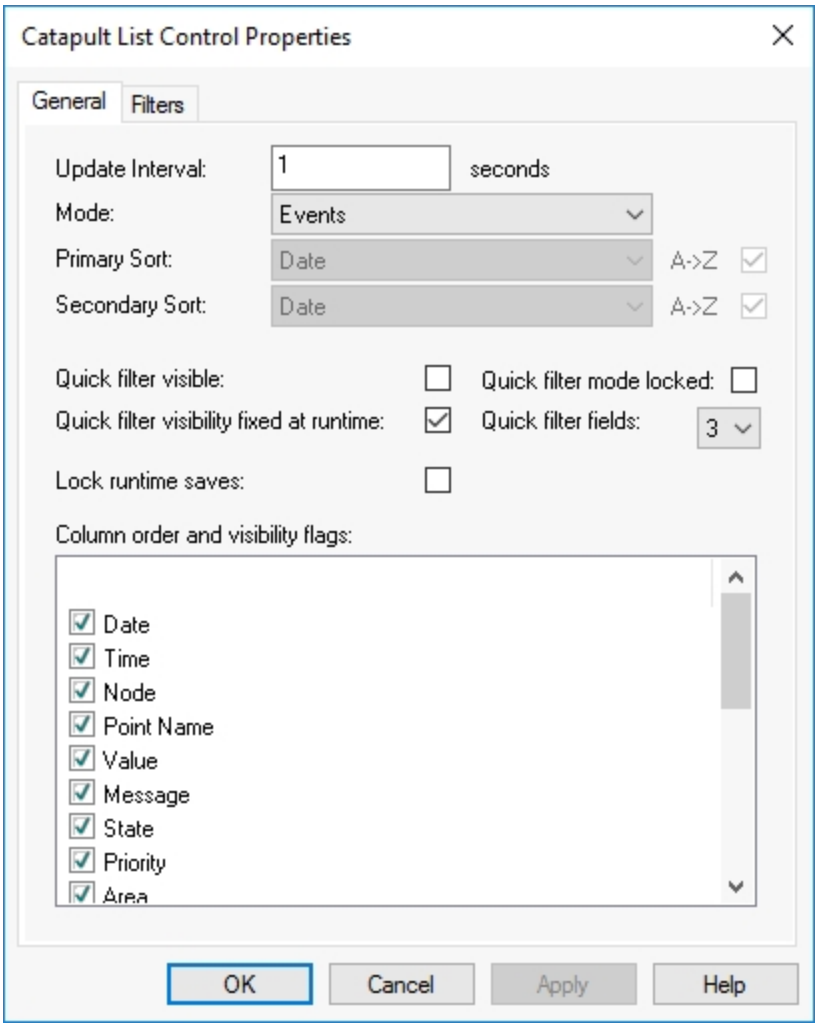
ListMode is a property that selects a list type. This property can be changed at both run time and configure time.

HeaderVisible and StatusBarVisible are configurable in the list control property window accessible in the configuration environment, or via VBA. They are not provided on either the configuration or runtime dialogs. Note that disabling the Header prevents column sizing and positioning controls.

Primary and Secondary sort can be applied to a list, in the run mode the list will be sorted accordingly. From the pull down menu various options can be selected and applied.

Appearance of the list can be modified by Font Scale, Color, Column order and visibility flags fields

By Enabling Show Filter the following filter option will be available. Enabling Fixed Filter Position minimizes the filter



List Control ”General” property page.

List Control ”Filters” property page.

In configure mode these properties can be configured from the Property page dialog box. This box is shown in the two figures above and can be invoked by right clicking on the List Control, then selecting the ’Properties…Catapult List Control Object’ option. Alternatively, double clicking on List Control also brings up this dialog.

The restriction properties (PointNameRestriction, NodeNameRestriction, AlarmAreaRestriction, BaseFilter) define a string that can include ”*” and ”?” wildcards. For example, to only display list entries whose node name starts with the letters ”SAMP”, set the NodeName field to:

”SAMP*”

The filter condition will be created based on the string provided. Each condition will be applied to the appropriate field in the selected list. It uses ’r;=’ operation for these conditions and ’r;ANDs’ all four conditions to the filter used in the list. Any filter conditions specified from the pop-up menu will be ’r;ANDed’ to those specified as a restriction property.

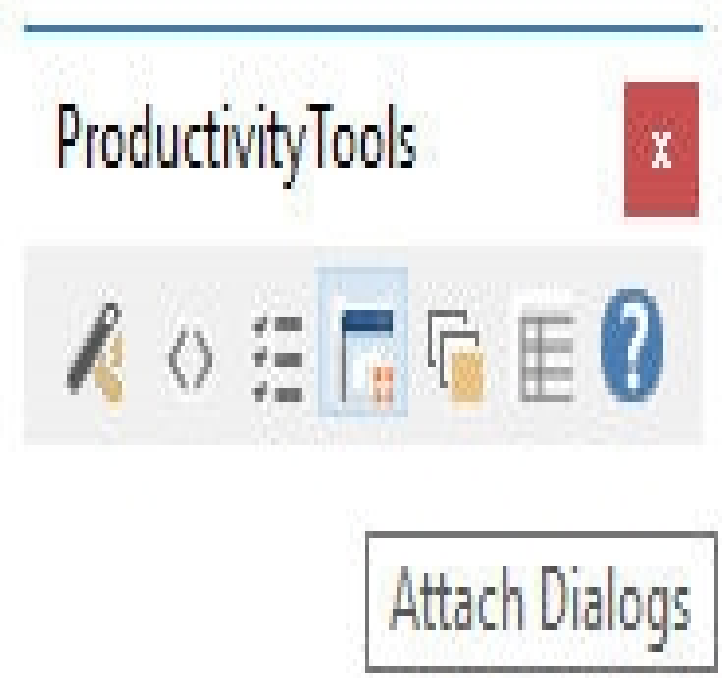
The PointNameRestriction, NodeNameRestriction, AlarmAreaRestriction properties are used to respectively restrict the list display to a subset of point names, node names and alarm areas. The BaseFilter is provided for more complex filtering.

The BaseFilter allows filtering on any of the field names visible in the list. The BaseFilter also supports more complex logic. For example to view a list excluding data from nodes whose name starts with ”SAMP”, then BaseFilter can be set to:

NOT(Point Name=”SAMP*”)

The UpdateInterval is a number of seconds between updates applied to the Current Values.

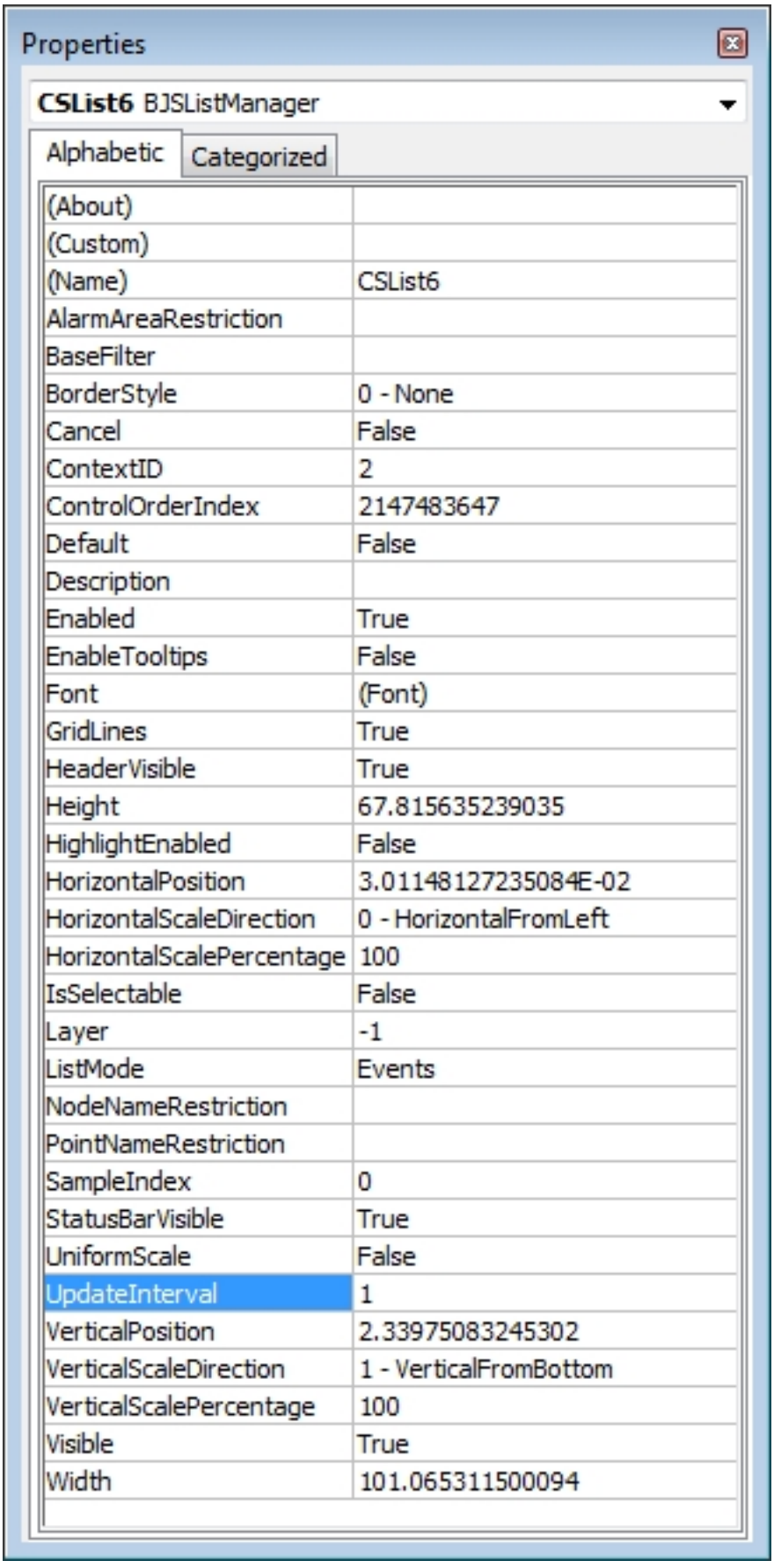
The ListMode property specifies a list type. Valid types are Events, Alarm Summary, Data Summary, Disabled Alarms, Shelved Alarms and Notes, as shown in the figure below.



List Control ”Mode” selection.

These properties can also be set using the Property Window shown below. This window is invoked by right clicking on the List Control while in configure mode and selecting ’Property Window…’.

Also note that the property window can open the property page via the ’Custom’ property.



List Control property window

List Control settings

List Control operation can be modified by certain iPower.ini" configuration settings. Refer to Settings table, for specific information.

1) For general lists, able to disable iFIX Productivity Tools dialog tabs

2) Event list, able to configure default number of entries in list

3) Event list, able to configure default number of days displayed before prompting operator (useful particularly for filter list searches, when date specific ranges not specified)

4) Event list, able to configure custom foreground and background color for each event source and individual coloring based on Alarm Status or Alarm Priority of the "ALARM" source.

5) By default no colors are defined and that the new colored icons are used. For high performance display extensions, it is recommended that custom list coloring is not configured. if any custom list colors are defined then the priority alarm icon display and list row shading functionality is no longer available.

Events list color display

It is recommended that custom list colors are not configured.

For backwards compatibility purposes the alarm summary and events list both can optionally be configured to display different foreground and background colors, based on alarm priorities and/or event sources.

For example the following settings can be configured for the events list. Also refer to the Settings table for further details.

Sample events list entry from iPower.ini:

Copy

```
[List Manager.Events]
DBPOLLPERIOD = 3
ALMQPOLLPERIOD = 3
```

To configure background colors based on source:

Copy

```
ColorSourceBackDefault = RGB(255,255,255)
ColorSourceFontDefault = 0
ColorSourceCount = 4
ColorSource1 = EVENT
ColorSourceBack1 = 16763594
ColorSource2 = OPERATOR
ColorSourceBack2 = 16759482
ColorSource3 = COMMENT
ColorSourceBack3 = 16759462
ColorSource4 = SYSTEM
ColorSourceBack4 = 16751258
```

The events from an ALARM source can be colored based upon alarm priority and alarm status. With font optionally colored based upon alarm status, and the background optionally colored based on alarm priority or alarm status. Typically we recommend that only background or font is colored, configured both can create an unnecessarily complex color scheme.

Alarm background colors by priority:

Copy

```
ColorAlarmStatusCount = 0
ColorAlarmStatusFontDefault = 0
ColorAlarmPriorityBackDefault = 255
ColorAlarmPriorityCount = 7
ColorAlarmPriority1 = CRITICAL
ColorAlarmPriorityBack1 = 255
ColorAlarmPriority2 = HIHI
ColorAlarmPriorityBack2 = 2895103
ColorAlarmPriority3 = HIGH
ColorAlarmPriorityBack3 = 4474111
ColorAlarmPriority4 = MEDIUM
ColorAlarmPriorityBack4 = 6908415
ColorAlarmPriority5 = LOW
ColorAlarmPriorityBack5 = 10790143
ColorAlarmPriority6 = LOLO
ColorAlarmPriorityBack6 = 15195647
ColorAlarmPriority7 = INFO
ColorAlarmPriorityBack7 = 16777215
```

Alarm font colors by alarm status:

Copy

```
ColorAlarmPriorityCount = 0
ColorAlarmPriorityBackDefault = 255
ColorAlarmStatusFontDefault = 0
ColorAlarmStatusCount = 3
ColorAlarmStatus1 = OK
ColorAlarmStatusFont1 = 10790143
ColorAlarmStatus2 = COS
ColorAlarmStatusFont2 = 2895103
ColorAlarmStatus3 = CFN
ColorAlarmStatusFont3 = 4474111
```

Alarm background colors by alarm status:

Copy

```
ColorBackByStatus = 1
ColorAlarmPriorityCount = 0
ColorAlarmStatusCount = 3
ColorAlarmStatusFontDefault = 0
ColorAlarmStatusBackDefault = 0
ColorAlarmStatus1 = OK
```

```
ColorAlarmStatusBack1 = 2895103
ColorAlarmStatus2 = COS
ColorAlarmStatusBack2 = 15195647
ColorAlarmStatus3 = CFN
ColorAlarmStatusBack3 = 6908415
```

Note to enable alarm background colors by alarm status, that ColorBackByStatus must be set to 1.

Tab display

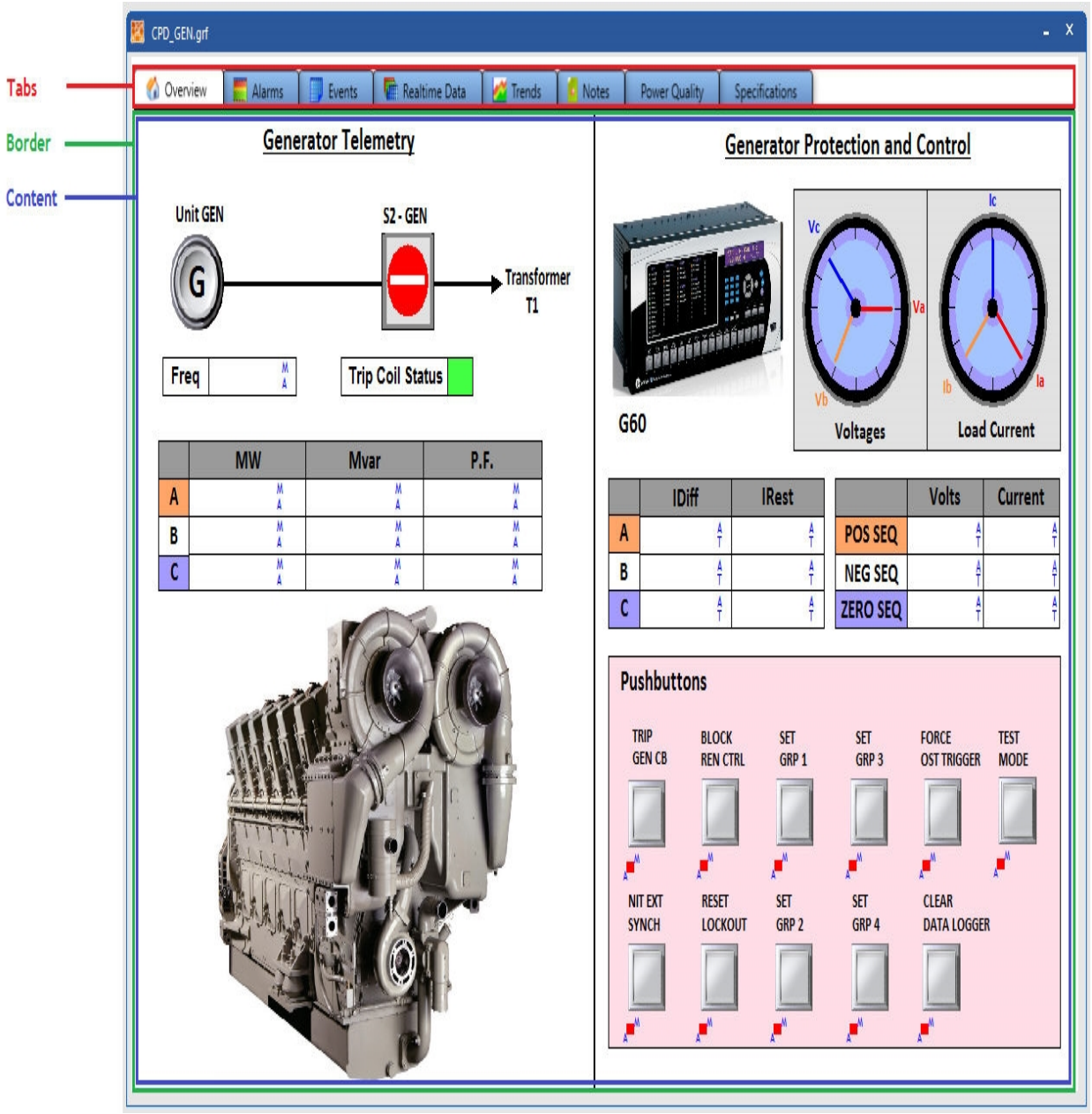
iFIX Productivity Tools Tab displays provide a compact and uncluttered method to access to a potentially large amount of information.

Tab displays comprise three components:

Tabs: A "Catapult.NET" tab control, used to switch frame visibility, to effectively ‘tab through’ multiple iFIX picture groups.

Content: An iFIX picture group, which contains the graphics to be displayed on each of the tabs

Border: A rectangle sized to provide a visual frame to the Frame content

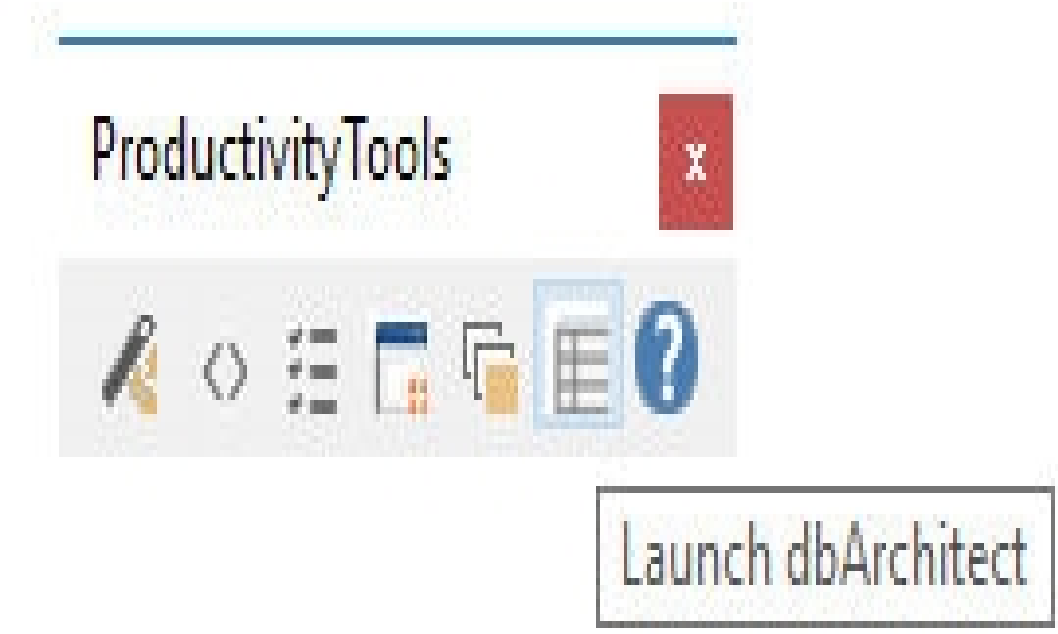


Example tab display

Note: When adding tab display, there is a need to modify the filterederrors.ini which can be found in [iFIX Project folder]\LOCAL to add the error code -2147195903. This will disable possible unknown iFIX Workspace crash upon exit when bringing up a screen with a tab control.

Insert new tab control

First the Catapult.Net tab control is to be inserted into a picture. In iFIX Workspace configure mode, open the picture and select from the main menu Insert > .NET Component. The following dialog will appear:



Inserting a tab control

Select the tab control and press OK. Move the tab control to the desired position on the screen and then open the "ProductivityTabDisplay" toolbar to configure the tab control:

The toolbar options are:

- Create tab display
- Add tab
- Remove tab

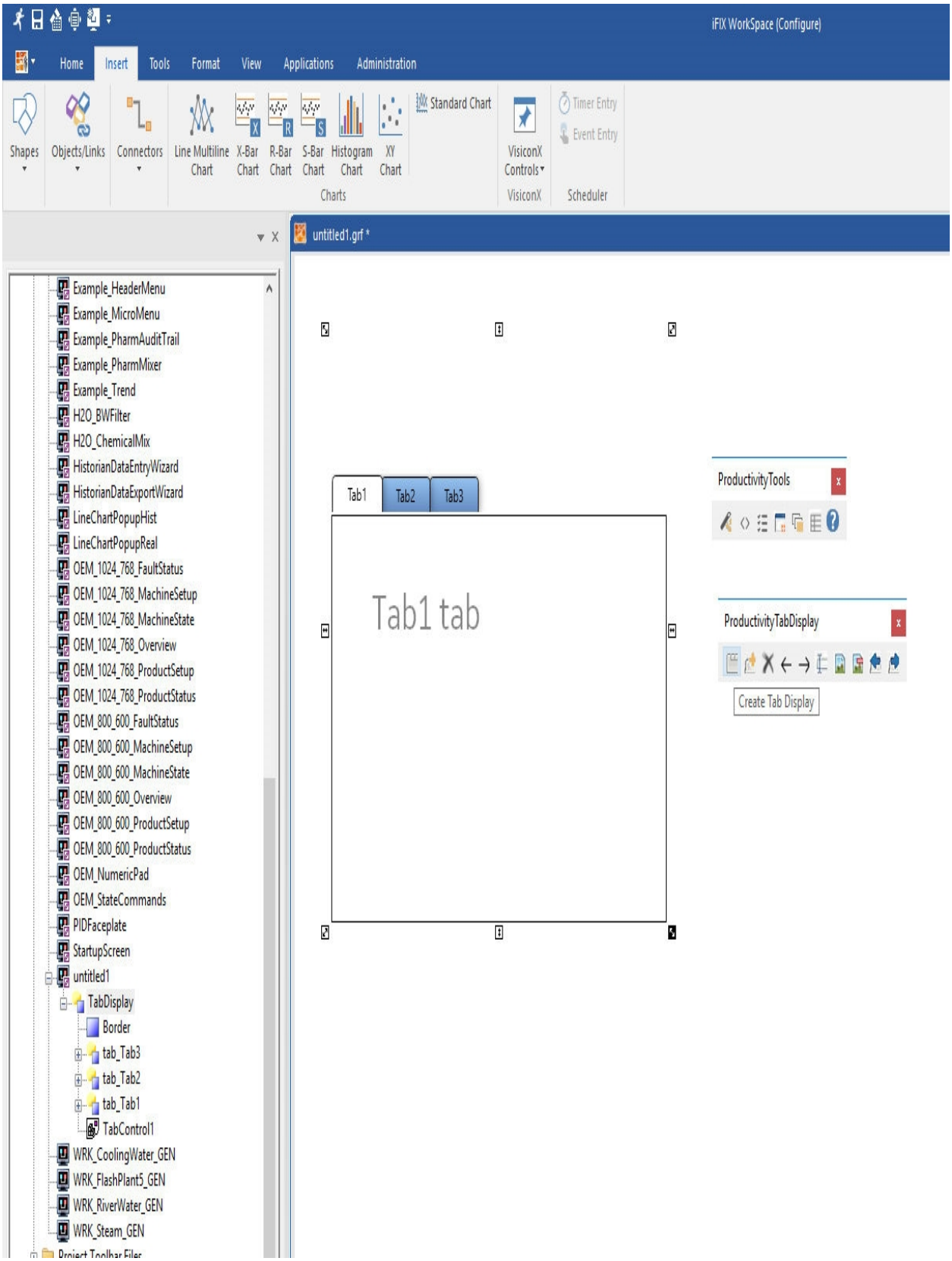
- Navigate left
- Navigate right
- Rename tab
- Set icon
- Remove icon
- Move tab left
- Move tab right

Note: If the toobox is not visible, you can open it using Workspace > Toolbars > select ‘Picture’ > select ‘ProductivityTabDisplay’.

If the ProductivityTabDisplay toolbar is not visible or available for selection, then refer to importing toolbars for details.

Create new tab display

Once the tab control has been inserted, it can be re-sized to suit requirements. Then, from the "ProductivityTabDisplay" toolbar, click on the left most icon, “create tab display”. This will create a border (rectangle) immediately under the tab control. This border can also be re-sized to meet requirements.



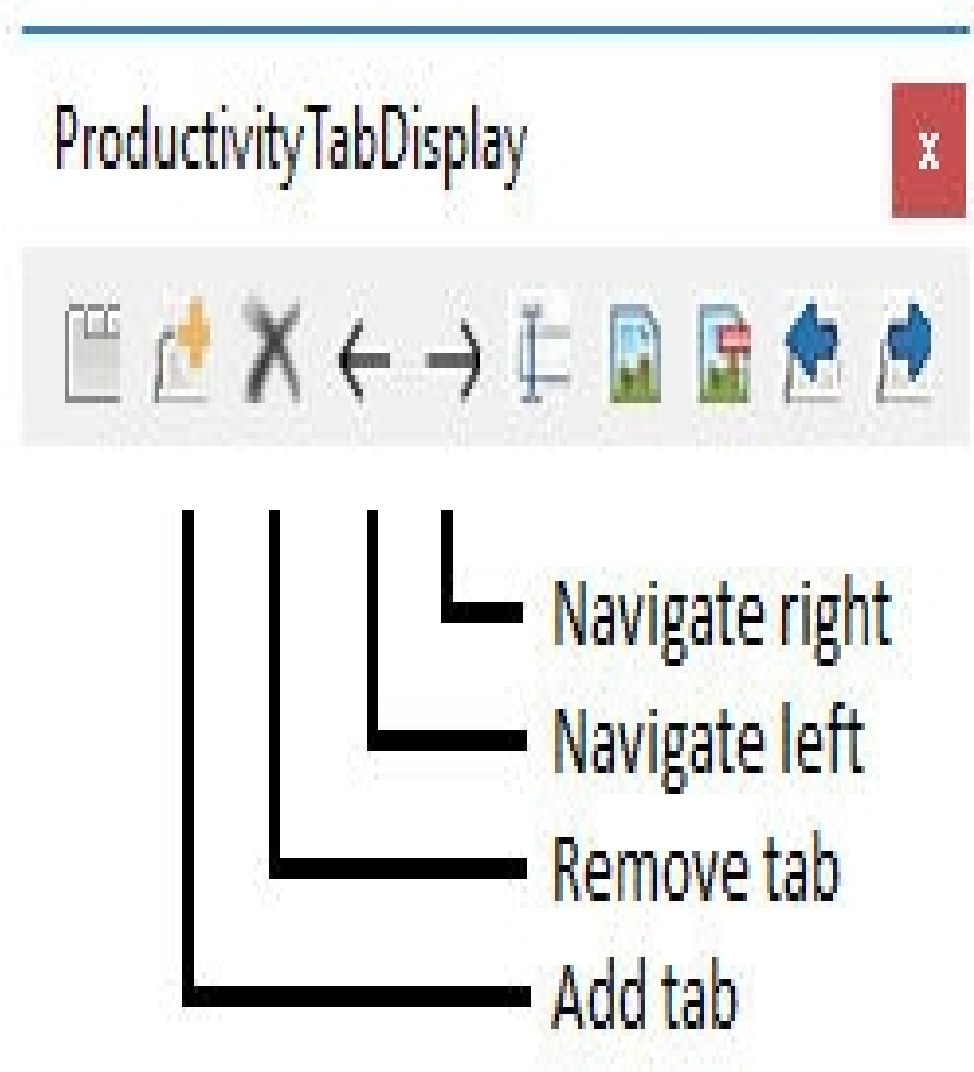
Tab control with newly created border

Adding and removing tabs

By default, the tab control is created with three tabs, but additional tabs can be created (or removed) by selecting the tab control and clicking on the Add tab or Remove tab controls from the toolbar.

Note that to remove a tab, you must first select the tab to be deleted, by navigating through the tab control using the Navigate left and Navigate right controls.

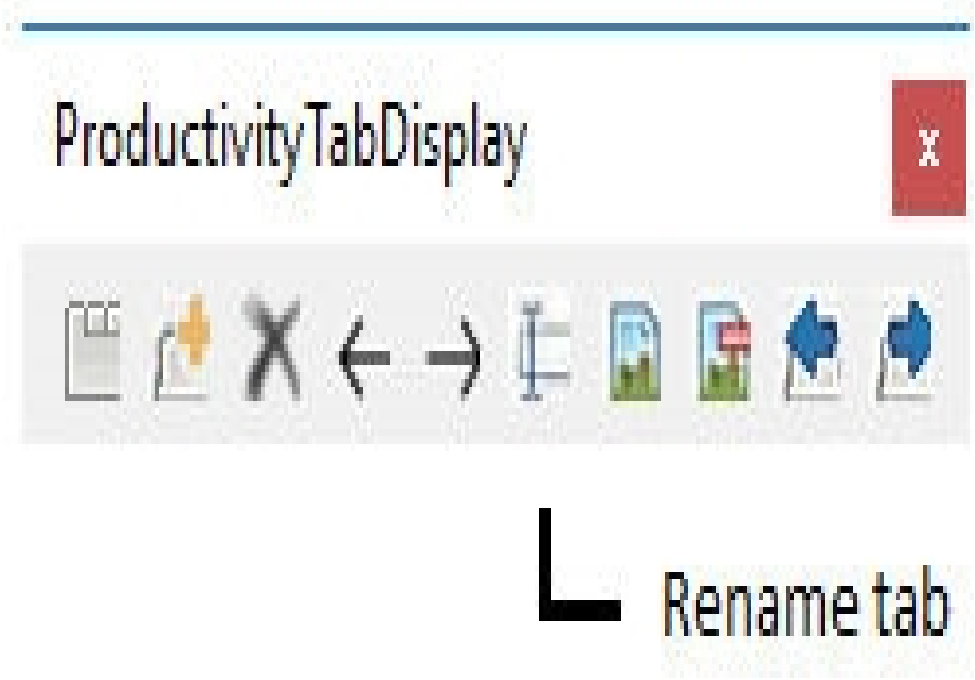
Adding a new tab to a Tab Display creates a new tab group, identified by the tab name. Object visibility can be linked to the tab control by being dragged into the group. See Editing tab contents for details.



Adding and removing tabs

Rename tab

The name of each tab can be easily changed using the title. Navigate to the selected tab using the navigate left/right controls, and then click on the rename tab button.



Editing tab contents

The contents of each need to be created and edited using iFIX Productivity Tools drawing tools. These may be best edited outside the tab border, and then dragged into position once complete.

For the tab control to take effect, once the graphics have been positioned in place, they must also be dragged in to the corresponding group that is configured for each tab display.

In the picture below, a sample tab display with three tabs has been configured. The tabs are named:

“Main picture”

“Secondary information”

“Addendum”

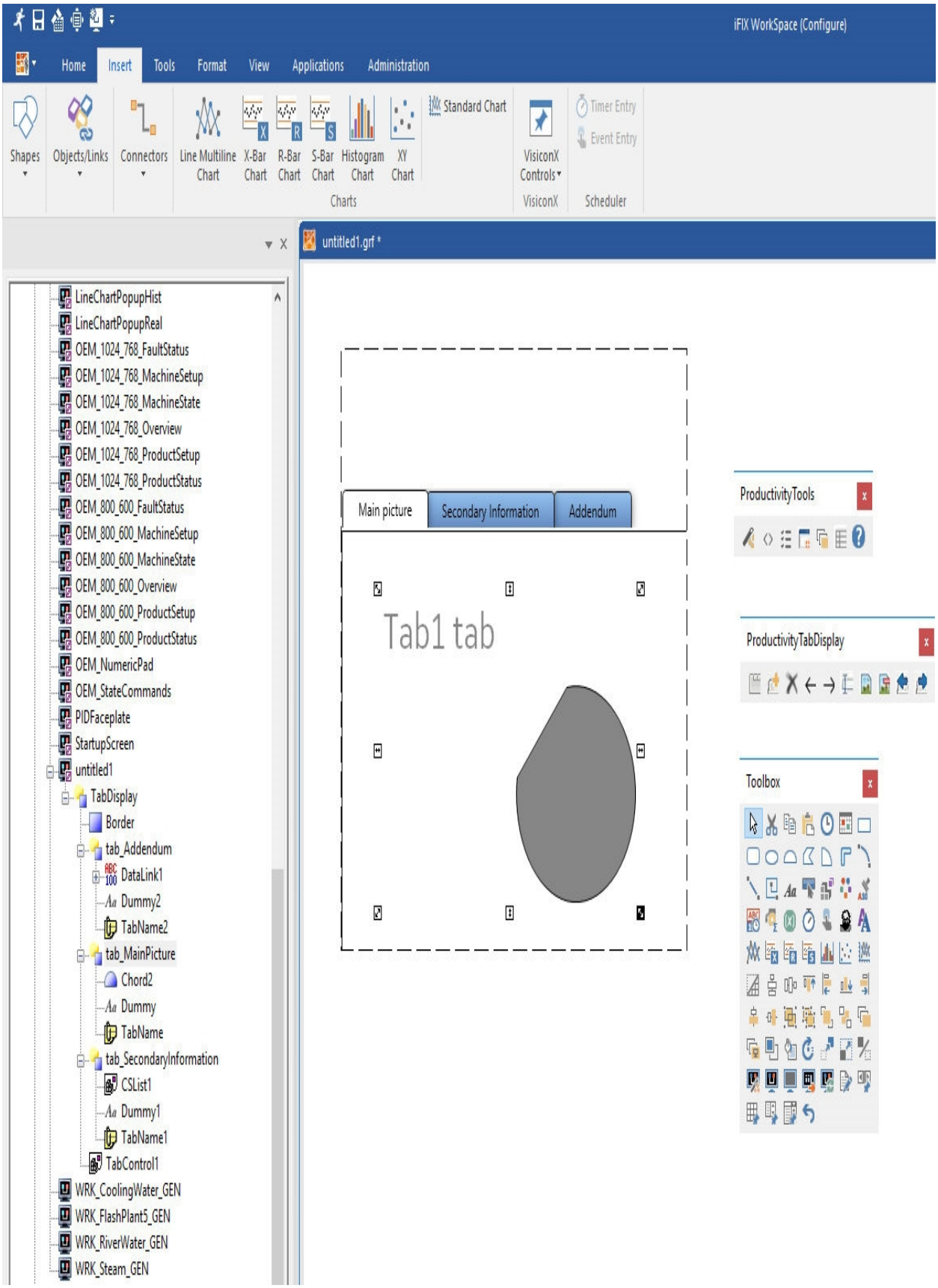
Using the iFIX Workspace system tree, graphics associated with each these tabs must be dragged into the corresponding groups that have been automatically configured, namely:

“tab_Main picture”

“tab_Secondary information”

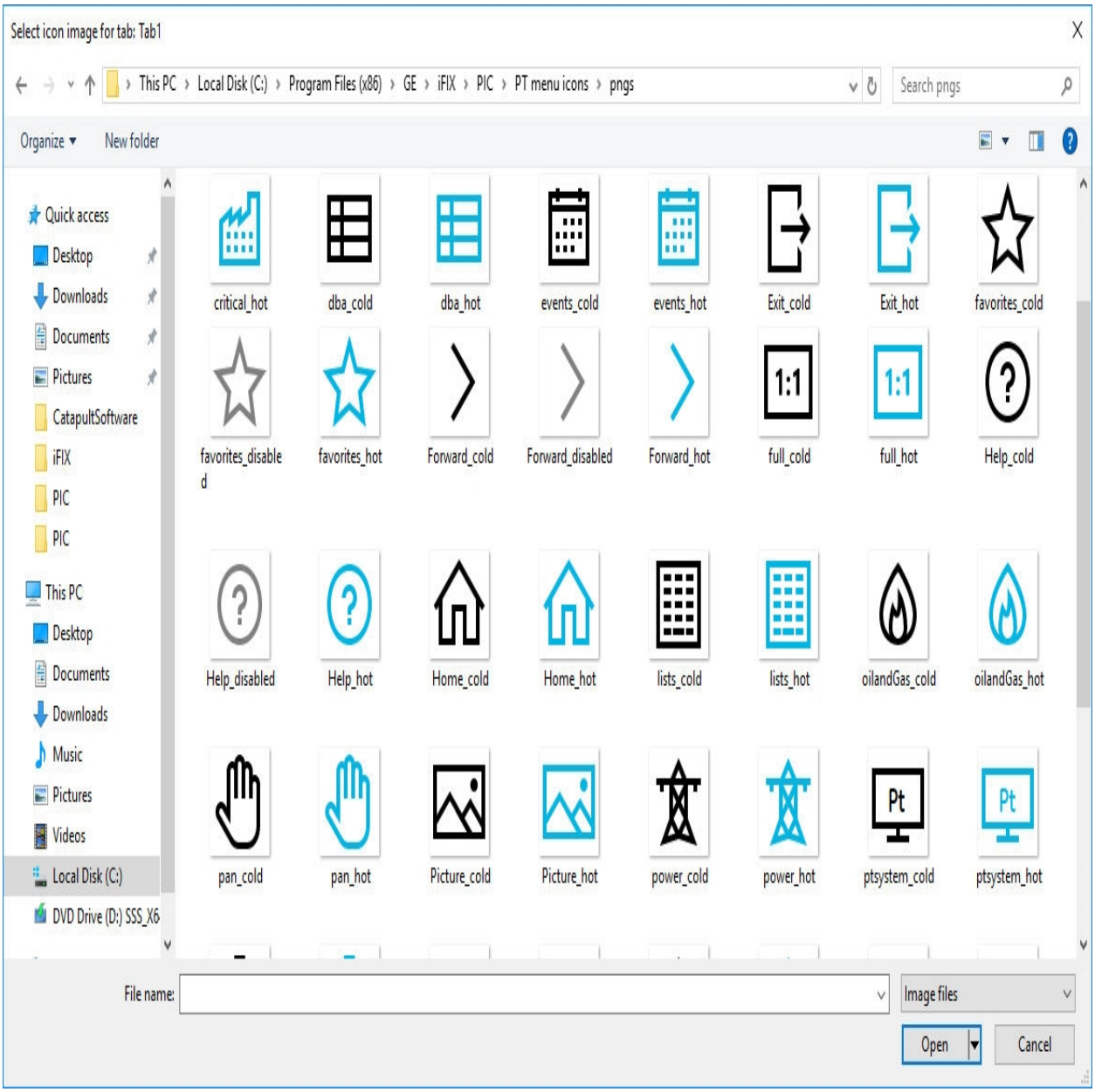
“tab_Addendum”

In the following example, the object “Chord1” has been dragged into the “Main picture” group, and so will only be visible when the corresponding main picture tab is selected.



