



ObSys Tutorial – Part 2

ObSys is a software package that allows a Windows PC to be used for integrating, controlling and managing different systems within a building.

Part 2 of the tutorial shows how to use Alarm Manager, Data Manager, and how to create your own views using ObView.

This document relates to ObSys version 2.0

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What is ObSys?

ObSys is a software package that allows a Windows PC to be used for integrating, controlling, and managing different systems within a building, as well as for engineering other North products.

ObSys can be installed on a variety of PC types, allowing the engineer to build different solutions: embedded PCs become integration controllers, desktop PCs become displays for engineers, and rack-mount servers become massive data loggers.

The core of ObSys is ObServer – low-level software that runs behind the scenes. ObServer integrates with third-party systems to form a single coherent system.

ObSys also includes display and analysis applications – which can access information from any connected third-party systems: ObView is a general-purpose graphical user interface, Alarm Manager receives and displays alarm messages, and Data Manager logs data for display and analysis .

This tutorial is split into two parts:

- Part 1 covers ObServer and how to engineer it with ObView
- Part 2 covers using Alarm Manager, Data Manager, and creating your own views using ObView.

This tutorial uses the North Training Pack as an example of a building system.

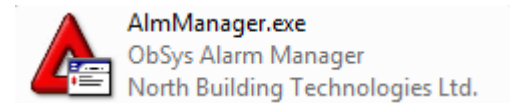
Alarm Manager...

What is Alarm Manager?

Alarm processing within ObServer is very powerful, with the ability to generate alarms, translate them, route and filter them, store them, and so on.

In Part 1 of this tutorial you learnt about generating alarm events, routing them to an alarm list, then viewing using ObServer's web pages. However, a user sometimes needs more power than a simple web page when managing lists of alarms. Alarm Manager is an ObSys application that provides the power to:

- View alarms in Alarm History and Alarm Store from several North devices
- Automatically show the latest alarm events as they occur
- Announce when a new alarm occurs – playing a different sound depending on the highest alarm priority, or triggering an ObView page or indeed any application when particular alarms occur
- Perform basic alarm actions – snooze, silence and delete
- Control access to basic alarm actions using ObSys access security
- Add a note to an alarm event, or manually send to other alarm destinations
- View archived alarms
- Print an alarm list for manual archiving.



Getting ready for this tutorial

Before continuing, you should understand what alarms in a North system are and how to generate them. If you have not yet completed *ObSys Tutorial – Part 1*, we recommend that you do so first. In particular, read the chapters on Alarms and Alarm Stores.

Using the North Training Pack in Part 1 of the tutorial, you configured two alarms: Essential Data reads the state of Zip Input 2 of module 0 to generate high/low alarm events which are routed to Alarm Store 1; and in the Zip System, module 0 generates comms fault/ok alarm events which are routed to Alarm History.

In the examples that follow, generate these alarm or ones that you have created to explore the features of Alarm Manager.

Alarm Manager window

As with the web page view of an Alarm Store, new alarms are shown in bold font with a sounding icon. These new alarms can be made to trigger sounds, depending on the highest priority new alarm within the list.