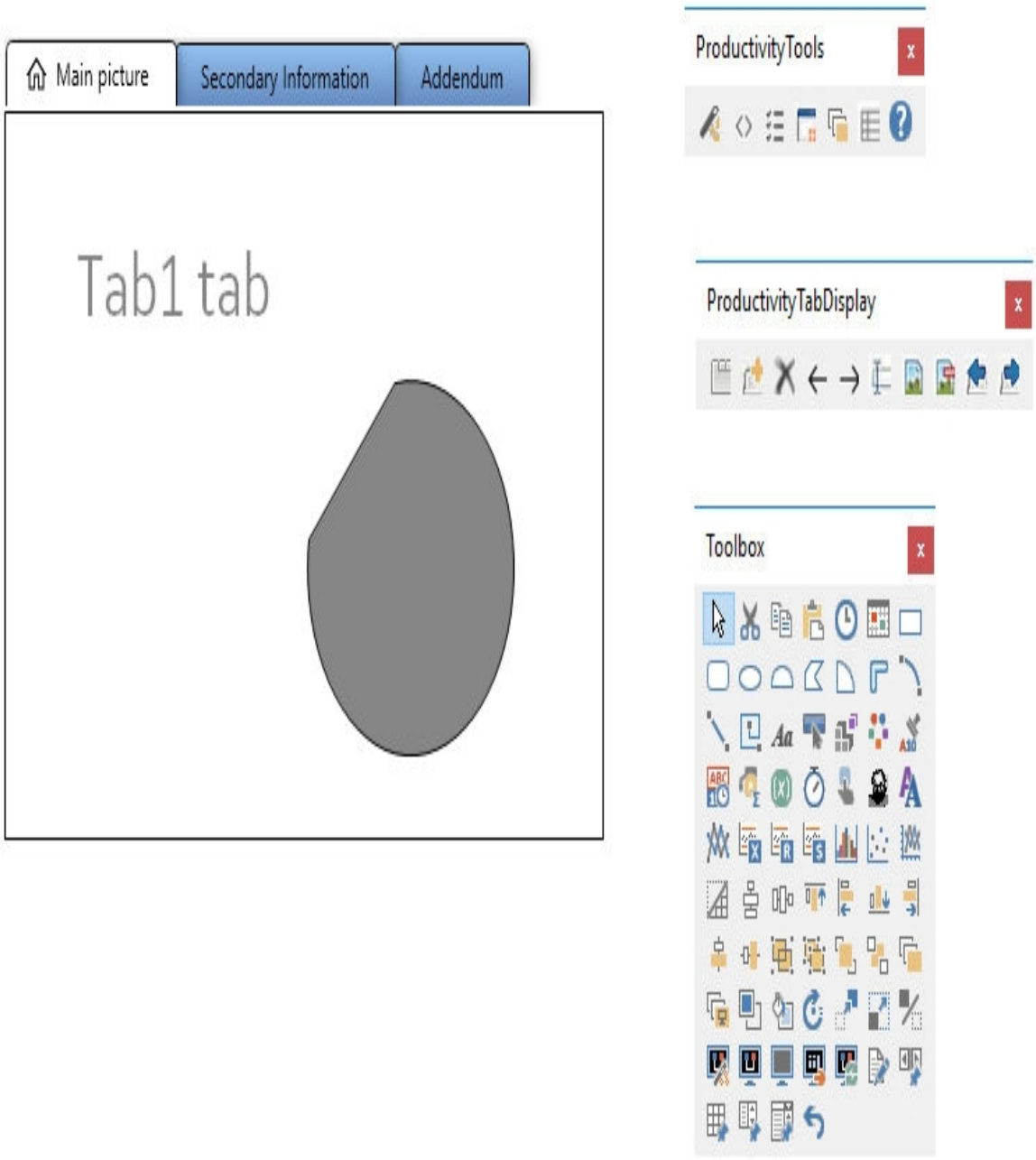
Adding tab icons

An optional icon can be configured for each tab. Most popular image formats are supported, including .ICO, PNG and .BMP files. Select the required tab, and then click on the “Add icon” command from the ProductivityTabDisplay toolbar. A dialog box will appear, prompting selection of the associated graphic file:



Dialog selecting tab icon

Once the icon is opened, the updated tab display can be seen:



“Main picture” tab with a configured icon

Note that you can also restrict the maximum height of icons by changing the control property MaxIconHeight (see formatting tab properties).

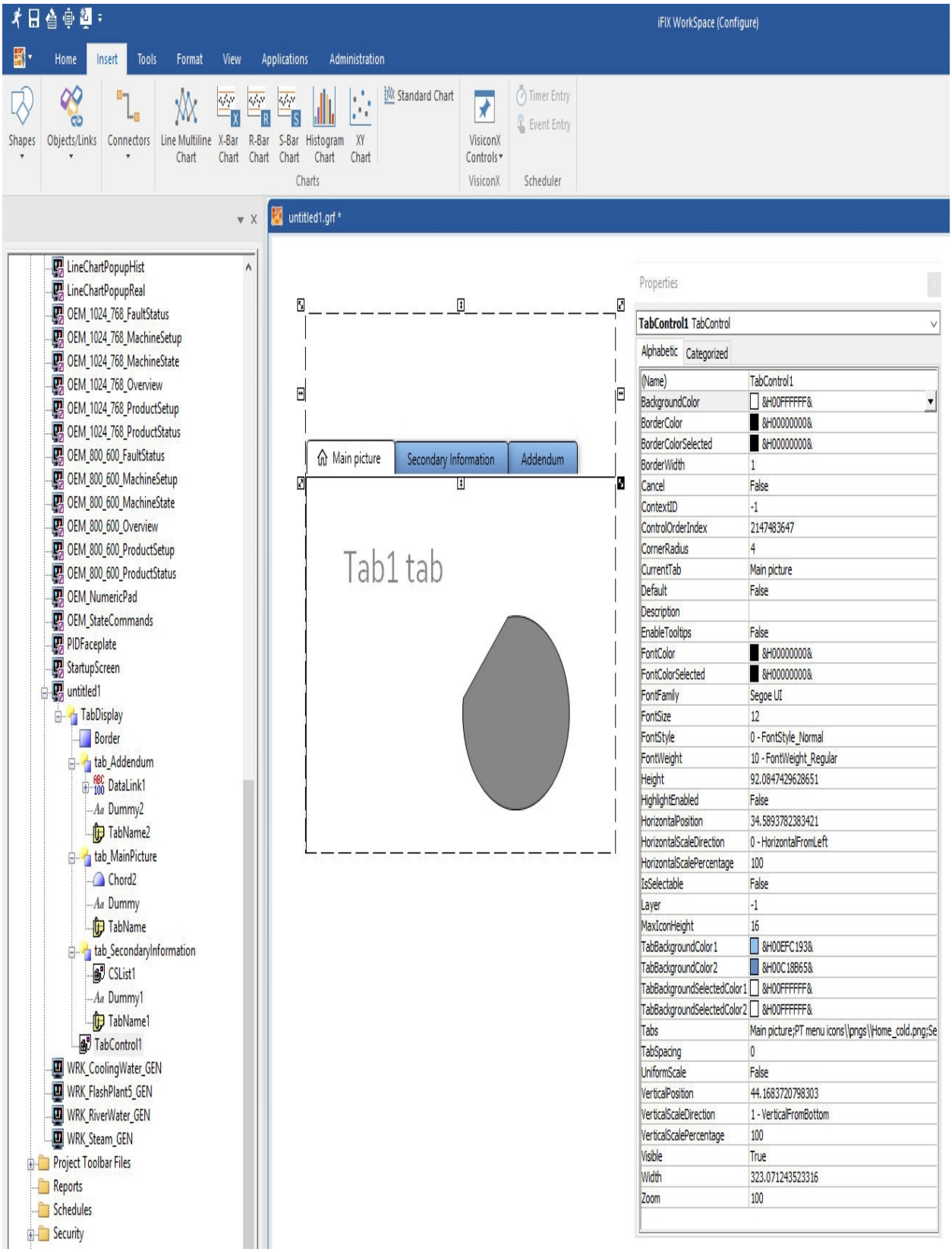
Formatting tab properties

The look and feel of tabs is highly configurable. Most common properties are available for customization, including obvious things such as:

- Font type, size, weight, color
- Background color
- Tab border color, tab selected color

To view and edit tab formatting:

In the iFIX Workspace system tree, select the Tab Control, right click and select the “Property Window …”



“Tab Control” properties

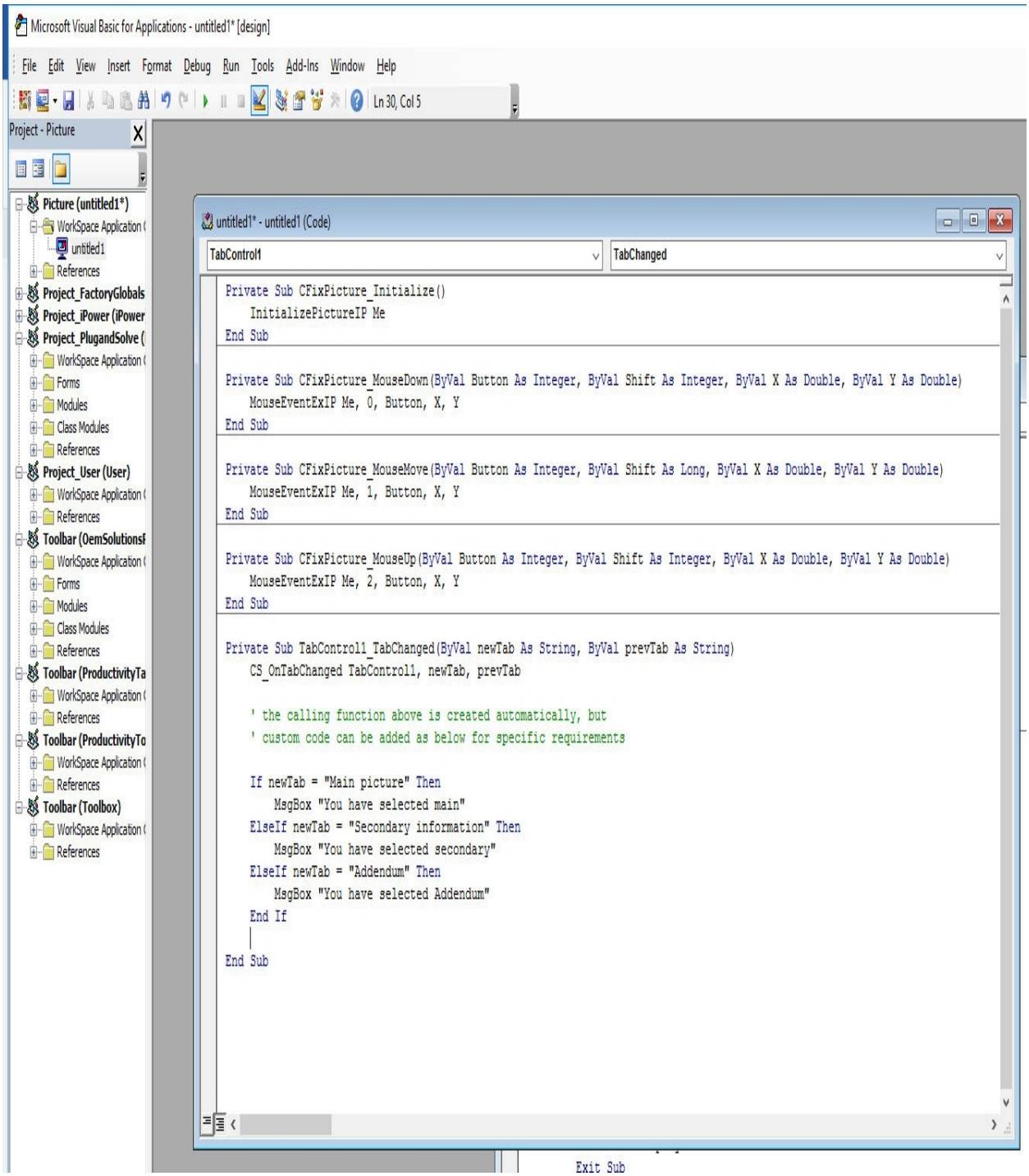
Similarly, the tab border can be selected and its properties changed through the system tree, as for the Tab Control.

Tab control custom code

The tab control and associated toolbar handles the display of selected tabs at runtime. This is achieved through automated control of visibility properties of those items within each tab.

For more advanced requirements, the tab control can be extended through support of VBA. The code example has been configured to prompt the user with a simple message box as each tab is selected.

The calling function “TabControlX_TabChanged” is automatically created by the tab control, and its functionality can be extended through custom VBA as below:



“Tab Control” custom code

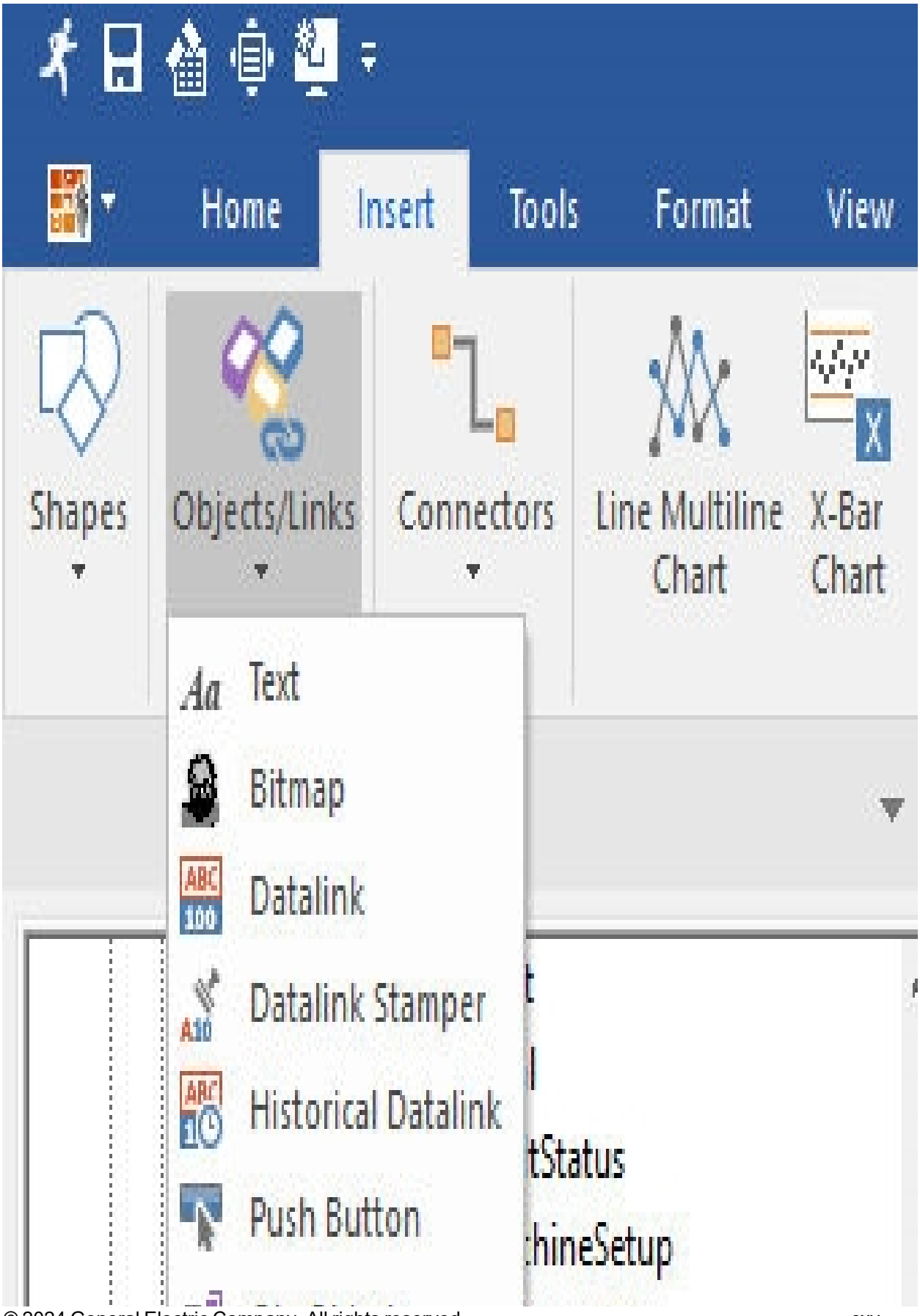
In the code above, the selected “newTab” at runtime is tested against the configured tabs and any specific code then executed.

Updating the tab control

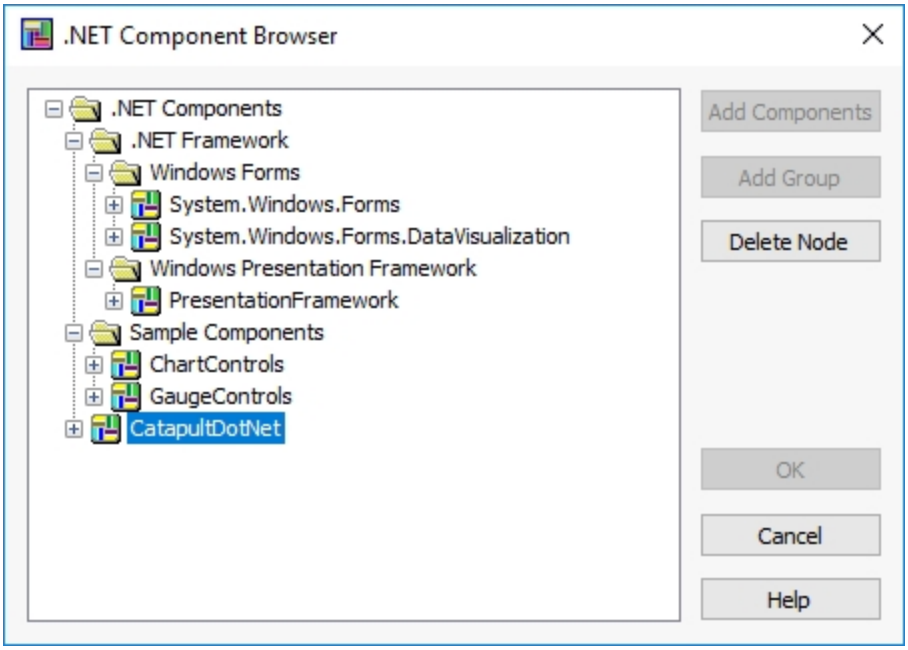
To load an updated WPF (Tab) control: applying the latest update is best done by right clicking on the update exe and run as administrator. Once updated, you will have to reconfigure the dot net component from Workspace.

iFIX Workspace configuration

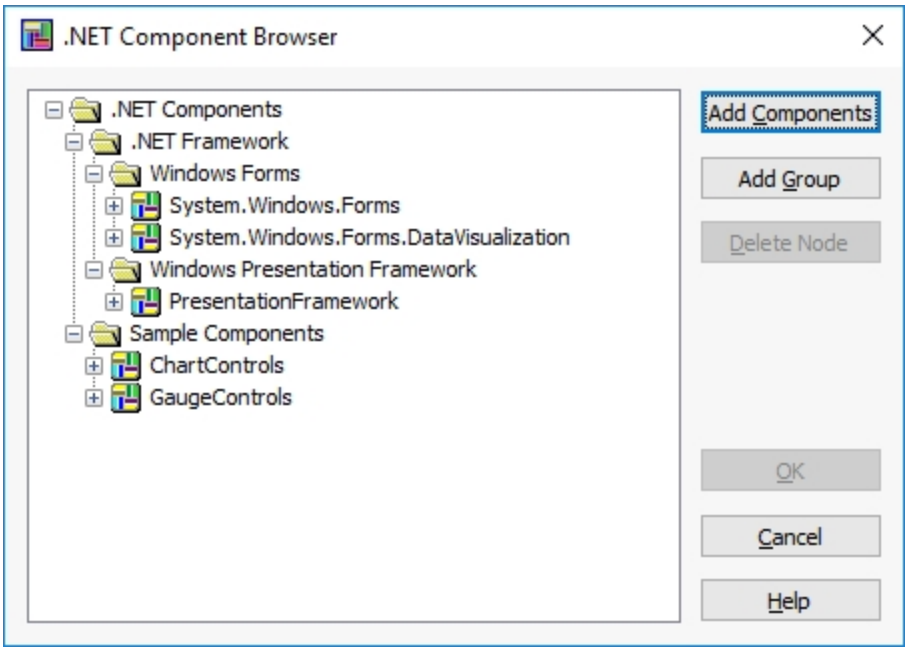
Go into iFIX Workspace configuration mode. In configuration mode, go to Insert Tab > Objects/Links > .NetComponent



Click on CatapultDotNet and select Delete Node to delete CatapultDotNet component.

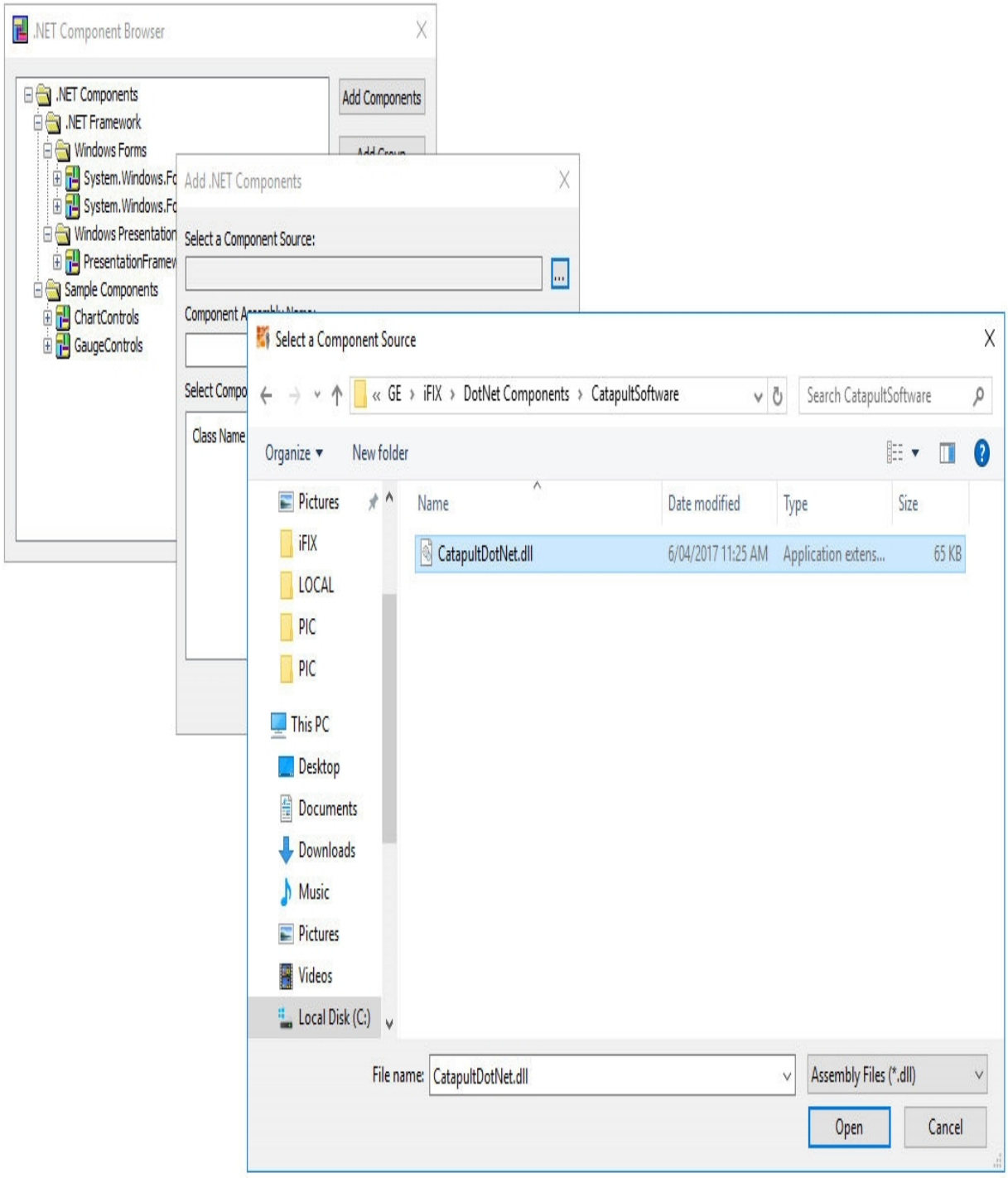


Once deleted, click on Add_Components and browse to, C:\Program Files (x86)\Proficy\iFIX\DotNet Components\CatapultSoftware

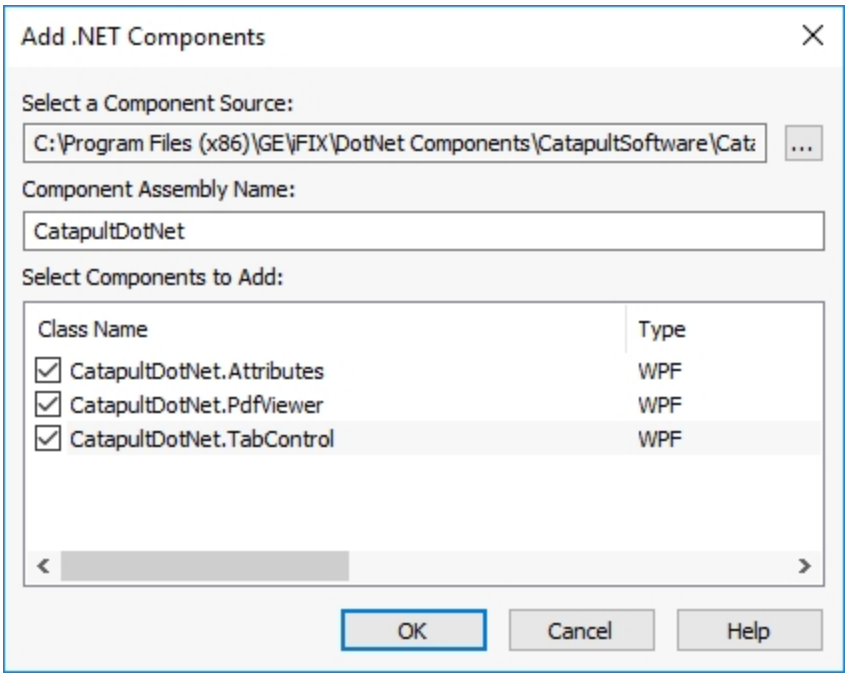


Select and open CatapultDotNet.dll

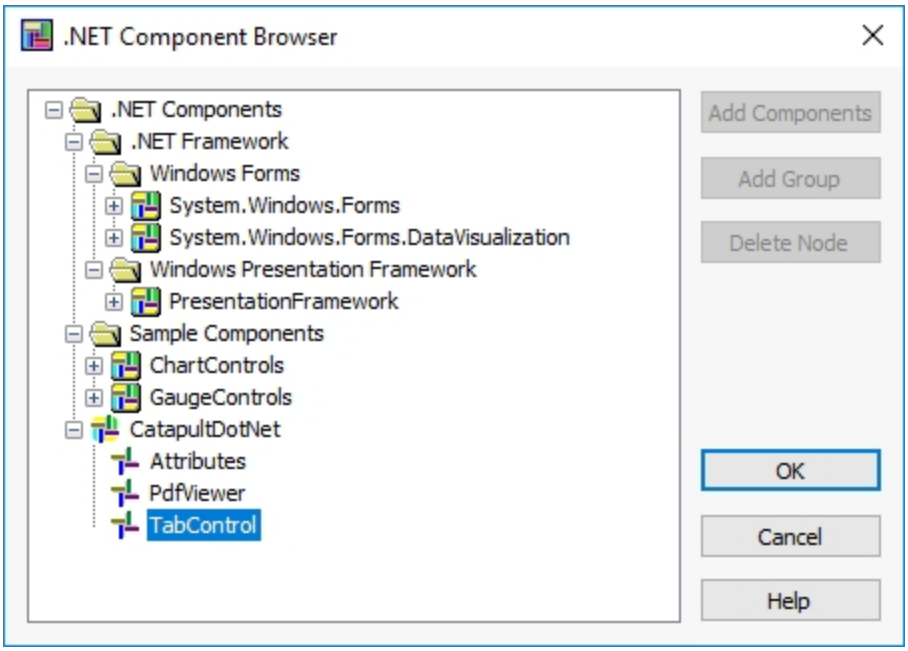
Note: If you have more than 1 CatapultDotNet files in here, repeat process and delete any other Catapult nodes.



Select all class and click “OK”



Once added, click “OK” to quite out of component browser. No need to save the picture

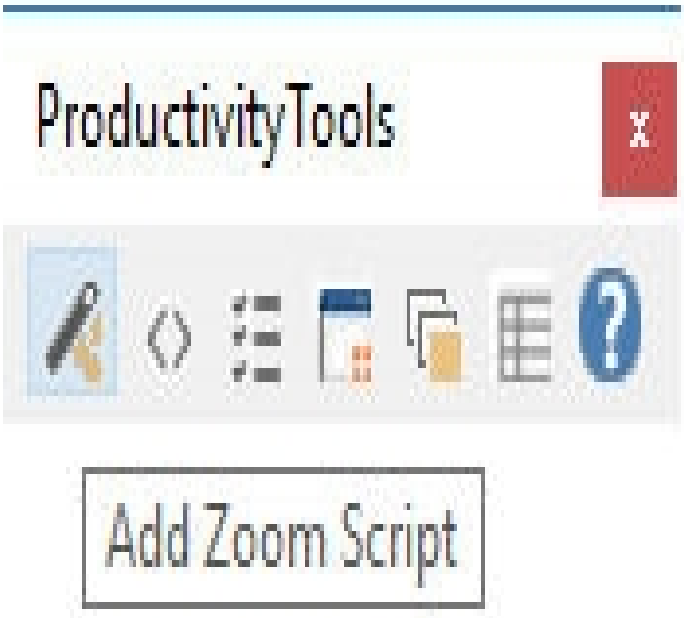


Restart project

NOTE: The .NET Components Attributes and PdfViewer are not supported in iFIX Productivity Tools.

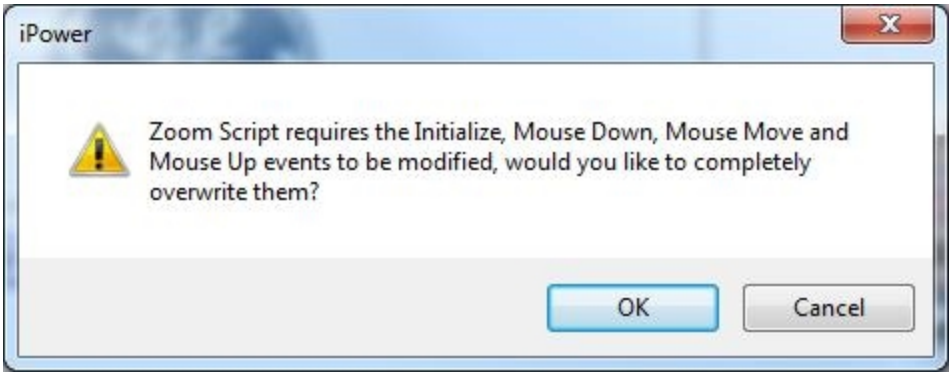
Adding zoom script

To add the zoom script feature, go to the ProductivityTools toolbar and click on the 'Add Zoom Script' button:



The interface will then display a warning prompt which will give an option to either overwirte or manually modify the following event handlers:

- Initialize
- MouseDown
- MouseMove
- MouseUp



The OK button will check which event handlers exist and will need to be overwritten. The Cancel button will display a notification referring to this page to show how to manually append the zoom scripts to a picture.

Manually adding zoom script

The table below shows the corresponding line of code that needs to be appended into the event handlers within the picture's VBA script:

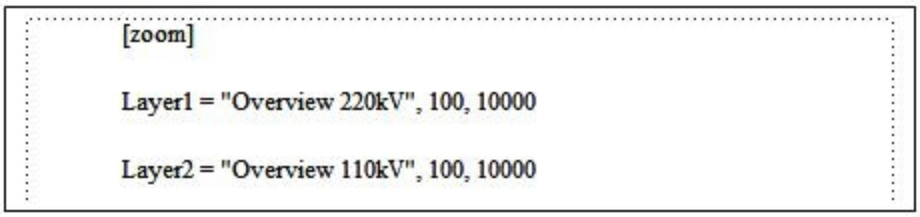
Event Handlers	Code
CFixPicture_Initialize()	InitializePictureIP Me
CFixPicture_MouseDown	MouseEventExIP Me, 0, Button, X, Y
CFixPicture_MouseMove	MouseEventExIP Me, 1, Button, X, Y
CFixPicture_MouseUp	MouseEventExIP Me, 2, Button, X, Y

Zoom configuration

Zooming and layering enables picture objects to appear only between two zoom limits, and to be invisible outside those zoom limits. The primary use is to remove detail from a picture (de-clutter) as a user zooms out to view a larger area, and conversely add more detail to a picture (clutter) as a user zooms in to display a smaller area.

Setting zoom layers

There are up to 30 different zoom layers that can be configured. Each layer has an upper and lower visibility limit. Different layers can share either or both limits if required. Zoom layers settings are stored/edited in iPower.ini. There is one entry for each of the 30 possible layers. As shown below the format of a layer setting is ”Layer1 = ”Overview 220kV”, 100, 1000”, where ”100, 10000” are the zoom percentages where the layer appears. For this example ”Layer1 = ”Overview 220kV”, 100, 10000” means that layer 1 will appear between and including any magnification from 100% to 10000%.



Sample of layer definition within iPower.ini

The layer number saved in the object property is not the simple numeric value but specifies the bit number. Ie. Layer1 sets the first bit (=1), Layer4 sets the fourth bit (=8), etc.

With each layer assigned to a single bit, this allows an object to be configured in multiple layers. eg. the object layer property can be manually set to 9 to be visible in both Layer1 and Layer4. Note that the set object layers tool only sets a single layer.

The visible layers are calculated whenever the zooming level is changed by the operator. The visibility properties can also be updated programmatically using the AddLayerIP and RemoveLayerIP interfaces (ref section *Programming interfaces*), that is VBA code can be run to reveal or hide any specified layer.

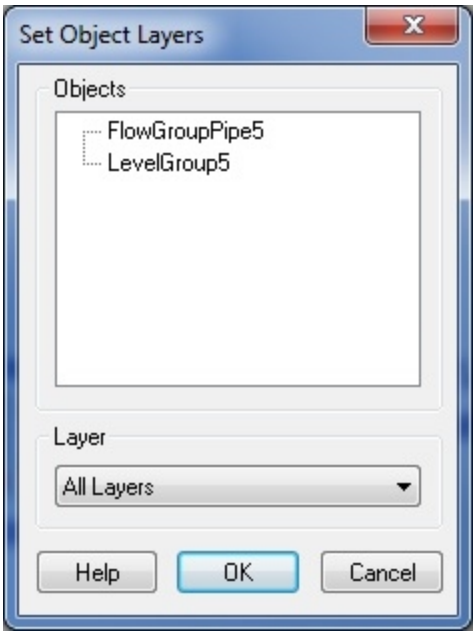
Setting the zoom threshold

The ZoomThreshold defines the maximum zoom level that can be achieved for each picture, expressed as a percentage (100% is equivalent to the normal size of a picture). Setting the ZoomThreshold to 1000 means that pictures can be zoomed to a maximum of 1000% or 10x the normal size. By default, the ZoomThreshold has a value of 667%, or 6.67x the normal size.

Setting the zoom layer for a picture element

To set the zoom layer for an object(s), follow these steps:

1. Select the object(s) to be changed.
2. Click the zoom layer configuration button in the ProductivityTools toolbar.
3. The follow popup box will be displayed:



Set Object Layers window

4. Select each object from the objects window.
5. Choose a layer from the layers window for each object.
6. Click [OK] to update the configuration.

Settings table

The following overview table details settings that can be modified in the *LOCAL_PATH*/iPower.ini file.