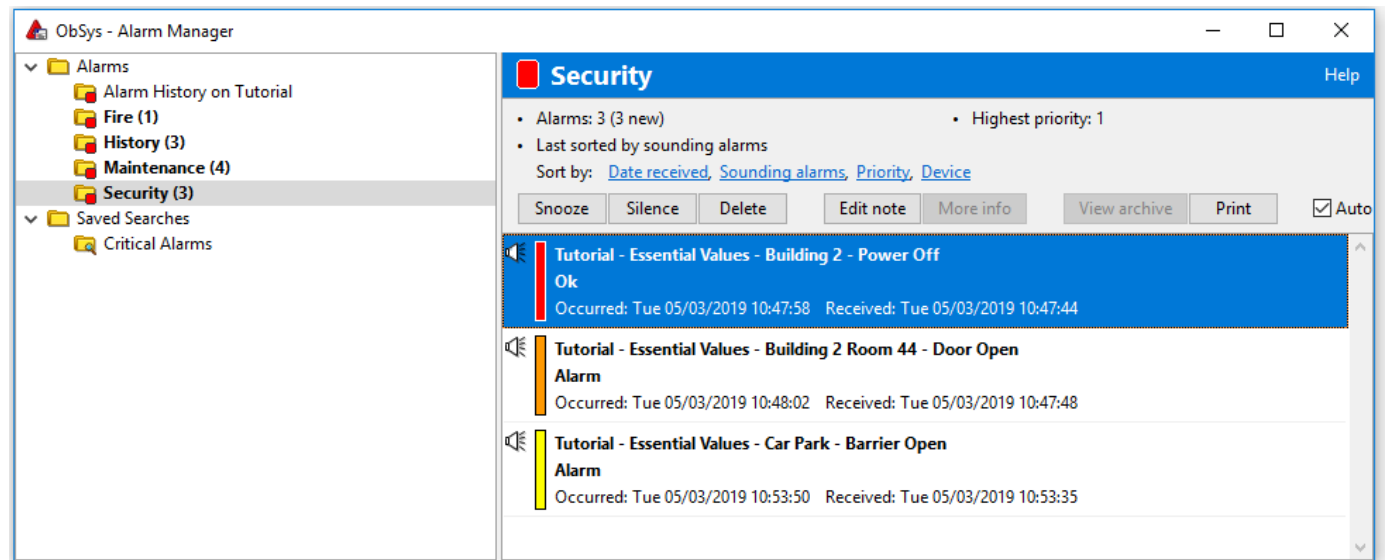
The user silences the alarm and accepts responsibility for dealing with it. A note can be added to clarify the cause of the alarm, or how it has been dealt with. Once the alarm event is no longer needed, it can be deleted from the list, at which point it is added to the store's archive file (if configured).

The left-hand side of the window is the alarm list selector and shows the histories and stores currently being monitored by Alarm Manager, along with an indication of the highest priority alarm in each – shown as a colour badge on each folder. Clicking on the Store or History name displays that alarm list.

The left-hand side of the window also shows saved searches – these allow information from several alarm lists to be combined and filtered in different ways.

The top-right of the window is the information pane and shows summary information for the selected alarm list. It allows the list below to be sorted in various ways, and basic alarm actions to be performed.

The bottom-right area is the actual alarm list and shows the alarm events it contains. It allows alarms to be selected for basic and more advanced actions.



Alarm priority colours

Alarms with different priorities have different colours associated with them, to make them more apparent.

Priority	Colour	Meaning
1	Red	Life-critical – someone may get injured
2	Orange	Property-critical – something may be destroyed
3	Yellow	Important – needs some action
4-9	Blue	Information only

These colours are used against each alarm event shown within the alarm list, and against each alarm list selector to show the highest alarm priority within the alarm store or history.

Alarm event information

Each alarm event within the list is shown using several lines:



- The left side shows the alarm priority colour, and whether the alarm is new (sounding)
- The top line shows where the alarm is from – the system and point name from the alarm
- The second line shows what condition has occurred – the condition from the alarm
- The third line shows when the alarm happened – the date and time the alarm occurred, when it was received, and when and by whom it was silenced
- A fourth line can appear if a note has been added to an alarm.

Starting Alarm Manager

- 📄 To start Alarm Manager on your PC, follow these steps:
 - From Windows **Start**, select **North ObSys** then **Start Engineering**
 - From the ObView main menu select **Tools, Alarm Manager**
 - Alarm Manager will start. Don't worry if no alarm lists are shown, we will add those next.


Viewing Alarm History using Alarm Manager

North devices have an Alarm History, to which alarm events can be sent. The Alarm History is a rolling record of the last 500 or so alarm events. This provides a simple way of recording recent events.

Alarm Manager first needs to be told to connect to an Alarm History. Once connected, Alarm Manager will automatically monitor the alarm history and immediately display it whenever it is needed.


Connecting to Alarm History

The easiest way to tell Alarm Manager to connect to a device's Alarm History, is by using Start Engineering:

-  To open ObServer's Alarm History using Alarm Manager, follow these steps:
 - From the top-level of ObServer, click on **Alarm History** to view the Alarm History information
 - From the main menu, select **Extras, Open with Alarm Manager**
 - Alarm Manager will start if not already doing so, remembering the object reference to this Alarm History. Alarm Manager will then start collecting and displaying all alarm events in an alarm list with the name of the alarm history, typically 'Alarm History'.

Viewing Alarm History

Once Alarm Manager has been used to view an Alarm History, it remembers the list and automatically re-connects whenever it is restarted.

-  To view an Alarm History connected to Alarm Manager, follow these steps:
 - Locate the alarm list selector in Alarm Manager on the left-hand side of the window
 - Select an **Alarm History** to view. The right-hand side of the window will update
 - You can scroll through all the alarms in the list
 - Sort the alarm list by clicking on **Date received, Priority** or **Device**.

Clearing the History

Individual alarm events cannot be deleted from the history, but it is possible to clear the entire history by pressing **Delete All**. This will delete all events from this list – both in Alarm Manager and stored in the device's Alarm History, so use it carefully.


Viewing an Alarm Store using Alarm Manager

ObServer has four Alarm Stores available, which may be used to hold alarms of different types, ready for the end-user to see, action and delete. Alarm Stores can be viewed using Alarm Manager from several places, and changes from one Alarm Manager are immediately reflected in the others with the connected Alarm Store being changed.

Alarm Manager first needs to be told to connect to an Alarm Store. Once connected, Alarm Manager will automatically monitor the alarm store synchronising any changes. Alarm Stores are designed to hold alarms until the user deletes them.


Connecting to an Alarm Store

The easiest way to tell Alarm Manager to connect to a device's Alarm Store, is by using Start Engineering:

-  To open one of ObServer's Alarm Stores with Alarm Manager, follow these steps:
 - From the top-level of ObServer, click on **Store 1** to view the Alarm Store's basic information
 - From the main menu, select **Extras, Open in Alarm Manager**
 - Alarm Manager will start if not already doing so, remembering the object reference to this Alarm Store. Alarm Manager will then start synchronising and displaying all alarm events in an alarm list with the name of the alarm store, in this case 'Store 1'.

Viewing an Alarm Store

Once Alarm Manager has been used to view an Alarm Store, it remembers the list and automatically re-connects whenever it is restarted.

-  To view an Alarm Store connected to Alarm Manager, follow these steps:
 - Locate the alarm list selector in Alarm Manager on the left-hand side of the window
 - Select an **Alarm Store** to view. The right-hand side of the window will update
 - You can scroll through all the alarms in the list
 - Sort the alarm list by clicking on **Date received, Sounding alarms, Priority** or **Device**.

Silencing an alarm

When a new alarm occurs, Alarm Manager tries to get the user's attention – it flashes the window and may play a sound.

- 📖 To silence a new alarm, follow these steps:
 - From Alarm Manager, select an alarm list. A list with new alarms has bold text, a priority colour badge, and a count of new alarms
 - Click on a new alarm to select it. A new alarm has bold text with a sounding icon
 - Press the **Silence** button on the information pane to permanently silence the alarm. Tip: You can also double-click on an alarm to silence it
 - If you want to temporarily silence the alarm, press the **Snooze** button and pick how long before it resounds.

Adding a note

You can add a short note (of up to 80 characters) to an alarm in an Alarm Store, either to act as a reminder for you or others, or as a way of informing others also viewing the store that you are dealing with the alarm.

When you add a note, others can re-edit the note – useful if they wish to add their own comment.

Deleting an alarm

Once an alarm has been completely dealt with, it can be deleted from an Alarm Store. This keeps the Alarm Manager window clear of unnecessary alarms. If alarm archiving is configured, the deleted alarm is placed in the archive, along with a record of who silenced and deleted it.

- 📖 To delete an alarm, follow these steps:
 - From Alarm Manager, select an alarm list.
 - Click on an alarm to select it
 - Press the **Delete** button in the information pane.

Selecting multiple alarms

If you need to action multiple alarms in a list, select each whilst holding down the ctrl-key.

Basic Alarm Manager configuration

When Alarm Manager is running, it puts another object within ObServer's Configuration object – which needs to be re-scanned before it becomes visible.

- 📖 To access Alarm Manager's configuration object, follow these steps:
 - Check Alarm Manager is running
 - From the top-level of ObServer, select **Configuration**
 - Press **Scan**, to cause the configuration options to be rescanned – to include Alarm Manager
 - Click **Alarm Manager** from the Configuration option to view the things that can be engineered within Alarm Manager.

Inhibiting window close

- 📖 To inhibit the *Close window* option of Alarm Manager, follow these steps:
 - From the top-level of ObServer, select **Configuration, Alarm Manager**
 - Select **Window** to view the current settings of the Alarm Manager window
 - Set **Close Inhibit** to 'Yes' to disable the close window feature.