Section	Setting	Default	Description
[ALARMS]	GlobalHornSilence	0	Controls whether the alarm silence function is propagated across all clients, or only applies to the local client operator station.
[ALARMS]	UseIFIXAlarmQueue	0	Send iFIX Productivity Tools ”Control Issued” operator messages to the iFIX alarm queue.
[ASM]	Naming_Convention	{LevelOne}_ {LevelTwo}_ {LevelThree}_ {LevelFour}	The database block naming convention is configured using this setting. The naming components are available for auto-

			mated filtering and sorting within the iFIX Productivity Tools list object. The default setting presumes a generic four part name, separated by underscores. The naming convention can be edited to match your system. For example, a three part naming system may be used with - the first part identifying site - the second part identifying equipment - the third part identifying type of data this could be represented by: NAMING_CONVENTION={Site}_{Equip}_{Type}
[Colors]	BackgroundColor	”Background Color”, RGB(255, 255, 255)	Background picture color that is set to white when remapped for printing.
[Context Help]			Defining the section will cause the ”User” tab to appear on the iFIX Productivity Tools dialog. This can be used to display IO details, and user configured database fields.
[Context Help]	Field1	A_ALMEXT1	ASCII value field to display (see LABEL1)
[Context Help]	Field2	A_ALMEXT1	ASCII value field to display (see LABEL2)
[Context Help]	IODetails	FALSE	Display I/O details for point in operator dialog user tab
[Context Help]	Label1	AlmExt1	Label to use for information field 1
[Context Help]	Label2	AlmExt2	Display label for information field 2
[DBA_PROTOCOLS]	PNAME1..PNAME<n>		This is the name of the driver as given by the A_IODV field
[DBA_PROTOCOLS]	PFORMAT1.PFORMAT<n>		This is the hardware address given by the A_IOADDR fiel. For further discussion for the values used in this field see the section on "changing the

			address formats".
[DBA_PROTOCOLS]	PCOUNT		This is the number of protocols defined in the system.
[DBA_SETTINGS]	TPLFOLDER		This is the location where the templates are stored.
[DBA_SETTINGS]	LOGFOLDER		This is the location where audit log files are stored.
[Dialog]	AnalogAlarmLimitChanges	0	Allow operators to change analog alarm limits at runtime through standard iFIX Productivity Tools alarm dialog. Any changes are logged to the event system. Note: The database is saved upon change of alarm level. If a system integrator has made uncommitted changes to the database, then these will be saved also.
[Dialog]	CenterDialog	0	Centers all iFIX Productivity Tools operator dialogs on the primary monitor. This should only be enabled on single monitor nodes that display dialogs off the screen because of inconsistent scaling configuration between nodes.
[Dialog]	EditTimeout	120	Number of seconds before the Alarm Disable Reason dialog box times out. Set to zero for no timeout.
[Dialog]	EventControlUseDescription	0	Configure whether point description is included in events messages reporting operator control actions.
[Dialog]	Timeout	60	Number of seconds before a dialog box times out. Set to zero for no timeout.
[Help]	CustomConfigGuide1 .. CustomConfigGuide5		Configurable system engineer help guides. Format is Label,FilePathName. For example, to open a file ”sample.pdf” in the menu with the name ”Sample”: Cus-

			tomConfigGuide1=Sample, sample.pdf Default path is ”C:\Program Files (x86)\Proficy\iFIX\NLS\” A specific path can be set in the FilePathName setting, eg: CustomConfigGuide1=Sample, c:\temp\sample.pdf
[Help]	CustomOperatorGuide1 .. CustomOperatorGuide5		Configurable operators help guides. Format is Label,FilePathName. For example, to open a file ”sample.pdf” in the menu with the name ”Sample”: Default path is ”C:\Program Files (x86)\Proficy\iFIX\NLS\” A specific path can be set in the FilePathName setting, eg: CustomOperatorGuide1=Sample, c:\temp\sample.pdf
[Help]	Language	1033	Specifies the language under the ProficyDoc folder where the iFIX Electronic Books are located (Dynamics.chm). By default this value is 1033 (English).
[List Manager]	CustomAlarmUserField1		Supports custom naming of the alarm user extension field 1, that appears in the alarm and events lists.
[List Manager]	CustomAlarmUserField2		Supports custom naming of the alarm user extension field 2, that appears in the alarm and events lists.
[List Manager]	ExportDirectory		If no export directory is defined, the operator can browse to select the exported file. If an export directory is defined the operator cannot browse. The operator can

			enter the export filename which will be saved into the specified directory.
[List Manager]	OnlinePDB		Specifies the only PDB name that has to be loaded before deleted points will be purged from the lists.
[List Manager]	ListLatency	2	List refresh rate in seconds.
[List Manager]	ShowAlarmTab	1	Setting to enable/disable the iFIX Productivity Tools dialog 'alarm' tab being accessed from the List Control. Setting applies to list modes: - data summary Note disabled alarms list has a specific setting.
[List Manager]	ShowControlTab	0	Setting to enable/disable the iFIX Productivity Tools dialog 'control' tab being accessed from the List Control. Setting applies to list modes: - data summary
[List Manager]	ShowDetailsTab	1	Setting to enable/disable the iFIX Productivity Tools dialog 'details' tab being accessed from the List Control. Setting applies to list modes: - data summary - disabled alarms
[List Manager]	ShowUserTab	1	Setting to enable/disable the iFIX Productivity Tools dialog 'user' tab being accessed from the List Control. Setting applies to list modes: - data summary - disabled alarms
[List Manager.AlarmSummary]	AlarmCriticalBkgroundColor		Configure background color of CRITICAL priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0)

			Note custom color definition is supported using these settings, but is not recommended. Defining a custom color prevents the high performance extensions including alarm priority icon display and row shading.
[List Manager.AlarmSummary]	AlarmCriticalFontColor		Configure font color of CRITICAL priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmHighBkgroundColor		Configure background color of HIGH priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmHighFontColor		Configure font color of HIGH priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmHiHiBkgroundColor		Configure background color of HIHI priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmHiHIFontColor		Configure font color of HIHI priority alarm points. Color can be set directly using a 24-bit

			color value, or by using RGB. Eg. to set yellow use RGB (255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmInfoBkgroundColor		Configure background color of INFO priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmInfoFontColor		Configure font color of INFO priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmLoLoBkgroundColor		Configure background color of LOLO priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmLoLoFontColor		Configure font color of LOLO priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmLowBkgroundColor		Configure background color of LOW priority alarm points. Color can be set directly using a 24-bit color value, or by

			using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmLowFontColor		Configure font color of LOW priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmMediumBkgroundColor		Configure background color of MEDIUM priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmMediumFontColor		Configure font color of MEDIUM priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmNoBkgroundColor		Configure background color of no priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	AlarmNoFontColor		Configure font color of no priority alarm points. Color can be set directly using a 24-bit color value, or by using RGB. Eg. to set yellow use RGB

			(255, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	ControlBkgColor		Alarm summary list background color. Note as above, this setting conflicts with high performance display extensions.
[List Manager.AlarmSummary]	ReverseColorOnAck		By default, acknowledged events are same font and background color as unacknowledged events. By setting this option, font and background color are swapped once an alarm is acknowledged. Note as above, this setting conflicts with high performance display extensions.
[List Manager.DataSummary]	AlarmItemColor	(255,0,0)	Set the font color of alarmed points in data summary
[List Manager.DataSummary]	ExcludeNodeCount	0	Number of logical nodes that a client wants to be excluded from receiving data summary list from the server.
[List Manager.DataSummary]	ExcludeNodeName1.. ExcludeNodeName<n>		Name of logical nodes that a client wants to be excluded from receiving data summary list from the server.
[List Manager.DataSummary]	PopulateList	1	The data summary list on the client workstations is initialized by the SCADA servers on initial connection. On a client with a slow network connection (e.g. RAS modem), this initialization may take significant time. If the data summary is not required on a client computer, the list (and associated initialization network traffic) can be disabled.
[List Manager.DataSummary]	ServerEnable	1	The data summary list is maintained by the SCADA servers. This setting disables the list on the servers (and

			hence all connected clients). To disable data summary list on a single client, instead use the PopulateList setting.
[List Manager. DisabledAlarms]	ShowAlarmTab	1	Setting to enable/disable the iFIX Productivity Tools dialog 'alarm' tab being accessed from the Disabled Alarms list.
[List Manager.Events]	AlarmQueueRequestDays	3	Defines the number of days of backfilled events requested from server on startup. The lesser of the two configured settings (size and days) will apply.
[List Manager.Events]	AlarmQueueRequestSize	1000	Defines the number of backfilled events requested from server on startup. The lesser of the two configured settings (size and days) will apply.
[List Manager.Events]	ALMQPollPeriod	10	Represents the number of seconds between successive polls of the Alarm Queue by MOA Manager. If any alarm queue events exist after the wait, then these are processed and sent to the List Control for processing.
[List Manager.Events]	CheckDaysCount	30	List Control event display will prompt operator after "CheckDaysCount" have been searched. Operator has option to continue or case event list searching.
[List Manager.Events]	CheckDaysStop	0	Prompts after CheckDaysCount to ask if user wants to continue searching.
[List Manager.Events]	ColorBackByStatus	0	Determines if background colors by alarm status are applied to entries. Note that background colors by alarm priority will be overwritten if this bit is set. Note custom color definition is supported using these settings, but is not recommended.

			Defining a custom color prevents the high performance extensions including alarm priority icon display and row shading.
[List Manager.Events]	ColorAlarmStatusCount	0	Number of Alarm Status that can have customized foreground color, maximum of 20 supported. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmStatus1.. ColorAlarmStatus<n>		Name of the Alarm Status that can have customized foreground color, Must have corresponding foreground color setting, otherwise ignored. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmStatusFont1.. ColorAlarmStatusFont<n>		Configure foreground color of points with corresponding Alarm Status. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmStatusBack1.. ColorAlarmStatusBack<n>		Configure background color of points with corresponding Alarm Status. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmStatusFontDefault	RGB(0,0,0)	Default foreground color of Alarm Status if not previously configured. Color can be set directly using a 24-bit color value, or by

			using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmPriorityCount	0	Number of Alarm Priority that can have customized background color, maximum of 20 supported. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmPriority1.. ColorAlarmPriority1<n>		Name of the Alarm Priority that can have customized background color, Must have corresponding foreground color setting, otherwise ignored. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmPriorityBack1.. ColorAlarmPriorityBack<n>		Configure background color of points with corresponding Alarm Status. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorAlarmPriorityBackDefault	RGB(255,255,255)	Default background color of Alarm Priority if not previously configured. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorSource1 .. ColorSource<n>		Name of the Event Source that can have configurable foreground and background color, exclude ”ALARM” source which can be further con-

			figured in the same section. Must have corresponding foreground and background color setting, otherwise ignored. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorSourceCount	0	Number of Source that can have customized foreground and background color, maximum of 10 supported. Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorSourceBack1.. ColorSourceBack1<n>		Configure background color of points with corresponding Event Source. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorSourceBackDefault	RGB(255,255,255)	Default background color of Event Source if not previously configured. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	ColorSourceFont1.. ColorSourceFont1<n>		Configure foreground color of points with corresponding Event Source. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.

[List Manager.Events]	ColorSourceFontDefault	RGB(0,0,0)	Default foreground color if not previously configured. Color can be set directly using a 24-bit color value, or by using ”RGB”. Eg. to set green use RGB(0, 255, 0) Note as above, this setting conflicts with high performance display extensions.
[List Manager.Events]	DBPollEnable	1	iFIX Productivity Tools checks for non-alarmed digital change of states, and records these as "EVENT" entries in the events list. This functionality can be disabled by setting DBPollEnable to 0.
[List Manager.Events]	DBPollPeriod	10	Represents the number of seconds between successive polls of the database by MOA Manager. The polls are done to determine if any monitored events have occurred, in order to send them to the Alarm queue.
[List Manager.Events]	EventDays	-1	Number of days of event files (E24) kept, before automatic deletion. Any value less than 3 (eg. –1, 0) will not delete files.
[List Manager.Events]	EventsPath	%BASEPATH%\iFIX Productivity Tools\ALM	Specifies the directory path where the iFIX Productivity Tools event files are generated. iFIX Productivity Tools event files are separate from iFIX event files and are named using CCYYMMDDHH.E24 format. %NODE% can be used in the path and the node name will be substituted in. This is useful for iClientTS Clients. %BASEPATH% can be used in the path to work as iFix installed directory.
[List Manager.Events]	ExcludeAlarmArea1 .. ExcludeAlarmArea<n>		Name of excluded alarm area. Excluded alarm areas

			do not appear in the list control event files (E24).
[List Manager.Events]	ExcludeAlarmAreasCount	0	Number of excluded alarm areas
[List Manager.Events]	MaxListSize	3500	List Control event display default size. Entries past this number are scrolled off the end, but can be retrieved using date filters.
[List Manager.Events]	MultipleClientEventsPath	0	In certain circumstances, the %NODE% typically used for TS client configuration of the events path can not be used. For example, when the node name is variable or not unique. In this situation the MultipleClientEventsPath can be used, whereby the events (and log) directories utilise a session count to manage the directories. Note: - When a TS client session starts, the first unused session folder would be used - Each of the folders would be maintained independently, with missing events backfilled when the TS client session starts For example, the first and second TS sessions would maintain the events under: C:\Program Files (x86)\Proficy\iFIX\iFIX Productivity Tools\Alm\001 C:\Program Files (x86)\Proficy\iFIX\iFIX Productivity Tools\Alm\002
[List Manager.Events]	PropagateSystemEvent	1	By default the SCADA servers will forward SYSTEM events to connected clients.
[List Manager.Events]	SuppressDisabledCOSEvents	0	By default, all DA and DI change of state occurrences generate an event message, either by alarm or event pro-

			cessing. To entirely disable logging all point changes set this value to TRUE, and configure point(s) with alarming disabled and alarm type ”COS” to suppress events.
[List Manager.Events]	SuppressDisabledMDIEvents	0	By default, all MDI change of state occurrences generate an event message, either by alarm or event processing. To entirely disable logging all point changes set this value to TRUE and change point(s) to alarm disabled, to suppress events.
[MENU]	PictureNoReplaceCount	0	The menu operates by replacing the current focus picture with the newly selected picture. There are two exceptions to this rule, 1) pictures opened automatically by workspace when started, and 2) pictures can specifically be excluded from being replaced by using the PictureNoReplace setting. The count defines how many pictures are excluded from being replaced.
[MENU]	PictureNoReplace1.. PictureNoReplace<n>		Picture file name that is not replaced by menu picture open operations. PictureNoReplaceCount= 2 PictureNoReplace1= MyPic PictureNoReplace2= MyOtherPic Will prevent the pictures MyPic and MyOtherPic from being replaced.
[MOA Manager]	AlarmQueueSize	32000	The iFIX alarm queue subscription size.
[MOA Manager]	BackupNetworkEnabled	0	When communicating to the

			server, this flag enables use of the (optional) backup network.
[MOA Manager]	HeartbeatPeriod	15	Rate (seconds) that send a UDP heartbeat from the client to the server, to check that the network link to the server is operational. See also ”SessionTimeout”.
[MOA Manager]	HttpPort	8620	Port number for the built-in HTTP server to listen on for inter process communications.
[MOA Manager]	LocalPath	%BASEPATH%\iFIX Productivity Tools\Tagging	Location of MOA Manager data files. %BASEPATH% can be used in the path to work as iFix installed directory.
[MOA Manager]	MoaWatchdogPeriod	30	Rate (seconds) that MOA manager will toggle a watchdog digital point (MoaWatchdogPoint) if configured. Note that setting only applies on servers.
[MOA Manager]	MoaWatchdogPoint	None	An optional watchdog digital point that can be toggled by MOA manager. Setting only applies to servers. A unique point needs to be configured for each server. Alarms are typically raised using either: a) opposing pairs of SIM DA points configured with the same SIM address. Alarming is configured with delay times, and alternate open / close alarm states for the DA pair. b) a timer block is associated with each digital to raise an alarm in event that iFIX Productivity Tools (MOAmanager) is not running on the server
[MOA Manager]	NotePort	36327	The TCP port number for the MoaManager server-client

			Notes communications.
[MOA Manager]	PartnerNode	No partner	Partner node if part of an iFIX redundant SCADA server pair.
[MOA Manager]	PartnerTimeout	10	Network Partner Session Start-tup timeout.
[MOA Manager]	PointReloadDelay	100	Delay time (milliseconds) after detecting that a point has been manually edited and put back on scan, before iFIX Productivity Tools reloads any operator applied system tags (eg. alarm disable).
[MOA Manager]	SessionTimeout	600	Network Session timeout is the period of time (seconds) that must lapse without network activity before the network link is determined to be bad. For slow speed network links (eg. RAS, WAN connections) this timeout may need to be increased. To disable session timeouts set this value to 0. eg. for links where UDP messages can not reliably be delivered.
[MOA Manager]	TcpPort	36326	The TCP port number for the MoaManager server-client communications.
[MOA Manager]	UdpPort	36326	The UDP port number for the MoaManager server-client communications.
[Multi Monitor]	MonitorsXY	Assume all monitors aligned horizontally, i.e. n,1	Monitor orientation, e.g: 2,1 is 2 across by 1 high (total 2) 2,2 is 2 across by 2 high (total 4)
[Notes]	NotesPath	%BASEPATH%\iFIX Productivity Tools\Notes	Location of parent directory holding Notes files. Note that for each note type, a separate sub-directory must be made. Eg 1. ”Point” directory: iFIX Productivity Tools\Notes\Point Eg 2. ”System” directory: iFIX

			Productivity Tools\Notes\System %BASEPATH% can be used in the path to work as iFix installed directory.
[Platinum]	EnableSecurityAreaChecks	0	Setting to enable/disable iFIX Productivity Tools security area checks.
[Platinum]	IsPlatinum	0	Determines if running an iFIX Productivity Tools system.
[Security]	DefaultUserName	GUEST	The default user. See PushDefaultUser.
[Security]	OperatorArea	1	iFIX security area (optionally) used for iFIX Productivity Tools security. [1-254]
[Security]	PushDefaultUser	0	If the default user is logged in and another user logs in the default user will be pushed to the stack if the value of this parameter is TRUE.
[Security]	SystemArea	2	iFIX security area (optionally) used for iFIX Productivity Tools security. [1-254]
[Zoom]	EnableWorkspaceHooks	0	If set to 1, iFIX Productivity Tools will provide integrated zoom functionality in iFIX Workspace. This enables picture tiling and auto zooming on re-sized pictures.
[Zoom]	ZoomOverviewPicture	NetworkOverview	Main zooming picture
[Zoom]	ZoomThreshold	667	Maximum zoom level for pictures in percentage. A ZoomThreshold of 1000 means pictures can be magnified 1000% or 10x (100% is normal size)
[Zoom]	Layer1.. Layer30	No zoom layers	Zoom layer configuration.
[Zoom]	CursorZoom	No cursor zooming	Zoom focus based on cursor position. 0 = disable 1 = enable

Security settings

iFIX Productivity Tools uses standard iFIX security. For information on setting up iFIX security refer to the iFIX Electronic Books under the section "*Implementing security*".

iFIX Productivity Tools Security

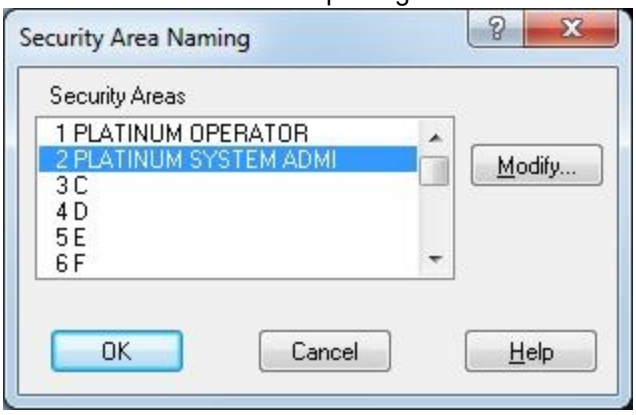
In addition to the iFIX security, iFIX Productivity Tools optionally has two iFIX security areas to restrict privileges to certain features. To enable the iFIX Productivity Tools security areas, the following setting needs to be enabled:

Copy

```
[Platinum]
EnableSecurityAreaChecks = 1
```

Once iFIX Productivity Tools security areas are enabled, users without any iFIX Productivity Tools privileges are only allowed to view information. They are completely restricted from making any changes. The optional iFIX security areas are:

- Security Area 1: Operator
    - Send controls, alarming
- Security Area 2: System Administrator
    - Administrator privilege



Security area naming

Note that it is the security area number (e.g. 1 or 2) that is significant and not the security area name. The security area names can be configured as above for clarity.

The two iFIX security areas that iFIX Productivity Tools uses can be changed to different numbers if area 1 and 2 are already in use. See 'Settings table'

Copy

```
[Security]
OperatorArea = 1
SystemArea = 2
```

OperatorArea

Provides member users privilege to perform the following from within the iFIX Productivity Tools environment:

- Send controls
- Enable/disable alarms

- Acknowledge alarms
- Edit analog alarm limits
- Add new notes

SystemArea

Provides member users privilege to perform the following from within the iFIX Productivity Tools environment:

- Delete notes

Automatic login

If iFIX is configured to automatically login a user with base privileges on startup, The system can be configured to login new users over the top of this auto logged in user. When the new user logs out the auto logged in user will be restored. This will prevent the situation where no user is logged in.

Please refer to section Settings table under the security section to see how to configure these settings.

Security Operation

Copy

```
[Platinum]
EnableSecurityAreaChecks = 0
```

Provides users an option to enable or disable the checking of two of the configurable security areas in iFIX. This is disabled by default.

Please refer to section Settings table to see how to configure this setting.

MOA manager

MOA manager is the central iFIX Productivity Tools process that is responsible for:

- Preserving operator set values on system restart, namely:
- - **M**anual overwrite
  - **O**utput enable
  - **A**larm enable
  - Off scan
  - Simulated values
- Recording and storing operator entered data

o iNotes

- Alarm and event processing

o Alarm processing

o Event processing

· Network communications (server-client and server-server)

· Device interlock processing

On a system restart, MOA manager reapplies the operational data, such as control tags, alarm disables, etc. This ”reload” operation occurs:

- automatically, after startup
- automatically, when the message ”SAC – Initialization Complete” is processed on the server (produced after SAC is stopped and then restarted)
- manually, when requested (through MOAmanager’s tray menu on an iFIX server)

Network operation

Client configuration

iFIX Productivity Tools support the standard iFIX server-client network operation. To ensure that iFIX Productivity Tools services are available on a client:

1) the remote server configuration needs to be configured within the SCU.

2) the server local node names should be resolvable by name. eg. "pinging" the server local node name from the client should be able to resolve the IP address

3) The suite uses two TCP and one UDP port (see below). Any network firewalls should be configured to allow this network traffic.

Network.INI

It’s possible to limit client access to a server by using the Network.ini configuration file. For example, to allow only the client nodes View1 and View2 to have write access to the server, use the following option in Network.ini:

Copy

```
[WRITEACCESS]
accept_unauthorized_writes= OFF
writenode1= VIEW1
writenode2= VIEW2
```

In the example above, only VIEW1 and VIEW2 will be able to write to the server. All other nodes can still read the server but will be unable to send controls, apply tags, or write to the database.

The Network.ini configuration file is located in the LOCAL folder under C:\Program Files (x86)\Proficy\iFIX

By default, the server will accept unauthorized writes from any client (see the iFIX electronic books for further reference on Network.ini).

Redundant networking

iFIX and iFIX Productivity Tools support redundant network operation.

Within iFIX the redundant network cards are set within the SCU’s advanced networking configuration section. That is, the SCU setting determines which of the available network interfaces are to be used for iFIX services.

Within iFIX Productivity Tools the redundant network path addresses are configured within the system ’hosts’ file or DHCP configuration.

TCP services

iFIX Productivity Tools utilizes the following IP network ports:

TCP 36326

TCP 36327

UDP 36326

Note that for Terminal Servers, MOAManager will occupy one port per connection.
If required, the ports can be re-configured by editing the windows services file (sample entries below) to change the TCP and UDP ports that MOAmanager uses for inter-computer communications.
Copy

```
moamanager 36326/tcp
moamanager 36326/udp
noteserver 36327/tcp
```

MOA manager menu

Right clicking on the MOA manager tray provides following menu options for use by the system engineer.

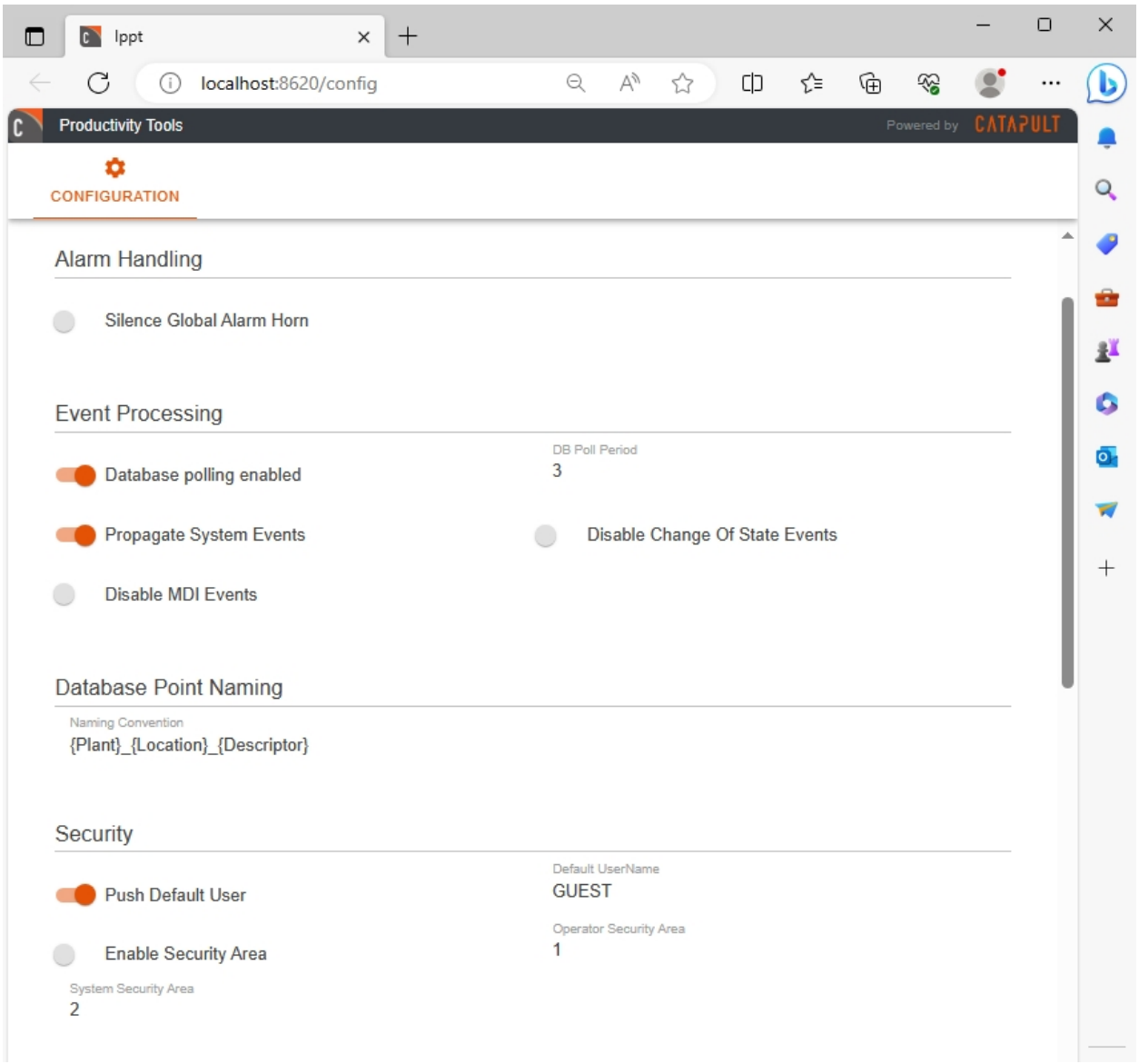
Option	Description
Configure	Displays the MOA configuration dialog
Reload	Forces a reload of alarm disable status.
Messages -> Window	Enable the debug message display (typically for system integrator use only).
Messages -> Log to File	Enable the debug message log files (typically for system integrator use only).
About	Reports MOA manager version information
Exit	Shuts down MOA manager

MOA manager menu

Configuration UI

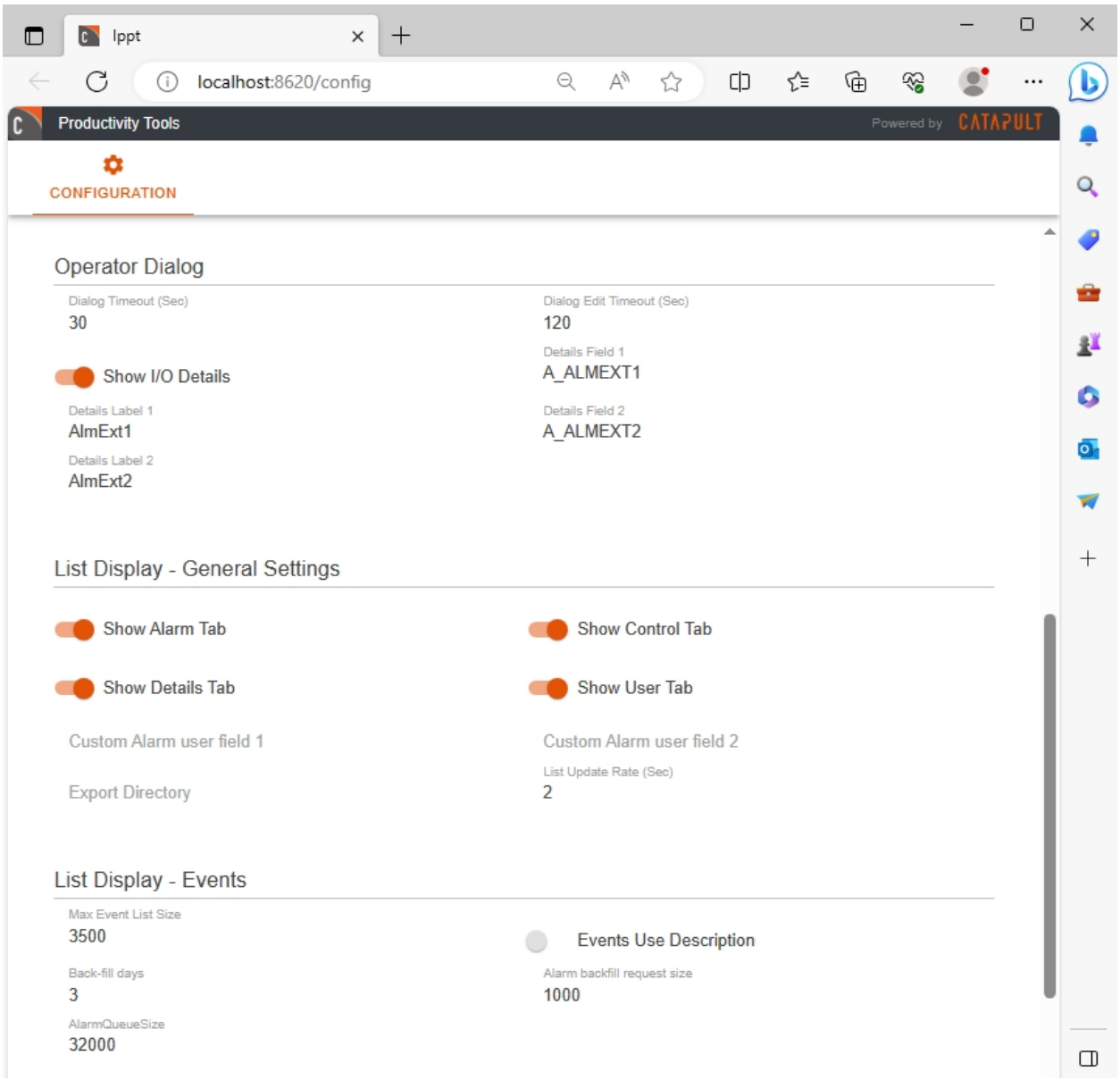
Configuration UI *(iFIX 2024 and later)*

The configuration UI provides an easy to use interface to view and update some of the key configuration settings. Changes in this interface update the corresponding iPower.INI settings; see '*Productivity Tools settings table*' for details. The relevant settings are shown in the table below.



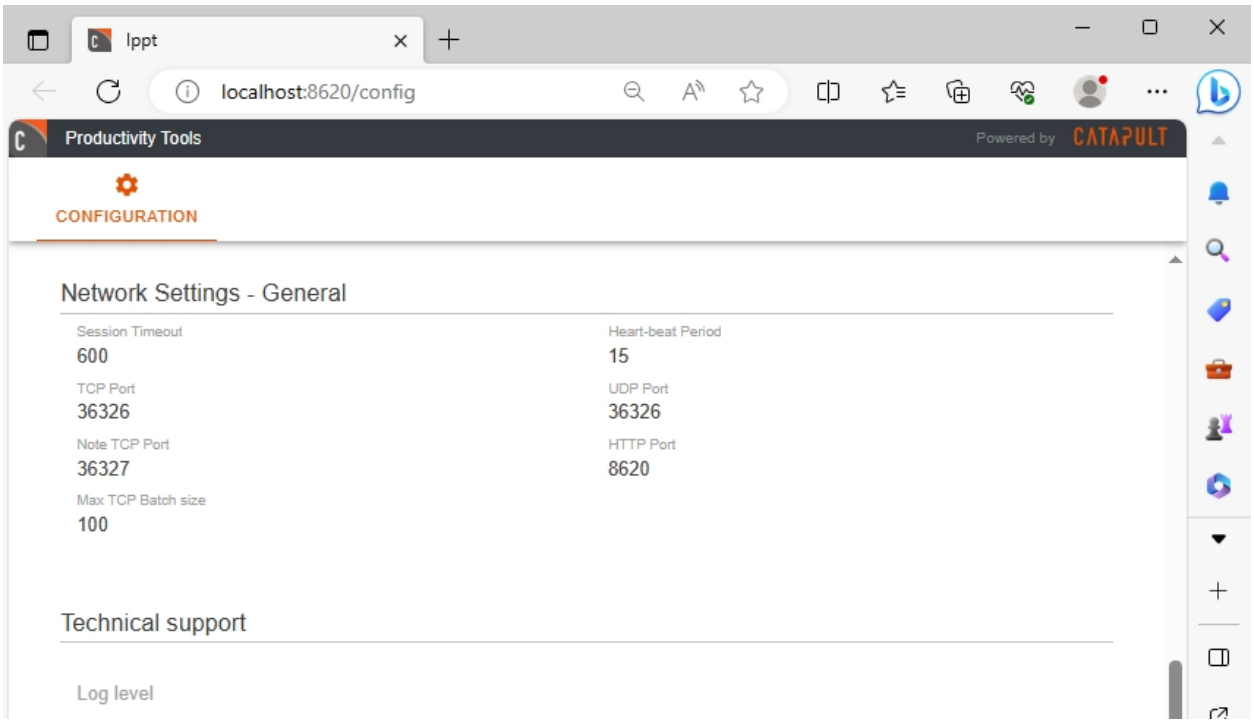
Setting label	Description	iPower.INI settings
Alarm: Silence Global Alarm Horn	Whether the alarm silence function is propagated across all clients, or only applies to the local client operator station.	[Alarms] GlobalHornSilence
Event: Database Polling Enabled	iFIX Productivity Tools checks for non-alarmed digital change of states, and records these as "EVENT" entries in the events list.	[List Manager.Events] DBPollEnable
Event: DB Poll Period	Number of seconds between polls of the database to determine if any monitored non-alarmed "EVENT" chnages have occurred.	[List Manager.Events] DBPollPeriod
Event: Propagate	Whether the SCADA servers will forward "SYSTEM" events to connected client event lists.	[List Manager.Events] PropagateSystemEvent

System Events		
Event: Disable Change of State Events	Non-alarmed digital (DA and DI) change of state occurrences generate an EVENT message. This setting will suppress EVENT entries for digitals configured with alarm type ”COS” and alarming disabled.	[List Manager.Events] SuppressDisabledCOSEvents
Event: Disable MDI Events	Multibit digital (MDI) non-alarmed change of state occurrences generate an EVENT message. This setting will suppress EVENT entries for MDI block states with alarming disabled.	[List Manager.Events] SuppressDisabledMDIEvents
Database: Naming Convention	The naming convention provides a simple hierachical view of the database. The naming components are available for automated filtering and sorting within the iFIX Productivity Tools list. The default setting presumes a generic three (or four) part name, separated by underscores.	[ASM] Naming_Convention
Security: Push Default User	A user login stack can be configured. The default user is always logged in, with a minimal set of user credentials. Users can log in over the top, and then log out upon completion. This operation ensures that there is always a lgged in user with a minimum set of secuirty credentials.	[Security] PushDefaultUser
Security: Default User Name	A user login stack can be configured. The setting deines the default user that is always logged in. Users can log in over the top, and then log out upon completion.	[Security] DefaultUserName
Security: Enable Security Area	The iFIX Productivity Tools checks for security area when opening control dialogs. These checks can be disabled using this setting.	[Platinum] EnableSecurityAreaChecks
Security: Operator Security Area	iFIX security area used for iFIX Productivity Tools operator actions.	[Security] OperatorArea
Security: System Security Area	iFIX security area used for iFIX Productivity Tools system admin actions.	[Security] SystemArea



Setting label	Description	iPower.INI settings
Operator Dialog: Dialog Timeout	Number of seconds before a dialog box times out. Set to zero for no timeout.	[Dialog] Timeout
Operator Dialog: Dialog Edit Timeout	Number of seconds before the Alarm Disable Reason dialog box times out. Set to zero for no timeout	[Dialog] EditTimeout
Operator Dialog: Show I/O Details	Display the point I/O address details in the operator dialog User tab.	[Context Help] IODetails
Operator Dialog: Details Field 1	Point property field (ASCII) to display in the operator dialog User tab.	[Context Help] Field1
Operator Dia-	Label associated with details field 1 in the operator dialog	[Context Help] Label1

log: Details Label 1	User tab.	
Operator Dialog: Details Field 2	Point property field (ASCII) to display in the operator dialog User tab.	[Context Help] Field2
Operator Dialog: Details Label 2	Label associated with details field 2 in the operator dialog User tab.	[Context Help] Label2
List: Show Alarm Tab	Show the Alarm tab when open the operator dialog from the iFIX Productivity Tools data summary list.	[List Manager] ShowAlarmTab
List: Show Control Tab	Show the Control tab when open the operator dialog from the iFIX Productivity Tools data summary list.	[List Manager] ShowControlTab
List: Show Details Tab	Show the Details tab when open the operator dialog from the iFIX Productivity Tools data summary and alarm disabled lists.	[List Manager] ShowDetailsTab
List: Show User Tab	Show the User tab when open the operator dialog from the iFIX Productivity Tools data summary and alarm disabled lists.	[List Manager] ShowUserTab
List: Custom Alarm User Field 1	Supports custom naming of the alarm user extension field 1, that appears in the iFIX Productivity Tools alarm summary and events lists.	[List Manager] CustomAlarmUserField1
List: Custom Alarm User Field 2	Supports custom naming of the alarm user extension field 2, that appears in the iFIX Productivity Tools alarm summary and events lists.	[List Manager] CustomAlarmUserField2
List: Export Directory	Supports iFIX Productivity Tools list export. If an export directory is defined the operator can enter the export filename which will be saved into the specified directory	[List Manager] ExportDirectory
List: List Update Rate	iFIX Productivity Tools list refresh rate (seconds)	[List Manager] ListLatency
Events List: Max Events List Size	iFIX Productivity Tools events list size. Entries past this number are scrolled off the end, but can be retrieved using date filters.	[List Manager.Events] MaxListSize
Events List: Events Use Description	Whether point description is included in events messages reporting operator control actions.	[Dialog] EventControlUseDescription
Events List: Backfill Days	The number of days of backfilled events requested from server on client startup. The lesser of the two configured settings (size and days) will apply.	[List Manager.Events] AlarmQueueRequestDays
Events List: Alarm Backfill Request Size	The number of backfilled events requested from server on client startup. The lesser of the two configured settings (size and days) will apply.	[List Manager.Events] AlarmQueueRequestSize
Events List: Alarm Queue Size	The iFIX alarm queue subscription size.	[MOA Manager] AlarmQueueSize



Setting label	Description	iPower.INI settings
Network: Session Timeout	Network Session timeout is the period of time (seconds) that must lapse without network activity before the network link is determined to be bad.	[MOA Manager] SessionTimeout
Network: Heartbeat Period	Rate (seconds) that send a UDP heartbeat from the client to the server, to check that the network link to the server is operational.	[MOA Manager] HeartbeatPeriod
Network: TCP Port	The TCP port number for the MoaManager server-client communications.	[MOA Manager] TcpPort
Network: UDP Port	The UDP port number for the MoaManager server-client communications.	[MOA Manager] UdpPort
Network: Note TCP Port	The TCP port number for the MoaManager server-client Notes communications.	[MOA Manager] NotePort
Network: HTTP Port	Port number for the built-in HTTP server to listen on for inter process communications.	[MOA Manager] HttpPort
Network: Max TCP Batch size	The maximum amounth of batched messages sent as one message, the size effect memory usage and transfer speed	[MOA Manager] MaxMessageQueueSize
Technical support: Log level	Log level (0 errors, 1 warnings, 2 info, 3 verbose, 4 debug)	System registry

Configuration dialog: General tab *(iFIX 2023 and earlier)*

The general tab settings provide an easy to use interface to update some of the key MOA settings.

In practise, other that "Partner Node", these settings will often not require modification. For redundant SCADA servers, the Partner Node setting is used to keep the operator actions in synch between the two redundant SCADA servers.

Changes on this dialog update the corresponding iPower.INI settings; ’’ for details. These are shown in the table below.

Dialog label	Description	iPower.INI settings
Local Path	The path name used by the iFIX Productivity Tools suite to hold operator information.	[MOA Manager] LOCALPATH
Online PDB	The name of the process database used by the SCADA system. This is used when checking integrity of operator settings.	[List Manager] OnlinePDB
Partner Node	To be configured on SCADA servers only. If the SCADA server belongs to a redundant SCADA pair, the partner server name is defined. For example, a SCADA pair with physical node names SVRA and SVRB, SVRA will define its partner node as SVRB, and vice versa.	[MOA Manager] PARTNERNODE
Partner Startup Timeout	Network timeout setting used to check for partner sever startup. Only applies on redundant SCADA servers.	[MOA Manager] PartnerTimeout
Network Session Timeout	Network timeout setting used to determine connection status between computers.	[MOA Manager] SessionTimeout
Network Heartbeat Period	Frequency that a background UDP heartbeat message is sent.	[MOA Manager] HeartbeatPeriod

Command line options

The iFIX Productivity Tools installation process updates the ”FIX.INI” file to start *MOAManager.exe* on system start-up as follows:

Copy

```
;
; Monitor (Background) programs
;
[OTHERS]
RUN=%MOAMANAGER.EXE /S
```

Other command line options are not normally required. Available option settings however are:

Option	Default	Description
/D	40 (seconds)	Reload delay. Time that iFIX Productivity Tools will wait after iFIX has started, before re-applying operator settings eg. Alarm disables. This delay applies 1) after start-up 2) automatically after detected that the database (SAC) has re-initialized. Note that a manually requested reload (using MOA manager’s command menu, or VBA interface) will be applied immediately.
/I	100 (ms)	Data summary initialization delay. Can reduce the TCP network traffic during initialization of data summary lists on clients. By default a 100ms delay in transmitted messages per one hundred points, but could increase for slower or heavily used networks. Note that increasing the delay does

		increase the time to fully populate data summary lists after start up.
/L		Log mode. For system debugging purposes only. Logs debugging information to files in the log folder.
/S		This flag is used to identify that MOA manager has been started by a normal system restart. On initialization MOA manager will purge lists of system entries.
/T	5 (seconds)	Synchronization timeout. Time that iFIX Productivity Tools will wait for a request to access a device, before assuming a device timeout. That is, when a device is clicked on a display, the period of time waiting confirmation the device is available (not already in use) before either the point dialog is presented (success) or a failure notification is advised. On a slow link (e.g. terminal server operation), there may be a requirement to extend this timeout value to avoid dialog device timeouts occurring.
/V		Verbose (monitor mode). For system debugging purposes only, additional debug information is displayed in the MOAManager view display.