Starting Alarm Manager automatically

- 📖 To set ObServer to start Alarm Manager automatically, follow these steps:
 - From the top-level of ObServer, select **Configuration, ObServer Start-up**
 - Set an unused **Command** to 'AlmManager.exe'.

Alerting the user to a new alarm

Alarm Manager automatically flashes its taskbar button when there are new un-silenced alarms in any of its alarm lists. However, it is sometimes useful to attract the user's attention when they are not in front of the PC. It might also be useful to force the alarm, or some other information, in front of the user as soon as the alarm occurs, rather than wait for them to notice a flashing icon on the taskbar.

Restoring the window

One way of getting the user's attention when a new alarm occurs is to restore a previously minimised Alarm Manager window.

- 📖 To restore the Alarm Manager window when an alarm occurs, follow these steps:
 - From the top-level of ObServer, select **Configuration, Alarm Manager**
 - Select **List 2** to view the current settings of the second alarm list. We are looking for the connected Alarm Store 1, so check the object is 'AS1' (if it isn't, go back and try another List)
 - Set **Interrupt User** to 'Yes'
 - Minimise the Alarm Manager window
 - From the top-level of ObServer, select **Store 1**. Adjust **Store new alarm** entering details to generate a new alarm. Click **OK**, and the Alarm Manager window pops-up showing the new alarm!

Label	Value
<input type="checkbox"/> Label	<input type="text"/>
<input type="checkbox"/> Object	<input type="text" value="AS1"/>
<input type="checkbox"/> Interrupt User	<input type="text" value="Yes"/>
<input type="checkbox"/> Access Security (Delete)	<input type="text" value="14"/>
<input type="checkbox"/> Access Security (Silence)	<input type="text" value="14"/>
<input type="checkbox"/> Access Security (Mute)	<input type="text" value="00"/>

Sounding alarms

One way to alert the user to a new alarm is to use sound. It does get attention, although overuse can be annoying – be warned!

- 📖 To cause a WAV file to play when a priority 1 alarm occurs, follow these steps:
 - From the top-level of ObServer, select **Configuration, Alarm Manager**
 - Select **Priority 1** to view the current settings of the priority 1 alarm handling
 - ObSys includes some example WAV files, so we will use one of these. Set **WAV File** to 'sounds\ping.wav'
 - From the top-level of ObServer, select **Store 1**. Adjust **Store new alarm** entering details to generate a new alarm, making sure you set **Priority** to '1'.
 - Click **OK**, and the Alarm Manager window receives the new alarm and plays a sound every few seconds.

Label	<input type="text"/>
WAV File	<input type="text" value="sounds\ping.wav"/>
Replay Period (sec)	<input type="text" value="15"/>

Archiving alarms

When a user deletes an alarm event from an Alarm Store, it is possible for the store to append all of the alarm's details to a comma-separated value (csv) alarm archive file, including:

- Date and time the alarm was detected
- Date and time the alarm was received by Alarm Store
- Date and time a user silenced the alarm
- Date and time a user deleted the alarm
- System and point name of the alarm
- Alarm condition
- Alarm Priority
- Name of the user silencing the alarm
- Notes

This allows a complete audit trail of alarms to be kept over several years.

Enabling an archive

📖 To enable an archive in Alarm Store, follow these steps:

- From the top-level of ObServer, select **Configuration, Alarm Store 1** to view the store's configuration
- Select **Archive** to view details of the archiving for the alarm store
- Set **Enable** to 'Yes', to enable archiving of alarms – this will also set the **CSV File** name to '\\DefaultSite\AlmManager\Alarm1.csv', although you can change this
- Optionally, set **Maximum Store (MB)** – this tells the store to manage the maximum file size of the csv. If the csv file grows above this size, alarm store will automatically discard the earliest alarms in the file.

Label	Value
Enable	Yes
CSV File	\\DefaultSite\AlmManager\Alarm1...
Maximum Store (MB)	4,00
Status (store available)	Yes
Temporary file in use	No

Viewing an archive

It is possible to view the CSV archive using a variety of applications, depending on what else you want to do with the data. Many applications can import comma-separated value files, from a simple text editor such as Notepad to a full-feature spreadsheet like Excel.

📖 To view the archive for an Alarm Store, follow these steps:

- From Alarm Manager, select an alarm list.
- Press the **View Archive** button in the information pane
- The archive csv will be opened with the default application associated with this file type.

Alarm Database

ObSys contains an alarm database, where actions associated with particular alarms can be stored. The database is a series of folders and files within the main ObSys data folder.

Within any North system, alarms have the same basic format, made up of six pieces of information:

- System
- Point
- Condition
- Priority
- Date & Time

Alarm Database folder

The alarm database is located in the ObSys data folder '`\ObSys\AlmInfo\`', typically found at '`C:\Program Data\North Building Technologies\ObSys\AlmInfo\`'.

The System and Point fields of an alarm define the folders within the AlmInfo folder to look for alarm actions.

Actions placed in the '`\ObSys\AlmInfo\system\`' folder are associated with any alarm received from the *system*.

For example, if an alarm from the system 'Boiler Room' arrived, then actions within the folder '`\ObSys\AlmInfo\Boiler Room\`' could be triggered.

Actions can also be placed in the '`\ObSys\AlmInfo\system\point\`' folder. These are associated with any alarm received from the particular *point* within the particular *system*, i.e. '*system - point*'.

For example, if an alarm from *system* 'Zip System' and *point* 'Outside Air Temp' arrived, then actions within the folder '`\ObSys\AlmInfo\Zip System\Outside Air Temp\`' could be triggered.

If there are actions in both system and point folders, then both sets of actions could be triggered.

This means that the size of the alarm database, and the number of action files associated with an alarm, is limited only by the size of file storage.

Actions

Actions are things that can or must occur when an alarm is received from an alarm list connected to Alarm Manager. Any files within the particular folders are actions that can be triggered – either automatically when Alarm Manager receives a new alarm from an Alarm Store, or manually when the user selects that particular action.

The file type of an action file must be associated with a default application in Windows settings, then when the action is triggered, Alarm Manager will open the action file with that application.

For example, if the action filename is called ‘Location Info.txt’, and the current application associated with a .txt file type is Notepad.exe, then when Alarm Manager opens ‘Location Info.txt’ it will open in Notepad.

This means that any kind of file can be used, including shortcuts (lnk), ObView pages (obv), and documents (pdf, doc, txt).

Default action

Alarm Manager has a **More Info** button, which becomes available when an alarm has an action filename beginning ‘DefaultAction’.

Automatic actions

Any action filename that begins ‘AutoTrigger’ is automatically triggered by Alarm Manager when a connected Alarm Store first receives a new alarm event.


For example, an action file called ‘AutoTrigger Overview.obv’ will automatically trigger ObView to open the file and display the information. Similarly, a document called ‘AutoTrigger Instruction.pdf’ will launch Acrobat Reader to display the instruction document when the alarm occurs.


Manual actions


If action files are available for an alarm, the user can right-click on the alarm in Alarm Manager and select **Open** from the menu to see a list of all the actions available for the alarm. Select an action to launch it.


Adding an action

The alarm database folder can be accessed easily by adding actions to an alarm already received within Alarm Manager. It is possible to add actions manually if necessary.

-  To enable engineering mode in Alarm Manager so you can add an action, follow these steps:
 - From the top-level of ObServer, select **Configuration, Alarm Manager**
 - Select **Window** to view the current settings of the Alarm Manager window
 - Set **Engineering Mode** to 'Yes' to enable locate in alarm database feature.

-  To access the alarm database for a particular alarm already in Alarm Manager, follow these steps:
 - From Alarm Manager, locate the alarm event to add an action to
 - Right-click on the particular alarm and select **Locate in Alarm Database**
 - Select where want to place the action: under *system* or *system - point*
 - Any folders will be created if needed, and File Explorer opened for you to view the folder contents.

-  To add a text document that is automatically triggered, follow these steps:
 - From Alarm Manager, locate the alarm event to add an action to, then **Locate in Alarm Database**
 - Right-click in the folder within File Explorer, and select **New, Text Document**
 - Name the document 'AutoTrigger Test', edit the document to give it some content, and save
 - Trigger the same alarm again, the text document will launch automatically.

-  To add a shortcut as a default action, follow these steps:
 - Find the item you want to create a shortcut to, maybe a document located in a shared folder, right-click and select **Copy**
 - From Alarm Manager, locate the alarm event to add an action to, then **Locate in Alarm Database**
 - Right-click in the folder within File Explorer, and select **Paste shortcut**
 - **Rename** the shortcut to 'DefaultAction Do This Please', keeping the file type '.lnk' if shown
 - Click again on the alarm event in Alarm Manager, and then press the **More Info** button.