MOA logging

MOAmanager log files are available for use by Catapult Software or the system integrator to assist in system analysis. The log files are written to

- %TEMP%\Catapult if MOAmanager is running under a user account

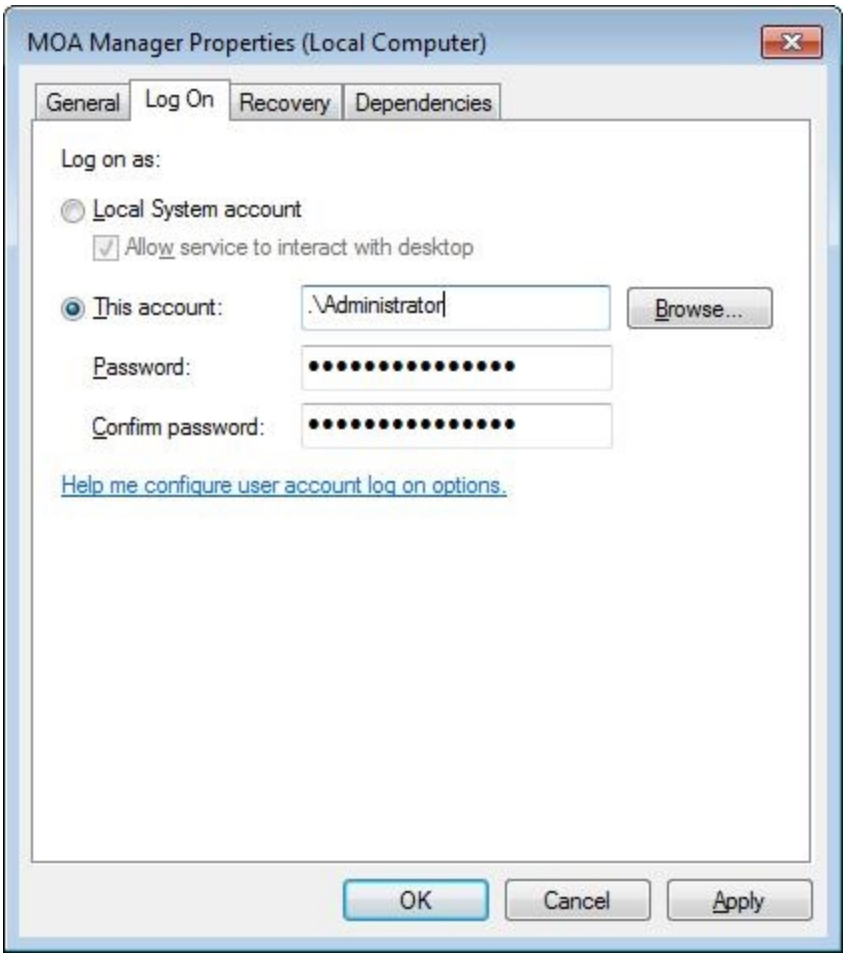
or

- C:\Windows\Temp\Catapult if MOAmanager running as a service under the SYSTEM account

MOA running in service mode

Follow the following instructions in the iFIX electronic book to configure iFix to run in service mode. Note you also need a valid iFix license. Then:

1. Configure iFix to run in service mode.
2. Open a Command Prompt, Run as administrator. In the command line, type *MOAManager.exe /INSTALL* and click OK. This will register MOAManager in Windows Service Control Manager.
3. In iFix local folder, default in *C:\Program Files (x86)\Proficy\iFIX\LOCAL*, open *fix.ini* for edit, scroll to the last, remove or comment out *the line: RUN=%MOAMANAGER.EXE*
4. *To ensure that MOAmanager runs with appropriate user permissions, open* Control Panel, open the Administrative Tools, then Services, look for MOA, and double click to open the property dialog. Select either "Local System account", or a user in the local administrator group. For a user account, you will need to enter the account name and password details for the machine in the "Log On" tab.
5. Reboot the PC and iFix should be starting in service mode.



Editing MOA manager user credentials in Services

Refer to the following instructions to unregister MOAmanager fromservice mode and run it as a normal application

1. Configure iFix to run in application mode.
2. From Control Panel, open the Administrative Tools, then Services, look for MOA, double click it and select manual in startup type drop-down box.
3. In iFix local folder, default in *C:\Program Files (x86)\Proficy\iFIX\LOCAL*, open *fix.ini* for edit, scroll to the last, Add or uncomment *the line: RUN=%MOAMANAGER.EXE*
4. Reboot the PC and iFix should be starting in application mode.

MOA watchdog

The MOAmanager processes running on the servers are responsible for handling device interlocks, list integrity and other key services. An optional ”watchdog” can be configured for MOAmanager running on the servers, which will cause the server MOAmanager(s) to toggle a configured digital point. Typically this digital point is linked to reset a timer block, which will cause an alarm if the heartbeat stops thus indicating a problem with the iFIX Productivity Tools suite.

Notes:

 cli

- The digital block can be specified as either ‘tagname’ (using default logical node) or ‘node.tag-name’ to force a specific node. For example:

Copy

```
[MOA Manager]
MoaWatchdogPoint=SAMPLE.SYS_SVRA_DI_MOAWATCH
MoaWatchdogPeriod=15
```

- The digital block will be toggled between 0 and 1 at the rate specified by “MoaWatchdogPeriod”. The minimum rate that can be set is equal to the database poll rate (see “DBPollPeriod”)
- The (DA) digital block needs to have output enabled to allow value to be updated
- Recommended configuration is to set alarm delay on the toggled point, and to configure a second DA with the same SIM address, same alarm delay but opposing alarm state (open vs. close). Alternately the DA block can be used to reset a timer block, but in this configuration the (DA) digital block should have alarming disabled and COS alarming configured to suppress unwanted events (see ”*SuppressDisabledCOSEvents*”)

Programming interfaces

iFIX Productivity Tools exposes a number of programming interfaces, that are used by the system to provide operator functions and dialogs.

The interfaces that are documented in following section are only intended for advanced system integrators that have a requirement to develop specific custom applications.

The functions listed in this section are declared in the Factory Globals.

InitializePictureIP

Copy

```
Public Declare Function InitializePictureIP Lib _
    ”iPower.dll” _
    (ByVal Picture As Object) As Integer
```

This function initializes the iFIX Productivity Tools for a picture. It is typically called from the CfixPicture_Initialize() event in VBA.

Typical use: This is one of the functions added to a picture when the Add Zoom Script button in the ProductivityTools toolbar is selected.

MouseEventExIP

Copy

```
Public Declare Function MouseEventExIP Lib _
    ”iPower.dll” _
    (ByVal Picture As Object, _
    ByVal EventType As Integer, _
    ByVal Button As Integer, _
```

```
    ByVal X As Double, _
    ByVal Y As Double _
    ) As Integer
```

The *MouseEventExIP* function is called by picture mouse move events. It is used for pan and zoom functionality.

Typical use: This is one of the functions added to a picture when the Add Zoom Script button in the ProductivityTools toolbar is selected.

For custom zoom operations *MouseEventExIP* can be used directly. Where *MouseEventExIP* parameter values are:

Button

1 left click

2 right click

EventType

0 mouse down

1 continuous move

2 mouse up

OpenPointPopupExIP

Copy

```
Public Declare Function OpenPointPopupExIP Lib _
    ”iPower.dll” _
    (ByVal sNode As String, _
    ByVal sTag As String, _
    Optional ByVal lAutoTabs As Long = -1, _
    Optional ByVal lForceTabs As Long = 0, _
    Optional ByVal sCaption As String = ””) As Integer
```

This function displays the operator action popup dialog for a particular node, tag database point. The lAutoTabs parameter specifies which tabs to display on the popup dialog and the sCaption gives the dialog caption. The interface will only display tabs specified in the lAutoTabs parameter if the point supports the tab.

Note that the lForceTabs parameter specifies which tabs must be displayed regardless of the point name or type.

Note that sCaption is optional, if set will display static label, but empty string will display default datablock name and current value

The following constants have been configured that can be used to specify selected tabs:

Global Const Pt_AutoTabs As Integer = -1

Global Const Pt_Control As Integer = 1

Global Const Pt_Alarm As Integer = 16

Global Const Pt_User As Integer = 64

Global Const Pt_VRC As Integer = 128

Global Const Pt_Details As Integer = 512

Typical Use: Create a dialog box for a point type that does not have a dynamo configured for it. For example, to display the Control, Control Tag and Information Tag tabs, add their values together and use it in the lAutoTabs parameter. eg:

Copy

```
OpenPointPopupExIP SAMPLE", "BLF_CB37_DXC_STS", 0, Pt_Control + Pt_Alarm +
Pt_Details, "My Dialog Title"
```

NoteDialogIP

Copy

```
Public Declare Function NoteDialogIP Lib _
    ”iPower.dll” _
    (ByVal NodeName As String, _
    ByVal NoteType As String, _
    ByVal Tagname As String _
    ) As Integer
```

This function opens the iNote editor. The parameters are the node, type and name. The ”type” maps through to a group of like notes. Standard notes are ”Point” used for notes associated with database points and ”System” used for general system notes. Each type requires a similarly named sub-directory under the root notes directory.

Typical use: Entering notes relating to a particular picture, e.g. a plant drawing The following is an example of the code that would be behind the click event of a notes button:

Copy

```
NoteDialogIP ”SAMPLE”, ”System”, ”NUM1_PLANT”
```

NoteDialogExIP

Copy

```
Public Declare Function NoteDialogIP Lib _
    ”iPower.dll” _
    (ByVal NodeName As String, _
    ByVal NoteType As String, _
    ByVal Tagname As String _
    ByVal WindowPositionAndHeight As String _
    ) As Integer
```

This function opens the iNote editor. The parameters are the node, type, name and window position & height. The ”type” maps through to a group of like notes. Standard notes are ”Point” used for notes associated with database points and ”System” used for general system notes. Each type requires a similarly named sub-directory under the root notes directory.

The WindowPositionAndHeight provides a means to open the note dialog in a specific pixel location on the screen, instead of the default behavior of remembering the same position and size as the previously opened notes dialog. The WindowPositionAndHeight is input as a string of comma separated values such according to the following: [xpos],[ypos],[width],[height]

Typical use: Entering notes relating to a particular picture, e.g. a substation drawing The following is an example of the code that would be behind the click event of a notes button and would open at x=0, y=150, width=200, height=300:

Copy

```
NoteDialogExIP ”SAMPLE”, ”System”, ”BLF_SLD”, “0,150,200,300”
```

LogEventMessage

Copy

```
Public Sub LogEventMessage(  strMessage As String, _
    strMessageType As String, _
    Optional strDestNode As String = ””, _
    Optional strTag As String = ””, _
    Optional intErrorMode As Integer = 0)
```

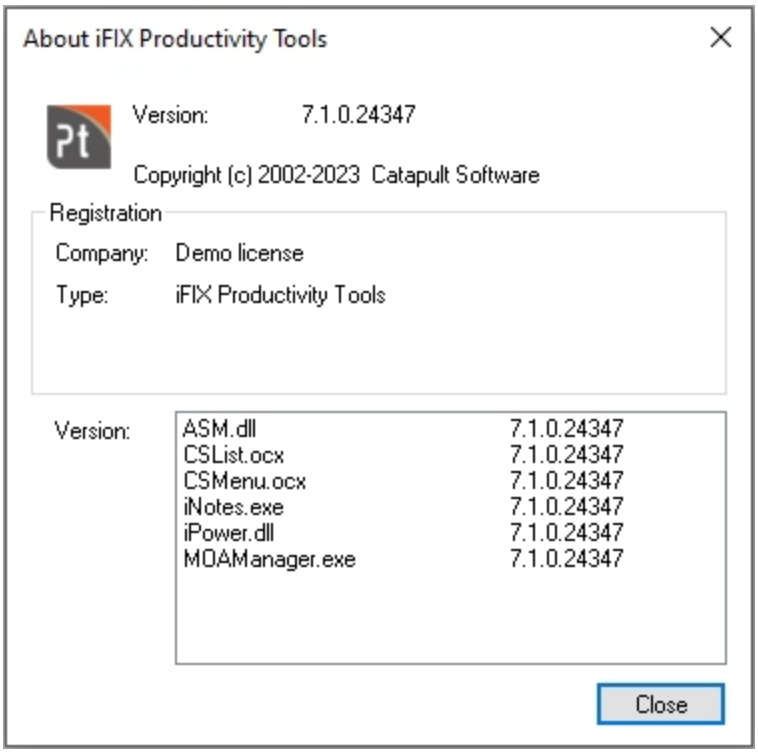
This function logs an event message to the iFIX Productivity Tools events system. These event messages will appear in the List Control in events mode.

Operation

iFIX Productivity Tools is an add-on for the iFIX SCADA system, developed to provide enhanced features that are not readily available within iFIX. It can be applied to either new or existing projects easily, giving the following major benefits with little configuration required:

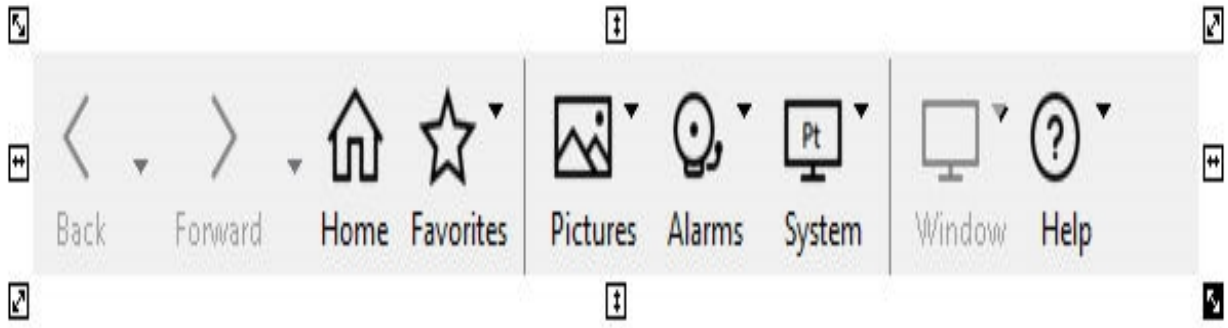
- Intuitive, safe, accurate operation
- Fast, consistent implementation
- Reliable systems

iFIX Productivity Tools is developed on top of iFIX, bringing all the benefits of this powerful, open control system while adding a suite of features that make it suitable for all SCADA applications.



Menu options

iFIX Productivity Tools provides the following default menu, which can be easily customized during configure mode.



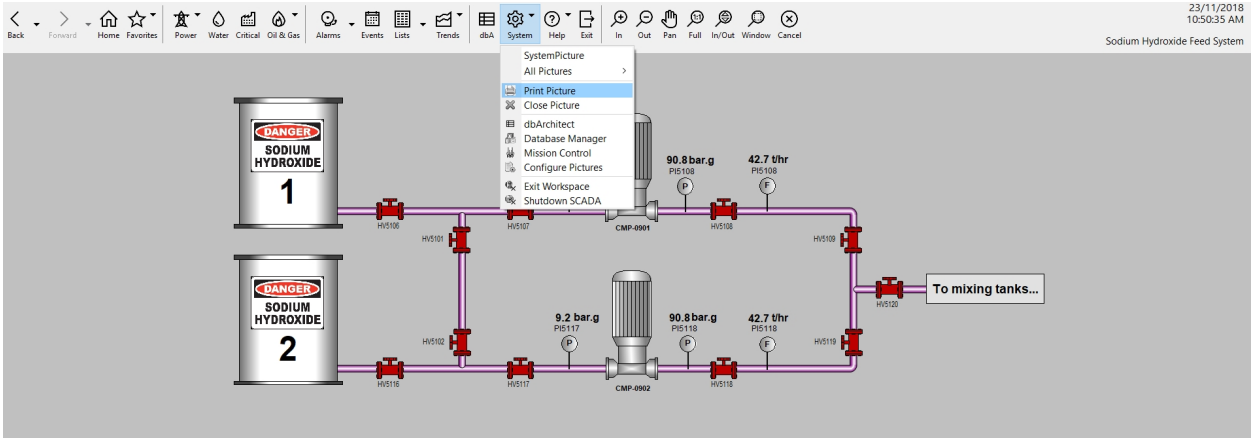
From this menu the following selections can be made:

Menu Item	Pull Down Item	Description / Reference
Back		Returns to the previous picture
▼	Lists all the available pictures for 'Back'	
Forward		Goes to the next picture
▼	Lists all the available pictures for 'Forward'	
Home		Opens the startup pictures
Favorites	Add to Favorites...	Adds the picture to the favor-

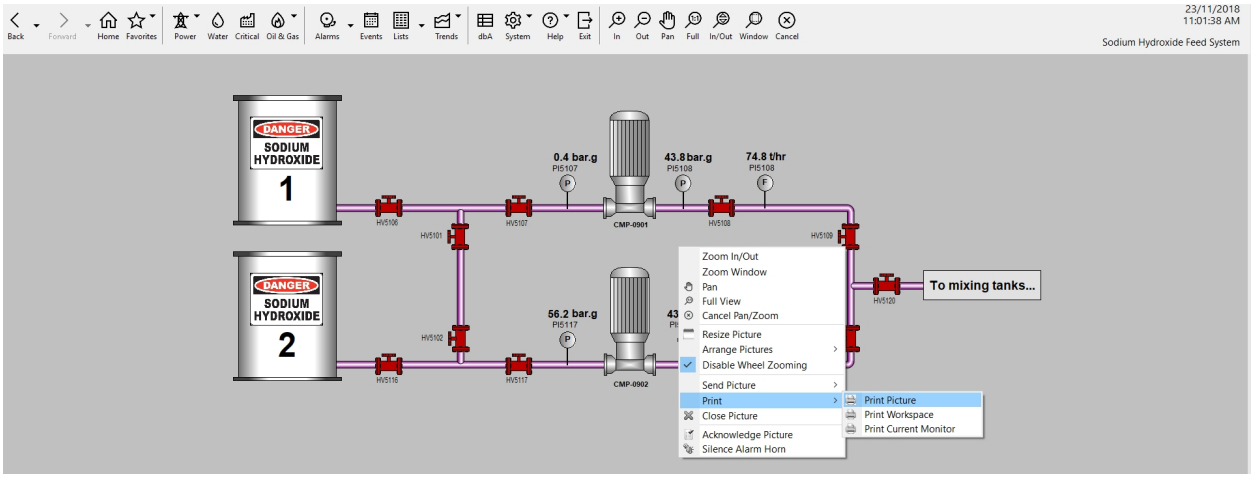
		ites
Organize Favorites...	Removes the picture from the favorites, changes the order of the files in the favorites	
Pictures		Lists all the pictures
Alarms	Acknowledge Picture	Acknowledges all alarms on the active picture
Enable/Disable Alarm Horn	Enables / Disables alarm horn	
Silence Horn	Silences alarm horn, without acknowledging alarms	
System	Print Picture	Prints the active picture
Close Picture	Closes the active picture	
Login	Allows a user to login to the system. Only visible when security is enabled and the default user is logged in	
Logout	Allows a user to logout of the system. Only visible when security is enabled and a user other than the default is logged in	
Exit Workspace	Exits the workspace	
Shutdown SCADA	Exits the workspace and the software	
Windows		A list of all open windows. A selected window will be made active
Help	User Guide	iFIX Productivity Tools Online User Guide
Configuration Guides	Sub menu contain the following configuration guides:	
Electronic Books	iFIX online help	
Request Support	Opens request support web page	
About	Version and registration information	

Printing

To print the current picture, either (i) select the 'Print' option from the menu bar:

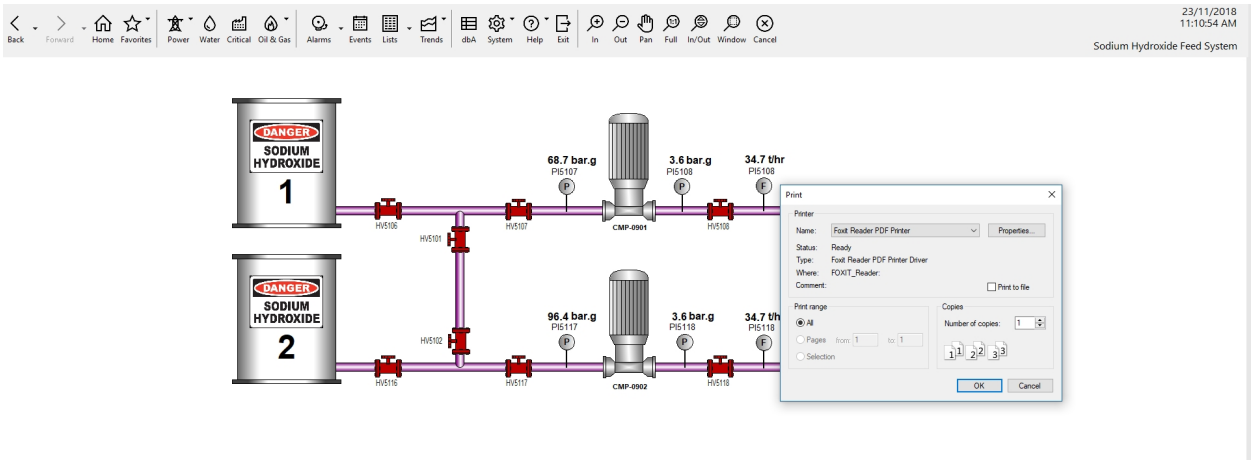


Or (ii) select the 'Print' option from the iFIX Productivity Tools right click picture menu:



The background of the current picture will automatically be inverted. The standard MS Windows print dialog will be displayed allowing the print requirements to be set. It is recommended that the page layout be set to 'Landscape' before printing. Once the print job has been dispatched or cancelled, the picture will return to its standard format.

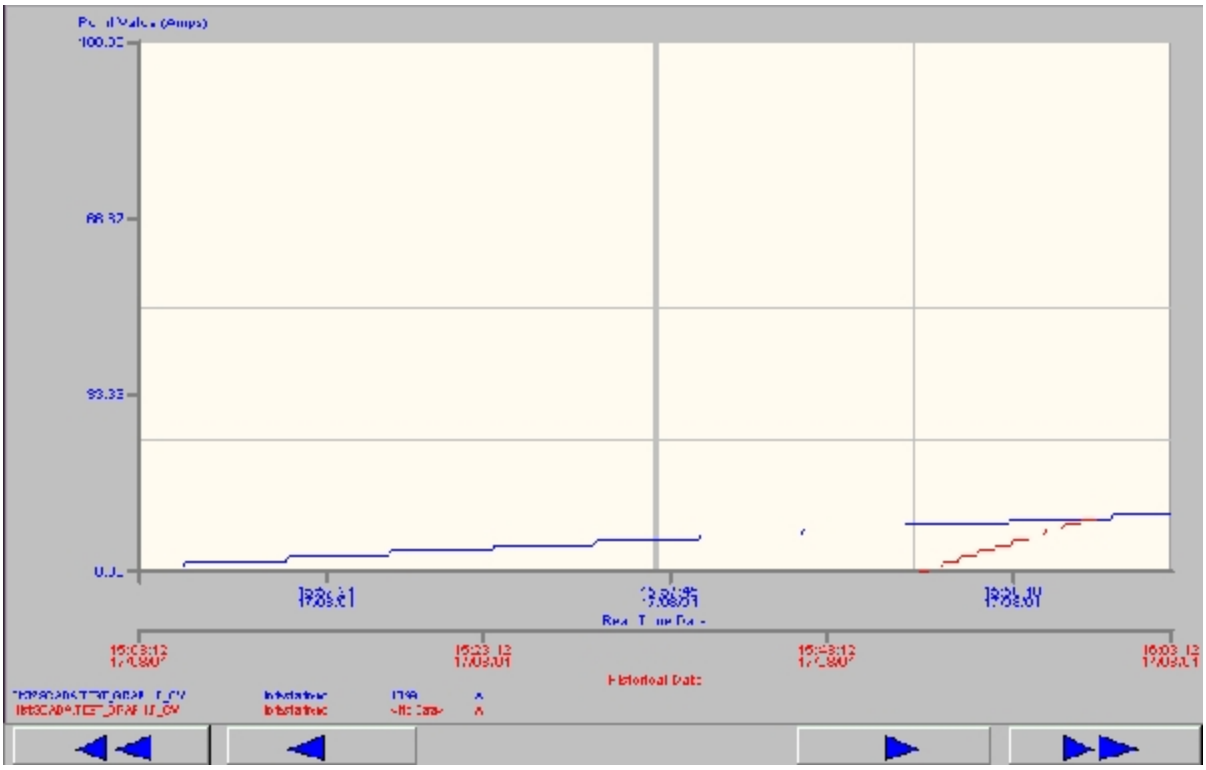
An example of the inversion and standard MS Windows print dialog is shown below.



Trend Displays

While viewing a trend it is possible to:

- Scroll forwards and backwards in time
- Zoom in on an area of the plot
- Analyse the actual value of each trace at a given date/time



Scroll forwards and backwards in time

- Click on the blue arrows to go forwards and backwards in time. The button with two arrows jumps 30 minutes in time while the single arrow button jumps 15 minutes
- Right click when the mouse is a magnifying glass to return to the original time setting

Zoom in on an area of the plot

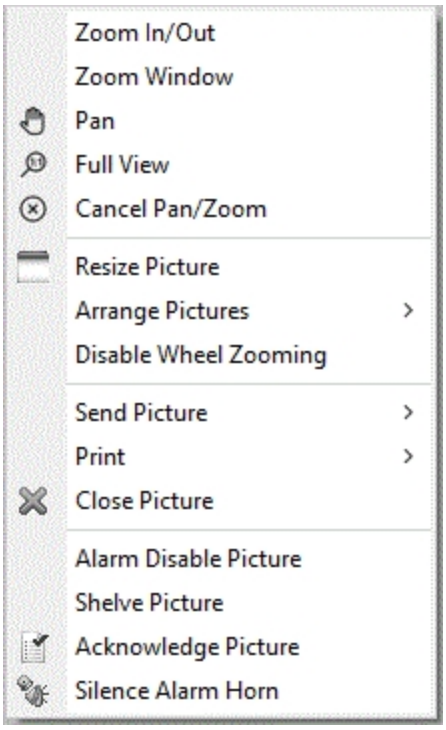
- Move the mouse into the plot window, the cursor will change to a magnifying glass
- While holding the left mouse button down drag a box in the plot window
- Let go of the left mouse button and it will zoom your selection to fit the full window
- Repeat this process a few times to get a close up
- While the mouse is in the plot window as a magnifying glass, right click to return the zoom to normal

Analyse the actual value of each trace at a given date/time

- Move the mouse into the plot window and onto the vertical hairline, the cursor will change to a horizontal double ended arrow and a value/time box will appear for each trace
- While holding down the left mouse button, drag the cursor left and right, the value/time will update accordingly

Picture Menu

On iFIX Productivity Tools displays a right click menu is available that provides a fast method to implement many common picture based commands.



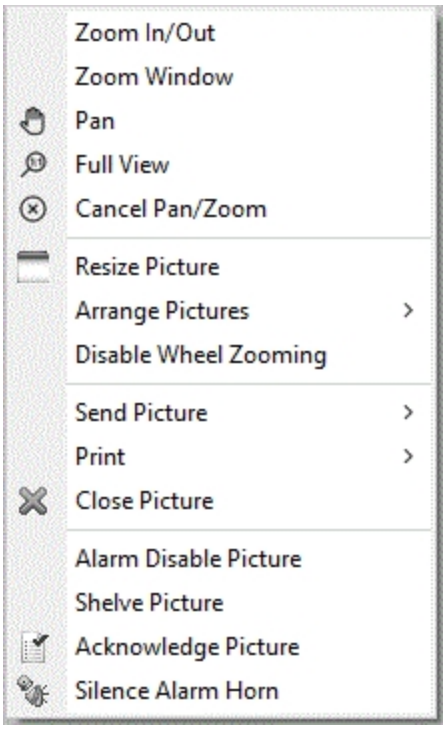
Key facilities provided are:

- pan and zoom
- multi-monitor support
- print picture
- close picture
- picture alarm processing

Pan and Zoom

On selected displays zoom and pan features have been added to allow the operator to focus on a specific area of the network. These tend to be on more complex pictures where the information displayed increases as the operator zooms in.

If configured for the current picture a right mouse click will display the following active menu. As with a standard menu an option can be selected by using the left mouse click.



The active menu allows the following zoom and pan functions to be selected:

Menu Option	Description
Zoom In/Out	Zooms in to the picture as the left mouse button is held down and the mouse is moved up the screen and zooms out of the picture as the left mouse button is held down and the mouse is moved down the screen
Zoom Window	Magnifies the picture to the rectangular area drawn by holding down the left mouse button and dragging the mouse
Pan	Moves the picture horizontally and vertically as the mouse is moved with the left mouse button held down
Full View	Restores the picture to the initial view
Cancel Pan/Zoom	Resets zoom or pan facility of the mouse
Resize Picture	Resizes the picture so that it will fit the screen
Arrange Pictures	Pictures can be re-arranged according to the option chosen
Disable Wheel Zooming	Selecting this option disables zooming by using the wheel of the mouse. Zooming can be done by clicking on the picture and dragging the picture up or down
Send Picture	Send a picture to a different monitor (option only present on multi-monitor systems, not configured for this trial system)
Print	By default it will print the current (active) picture. There is a pull down menu to select different options
Close Picture	Close the current picture
Acknowledge Picture	Acknowledge all alarms on the current picture
Silence Alarm	Silence the audible alarm horn

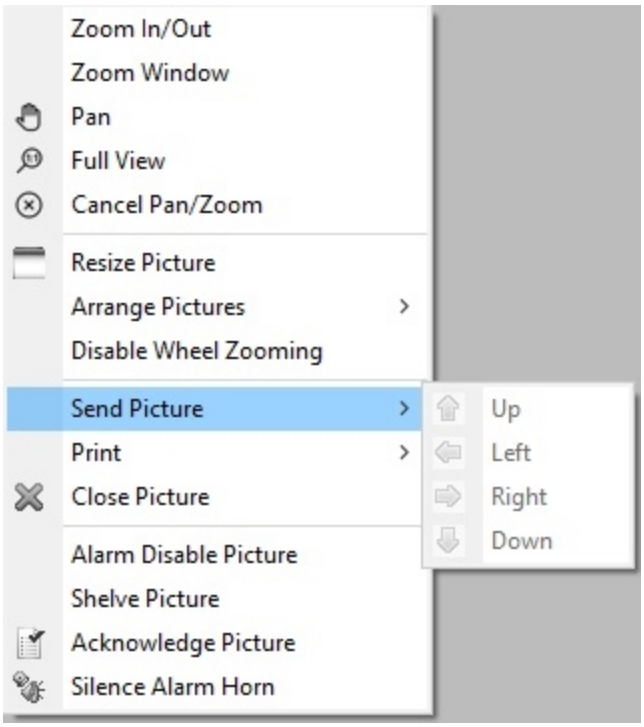
Horn

Zooming control is cancelled if any of the following occurs:

- cancel is selected from the picture right-click menu
- full view is selected from the picture right-click menu
- the current picture is closed through the main menu
- a new picture is opened through the main menu

Multiple monitors

On operator workstations with multiple screens, the right click menu has an additional "Send Picture" option. This is a short cut key to send a picture to one of the other system screens. Options to send left, right, up and down will be present, depending upon the monitor configuration, and the currently selected monitor.



Print picture

This menu option provides a quick method to print the current picture. Once selected, it calls the standard print picture dialog. For further information see the print picture description.

Close picture

This menu option provides a method to close the current picture.

Picture alarm options

These menu options provide common picture alarm actions:

Menu Option	Description
Alarm Disable Picture	All points displayed on the current picture with alarming enabled will have a group alarm disable action applied
Alarm Shelve Picture	All points displayed on the current picture with an alarm shelve policy configured will have a group alarm shelve action applied

Acknowledge Picture	Acknowledges all active alarms on the current picture
Silence Alarm Horn	Silences the alarms horn. Does not acknowledge the alarms

For further information refer to the alarm processing section.

Notes

"Notes" are text-based information linked to either a specific piece of equipment ("equipment notes") or any other part of the system ("system notes").

- **Equipment notes** are linked to a specific item through the database point name. For example an equipment note might be linked to a specific circuit breaker, pump, motor and so on.
- **System notes** can be accessed in many ways, but are commonly linked through a button or label on a picture. For example a note about a particular substation (or any other area of your system) could be linked to a "notes" button on the picture for that substation.

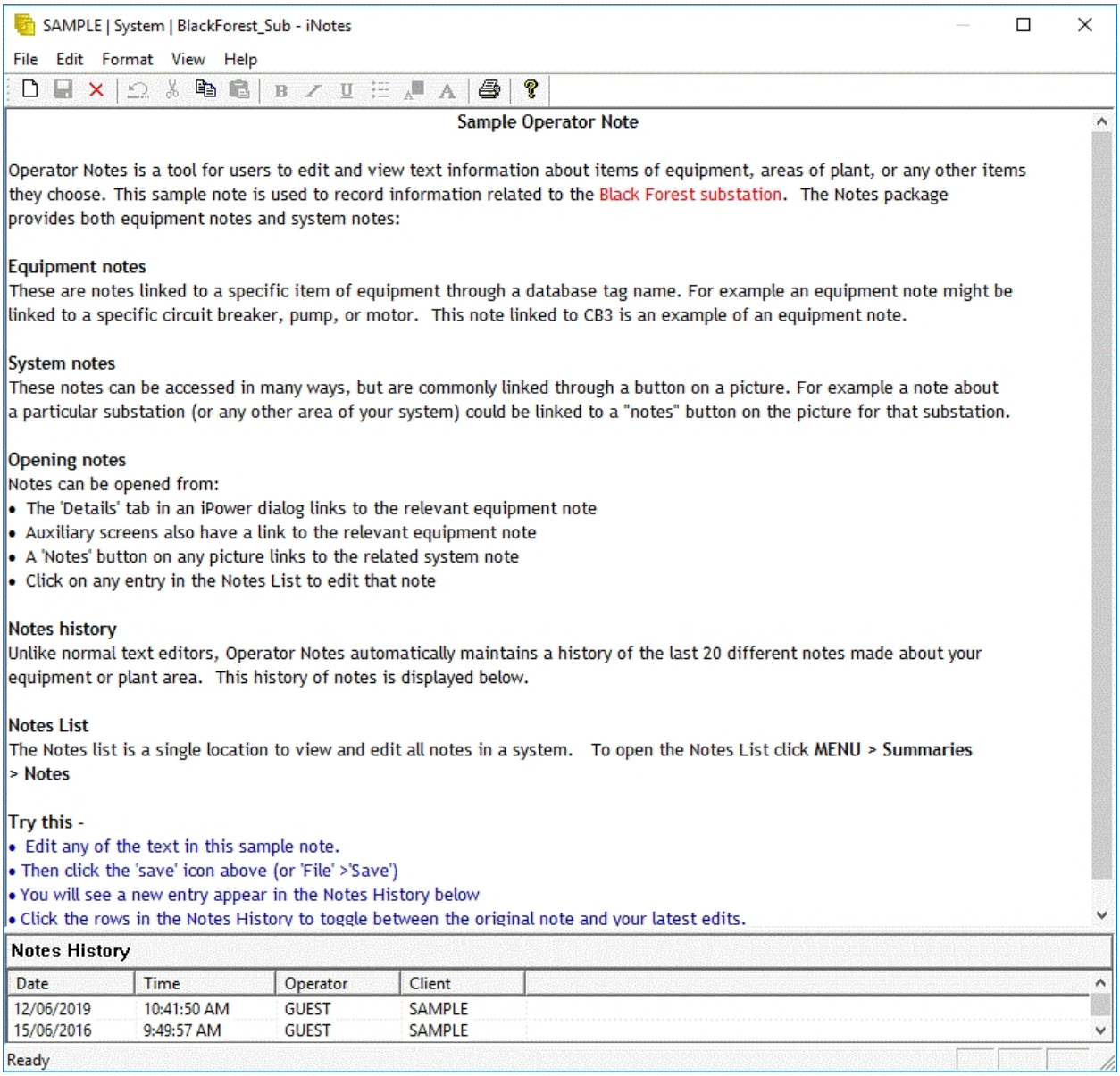
The Notes editor

The Notes editor is used to create, edit, view and delete text notes. Edit and delete functions are controlled by system security settings.

The Notes editor can be called from:

- iFIX Productivity Tools dialog 'Details' tab links to equipment notes
- Auxiliary screens provide a link to the relevant equipment notes
- Any 'notes' button on any picture to edit the related system note
- Click on any entry in the Notes List to edit any specific equipment or system note

An example of the Notes editor is shown below.



Notes history

Unlike normal text editors, the Notes editor automatically maintains a history of the last 20 different notes made about your equipment or plant area. At the bottom of the Notes window is a history display which shows the 20 most recent versions of the notes. Each note in history is stamped with the time, date, author and the name of the computer used to write it. Clicking on a line in the history displays the selected note in the main window. Note that these historical notes cannot be edited, although the contents can be copied and pasted elsewhere.

Notes editor functions

Menu	Option	Description
File	New	Remove current contents and start a fresh edit session.
Save	Save current notes	

Delete	Delete all notes associated with the current device	
Print	Print the current note	
Print setup	Printer setup	
	Exit the editor.	
Exit	Will prompt to save or abandon the current edits if changes made since last saved.	
Edit	Undo	Undo the last edit action.
Cut	Cut the current selected text into the clipboard.	
Copy	Copy the current selected text into the clipboard.	
Paste	Paste the clipboard to the current position in the note.	
Format	Bold	Change the currently selected text's boldness. e.g. changes normal text to bold, or bold text to normal.
Italic	Change the currently selected text's italics. e.g. changes normal text to italicized, or italicized text to normal.	
Underline	Change the currently selected text's underlining. e.g. changes normal text to underlined, or underlined text to normal.	
Bullets	Change the selected text to / from standard lines to bullets. e.g. changes normal text to bulleted, or bulleted text to normal.	
Font color	Change the font color of selected text.	
Font	Change the font type of selected text.	
View	Tool bar	Controls whether the tool bar is visible or not. The toolbar shows icons for common functions. See picture below.
Status bar	Controls whether the status bar is visible at the bottom of the Notes window. The status bar shows editor status and command tool tips.	
Help	About Notes	Displays product license and version information.

Toolbar

The toolbar provides a quick method of selecting standard functions. The toolbar and the associated functions are shown below:

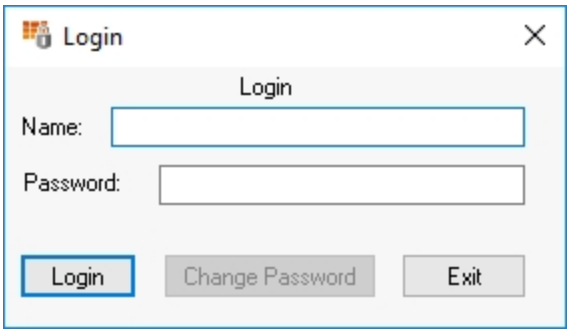
- New
- Save
- Delete
- Undo
- Cut
- Copy
- Paste
- Bold
- Italics
- Underline
- Bullet
- Font color
- Font
- Print
- Help

Logging In and Out

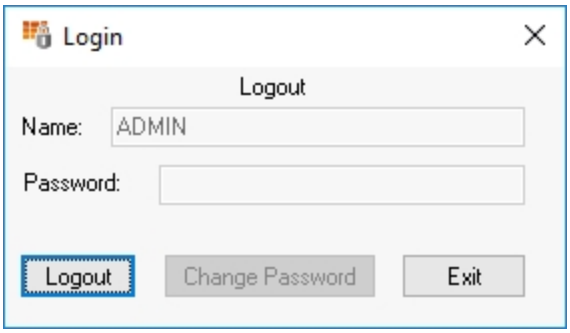
Depending on individual company operating procedures, an operator may need to login to and logout to control equipment or even navigate displays.

If security is used, the 'Login' menu option will be displayed in the 'System' menu.

To login, the below dialog is displayed with both the user 'Name' and 'Password' fields initially blank. Once the user name and password have been entered, click on the 'Login' button. If the user name and password is valid the login dialog will automatically be dismissed and the user logged in. If invalid, a message box is displayed indicating the login action failed.



To logout, select the 'System' menu option, but now click on the 'Logout' option which will have replaced the 'Login' menu item. The dialog is essentially the same as the login dialog, although the user name is already entered and the password field is disabled. To logout, click on the 'Logout' button. The dialog will be automatically replaced by the login dialog.

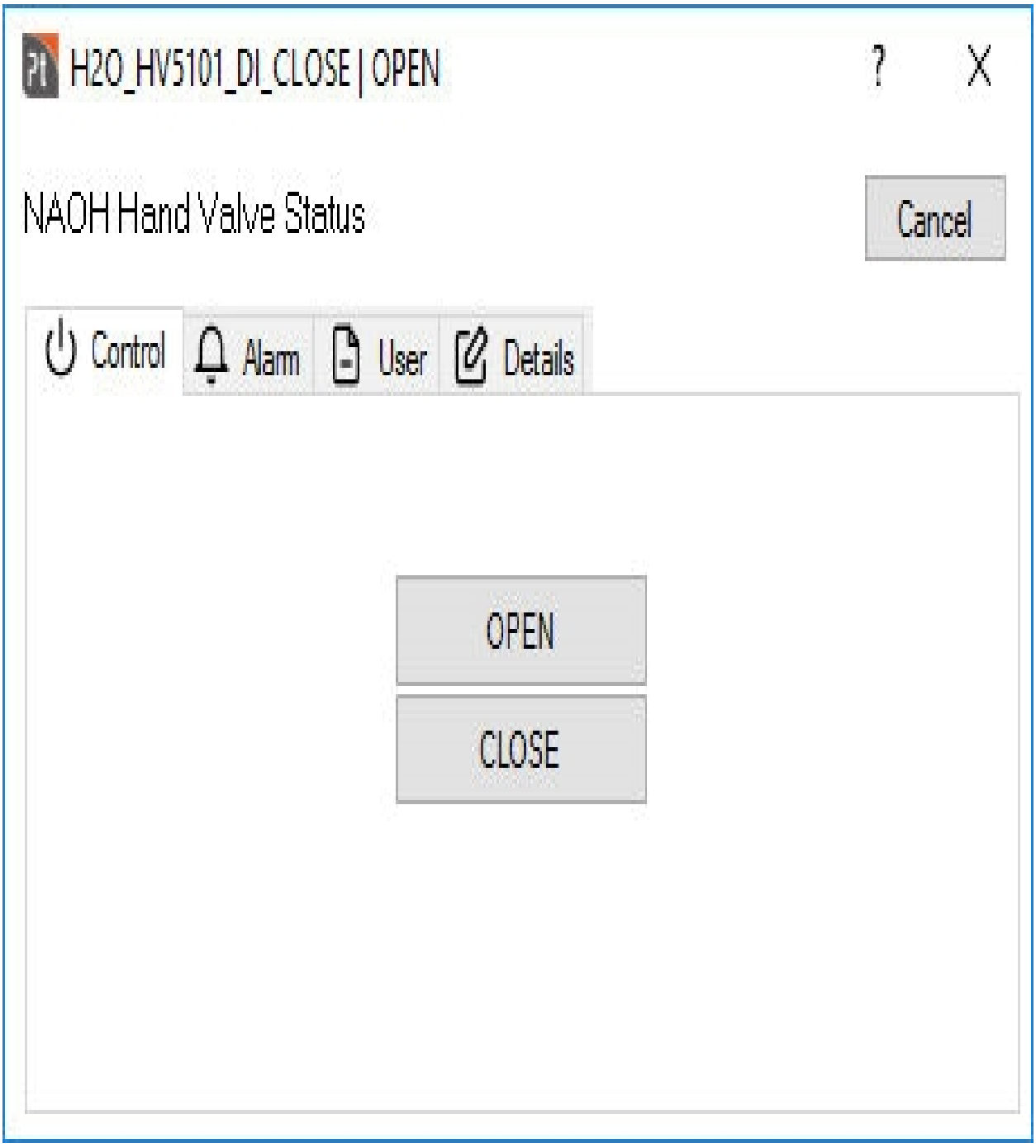


The 'Exit' button dismisses the dialog without performing the login or logout action.

Equipment Dialog Box

An equipment dialog can be displayed by clicking on the appropriate activation area of an equipment object. The tabs shown will vary based on the type of equipment selected, but they will have a standard structure.

While the dialog is open nothing else on the current picture will be selectable.



All equipment dialogs have the following standard fields in addition to the varying tabs.

Text Field / Button	Description
Point Name	This text field gives the name of the database status point used by the selected equipment
Description	This text field gives a further description of the selected equipment
?	This button invokes the context sensitive help facility. The cursor appearance will change to indicate this mode, and if the mouse is clicked on a dialog control or button, then a help box will appear to describe the usage of the selected item

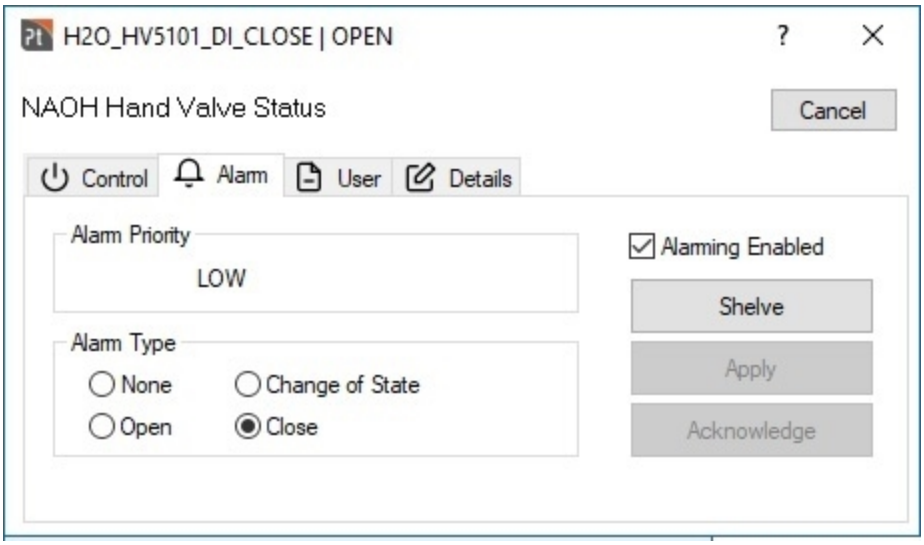
Cancel This button exits the dialog without issuing any of the options on the tabs

The tabs change depending on the equipment selected and operator set conditions. If present the tabs will appear in the following order:

Tab	Description
Control	Allows operators to issue either an analog or digital control to the selected field equipment
Alarm	Allows operators to modify alarm conditions
User	Contains information about the database points used for the equipment dialog. Contains user fields stored in the database, and I/O (physical device addressing) information
Details	Contains buttons to access equipment Notes and Auxiliary information screens.

Alarm

From the equipment dialog the respective alarm can be acknowledged, shelved or disabled. After first displaying the equipment dialog, select the 'Alarm' tab.



Productivity Tools operator dialog

Alarm Acknowledgement

If the point is in the unacknowledged alarm state, clicking on the 'Acknowledge' button will acknowledge the point.

Alarm Disable/Enable

To disable alarming temporarily on a point or to re-establish alarming select the check box new to 'Alarming Enabled', then hit the 'Apply' button. If the box is ticked then alarming is enabled.

Note: For the picture above, H20_HV5101_DI_CLOSE has Alarming Enabled.

Alarm States/ Levels

The alarm tab also shows the alarm settings for the device. What is shown depends on whether the device is digital, multi-bit or analog. These are read only fields.

Note: The dialog will automatically be dismissed when an alarm is acknowledged, enabled or disabled.

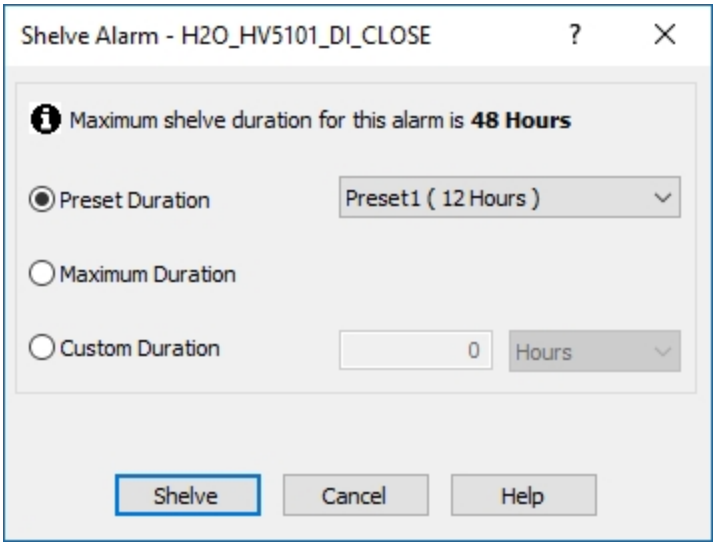
Alarm Shelve

Some database point can be optionally configured with an alarm shelve policy. This allows alarming on a point to be "shelved" for a preset amount of time. If shelving is enabled for the point, then the 'Shelve' button will be enabled, and clicking on this will bring up the separate shelve dialog (shown below). The alarm shelve provides three options for determining the shelve duration:

1) The default value (12 hours in the screen shot below)

2) The maximum value (24 hours in the screen shot below)

3) A manually entered (custom) duration, that must be less than the maximum duration.



Alarm Shelve dialog

Note that alarm shelving can be applied to points that are not in alarm state. When a point is "pre-shelved", the count down timer does not commence until the point enters an alarm state.

Lists associated with alarm operations

The Shelved Alarms list shows a list of all points that have had their alarming shelved.

The Disabled Alarms list shows a list of all the normally alarmed points that have alarming disabled.

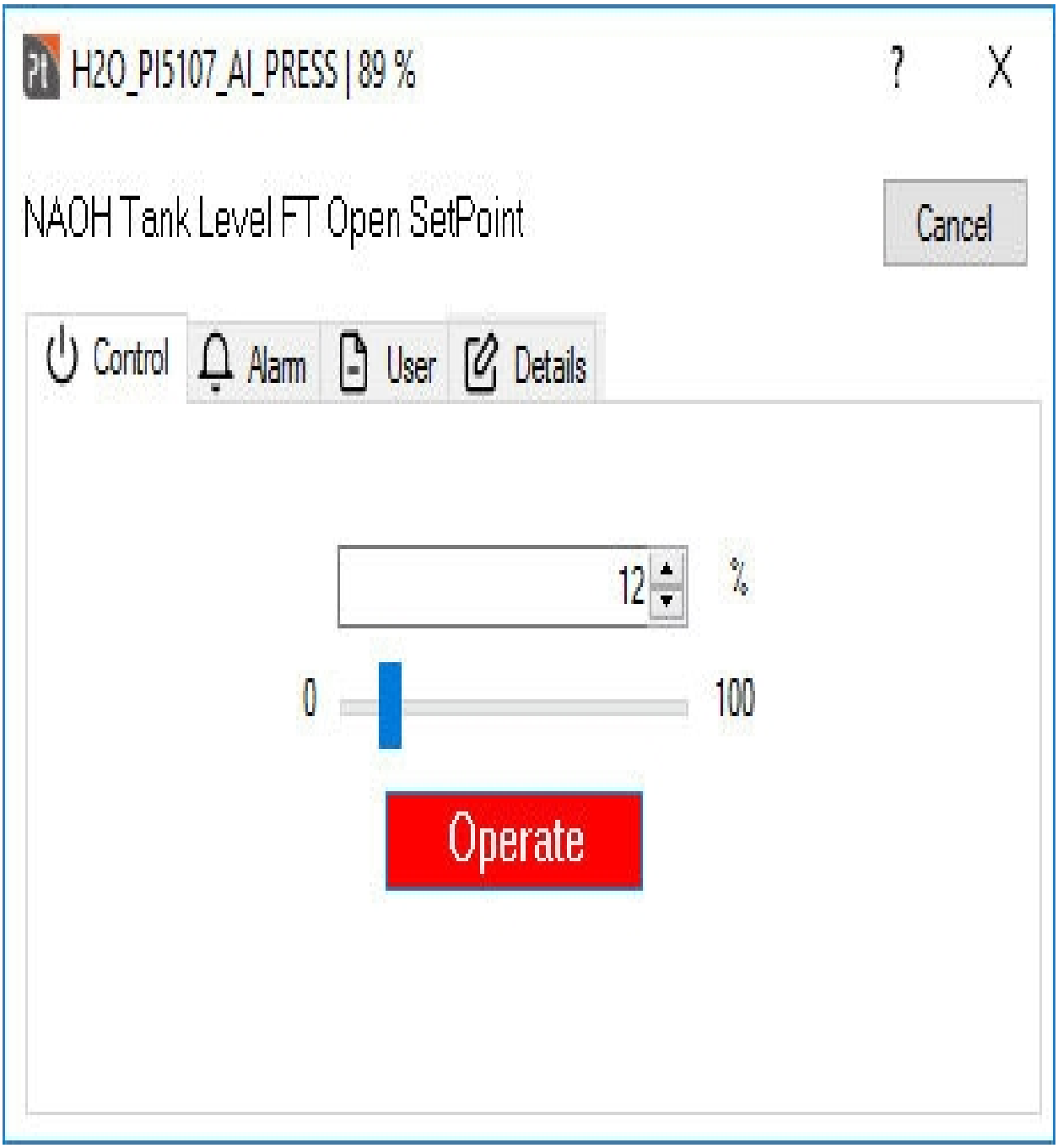
The Alarm Summary shows a list of all points that are currently in an alarm state, or have cleared but not yet acknowledged.

The Event list shows all the past and present alarm disabled events i.e. it shows when alarms were disabled and when they were re-enabled.

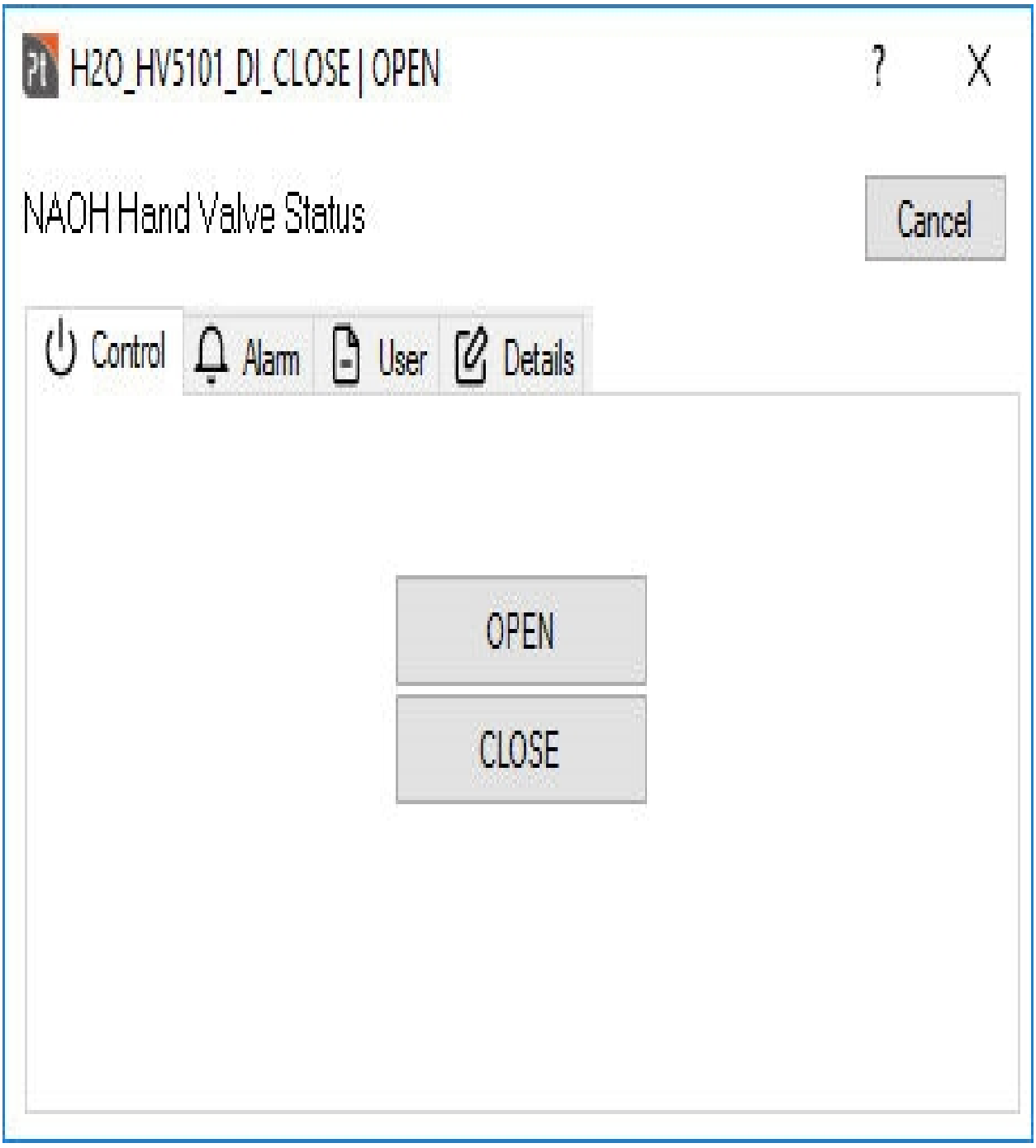
Control

If a point is controllable then the Control tab will be selectable on the equipment dialog. Depending on the type of control either digital state buttons or an analog slider will be available.

For analog controls an 'Operate' button will be available, but initially disabled until a control value is entered. The control is sent once the user clicks on the 'Operate' button.



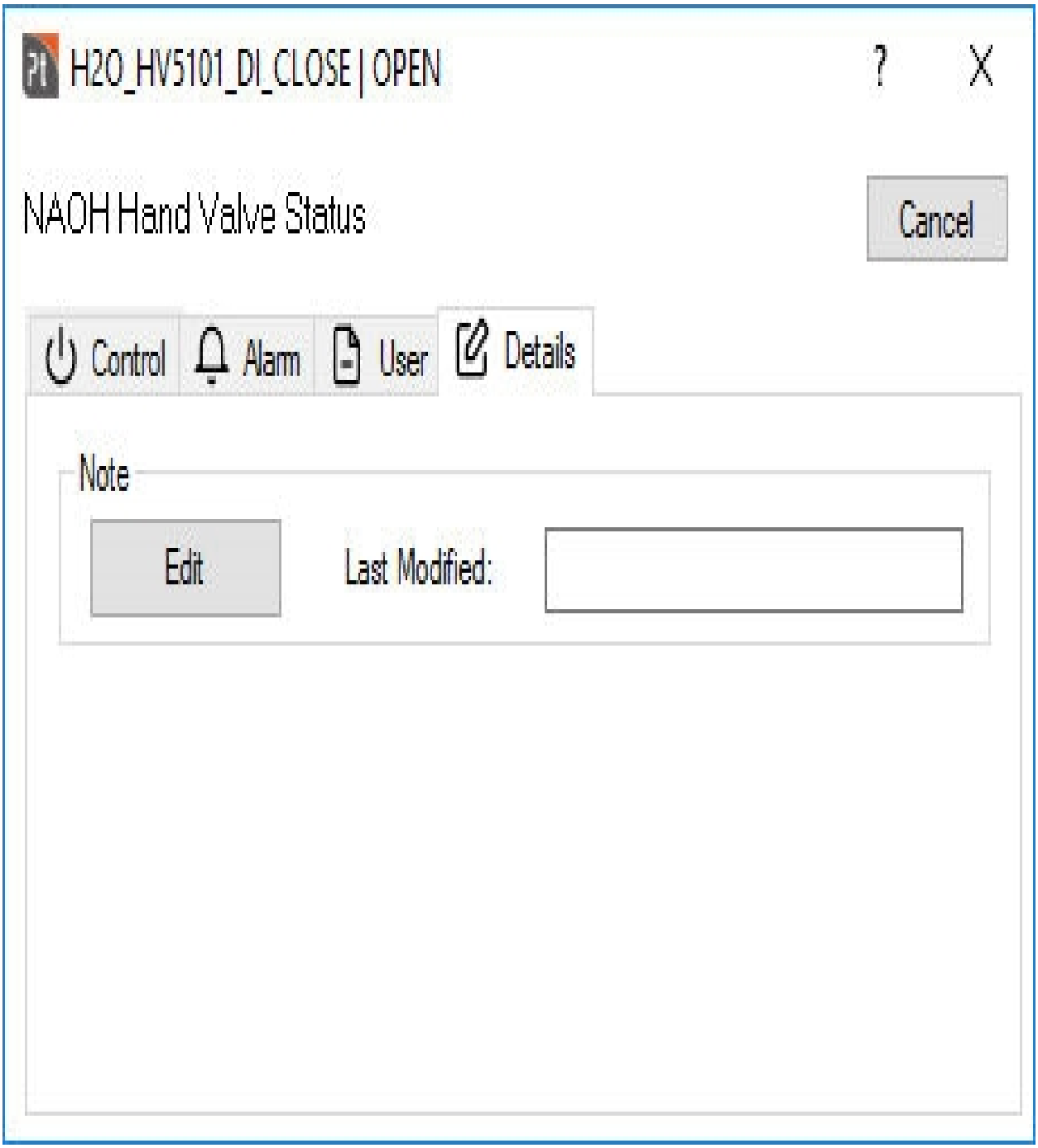
For digital controls, only the control state buttons are available. The respective control will be immediately issued as soon as a button is selected.



Once the control or the 'Operate' button is selected, the equipment dialog will be automatically shut. If the dialog is shut by any other button or the 'No' button of the confirmation dialog, then the control will not be issued to the field equipment.

Details

Where configured the 'Details' tab allows the operator to view Notes associated with the selected device.



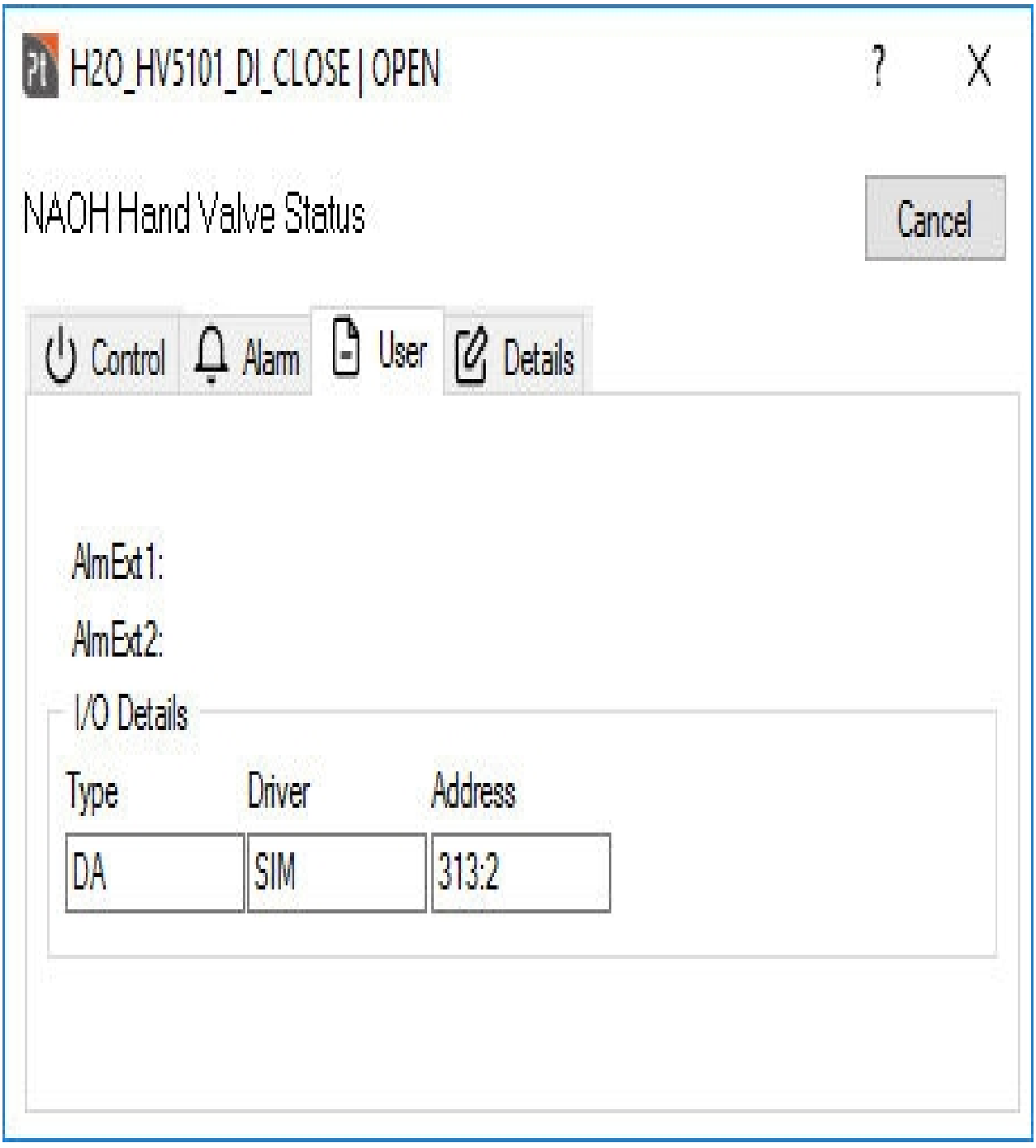
Notes

If a note is associated with the device, then the "Last Modified" date will be displayed. Clicking on the "Edit" control button will open the device note using the iNotes editor.

User Tab

Where configured the 'User' tab allows the operator to view relevant:

- Database points used in the dialog (controls and check-back)
- Two database fields for each point where user text can be entered, e.g. RTU wiring details
- I/O details



Points

Shows the database points used in this dialog. Drop down box allows the user to select what point they wish to view details for.

AlmExt1, AlmExt2

Shows the text entered into the user fields of the selected database points.

Note that these labels can be custom configured so may differ between systems.

I/O Details

Shows the type of database point this is, the I/O driver it uses and the I/O addresses.

Alarm and Event Handling

iFIX Productivity Tools processes system alarms and events

A change of state in a database point that results in the raising or clearing of an alarm updates the active alarm list. The active alarm list shows only the current alarm state of database points in an alarm condition that requires operator attention.

All changes of state are date and time stamp recorded, and presented for display in the event list. In addition to displaying historical alarm conditions, the event list also records operator actions, system events and database point changes that do not generate alarm conditions.

Menu

The default menu has "alarms" sub-menu. This is used to control all alarm operations.

Menu Item	Pull Down Item	Description / Reference
Alarms	Acknowledge Picture	Acknowledge all alarms on the active picture
Enable/Disable Alarm Horn	Enable / Disable Alarm Horn	
Silence Horn	Silences alarm horn, without acknowledging alarms	

Refer to alarm processing for information on:

- Alarm summary
- Alarm acknowledgment
- Alarm shelving
- Disabled alarms

Refer to event processing for information on:

- Event list
- Operator messages
- Event comments

Alarms

Alarm Summary list

The Alarm Summary list shows all the database points that are either

- currently in an active alarm state
- have returned to normal state, but the alarm has not yet been acknowledged

The list can be filtered, sorted, printed and the action dialog allows for alarm acknowledgement, alarm shelving or alarm disable actions to be taken. Refer to Alarm Summary to access further help on the alarm summary list.

Disabled Alarms List

The Disabled Alarms list shows all the database points that have their alarming disabled. The list can be filtered, sorted, printed and the alarming re-enabled. Refer to Disabled Alarms to access further help on the alarm disabled list.

Shelved Alarms List

The Shelved Alarms list shows all the points that have their alarming shelved. The list can be filtered, sorted, printed and the alarming re-enabled. Refer to Shelved Alarms to access further help on the shelved alarm list.

Alarm notification - audible alarm

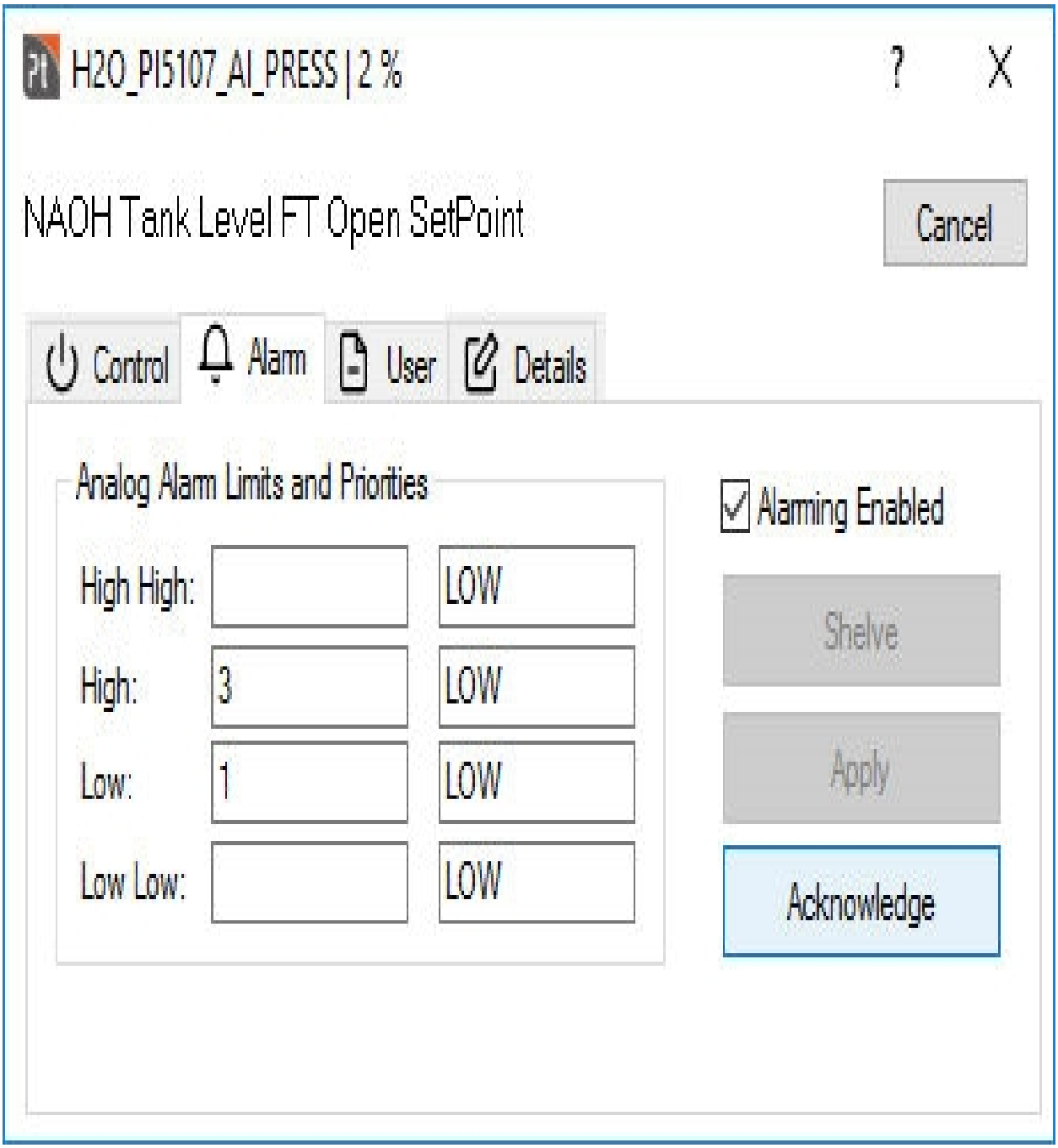
An audible alarm will sound on the main operator workstations when an alarm occurs. If an operator acknowledges an alarm, or selects the "Alarm silence" control, the audible alarm will desist until a new alarm occurs.

Alarm Acknowledgement

Acknowledging an alarm

Alarm acknowledgement can be achieved by several methods.

Individually - Click on an object in an unacknowledged alarm state to bring up the equipment dialog. Select the alarms tab. Then click 'Acknowledge' button



By picture - Click on the menu button on the picture to be acknowledged. Select Alarms->Acknowledge Picture from the menu.

By picture - click on the right click picture menu to acknowledge the alarms on the current picture.

Via alarm summary - From the alarm summary picture double-click on the alarm to be acknowledged

Alarm Shelving

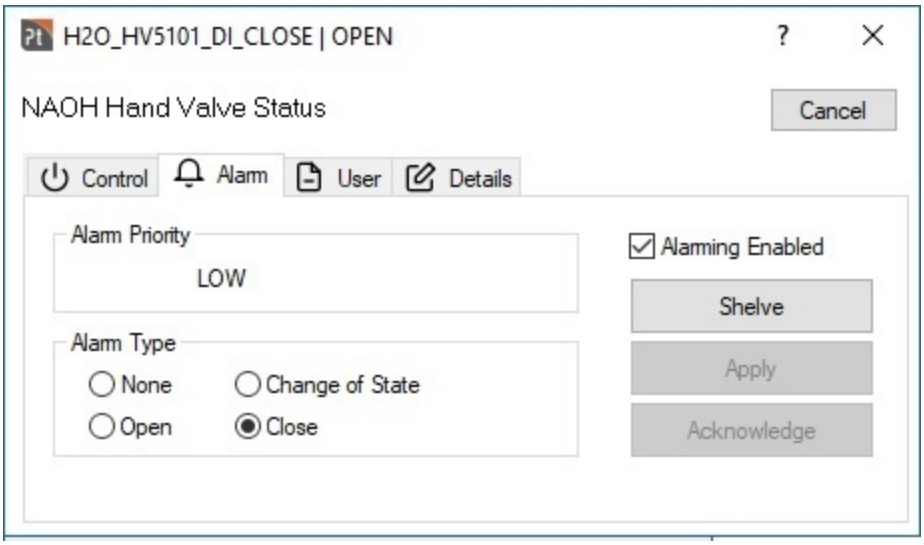
Alarm Shelving is a facility to temporarily disable alarm functionality on one or more points. This could be used for example during site maintenance work to prevent unwanted alarms from being raised in the system.

Notification of all points that are currently in this state is available through the Shelved Alarms list.

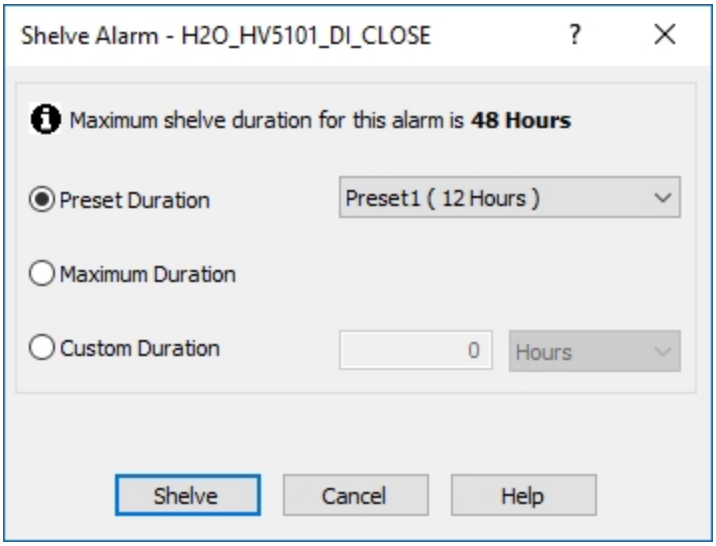
Alarm Shelving can be achieved via several methods: Single point equipment dialog, shelve points on a picture, and selecting multiple list points.

Shelve Alarm - equipment dialog

Click on an object to bring up the equipment dialog and select the alarms tab.



If the point has an alarm shelving policy configured, then Click on the 'Shelve' button to configure an alarm shelve duration.

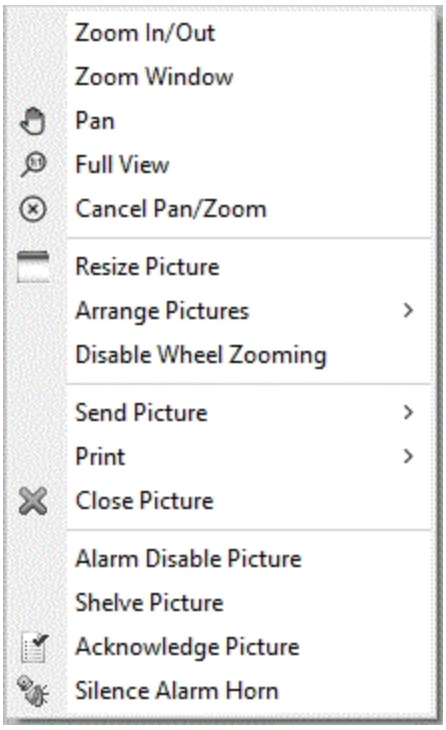


The shelve details including duration will be displayed in the Shelved Alarms list .

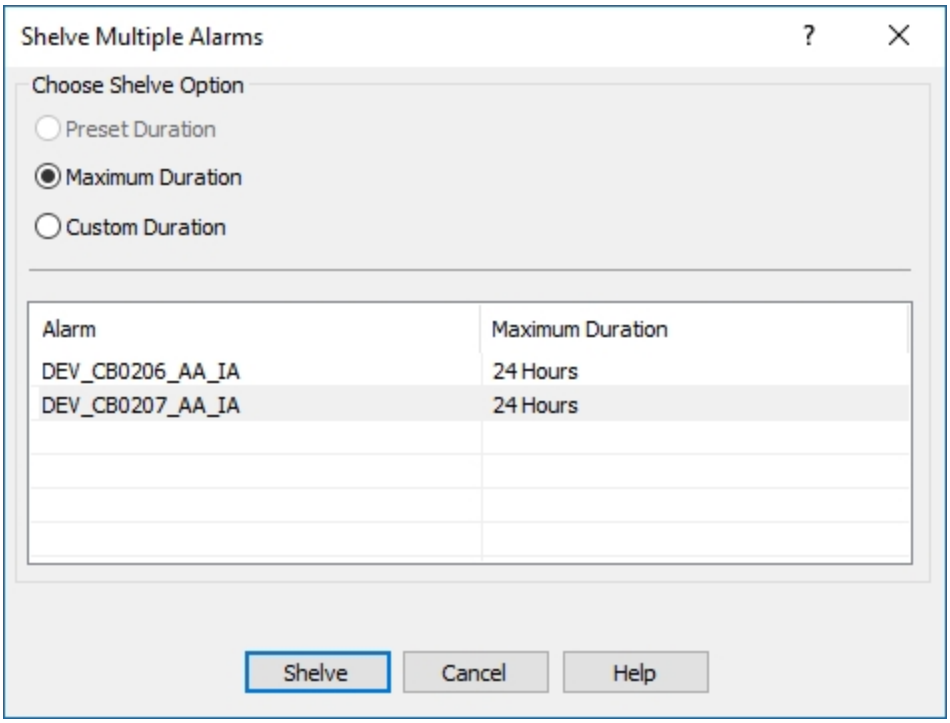
Note that alarm shelving can be applied to points that are not in alarm state. When a point is "pre-shelved", the count down timer does not commence until the point enters an alarm state.