Tip: If you are adding similar actions to several different alarms, you can create a template. Alarm Manager copies all files located in '\\ObSys\AlmInfo\Template files' when creating a new folder in the alarm database.

Alarm Manager summary

As you have seen, if the requirements need users to take responsibility for alarm management and all that entails, then Alarm Manager is the application to use.

The window is simple to use, easy to understand, using colour to highlight the important alarms.

Its alarm archive becomes an 'audit trail' of how each alarm was handled.

Its alarm database features allow views and procedure documents to be triggered automatically, simplifying and standardising alarm handling by all users.

Data Manager...

What is Data Manager?

Sometimes the engineer or user needs to record a particular value over time, to see how the value has changed, or see how one value changes relative to another.



DataManager.exe
ObSys Data Manager
North Building Technologies Ltd.

Data Manager is the chart recorder and viewer application of ObSys. It can record any value accessible by ObServer, including those obtained by other North devices.

Data Manager allows up to 4000 values to be recorded to the PC's local storage. Each recording is held in a comma-separated value (.CSV) file, and can hold several hundred thousand readings. Each value can be recorded at a selectable rate, again to save storage space.

If a value does not change between recordings, Data Manager records only the start and end times for the value, rather than waste lots of storage when the value is constant – this makes it ideal for recording alarm states. Another name for this is exception logging.

Data Manager can be used to generate alarms if a recorded value exceeds certain engineered limits. It can also use statistical analysis to determine how a value changes over time, and generate alarms when exceptions occur.

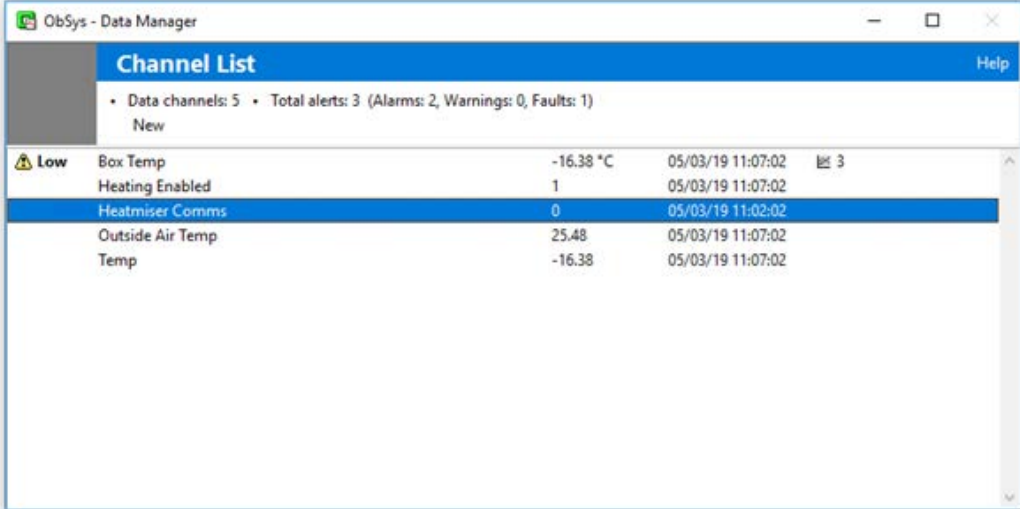
Data Manager window

The Data Manager window usually shows the channel list - a scrollable list of data channels currently being recorded, along with the last value that was collected from the associated object, and the time it was collected.

If the value is out-of-limits, or is not responding to value requests, this also shown.

Starting Data Manager

- 🖥️ To start Data Manager on your PC, follow these steps:
 - From Windows **Start**, select **North ObSys** then **Start Engineering**
 - From the ObView main menu, select **Tools**, then **Data Manager**
 - Data Manager will start. Don't worry if the channel list is empty, we will add a data channel next.



The screenshot shows the 'ObSys - Data Manager' window. At the top, there is a blue header bar with the title 'Channel List' and a 'Help' button. Below the header, there is a summary line: 'Data channels: 5 • Total alerts: 3 (Alarms: 2, Warnings: 0, Faults: 1)'. Below this, there is a 'New' button. The main area contains a table with the following data:

Alert Level	Channel Name	Value	Unit	Time	Count
Low	Box Temp	-16.38	°C	05/03/19 11:07:02	3
	Heating Enabled	1		05/03/19 11:07:02	
	Heatmiser Comms	0		05/03/19 11:02:02	
	Outside Air Temp	25.48		05/03/19 11:07:02	
	Temp	-16.38		05/03/19 11:07:02	

Data channels

Data Manager uses a data channel to manage the recording of a particular value over time. The channel's main function is to collect and record the value periodically.