Shelve Alarm - multiple points on a picture

Using the Productivity Tools right click picture menu it is possible to apply an alarm shelve action to multiple points at once. The "Shelve Picture" option will be applied to all points displayed on the current picture that are configured with a valid Alarm Shelve Policy.



If the Shelve Picture option is taken, then an operator dialog is presented to apply an Alarm Shelve to all applicable points.

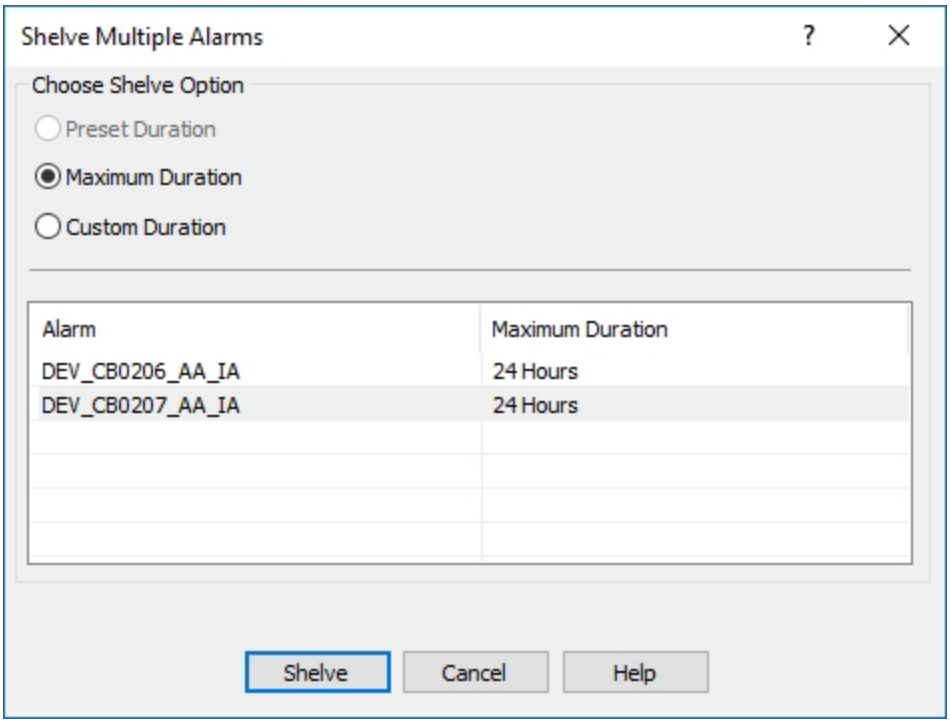


Shelve Alarm - select multiple entries from a list summary

From the data summary and alarm summary lists it is possible to apply an alarm shelve action to multiple points at once. With a number of list entries selected, the right click option will present the "Shelve" option if one or more selected points is configured with a valid Alarm Shelve Policy.

Point Name	Point Description	Area	Current Value	Point Ty
CPD_UPS4_AI_L2IV	UPS4 Line2 Input Voltage	ALL	39 V	AA
CPD_UPS4_AI_L2OC	UPS4 Line2	ALL	306 A	AA
CPD_UPS4_AI_L2OP	UPS4 Line2	ALL	132 kW	AA
CPD_UPS4_AI_L2OPL	UPS4 Line2	ALL	132 %	AA
CPD_UPS4_AI_L2OV	UPS4 Line2	ALL	368 V	AA
CPD_UPS4_AI_L3BV	UPS4 Line3	ALL	132 V	AA
CPD_UPS4_AI_L3IV	UPS4 Line3	ALL	346 V	AA
CPD_UPS4_AI_L3OC	UPS4 Line3	ALL	132 A	AA
CPD_UPS4_AI_L3OP	UPS4 Line3	ALL	132 kW	AA
CPD_UPS4_AI_L3OPL	UPS4 Line3	ALL	39 %	AA
CPD_UPS4_AI_L3OV	UPS4 Line3	ALL	132 V	AA
CPD_UPS4_AI_TOP	UPS4 TOTA	ALL	368 V	AA
DEV_CB0201_AA_VCA	DEV T1 Bus	ALL	11.100 kV	AA
DEV_CB0202_AA_VCA	DEV T2 Bus	ALL	11.000 kV	AA
DEV_CB0206_AA_IA	DEV 0206	ALL	17,039 Amps	AA
DEV_CB0207_AA_IA	DEV 0207	ALL	34 Amps	AA
DEV_CB0208_AA_IA	DEV 0208	ALL	40 Amps	AA
DEV_CB0209_AA_IA	DEV 0209 A-phase Current	ALL	31 Amps	AA
DEV_CB0210_AA_IA	DEV 0210 A-phase Current	ALL	32 Amps	AA
EAST_RUN1_AI_CONTROL	Run1 I/P	ALL	0 Psi	AA
EAST_RUN1_AI_DIFF	Run1 Diff	ALL	0 Psi	AA
EAST_RUN1_AI_FLOW	Run1 Flow	ALL	0 Mcf/s	AA

If the Shelve option is taken, then an operator dialog is presented to apply an Alarm Shelve to all applicable points.



Alarm Disable

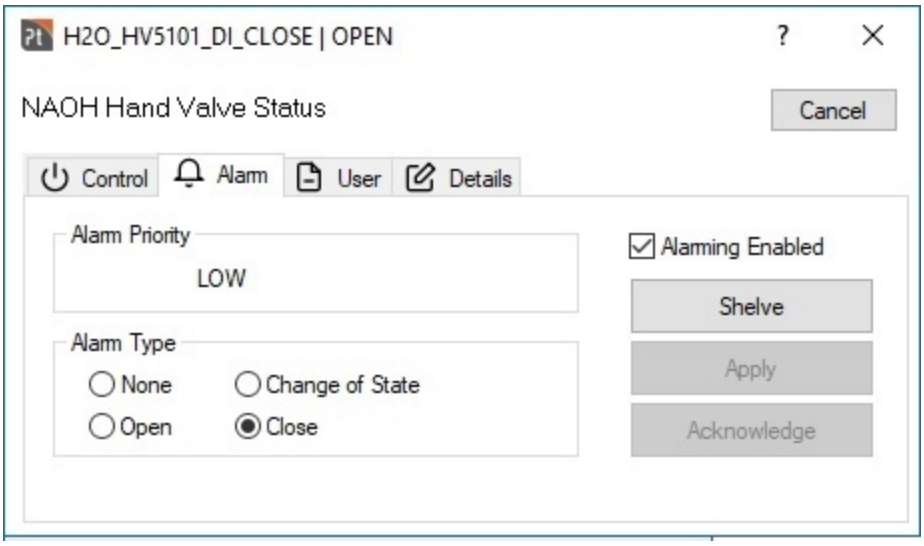
Alarm Disable is a facility to disable alarm functionality on one or more points. This could be used for example during site maintenance work to prevent unwanted alarms from being raised in the system.

Notification of all points that are currently disabled is available through the Disabled Alarms list.

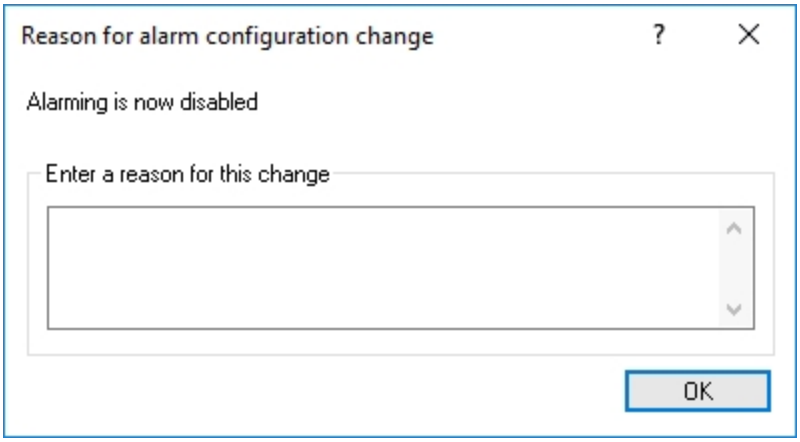
Disabled Alarms can be achieved via several methods: Single point equipment dialog, disable points on a picture, and multiple points via a list.

Disable Alarm - equipment dialog

Click on an object to bring up the popup form and select the alarms tab.



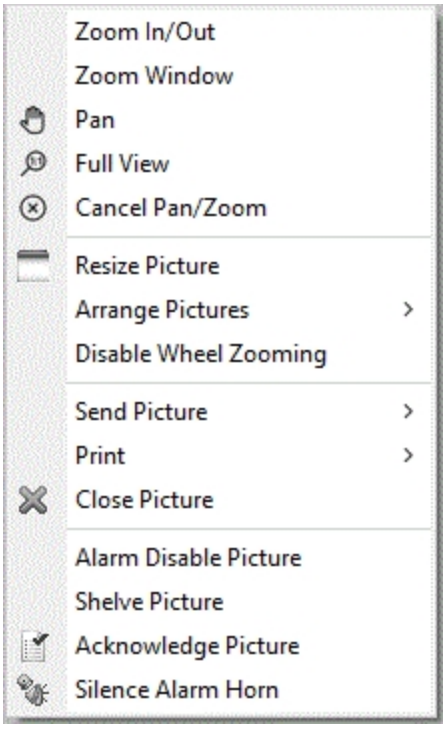
Select the "Alarming Enabled" check box to enable, or clear the check box to disable alarms for the point; then click on the "Apply" button. A dialog box will then appear asking for the reason this alarm is being disabled:



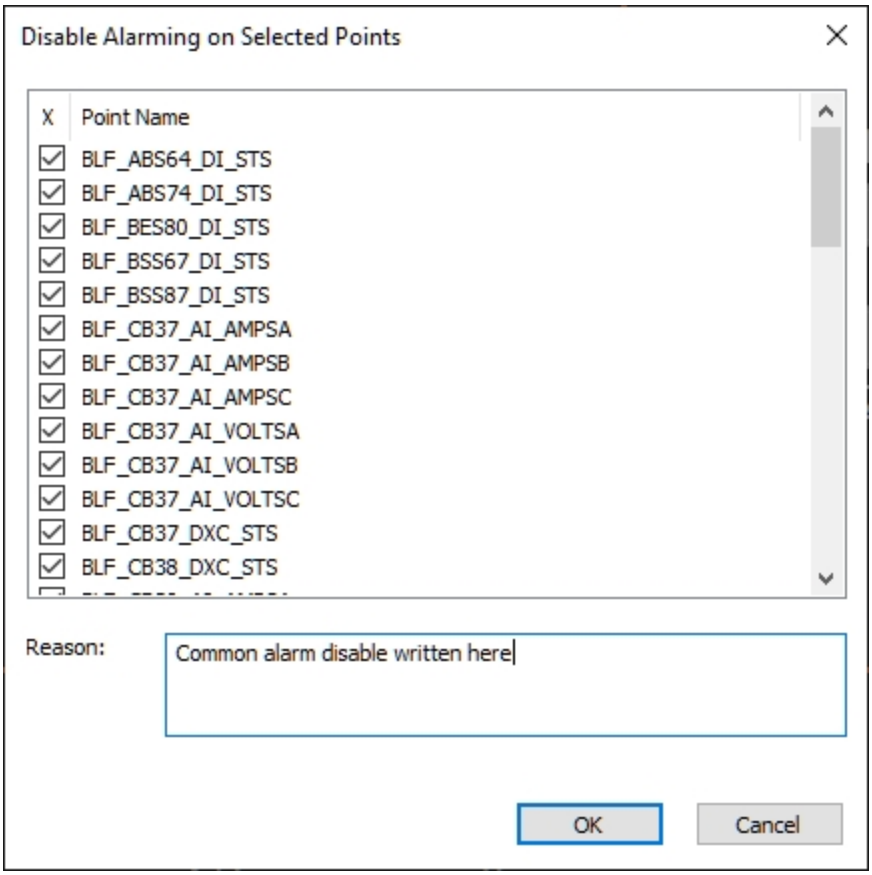
The text entered on this dialog box will be displayed in the Disabled Alarms list under the "Reason Text" column.

Disable Alarm - multiple points on a picture

Using the Productivity Tools right click picture menu it is possible to apply an alarm disable action to multiple points at once. The "Alarm Disable Picture" option will be applied to all points displayed on the current picture that are configured with alarming enabled.



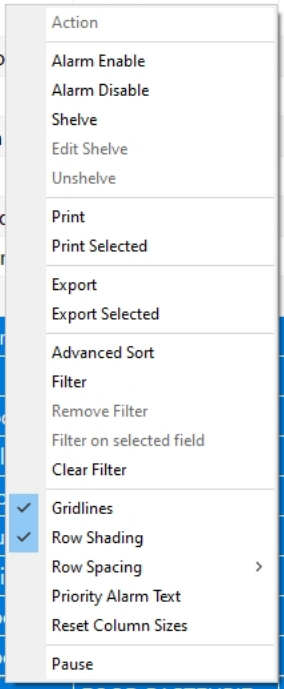
If the Alarm Disable Picture option is taken, then an operator dialog is presented to apply an alarm disable action to all applicable points.



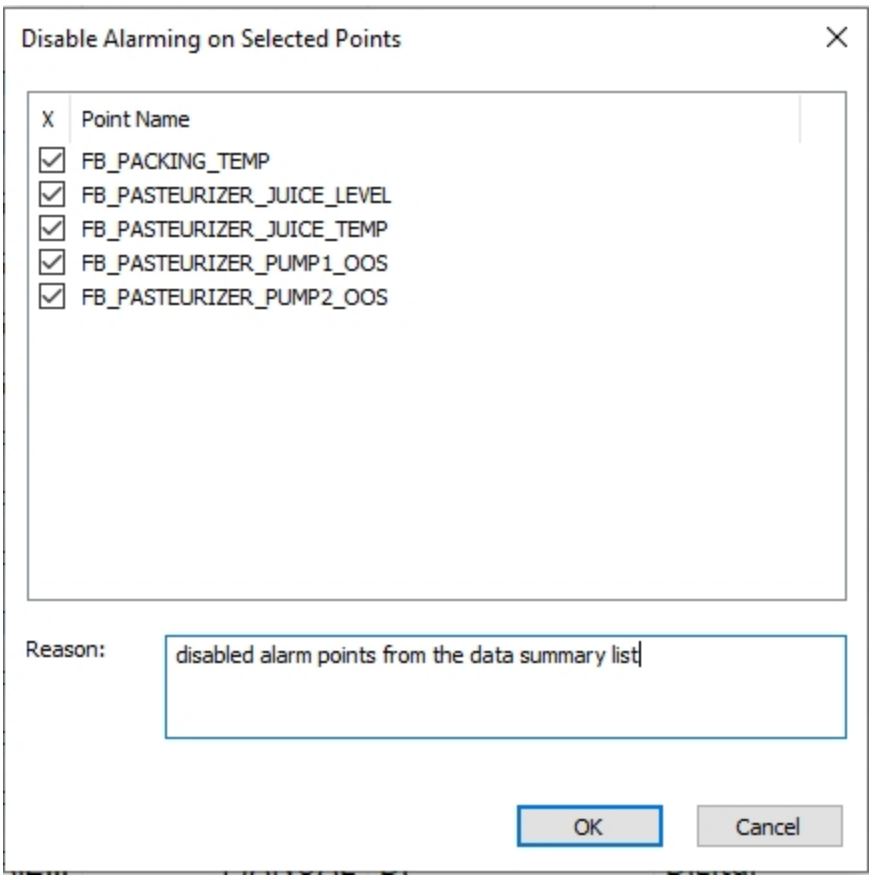
Disable Alarm - select multiple entries from a list summary

From the data summary and alarm summary lists it is possible to apply a disable alarm action to multiple points at once. With a number of list entries selected, the right click option will present the "Shelve" option if one or more selected points is configured with a valid Alarm Shelve Policy.

Node	Point Name	Point Description	Area	Current Value	Point Type
FIX	FB_LABEL2_HOLD	Label 2 Hold			TX
FIX	FB_LABEL3	Food & Beverage - Recip			TX
FIX	FB_LABEL3_HOLD	Label 3 Hold			TX
FIX	FB_LOOP_BATCH	Recipe - Loops to match		0	AI
FIX	FB_NEXT_DATE	Recipe - Next Date			TX
FIX	FB_ORANGE_JUICE	Raw Intake - Orange Juic		90 GAL	AI
FIX	FB_ORANGE_SLURRY	Raw Intake - Orange Slur		90 GAL	AI
FIX	FB_PACKING_LABEL_LEVEL	Packaging - Label Count		0 %	AI
FIX	FB_PACKING_TEMP	Packaging - Shrinking Ter		202 °F	AI
FIX	FB_PACKING_WEIGHT	Packaging - Weight		0 lbs	AI
FIX	FB_PACKING_WEIGHT_SP	Packaging - Weight Setpo		0 lbs	AI
FIX	FB_PASTEURIZER_JUICE_LEVEL	Pasteurizer Juice - Level		0 GAL	AI
FIX	FB_PASTEURIZER_JUICE_TEMP	Pasteurizer Juice - Temp		191 °F	AI
FIX	FB_PASTEURIZER_PUMP1_AU...	Pasteurizer Pump 1 - Au		MANUAL	DI
FIX	FB_PASTEURIZER_PUMP1_OOS	Raw Intake Pump - Servi		OUT OF SERVICE	DI
FIX	FB_PASTEURIZER_PUMP1_SPE...	Pasteurizer Pump 1 - Sp		0 %	AI
FIX	FB_PASTEURIZER_PUMP1_SPE...	Pasteurizer Pump 1 - Sp		0 %	AI
FIX	FB_PASTEURIZER_PUMP1_STA...	Pasteurizer Pump 1 - Status	FOOD,PASTEURIZ...	OFF	DI
FIX	FB_PASTEURIZER_PUMP2_AU...	Pasteurizer Pump 2 - Auto	FOOD,PASTEURIZ...	MANUAL	DI
FIX	FB_PASTEURIZER_PUMP2_OOS	Raw Intake Pump - Service S...	FOOD,RAW INTA...	OUT OF SERVICE	DI
FIX	FB_PASTEURIZER_PUMP2_SPE...	Pasteurizer Pump 2 - Speed	FOOD,PASTEURIZ...	0 %	AI
FIX	FB_PASTEURIZER_PUMP2_SPE...	Pasteurizer Pump 2 - Speed ...	FOOD,PASTEURIZ...	0 %	AI



If the Shelve option is taken, then an operator dialog is presented to apply an Alarm Shelve to all applicable points.



Events

Description

The Events list shows current SCADA events. The number of events shown is configurable, with a default of 3500. In this mode the list will update in real time as events occur. The event list shows all reported alarm messages, plus all operator actions that are carried out through the Productivity Tools operator dialogs.

Each event entry has a source that identifies how the event was created. Standard event sources are:

Source	Description
ALARM	The event entry is a record of a change to an alarm state.
EVENT	iFIX Productivity Tools has detected a digital change of state that does not produce an alarm condition.
OPERATOR	A message that records an operator action. For example, a control or alarm acknowledge action.
COMMENT	An event comment entered by an operator, to help explain an entry in the events list. For example, to explain why a device alarm occurred.
SYSTEM	Used for internal messages generated by iFIX Productivity Tools

The following columns are displayed for each entry:

- Date
- Time
- Node

- Point Name
- Value
- Message
- State (Alarm)
- Priority (Alarm)
- Area (Alarm)
- Source
- Client
- Operator
- Alarm Extension Field 1
- Alarm Extension Field 2

The events list uses the following common list functions:

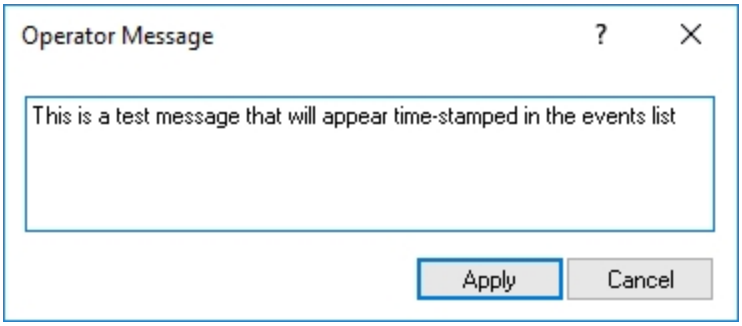
- Message Filtering
- Print all events
- Print selected events
- Export all events
- Export selected events
- Row shading
- Row spacing
- Grid lines

plus the following functions specific to the events list:

- Operator Message
- Event Comment

Operator Message

An authorized operator can add a message to the events list. This is done by right-clicking on the events list and selecting the 'Operator Message' option. The message can then be sent through the dialog box that appears:

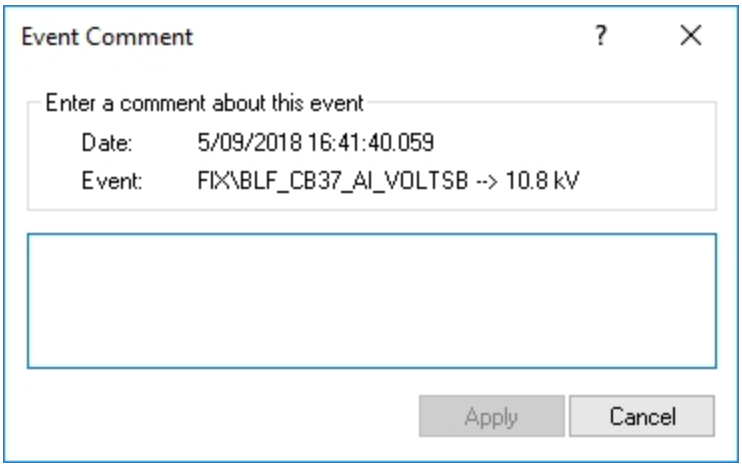


This message will be displayed in the event list and recorded in the event log, time stamped with the current time and date. The configured menu system also has an option for adding operator messages.

Event Comments

An authorized operator can add a comment that relates to an existing entry in the events list. This is done by:

1. selecting the specific event
2. right-clicking on the events list
3. selecting the 'Event Comment' option
4. enter the comment details through the dialog box that appears:



This comment will be displayed in the event list and recorded in the event log, time stamped with the same time and date as the selected event. Note that the point names and value fields are also copied through to the event comment, to help identify which source event the comment refers to.

The date and time that the entry was made is appended to the event comment.

Filtering

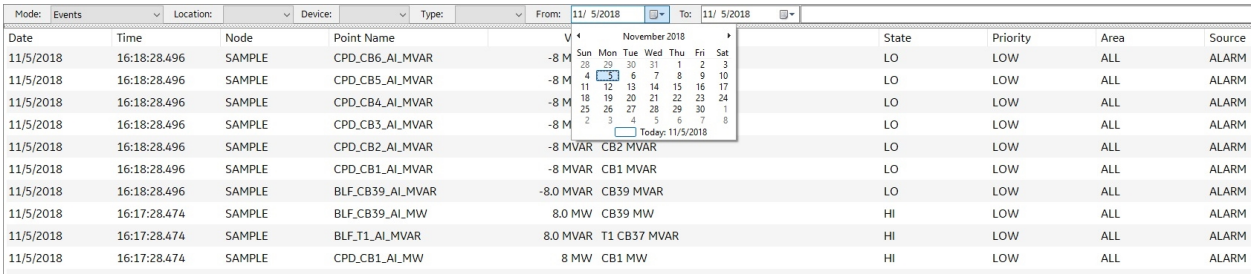
When filtering for times remember that there is a limit to how many events are displayed and that it may take time when filtering on data in a large system, depending on how fast the computers are.

By default, the event list displays the most recent 3,500 events that match the current (filtered) condition. If a relatively strict filter is applied, then the events list may need to search through many files to match the criteria. By default, after searching 30 days of daily event files, the operator is prompted to see if further searching is required.

Filters can be applied to the events list through two methods, described below:

- The standard filter dialog using right click "Filter" option allows for complex filters to be entered. For example, testing for a string match in the point name or point descriptions. This filter control is described in the standard list functions.
- If you click on the four triangles at the top of the events list a quick filter menu will be shown. This quick filter allows selection based on point name convention (eg. "Location", "Device" and "Type"

in the example below), and date selections "From" and "To" field can be filled to filter the events list. "Clear Filter" will clear all the filter applied through this menu.



Date	Time	Node	Point Name	V	State	Priority	Area	Source
11/5/2018	16:18:28.496	SAMPLE	CPD_CB6_AI_MVAR	-8 M	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	CPD_CB5_AI_MVAR	-8 M	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	CPD_CB4_AI_MVAR	-8 M	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	CPD_CB3_AI_MVAR	-8 M	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	CPD_CB2_AI_MVAR	-8 MVAR	CB2 MVAR	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	CPD_CB1_AI_MVAR	-8 MVAR	CB1 MVAR	LO	LOW	ALL	ALARM
11/5/2018	16:18:28.496	SAMPLE	BLF_CB39_AI_MVAR	-8.0 MVAR	CB39 MVAR	LO	LOW	ALL	ALARM
11/5/2018	16:17:28.474	SAMPLE	BLF_CB39_AI_MW	8.0 MW	CB39 MW	HI	LOW	ALL	ALARM
11/5/2018	16:17:28.474	SAMPLE	BLF_T1_AI_MVAR	8.0 MVAR	T1 CB37 MVAR	HI	LOW	ALL	ALARM
11/5/2018	16:17:28.474	SAMPLE	CPD_CB1_AI_MW	8 MW	CB1 MW	HI	LOW	ALL	ALARM

Figure: Sample Events list

The event list can also be configured to display different categories as different colors. Alarms can be further customized by configuring a background color based on its current state or priority and the foreground color as its State.

List Overview

The List displays various types of SCADA information in tabular format. The following table shows all the list types that the iFIX Productivity Tools List can display:

List	Description
Alarm Summary	Shows active SCADA alarms
Data Summary	Shows a list of all the database points
Disabled Alarms	List of all the points with alarming disabled
Event	Shows historical SCADA events
Notes	List all point and system notes
Shelved Alarms	List of all points with alarming disabled temporarily

Alarm Summary

The Alarm Summary shows all active alarms current in the system. The alarm list can be sorted list is in chronological order, with new events at the top. The list has the following features:

- Action function to view point details
- Sorted
- Filtering
- Print
- Print selected
- Export
- Export selected

Event List

The Event List shows all time and date stamped events recorded in the system. The event list is in chronological order, with new events at the top. The list has the following features:

- Action function to add a message into the events list (see Operator Comments)
- Filtering
- Print
- Print selected
- Export
- Export selected

Data Summary

The Data Summary is a real-time display of all points in the SCADA database. It has the following features:

- Action function to open point dialog (for example to issue a control)
- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort

Disabled Alarms

The Disabled Alarms list displays all the database points that have their alarming disabled. It has the following features:

- Action function to re-enable alarming
- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort

Notes

The Notes list displays the list of point (database) and system notes. It has the following features:

- Action function to open the Notes editor
- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort

Shelved Alarms

The Shelved Alarms list displays all points that have alarms shelved (temporarily disabled). It has the following features:

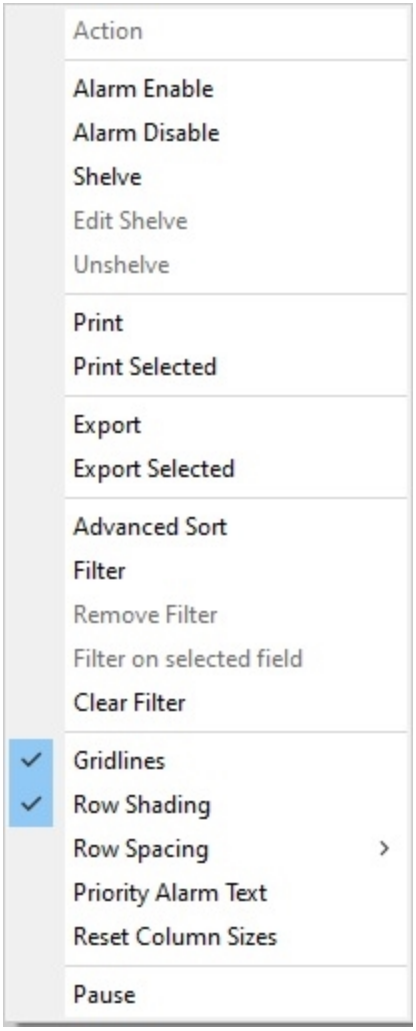
- Action function to open the re-enable alarming
- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort

List Functions

The iFIX Productivity Tools List can display different sets of data. Each set of data has a different set of functions that can be applied. These functions allow users to better view and interpret the data. Each of these functions are described below.

Right click pop-up menu

The right-click menu is accessed by right clicking anywhere in the list. From the right-click menu all of the List functions are accessible. If the List is in a mode that doesn't support some functions then those functions will not be displayed in the right-click menu:



Actions

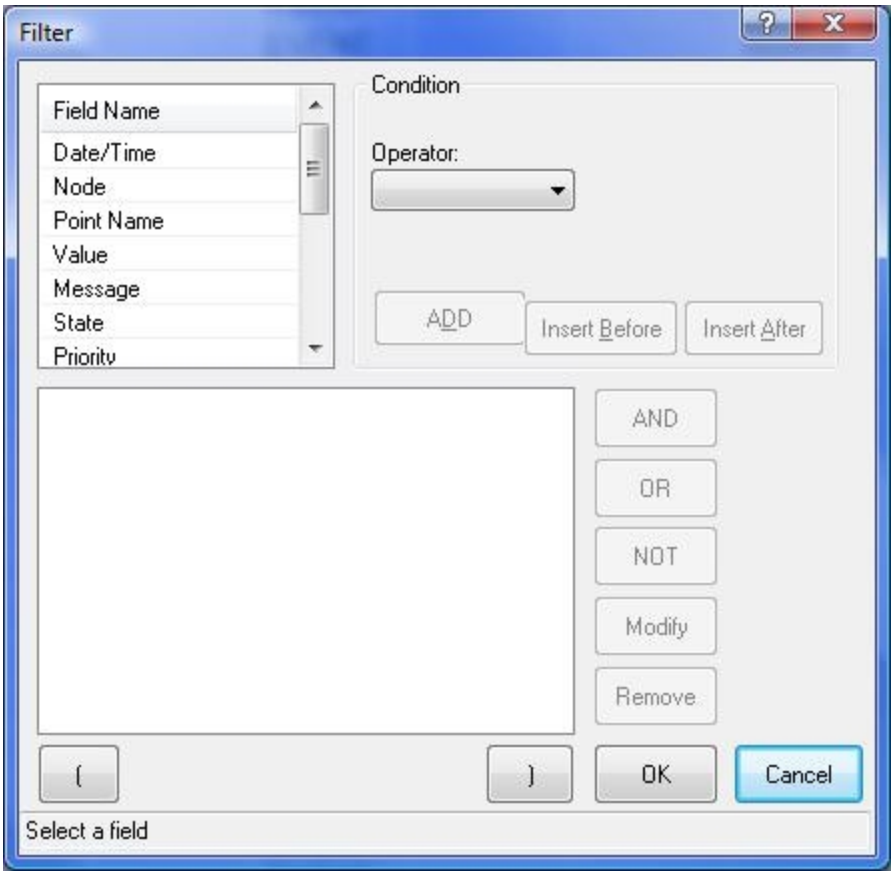
The action for each List can be opened in two ways:

- Double clicking on a database point
- Right clicking on a database point and selecting action

The action will open the standard equipment dialog for the point that was selected. This equipment dialog will show the tabs associated with the mode in which the list is running. For example:

- The disabled alarms list will show the alarm and user tabs.
- The data summary will open all of the tabs that are available for the point, including controls.

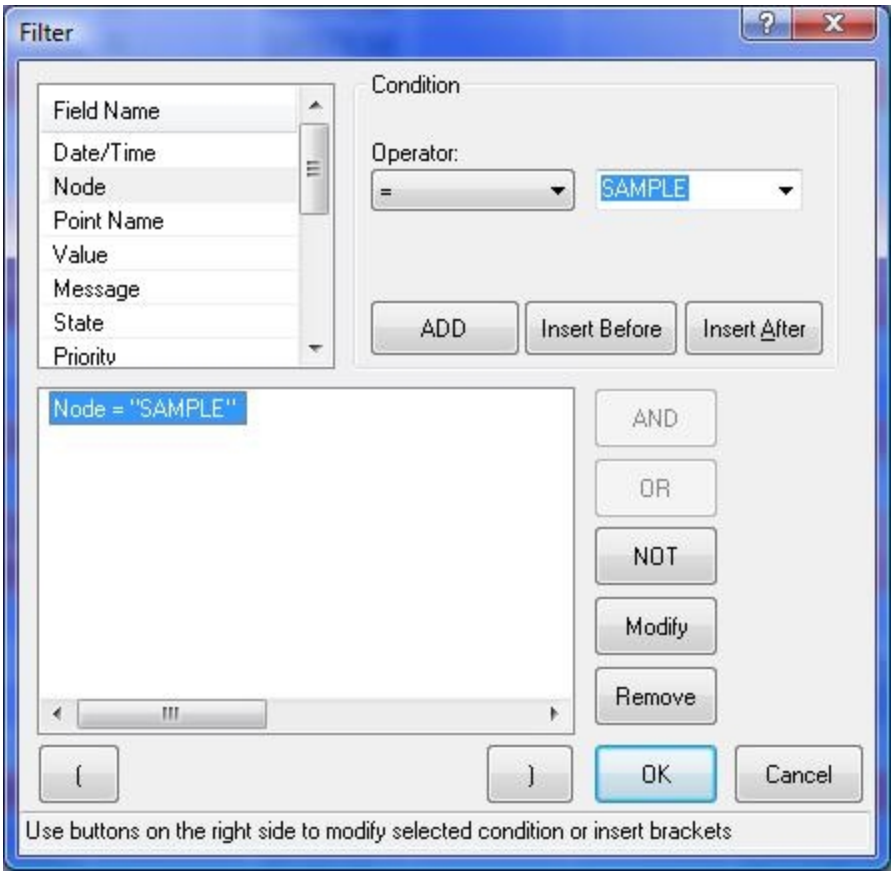
Filter



To enter a filter into a list:

- Open the filter window from the right click menu
- In the top left enter the field name to filter on
- Select a comparison operator to use
- Once a filter condition is entered, a text box to enter the filter string appears in the condition area of the window
- If the comparison operator is '=', enter the exact text for the value (supports '*' wildcards). If the operator is 'containing', enter the full or partial text value, no '*' characters are necessary
- Click ADD
- Click OK
- The filter condition is then applied.

The picture below shows a filter condition that has been applied



Field Operators

Filtered fields fall into the following basic groups:

- String comparisons
- Numeric comparisons
- Known string comparisons

1. String comparisons

The field contains a text string, for example "Point Name".

Fields	Point Name	
	Point Description	
	Value (note: not Current Value)	
	Message	
	Source	
	Client	
	Operator	
Operators	=	Equal to
	<>	Not equal to
	Containing	Contains given value

2. Numeric comparisons

The field contains a numeric value, such as date/time (see below) or priority (where LOW, MEDIUM, HIGH have a clear numeric order).

Fields	Date/Time	
	Priority	
Operators	>	Greater than
>=	Greater than or equal to	
=	Equal to	
<	Less than	
<=	Lesser than or equal to	
<>	Not equal to	

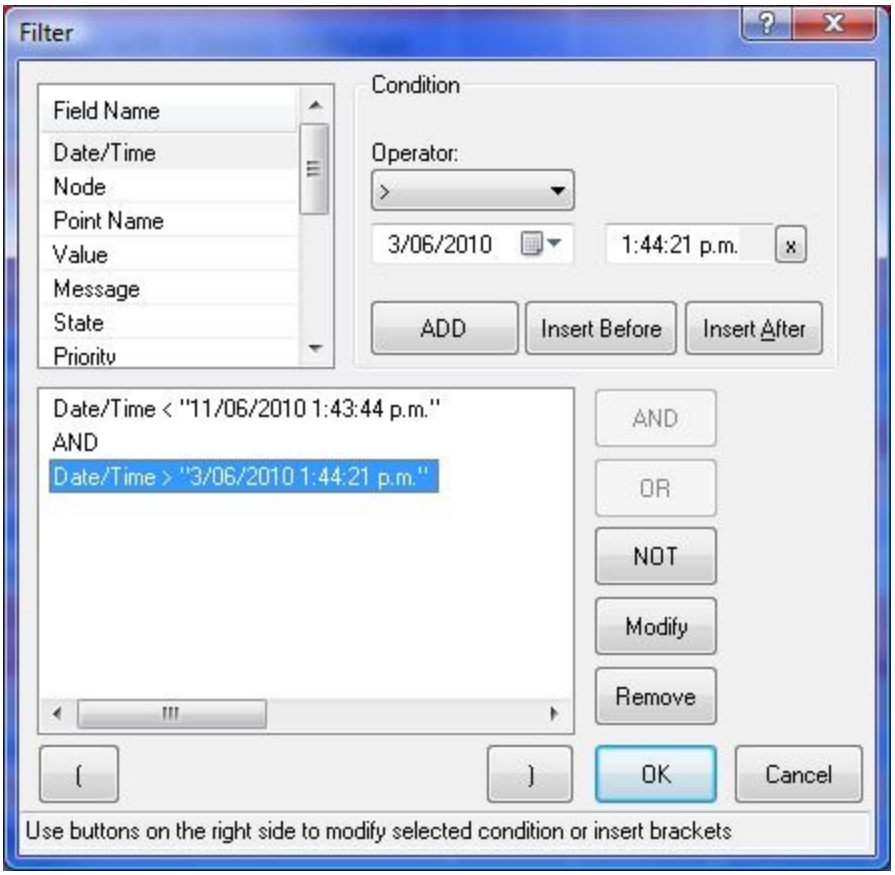
3. Known string comparisons

The fields contains a text string, where only a pre-set number of options are available. For example, "Node" where the only valid strings are the SCADA Nodes connected to the network.

Fields	Node	
	Area	
	Point Type	
	State	
	Point Class	
Operators	=	Equal to
<>	Not equal to	

Time Filters

The filtering functionality can also be used to search for data for specific time frames, e.g. between 1am on the 27th of Jan 2003 and 2pm 28th Jan 2003 as shown in the picture below.



To apply a time filter click on the date/time field, first select the comparison operator. For the current version of List do not use '=' for the filter operator as this will only show data for the minute shown in the filter. To get a specific time frame enter one 'after' (>) condition and one 'before' (<), as in shown in the example above

Note: hitting the 'X' button next to the time field when filtering on Date/Time will set the time to 12:00am, which will then set the filter constitution to filter on whole days. This will only show the date and not the time in the window (as shown in the example).