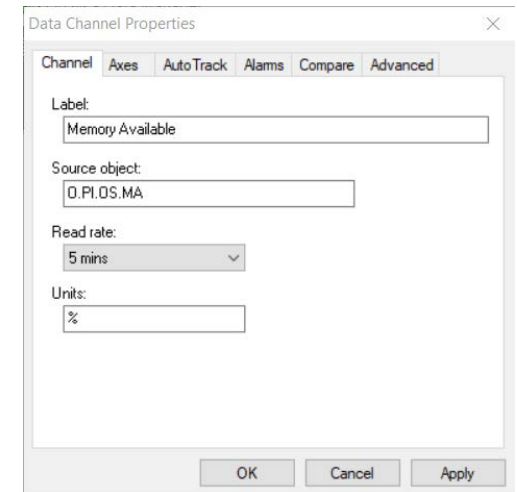
Data Manager supports up to 4000 channels – therefore 4000 values can be recorded. Each will keep growing until manually 'shrunk' by the user.

As an example of disk space usage, a 15-minute logged value will require up to approximately 100kB per month, 1MB per year, or 10MB for a 10-year log.


Adding a data channel

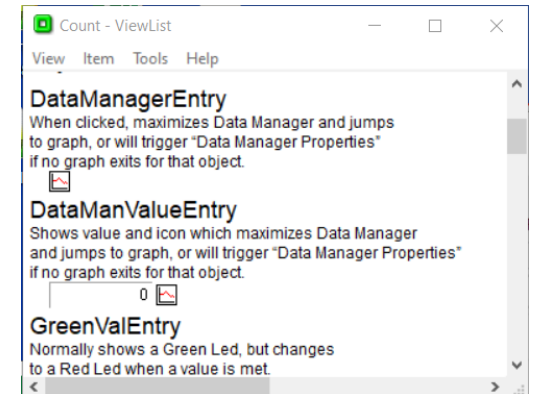
- 🖥️ To add a new channel manually, follow these steps:
 - Press the **New** button to access the Data Channel Properties window
 - Select the **Channel** tab
 - Set **Label** to 'Memory Available'
 - Set **Source object** to 'O.PI.OS.MA' (There are other ways to determine the object reference, but for now just check you have typed it in correctly.)
 - Set **Read rate** to '5 mins', and **Units** to '%'
 - Select the **Axes** tab
 - Set Y-Axis **Maximum** to '100' and **Minimum** to '0', then press **OK** to save the new channel.

The channel list shows the new channel, although it may not show a value until the log is performed. This will depend on the read rate, and will be at those minutes past each hour (or midnight for longer rates).



Let's now add a second channel, without typing in the object reference this time.

- 📄 To add a new channel using the alternative items menu, follow these steps:
 - From the top-level of **ObServer**, select **Zip System, Module 0, Digital Input 2**
 - Right-click on the **Count** label, and select **Alternative Items** from the popup menu to see a list of alternative ways of displaying the item
 - Locate and press the small square graph icon  underneath the label 'DataManagerEntry', which will ask Data Manager to view the item with the particular object reference; Data Manager has no item, so starts the New data channel process
 - The **Label** and **Source object** are already completed, set **Read rate** to '1min'
 - Select **Axes** tab
 - Set **Maximum** to '100' then press **OK** to save the new channel
 - Every minute Data Manager will record the number of counts from the Zip input.



Leave Data Manager to collect data from the two channels created. You could toggle the state of Zip Digital Input 2 occasionally to increase the count value.

The Log View window

When a channel is selected, Data Manager shows a line graph of the logged value changing over time.

Use the marker to determine the value at a particular time.

Viewing a channel

- To view the log of a data channel, follow these steps:
 - Double-click on the channel, such as the **Count** channel you created above, to view the recorded values as a log.