Removing filters

To remove a filter:

- Open the filter window from the right-click menu
- Click on the filter condition that you wish to remove (there can be more than one to narrow down searches and to filter on multiple fields)
- Click REMOVE
- Click OK

To remove all filters:

- Select "Remove Filter" on the List right click menu

Sort

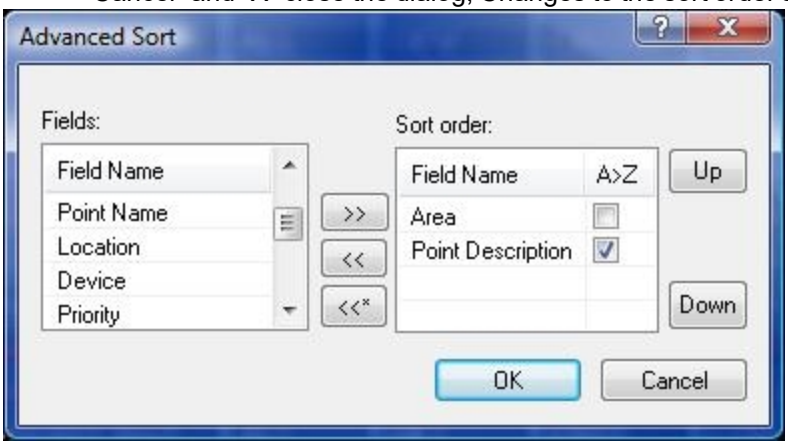
When sorting is enabled you can sort the list on a field by clicking on the column heading, clicking on the heading again changes the order of the sort (A-Z to Z-A). To change the field that the list is being filtered on just click on the column heading. The figure below shows a list filtered in reverse (Z-A) order on the node.

Advanced Sort

The advanced sort has the same features as the normal sort except that it allows sorting on multiple fields. When sorting on multiple fields the order the fields appear in the 'sort order' on the right of the window defines the sort order.

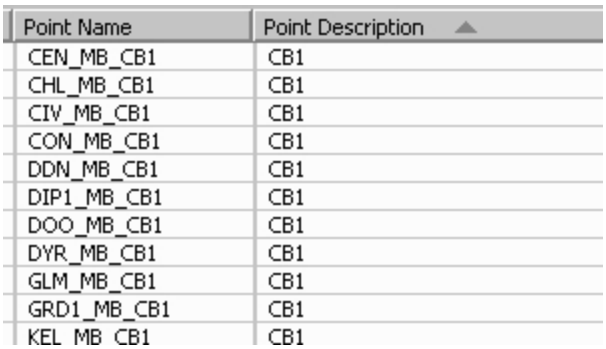
The buttons on the Advanced Sort dialog window are described as follows:

- ">>" button - puts selected field into list of fields in the sort order
- "<<" button - removes selected field from the sort order
- "<<*" button - removes all fields from the sort order
- "Up" and "Down" buttons - moves the selected field up and down in the sort order
- Tick box next to each field in the sort order - Changes the sort from A-Z to Z-A. A tick means that it sorts alphabetically, no tick means reverse alphabetical.
- "OK" button applies the sort condition
- "Cancel" and "X" close the dialog; Changes to the sort order are not applied



The picture above shows an advanced sort applied. It's primary sort is on Area in reverse alphabetical order. The secondary sort is by Point Description in alphabetical order.

When there are multiple fields to sort on, the list is sorted by the first (primary) field in the sort order. Then any entries in the list with the same text in the primary field are sorted by the second field in the sort order. The picture below shows a data summary sorted by point description then point name.



Point Name	Point Description
CEN_MB_CB1	CB1
CHL_MB_CB1	CB1
CIV_MB_CB1	CB1
CON_MB_CB1	CB1
DDN_MB_CB1	CB1
DIP1_MB_CB1	CB1
DOO_MB_CB1	CB1
DYR_MB_CB1	CB1
GLM_MB_CB1	CB1
GRD1_MB_CB1	CB1
KEL_MB_CB1	CB1

Printing

There are two printing options, 'Print All', which prints the whole list, and 'Print Selection', which prints the currently selected data.

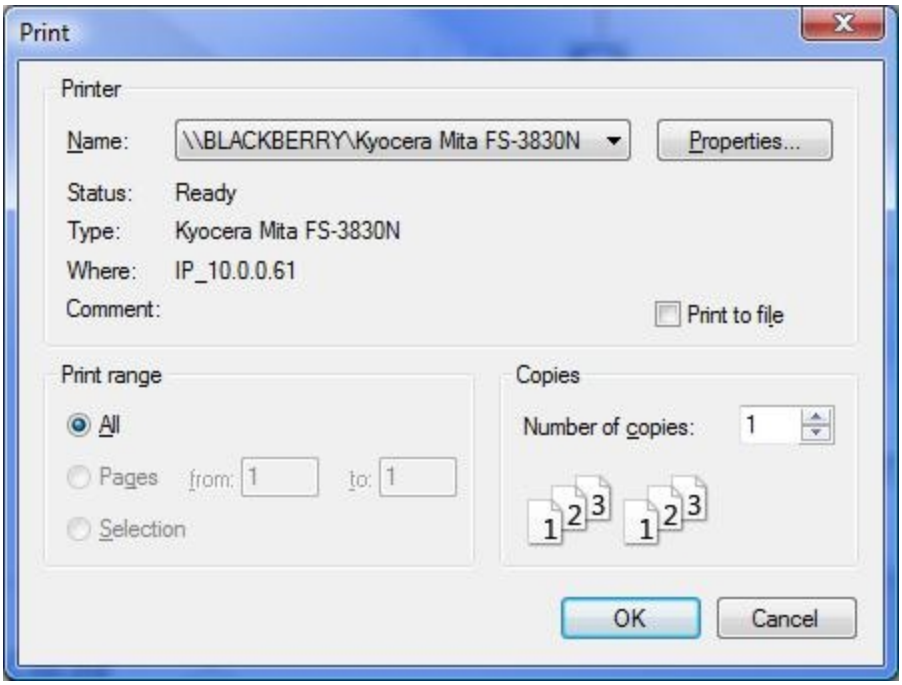
Printing a selection

To print a selection:

- Select the first item to print by clicking on the item's row.
- Left-click and hold (keep the mouse button down) on the empty space in the left hand column of the selected row or on the right of the list if there is an empty column there.
- Once you have left clicked and held, hold and drag the mouse. A dotted box outline should appear allowing you to drag and select multiple columns. When you have the selection you want release the mouse button.
- Alternatively, you can select the first item to print, then left-click on the last item to print while holding down the SHIFT key. This will select all items in between the first and last items.
- Right click in the selection and select 'Print Selection'

Print Window

When using 'Print All' the dialog box below will appear. This allows you to select the printer and other print settings. The important setting is the print range which allows you to print say the first 5 pages of 100.



Pause

Pauses the list. Stops new data from coming into the list. Generally used so that a user can look through the list without things changing.

Gridlines

Allows the gridlines in the list to be turned on and off

Row Shading

Allows the "zebra" shading to be turned on or off.

Row Spacing

Allows the row spacing to be changing from single (100%), double (200%) or triple (300%) height.

Double click

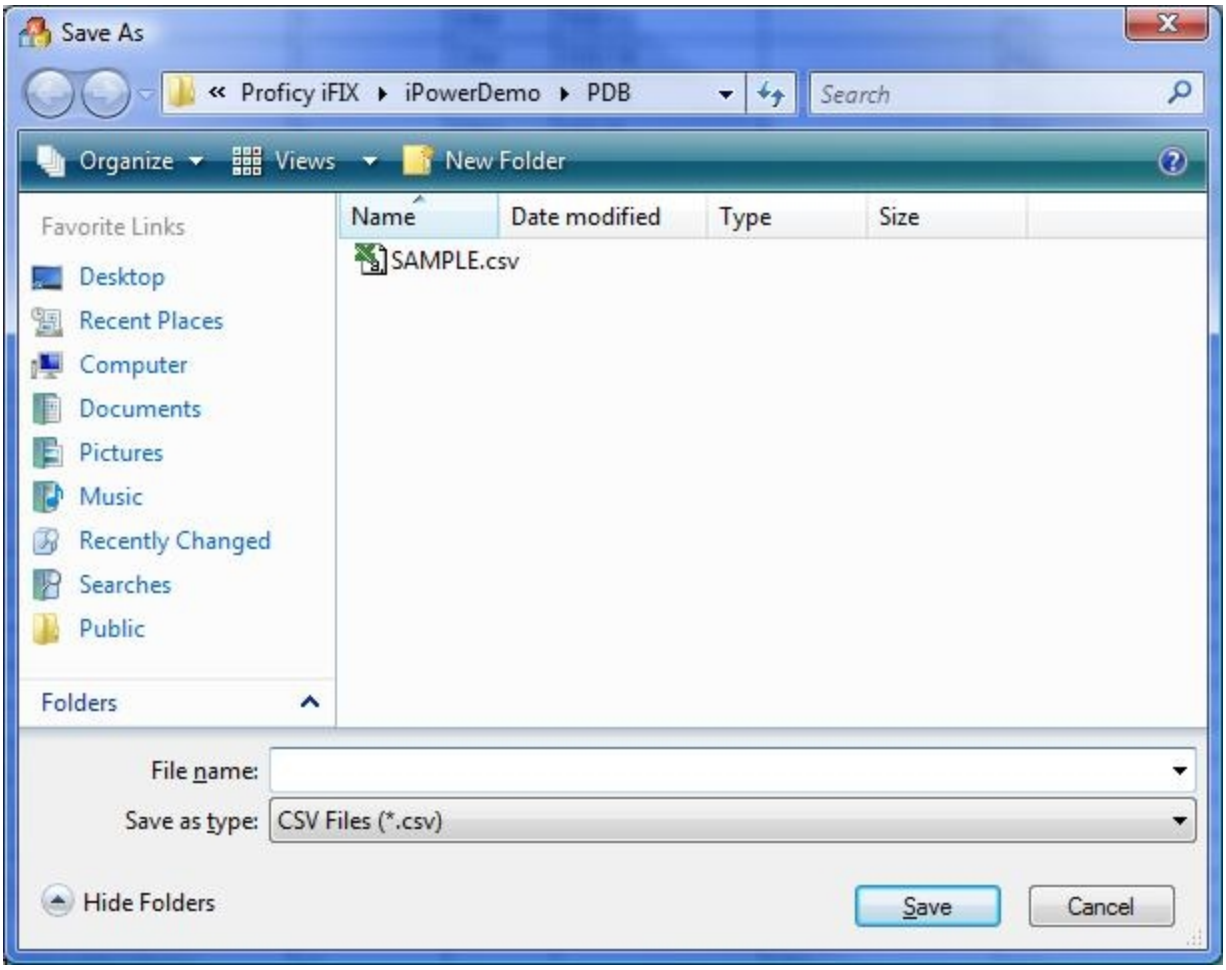
Double clicking on a List display will automatically open the relevant action dialog.

Exporting Data

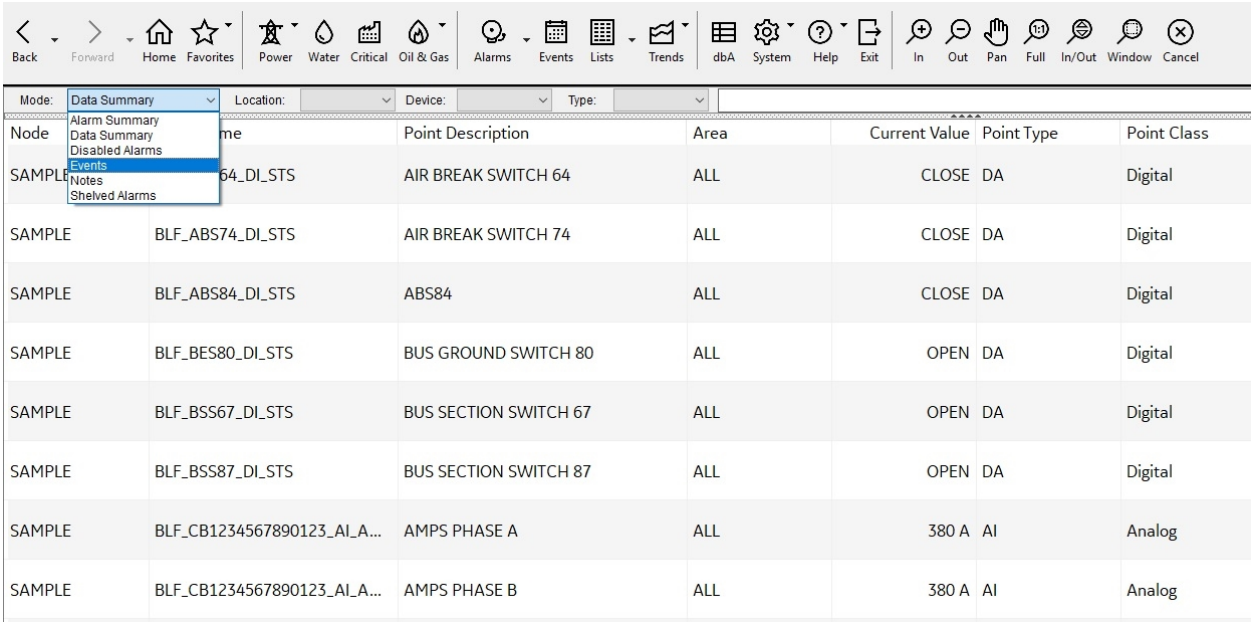
iFIX Productivity Tools also has a feature to export list data to text files. These text files can either be in CSV (comma separated value) format or XML (Extensible Markup Language).

As with the print option, either the entire list or a selection can be exported. To export the entire list, use the 'Export' option, otherwise use 'Export Selected' to save selected entries in the list.

By default, selecting either export option brings up the following 'Save As' dialog box, which allows the export data to be saved in a chosen directory.



On top of each list there is a filter menu, it appears by clicking on the four triangles. The "Mode" pull down menu allows the user to navigate between "Alarm Summary", "Data Summary", "Disabled Alarms", "Events", "Notes" and "Shelved Alarms" lists.



Node	me	Point Description	Area	Current Value	Point Type	Point Class
SAMPLE	64_DI_STS	AIR BREAK SWITCH 64	ALL	CLOSE	DA	Digital
SAMPLE	BLF_ABS74_DI_STS	AIR BREAK SWITCH 74	ALL	CLOSE	DA	Digital
SAMPLE	BLF_ABS84_DI_STS	ABS84	ALL	CLOSE	DA	Digital
SAMPLE	BLF_BES80_DI_STS	BUS GROUND SWITCH 80	ALL	OPEN	DA	Digital
SAMPLE	BLF_BSS67_DI_STS	BUS SECTION SWITCH 67	ALL	OPEN	DA	Digital
SAMPLE	BLF_BSS87_DI_STS	BUS SECTION SWITCH 87	ALL	OPEN	DA	Digital
SAMPLE	BLF_CB1234567890123_AI_A...	AMPS PHASE A	ALL	380 A	AI	Analog
SAMPLE	BLF_CB1234567890123_AI_A...	AMPS PHASE B	ALL	380 A	AI	Analog

Alarm Summary

Description

The iFIX Productivity Tools Alarm Summary list shows every active alarm in the system. This is, points that are either in an alarm state, or points that entered an alarm state and returned to normal, but not yet acknowledged by the operator. The operator can display this list at any time by selecting the option in the standard system menu.

Alarms in the alarm summary can be filtered or sorted by right clicking on the alarm summary and selecting properties.

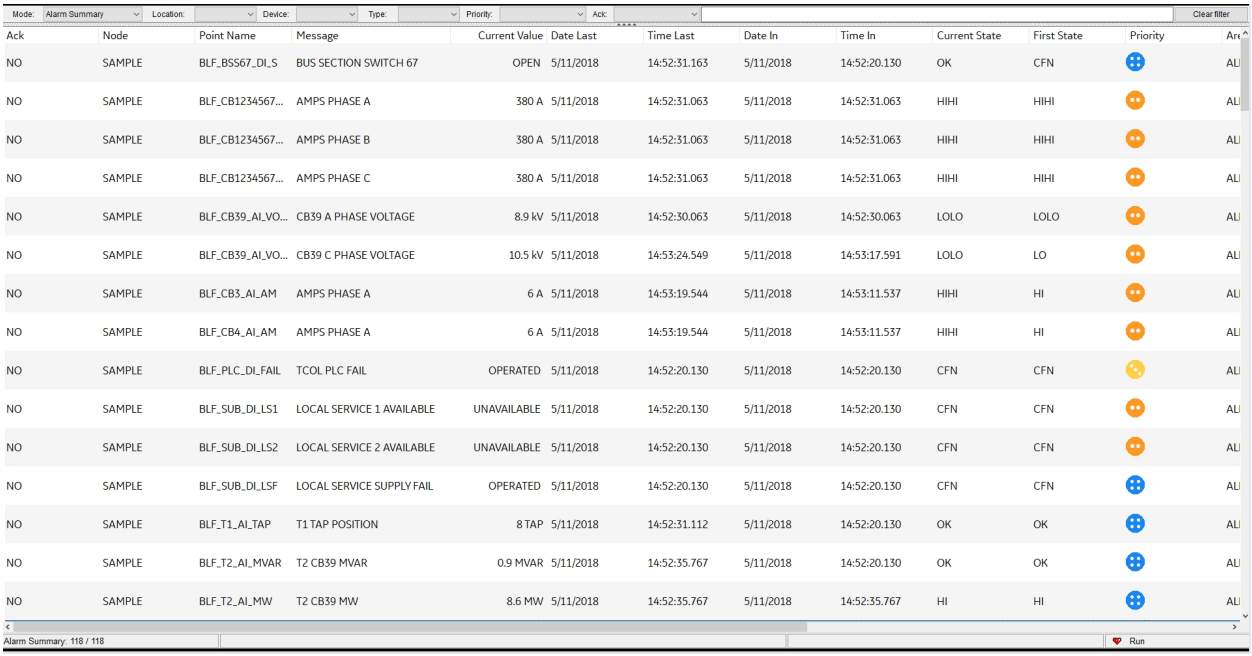
The following columns are displayed for each entry:

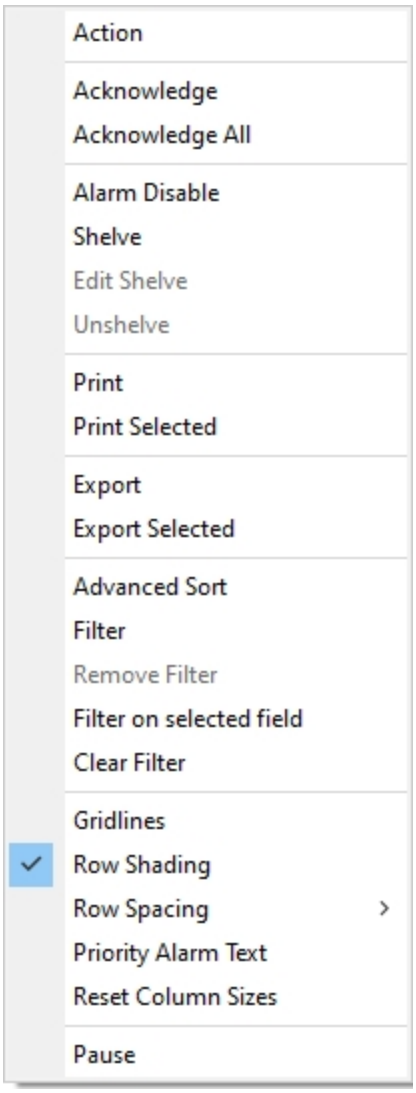
- Date In / Time In (time alarm state first occurred)
- Date Last / Time Last (time alarm state last changed)
- Node
- Point Name
- Message (alarm message, often point description)
- Alarm Area
- Priority
- Current Value
- Ack (acknowledge state)
- Current State (current alarm state)
- First State (latched highest unacknowledged alarm state, often the state that first raised the alarm)
- User Alarm Extension 1
- User Alarm Extension 2

The Alarm Summary list uses the following common list functions:

- Action
- Filtering
- Print
- Print selected
- Export

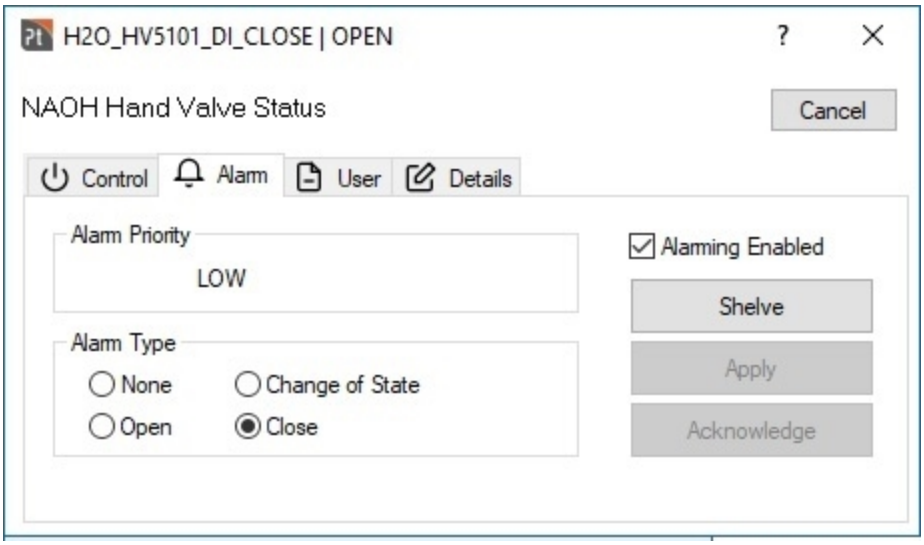
- Export selected
- Sort
- Row shading
- Row spacing
- Grid lines





Action

The action on an Alarm Summary list brings up the standard equipment dialog with the Alarm', 'Details', and 'User' tabs showing. This allows the user to re-enable alarms and view the point details.



Acknowledge/Acknowledge All

The acknowledge action acknowledges the current selected alarm entry.

The acknowledge all action acknowledges all unacknowledged alarms in the alarm summary.

See alarm acknowledgement for details.

Alarm Disable

The alarm disable action allows the operator to disable alarming for selected point(s).

If one entry is selected, the point equipment dialog is opened.

If more than one entry in the data summary is selected, then the multiple alarm disable dialog is opened.

See alarm disable for details.

Shelve

The alarm shelve action allows the operator to temporarily shelve alarming for selected point(s).

If one entry is selected, the single alarm shelve dialog is opened.

If more than one entry in the data summary is selected, then the multiple alarm shelve dialog is opened.

See alarm shelve for details.

Filtering

If the Alarm Summary has many points in an alarm state you can use the filter functionality to look at only those points of interest..

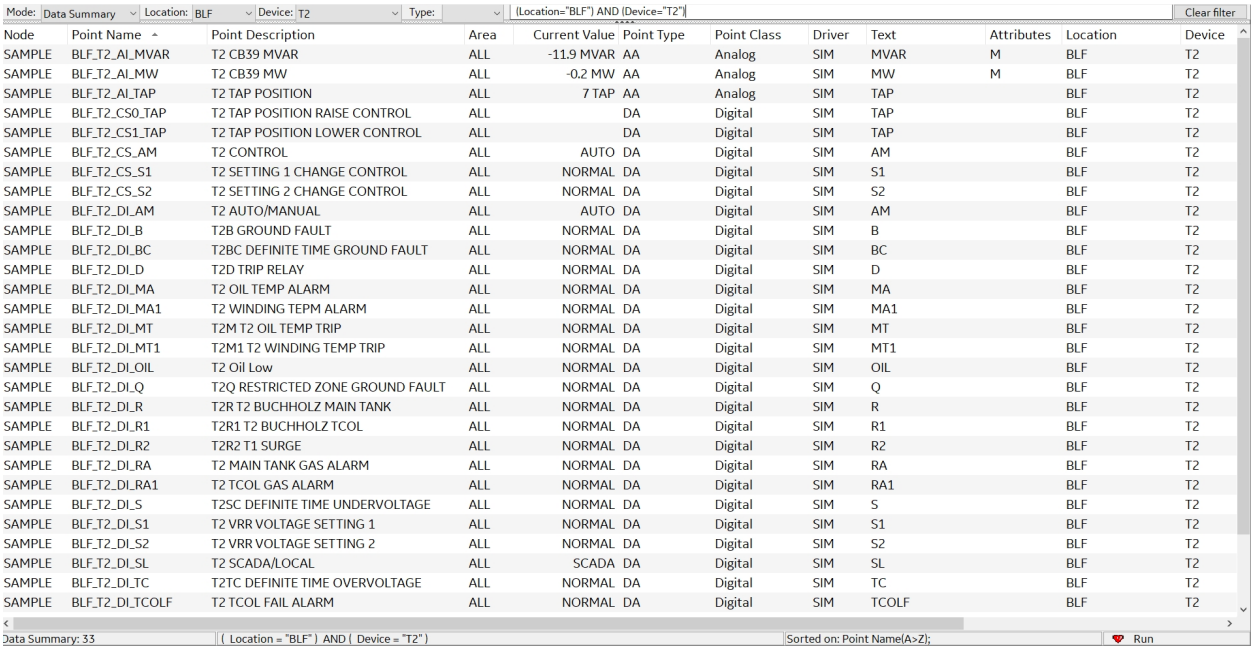
Data Summary

Description

The iFIX Productivity Tools real time data summary list shows all SCADA database points. In this mode the list will update current values in real time.

The following columns are displayed for each entry:

- Node
- Point Name
- Point Description
- Alarm Area
- Location
- Device
- Current Value
- Attributes
- Point Type
- Point Class (Analog, Digital, Secondary etc.)
- Driver



Mode: Data Summary | Location: BLF | Device: T2 | Type: | (Location="BLF") AND (Device="T2") | Clear filter

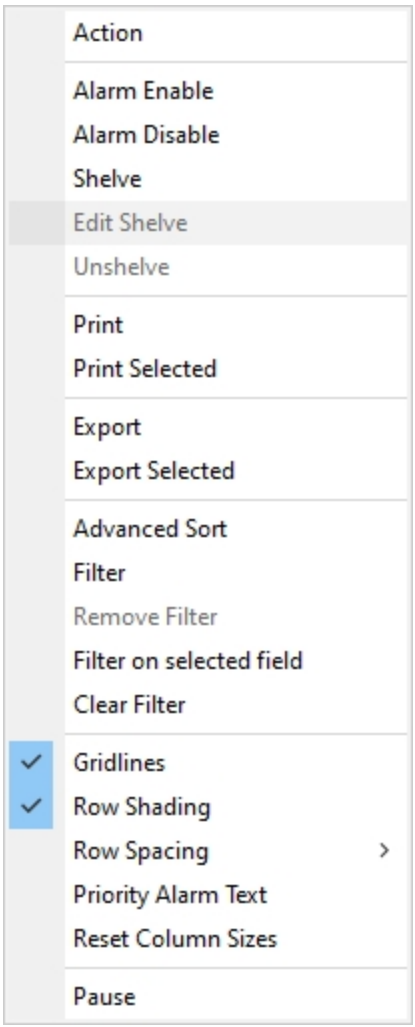
Node	Point Name	Point Description	Area	Current Value	Point Type	Point Class	Driver	Text	Attributes	Location	Device
SAMPLE	BLF_T2_AI_MVAR	T2 CB39 MVAR	ALL	-11.9 MVAR	AA	Analog	SIM	MVAR	M	BLF	T2
SAMPLE	BLF_T2_AI_MW	T2 CB39 MW	ALL	-0.2 MW	AA	Analog	SIM	MW	M	BLF	T2
SAMPLE	BLF_T2_AI_TAP	T2 TAP POSITION	ALL	7 TAP	AA	Analog	SIM	TAP		BLF	T2
SAMPLE	BLF_T2_CS0_TAP	T2 TAP POSITION RAISE CONTROL	ALL		DA	Digital	SIM	TAP		BLF	T2
SAMPLE	BLF_T2_CS1_TAP	T2 TAP POSITION LOWER CONTROL	ALL		DA	Digital	SIM	TAP		BLF	T2
SAMPLE	BLF_T2_CS_AM	T2 CONTROL	ALL	AUTO	DA	Digital	SIM	AM		BLF	T2
SAMPLE	BLF_T2_CS_S1	T2 SETTING 1 CHANGE CONTROL	ALL	NORMAL	DA	Digital	SIM	S1		BLF	T2
SAMPLE	BLF_T2_CS_S2	T2 SETTING 2 CHANGE CONTROL	ALL	NORMAL	DA	Digital	SIM	S2		BLF	T2
SAMPLE	BLF_T2_DI_AM	T2 AUTO/MANUAL	ALL	AUTO	DA	Digital	SIM	AM		BLF	T2
SAMPLE	BLF_T2_DI_B	T2B GROUND FAULT	ALL	NORMAL	DA	Digital	SIM	B		BLF	T2
SAMPLE	BLF_T2_DI_BC	T2BC DEFINITE TIME GROUND FAULT	ALL	NORMAL	DA	Digital	SIM	BC		BLF	T2
SAMPLE	BLF_T2_DI_D	T2D TRIP RELAY	ALL	NORMAL	DA	Digital	SIM	D		BLF	T2
SAMPLE	BLF_T2_DI_MA	T2 OIL TEMP ALARM	ALL	NORMAL	DA	Digital	SIM	MA		BLF	T2
SAMPLE	BLF_T2_DI_MA1	T2 WINDING TEPM ALARM	ALL	NORMAL	DA	Digital	SIM	MA1		BLF	T2
SAMPLE	BLF_T2_DI_MT	T2M T2 OIL TEMP TRIP	ALL	NORMAL	DA	Digital	SIM	MT		BLF	T2
SAMPLE	BLF_T2_DI_MT1	T2M1 T2 WINDING TEMP TRIP	ALL	NORMAL	DA	Digital	SIM	MT1		BLF	T2
SAMPLE	BLF_T2_DI_OIL	T2 Oil Low	ALL	NORMAL	DA	Digital	SIM	OIL		BLF	T2
SAMPLE	BLF_T2_DI_Q	T2Q RESTRICTED ZONE GROUND FAULT	ALL	NORMAL	DA	Digital	SIM	Q		BLF	T2
SAMPLE	BLF_T2_DI_R	T2R T2 BUCHHOLZ MAIN TANK	ALL	NORMAL	DA	Digital	SIM	R		BLF	T2
SAMPLE	BLF_T2_DI_R1	T2R1 T2 BUCHHOLZ TCOL	ALL	NORMAL	DA	Digital	SIM	R1		BLF	T2
SAMPLE	BLF_T2_DI_R2	T2R2 T1 SURGE	ALL	NORMAL	DA	Digital	SIM	R2		BLF	T2
SAMPLE	BLF_T2_DI_RA	T2 MAIN TANK GAS ALARM	ALL	NORMAL	DA	Digital	SIM	RA		BLF	T2
SAMPLE	BLF_T2_DI_RA1	T2 TCOL GAS ALARM	ALL	NORMAL	DA	Digital	SIM	RA1		BLF	T2
SAMPLE	BLF_T2_DI_S	T2SC DEFINITE TIME UNDERVOLTAGE	ALL	NORMAL	DA	Digital	SIM	S		BLF	T2
SAMPLE	BLF_T2_DI_S1	T2 VRR VOLTAGE SETTING 1	ALL	NORMAL	DA	Digital	SIM	S1		BLF	T2
SAMPLE	BLF_T2_DI_S2	T2 VRR VOLTAGE SETTING 2	ALL	NORMAL	DA	Digital	SIM	S2		BLF	T2
SAMPLE	BLF_T2_DI_SL	T2 SCADA/LOCAL	ALL	SCADA	DA	Digital	SIM	SL		BLF	T2
SAMPLE	BLF_T2_DI_TC	T2TC DEFINITE TIME OVERVOLTAGE	ALL	NORMAL	DA	Digital	SIM	TC		BLF	T2
SAMPLE	BLF_T2_DI_TCOLF	T2 TCOL FAIL ALARM	ALL	NORMAL	DA	Digital	SIM	TCOLF		BLF	T2

Data Summary: 33 | (Location = "BLF") AND (Device = "T2") | Sorted on: Point Name(A>Z); | Run

Sample data summary

The Data Summary list uses the following common list functions:

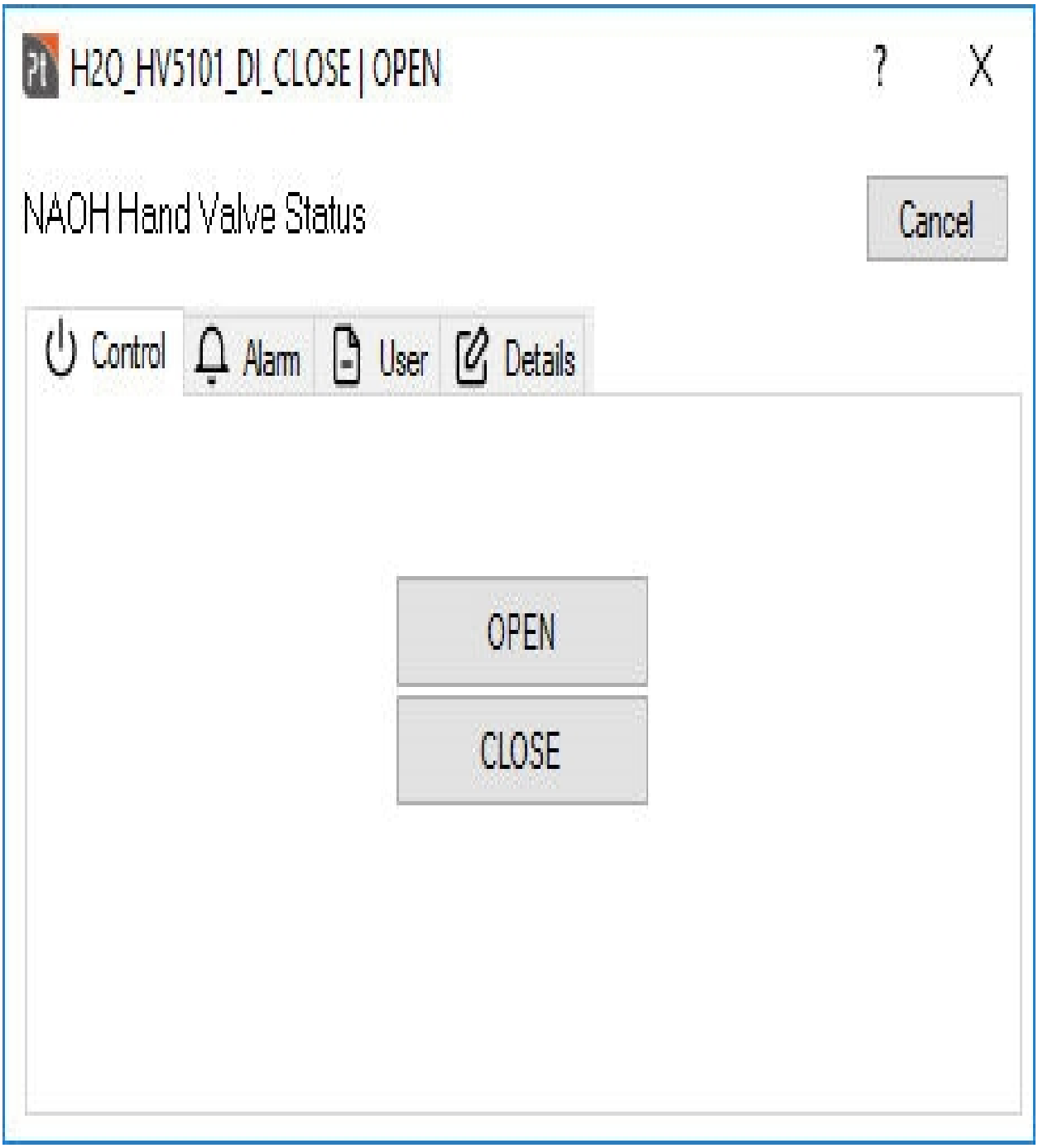
- Action
- Filtering
- Sorting
- Print
- Print selected
- Export
- Export selected
- Row shading
- Row spacing
- Grid lines



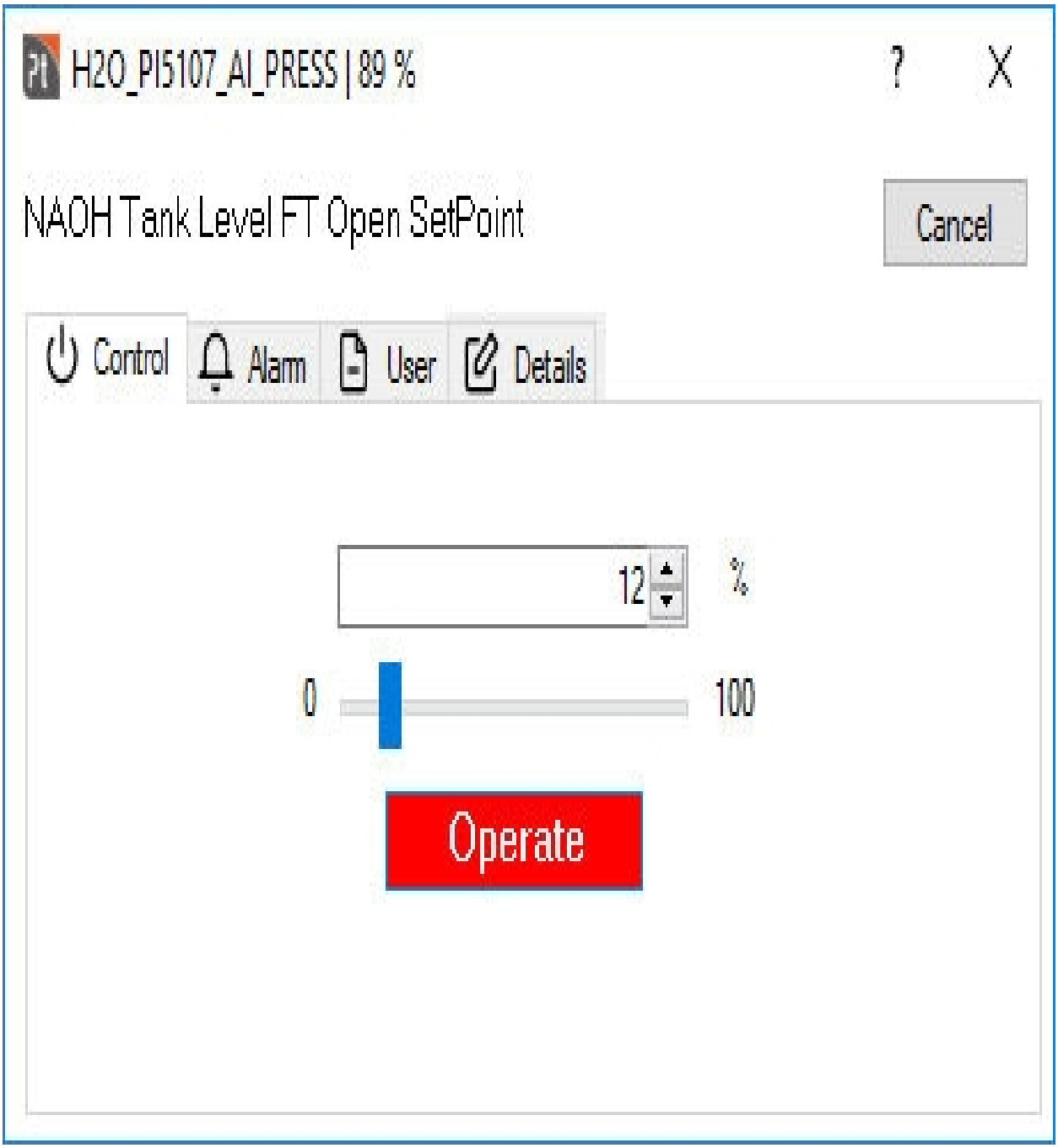
Action

The action on a Data Summary opens a standard dialog, similar to an equipment dialog. The dialog will differ depending on the type of database point clicked on and whether it is a control point or not. The pictures below show typical dialogs.

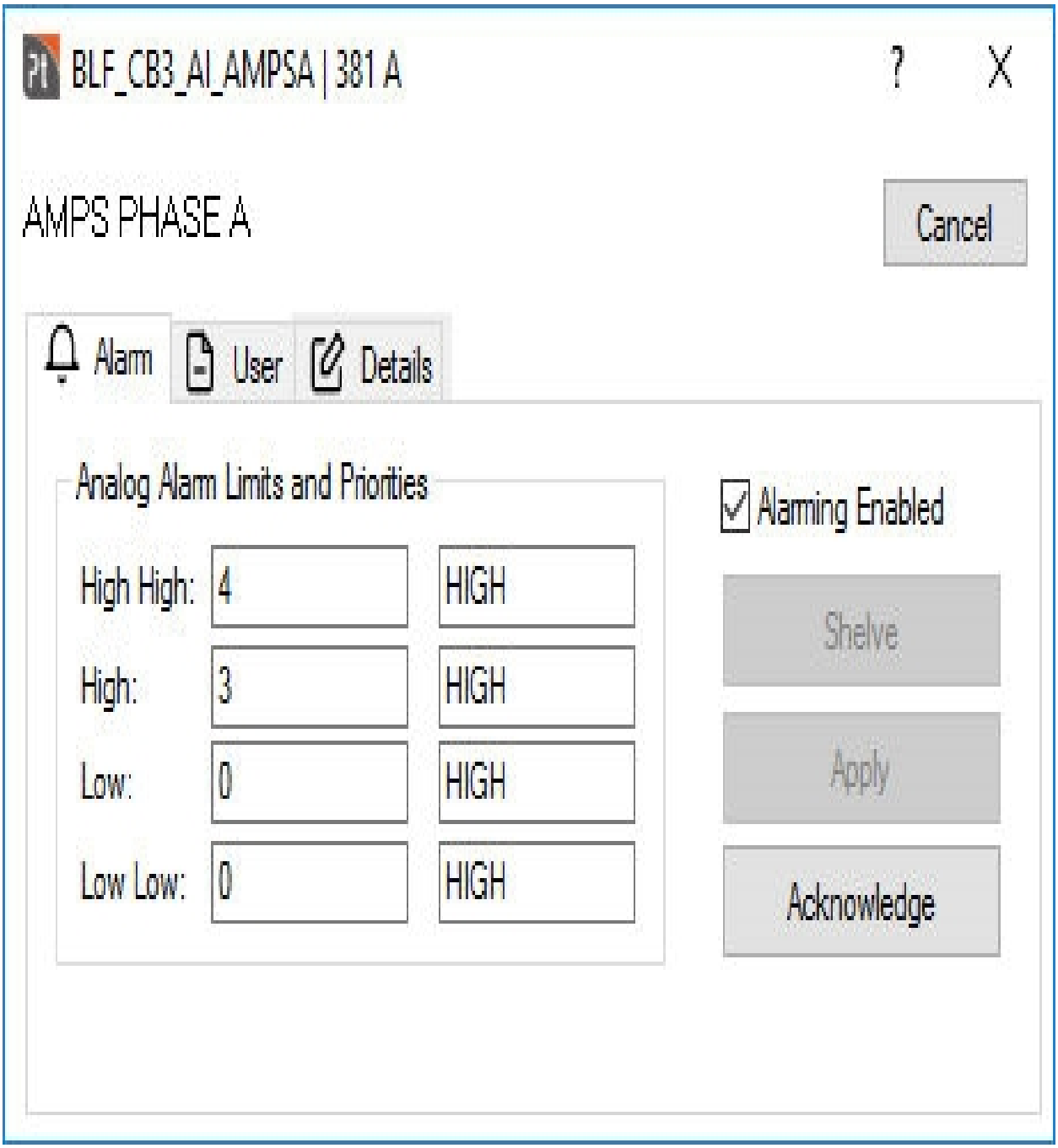
Digital Control



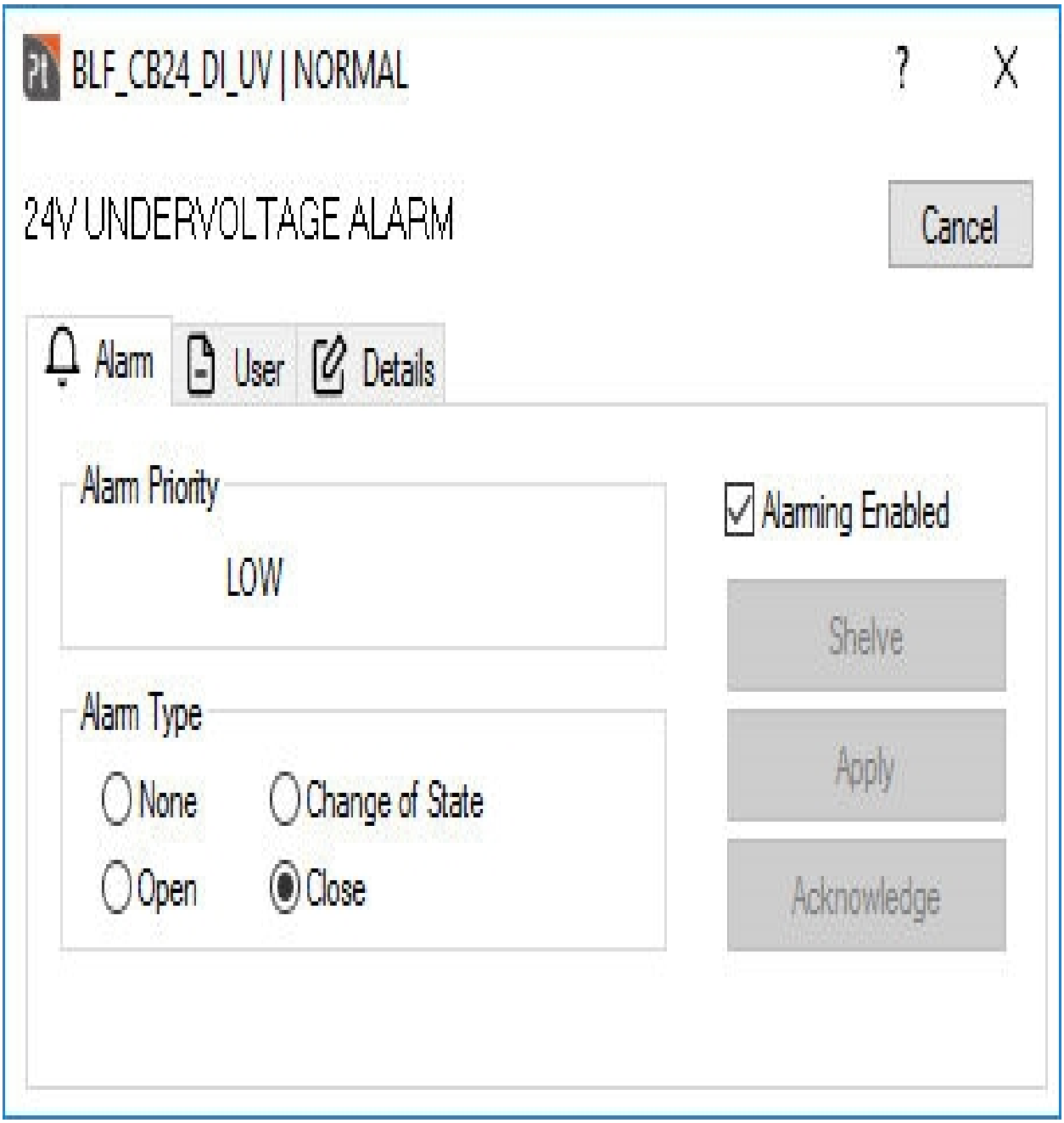
Analog Control



Analog Point



Digital Point



Alarm Enable/Disable

The alarm disable action allows the operator to disable alarming for selected point(s).

If one entry is selected, the point equipment dialog is opened.

If more than one entry in the data summary is selected, then the multiple alarm disable dialog is opened.

See alarm disable for details.

The alarm enable action cancels any existing alarm disable operations, and return point(s) to the normal alarm enabled state. Note that the alarm enable option supports both a single and multiple line selection.

Shelve/Edit Shelve/Unshelve

The alarm shelve action allows the operator to temporarily shelve alarming for selected point(s).

If one entry is selected, the single alarm shelve dialog is opened.

If more than one entry in the data summary is selected, then the multiple alarm shelve dialog is opened.

See alarm shelve for details.

The edit shelve action reopens the alarm shelve dialog and allows new shelve period to be applied to the selected point(s). Note that the edit shelve option supports both a single and multiple line selection.

The unshelve action cancels any existing alarm shelve operations, and return point(s) to the normal alarm enabled state. Note that the alarm shelve option supports both a single and multiple line selection.

Filtering

If the database has many points you can use the filter functionality to look at only those points of interest.

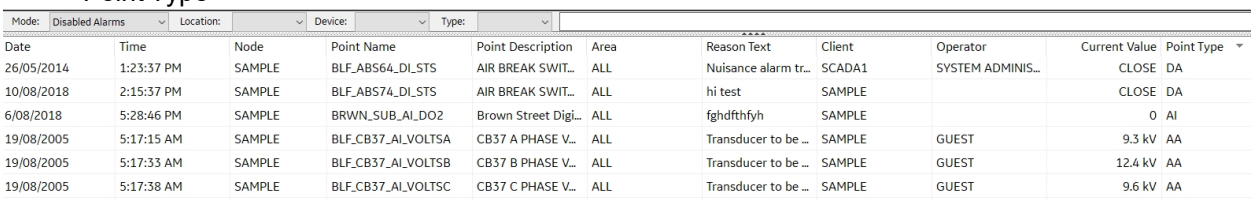
Disabled Alarms

Description

The iFIX Productivity Tools Disabled Alarms list shows all of the current database points that have alarming disabled. This will not show points that are set up ion the database to not alarm on startup. In this mode the list will update in real time as alarms are enabled and disabled and the current value of the database points changes.

The following columns are displayed for each entry:

- Date
- Time
- Node
- Point Name
- Point Description
- Alarm Area
- Location
- Device
- Reason Text
- Client
- Operator
- Current Value
- Point Type



Date	Time	Node	Point Name	Point Description	Area	Reason Text	Client	Operator	Current Value	Point Type
26/05/2014	1:23:37 PM	SAMPLE	BLF_ABS64_DI_STS	AIR BREAK SWIT...	ALL	Nuisance alarm tr...	SCADA1	SYSTEM ADMINIS...	CLOSE	DA
10/08/2018	2:15:37 PM	SAMPLE	BLF_ABS74_DI_STS	AIR BREAK SWIT...	ALL	hi test	SAMPLE		CLOSE	DA
6/08/2018	5:28:46 PM	SAMPLE	BRWN_SUB_AI_DO2	Brown Street Digi...	ALL	fghdfthfyh	SAMPLE		0	AI
19/08/2005	5:17:15 AM	SAMPLE	BLF_CB37_AI_VOLTSA	CB37 A PHASE V...	ALL	Transducer to be ...	SAMPLE	GUEST	9.3 kV	AA
19/08/2005	5:17:33 AM	SAMPLE	BLF_CB37_AI_VOLTSB	CB37 B PHASE V...	ALL	Transducer to be ...	SAMPLE	GUEST	12.4 kV	AA
19/08/2005	5:17:38 AM	SAMPLE	BLF_CB37_AI_VOLTSC	CB37 C PHASE V...	ALL	Transducer to be ...	SAMPLE	GUEST	9.6 kV	AA

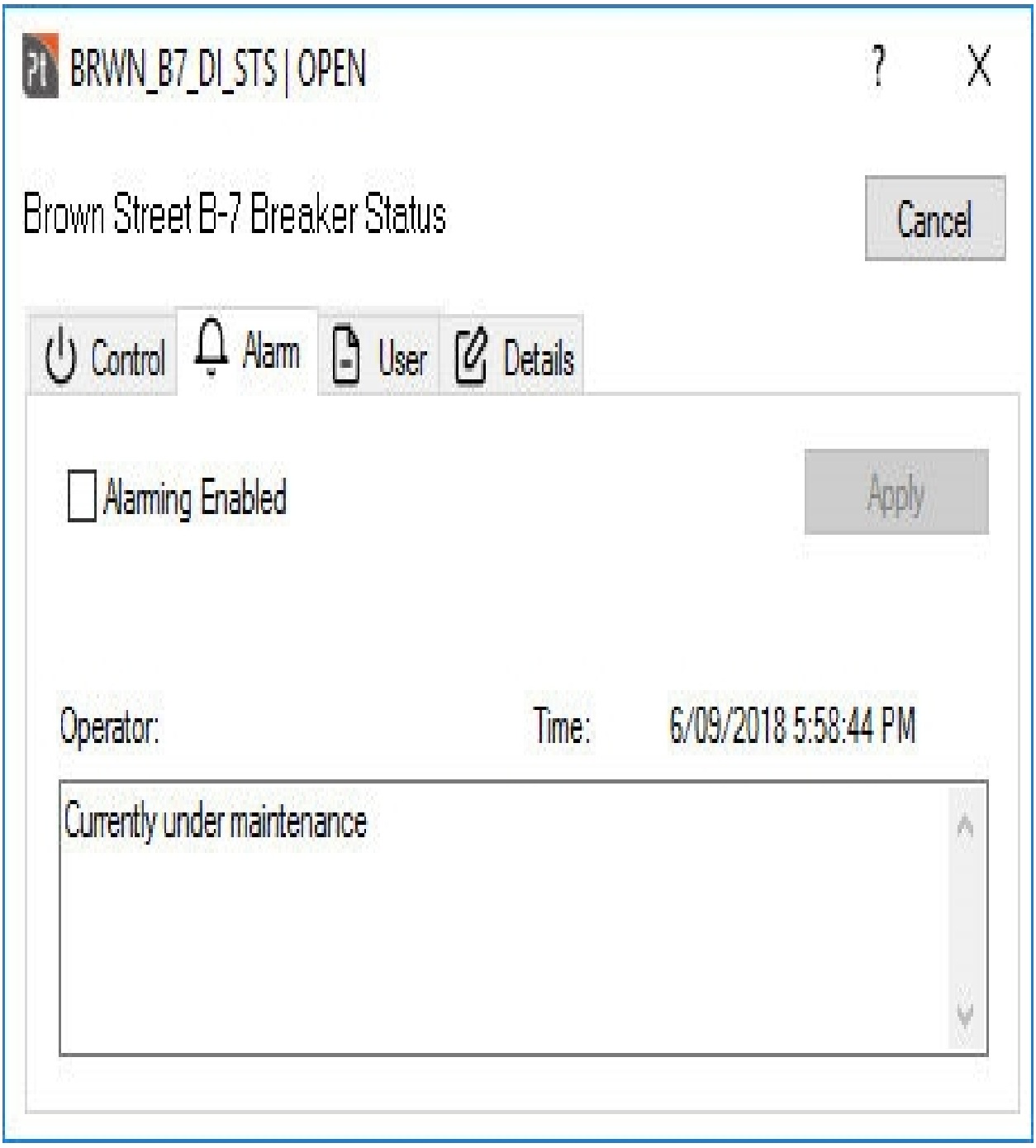
The Disabled Alarm list uses the following common list functions:

- Action function to re-enable alarms
- Filtering
- Print

- Print selected
- Export
- Export selected
- Sort
- Row shading
- Row spacing
- Grid lines

Action

The action on a Disabled Alarms list brings up the standard equipment dialog with the Alarm', 'Details', and 'User' tabs showing. This allows the user to re-enable alarms and view the point details.



Filtering

When filtering for time remember that only the currently disabled alarms are displayed. To view alarms that have been disabled then re-enabled apply a filter to the events list with message field = "Alarming Enabled".

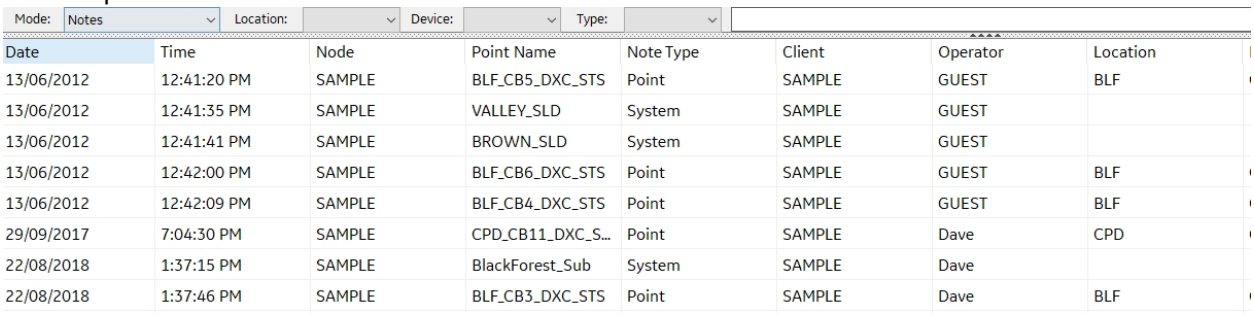
Operator Notes

Description

The iFIX Productivity Tools Notes List shows all equipment (database point) and system notes. The number of entries shown is configurable, with a default maximum of 3500. In this mode the list will update in real time as changes occur.

The following columns are displayed for each entry:

- Date
- Time
- Node
- Point Name
- Note Type
- Client (computer name)
- Operator



Date	Time	Node	Point Name	Note Type	Client	Operator	Location
13/06/2012	12:41:20 PM	SAMPLE	BLF_CB5_DXC_STS	Point	SAMPLE	GUEST	BLF
13/06/2012	12:41:35 PM	SAMPLE	VALLEY_SLD	System	SAMPLE	GUEST	
13/06/2012	12:41:41 PM	SAMPLE	BROWN_SLD	System	SAMPLE	GUEST	
13/06/2012	12:42:00 PM	SAMPLE	BLF_CB6_DXC_STS	Point	SAMPLE	GUEST	BLF
13/06/2012	12:42:09 PM	SAMPLE	BLF_CB4_DXC_STS	Point	SAMPLE	GUEST	BLF
29/09/2017	7:04:30 PM	SAMPLE	CPD_CB11_DXC_S...	Point	SAMPLE	Dave	CPD
22/08/2018	1:37:15 PM	SAMPLE	BlackForest_Sub	System	SAMPLE	Dave	
22/08/2018	1:37:46 PM	SAMPLE	BLF_CB3_DXC_STS	Point	SAMPLE	Dave	BLF

The Node, Point Name and Note Type entries define the note.

For example, a Note Type of "Point" is used for those notes related to database points, where Point Name and Node define the point. For a Note Type of "System", the Point Name identifies the Note topic, such as a substation name.

The Date, Time, Client and Operator entries relate to when, where and by whom the note was last edited.

The Notes list uses the following common list functions:

- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort
- Row shading
- Row spacing
- Grid lines

Filtering

The filter functionality can be used to look at only those notes that are of interest.

Action

The action on a Notes list opens the iNotes editor. From this editor the notes can be viewed, edited or deleted.

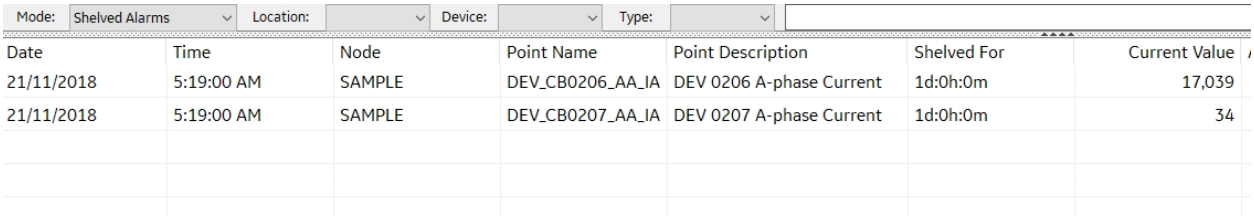
Shelved Alarms

Description

The iFIX Productivity Tools Shelved Alarms list shows all of the current database points that have alarming shelved. In this mode the list will update in real time as the current value of the database points changes.

The following columns are displayed for each entry:

- Date
- Time
- Node
- Point Name
- Point Description
- Alarm Area
- Location
- Device
- Reason Text
- Client
- Operator
- Current Value
- Point Type
- Shelved For



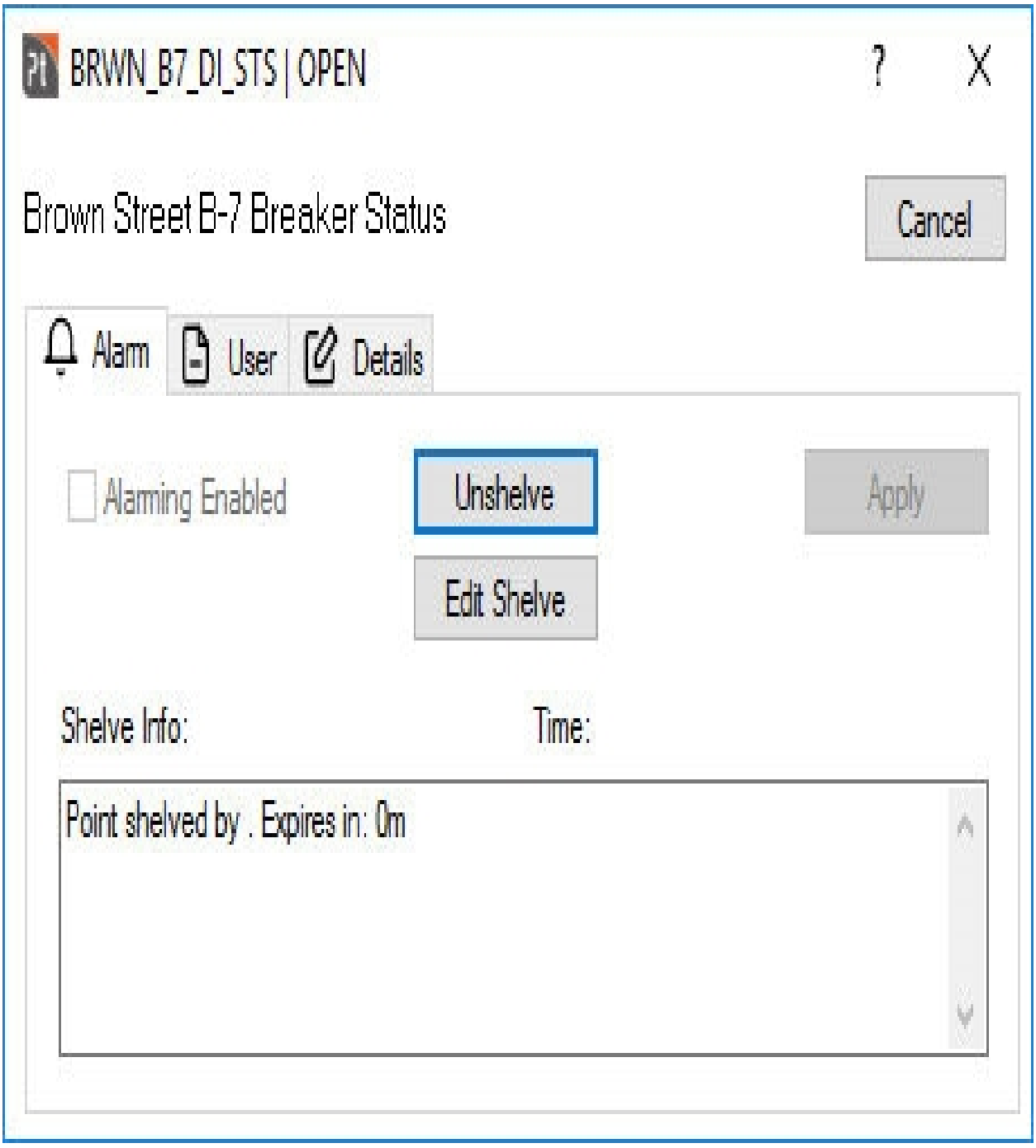
Date	Time	Node	Point Name	Point Description	Shelved For	Current Value
21/11/2018	5:19:00 AM	SAMPLE	DEV_CB0206_AA_IA	DEV 0206 A-phase Current	1d:0h:0m	17,039
21/11/2018	5:19:00 AM	SAMPLE	DEV_CB0207_AA_IA	DEV 0207 A-phase Current	1d:0h:0m	34

The Shelved Alarms list uses the following common list functions:

- Action function to unshelve or edit the shelving parameters
- Filtering
- Print
- Print selected
- Export
- Export selected
- Sort
- Row shading
- Row spacing
- Grid lines

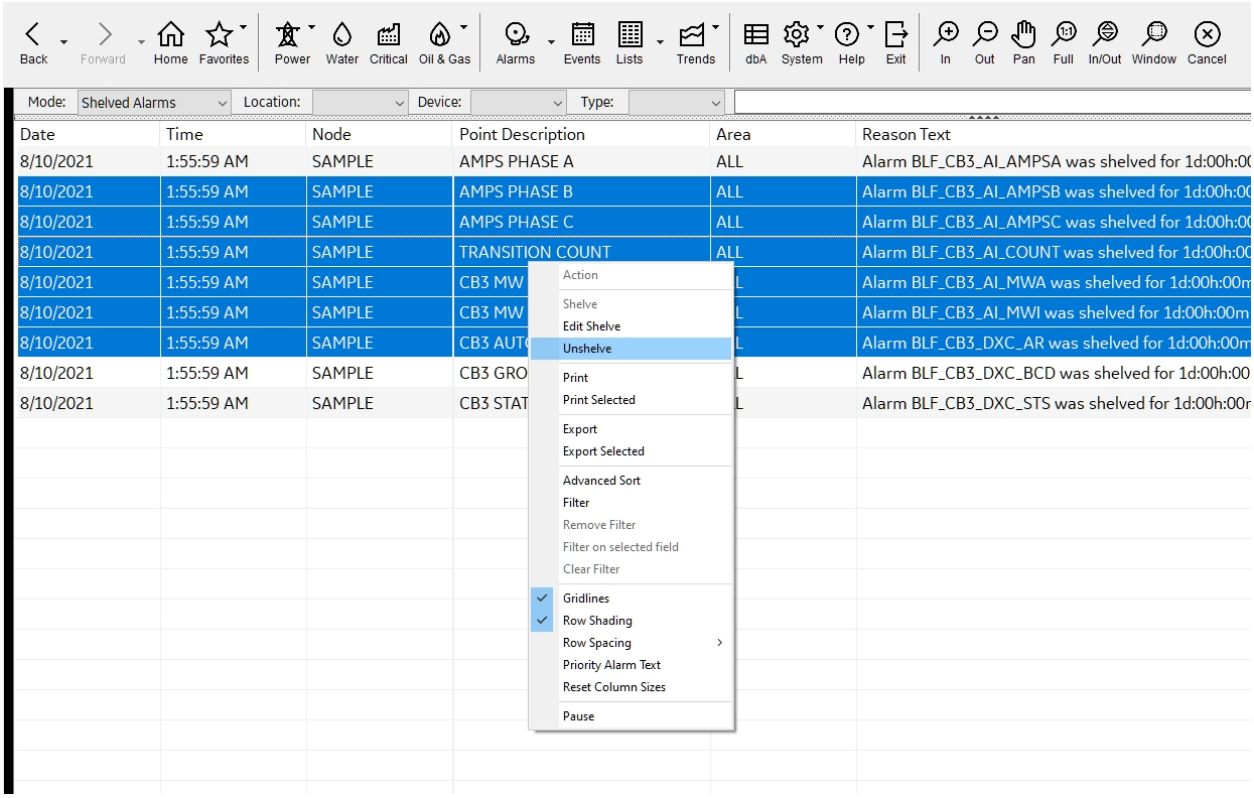
Action

The default Action on a Shelved Alarms list is only valid when a single entry from the list is selected, brings up the standard equipment dialog with the Alarm', 'Details', and 'User' tabs showing. This allows the user to re-enable alarms and view the point details.

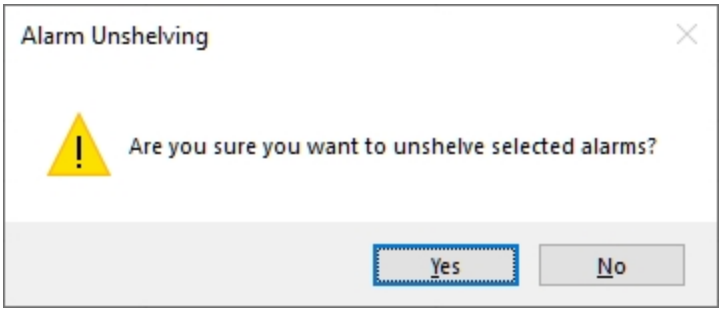


Unshelve

The Unshelve action on the Shelved Alarms list allows the operator to cancel alarm shelve actions, and return point(s) to the normal alarm enabled state. Note that the unshelve option supports both a single and multiple line selection.



Before deletion, the operator is asked to confirm the unshelve actions to be taken.



Edit Shelve

The Edit Shelve action on a Shelved Alarms list brings up the operator Shelve Alarm interface, allowing a revised shelve period to be entered. Note that the edit option supports both a single and multiple line selection. See image as above for the multi-line selection.

The standard Alarm Shelve operator dialog will be opened, showing either single point or multiple point selection.

Filtering

When filtering for time remember that only the currently shelved alarms are displayed. To view alarms that have been shelved then unshelved apply a filter to the events list with message field = "Alarming Enabled". Additionally, a 'Shelved For' condition can be used to filter against shelved alarms that expire at a given time.

Events

Description

The Events list shows current SCADA events. The number of events shown is configurable, with a default of 3500. In this mode the list will update in real time as events occur. The event list shows all reported alarm messages, plus all operator actions that are carried out through the Productivity Tools operator dialogs.

Each event entry has a source that identifies how the event was created. Standard event sources are:

Source	Description
ALARM	The event entry is a record of a change to an alarm state.
EVENT	iFIX Productivity Tools has detected a digital change of state that does not produce an alarm condition.
OPERATOR	A message that records an operator action. For example, a control or alarm acknowledge action.
COMMENT	An event comment entered by an operator, to help explain an entry in the events list. For example, to explain why a device alarm occurred.
SYSTEM	Used for internal messages generated by iFIX Productivity Tools

The following columns are displayed for each entry:

- Date
- Time
- Node
- Point Name
- Value
- Message
- State (Alarm)
- Priority (Alarm)
- Area (Alarm)
- Source
- Client
- Operator
- Alarm Extension Field 1
- Alarm Extension Field 2

The events list uses the following common list functions:

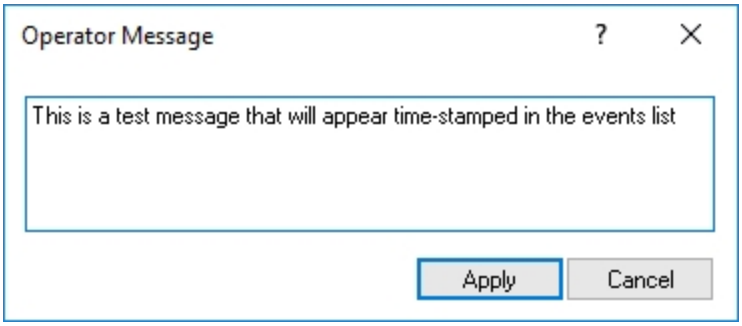
- Message Filtering
- Print all events
- Print selected events
- Export all events
- Export selected events
- Row shading
- Row spacing
- Grid lines

plus the following functions specific to the events list:

- Operator Message
- Event Comment

Operator Message

An authorized operator can add a message to the events list. This is done by right-clicking on the events list and selecting the 'Operator Message' option. The message can then be sent through the dialog box that appears:

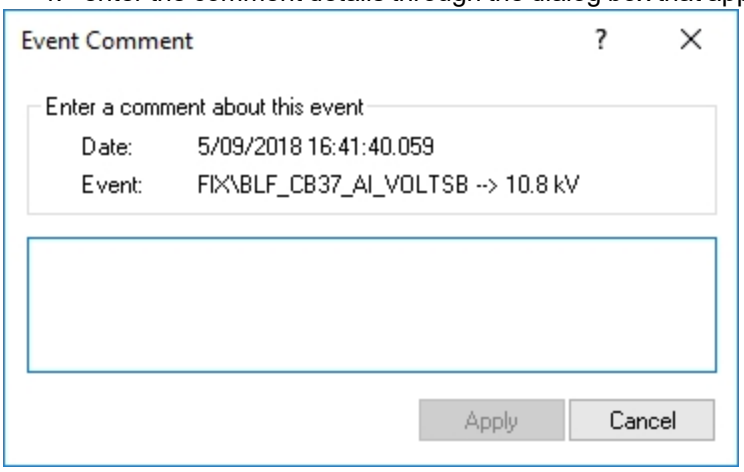


This message will be displayed in the event list and recorded in the event log, time stamped with the current time and date. The configured menu system also has an option for adding operator messages.

Event Comment

An authorized operator can add a comment that relates to an existing entry in the events list. This is done by:

1. selecting the specific event
2. right-clicking on the events list
3. selecting the 'Event Comment' option
4. enter the comment details through the dialog box that appears:



This comment will be displayed in the event list and recorded in the event log, time stamped with the same time and date as the selected event. Note that the point names and value fields are also copied through to the event comment, to help identify which source event the comment refers to.

The date and time that the entry was made is appended to the event comment.

Filtering

When filtering for times remember that there is a limit to how many events are displayed and that it may take time when filtering on data in a large system, depending on how fast the computers are.

By default, the event list displays the most recent 3,500 events that match the current (filtered) condition. If a relatively strict filter is applied, then the events list may need to search through many files

to match the criteria. By default, after searching 30 days of daily event files, the operator is prompted to see if further searching is required.

Filters can be applied to the events list through two methods, described below:

- The standard filter dialog using right click "Filter" option allows for complex filters to be entered. For example, testing for a string match in the point name or point descriptions. This filter control is described in the standard list functions.
- If you click on the four triangles at the top of the events list a quick filter menu will be shown. This quick filter allows selection based on point name convention (eg. "Location", "Device" and "Type" in the example below), and date selections "From" and "To" field can be filled to filter the events list. "Clear Filter" will clear all the filter applied through this menu.

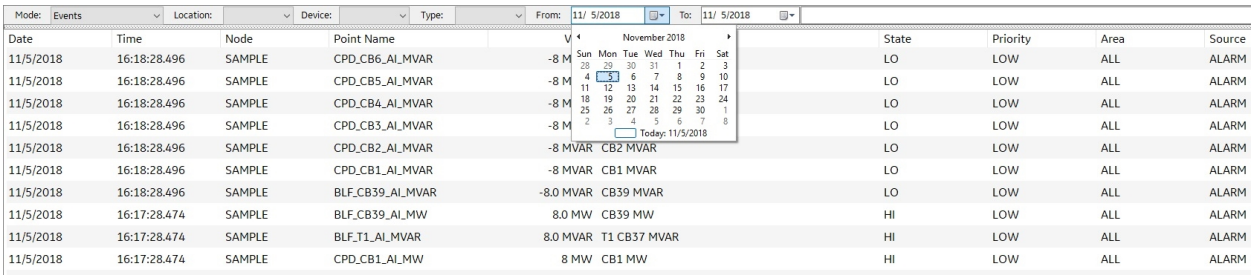


Figure: Sample Events list

The event list can also be configured to display different categories as different colors. Alarms can be further customized by configuring a background color based on its current state or priority and the foreground color as its State.

Installed software

MOAmanager process

iFIX Productivity Tools has a process "MOAmanager" that runs on each computer. This is used to maintain connections and exchange data between the SCADA servers and clients.

- MOAmanager is started automatically and run as an application in the "FIX.INI" configuration file (see details)

- Optionally, MOA manager can be configured to run as a service (see MOA running in service mode)
- MOAmanager handles network communications between servers and clients. (See network configuration details).

iClientTS installation

When configuring an iClientTS server the following should be noted.

The Event File path for List Manager must be unique for each Client so that events list entries are not duplicated when more than one terminal server client is connected. This can be changed using the EventsPath parameter under the [List Manager.Events] section in the iPower.INI file. If clients are using the same iPower.INI file then the %NODE% variable can be used in EventsPath parameter. For Example:

> [List Manager.Events]
>
> EventsPath = %BASEPATH%\iFIX Productivity Tools\ALM\%NODE%
>
> This will substitute the Terminal Server client node name into the EventsPath parameter so each path will be unique.

Installed software

The iFIX Productivity Tools install makes the following changes and additions to the standard iFIX installation files. Files are new unless commented otherwise

.

File	Default directory	Comment
ALMMOAQ.exe	C:\Program Files (x86)\Proficy\iFIX	
CSList.hlp	C:\Program Files\GE\GE iFIX	
CSList.ocx	C:\Program Files (x86)\Proficy\iFIX	
CSmenu.ocx	C:\Program Files (x86)\Proficy\iFIX	
Fix.ini	C:\Program Files (x86)\Proficy\iFIX\Local	Standard iFIX file amended by install
iNotes.exe	C:\Program Files (x86)\Proficy\iFIX	
iPower.dll	C:\Program Files (x86)\Proficy\iFIX	
iPower.fxg	C:\Program Files (x86)\Proficy\iFIXX\Pic	
iPower.ini	C:\Program Files (x86)\Proficy\iFIX\Local	
ProductivityTabDisplay.tbx	C:\Program Files (x86)\Proficy\iFIX\Local	
ProductivityTools.tbx	C:\Program Files (x86)\Proficy\iFIX\Local	
MOAManager.exe	C:\Program Files (x86)\Proficy\iFIX	
MOAPS.dll	C:\Program Files (x86)\Proficy\iFIX	

Files used in a project

iFIX Productivity Tools files of interest for a project are described in the sections that follow.

◢LOCAL\FIX.INI

The standard iFIX configuration file needs modification to enable the iFIX Productivity Tools. For an example, refer to the FIX.INI installed in the LOCAL folder.

(i) add a reference to start MOAmanager

; Monitor (Background) programs

;

[OTHERS]

RUN=%MOAMANAGER.EXE /S

◢LOCAL\iPower.INI

The main iFIX Productivity Tools configuration file. Use iPower.INI from the LOCAL folder as a starting point. The iPower.INI file includes some folder definitions that will need to be corrected to match your directory naming.

[Notes]

; defines where operator notes are stored (only required for SCADA servers)

NOTESPATH = %BASEPATH%\iFIX Productivity Tools\Notes

[MOA Manager]

; defines where operator actions are stored (only required for SCADA servers)

LOCALPATH = %BASEPATH%\iFIX Productivity Tools\Tagging

[List Manager.Events]

; defines where iFIX Productivity Tools events are stored

EVENTSPATH = %BASEPATH%\iFIX Productivity Tools\ALM

◢LOCAL\ProductivityTools.tbx LOCAL\ProductivityTabDisplay.tbx

These toolbars allow you to access iFIX Productivity Tools functionality when in the iFIX Workspace configure mode. These will need to be imported in order to activate, see Importing toolbars.

◢PIC\iPower.fxg

This file provides internal iFIX Workspace interfaces used by the iFIX Productivity Tools functions. It can be copied in from the iFIX picture folder.
PIC\Example_FloatingMenu.grfPIC\Example_HeaderMenu.grfPIC\Example_MicroMenu.grf

Example menu pictures that can be used as is, or as a template for configuring new menus.

PIC\Example_Alarms

PIC\Example_ChemBatchReport

PIC\Example_ChemCIPReport

PIC\Example_ChemProduction

PIC\Example_DiscLine1

PIC\Example_H2OBWFilter

PIC\Example_H2ONAOH

PIC\Example_PharmAuditTrail

PIC\Example_PharmMixer

PIC\Example_Trend

PIC\StartupScreen

Example pictures that are being used by the provided example menu pictures.

◢PIC*.bmp

The default menu images used by iFIX Productivity Tools. Customers can develop their own menu image, or use these as a sample starting point. The menu also supports PNG and JPG graphic file formats.

Known Issues

1.) List preset filters to not update if reload database
Symptoms: The iFIX Productivity Tools list control preset filters are initialized on system startup, but are not refreshed if reload a different PDB. Resolution: Not available at this time.

Frequently Asked Questions

Lost control buttons

Q. Why don't some of the Productivity Tools dialog control tabs show any control buttons?

A. The dialog state text is pulled from the database definition to label the control buttons, if the state text is not defined no button is created. To correct modify the database and add the state for the required controls.

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