Setting the marker

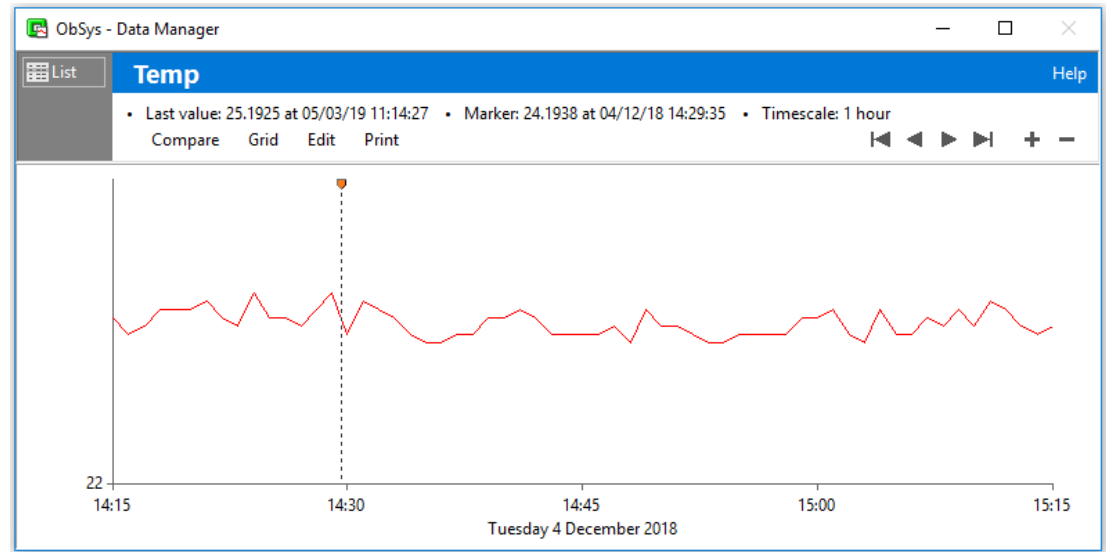
- To see the value at a particular time, follow these steps:
 - Click-and-drag the cursor to a position along the line graph – a vertical marker appears: the time associated with the marker appears in the top area along with the value at the time.

Timescale navigation

Notice on the log view the time-axis navigation buttons on the right above the actual log. Use these to scroll back and forwards along the time-axis, and zoom in and out. The table (right) shows their meaning.

Returning to the list

- To return from the log view, follow these steps:
 - Click on the **List** button in the upper left of the view.



Button	Meaning
⏪	Move to start of recorded values
⏮	Scroll time-axis backwards by the current timescale period
⏭	Scroll time-axis forwards by the current timescale period
⏩	Move to most recent recorded data
+	Zoom in to see more detail, and reduce the timescale period
-	Zoom out to see less detail, and increase the timescale period

Simple warnings and alarms

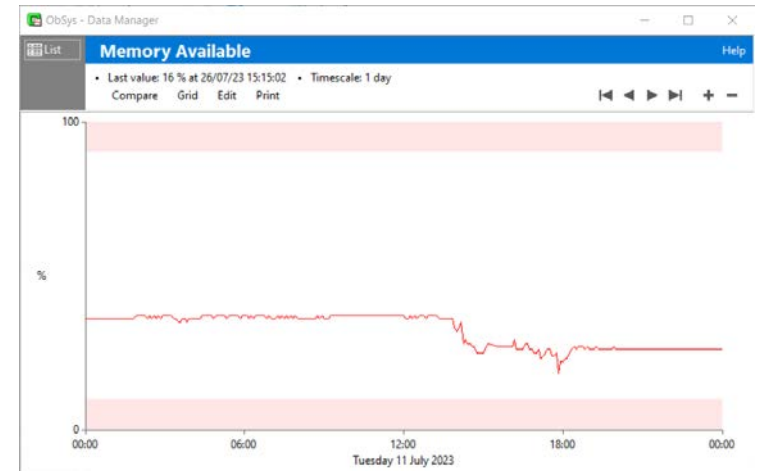
Visual warning levels

Data Manager can have visual warning levels applied to each channel, so that as the user views the log, the levels appear as light pink areas.

- 📄 To set the visual warning levels, follow these steps:
 - Double-click on the **Memory Available** channel to view its log
 - Press **Edit** to view and edit the data channel properties
 - Select the **AutoTrack** tab
 - Set Standard Limits **High value** to '90'
 - Set **Low value** to '10'
 - Press **OK** to save the changes and return to the log view.

Notice now the log view shows the warning levels as light pink shaded areas, above 90 and below 10%.

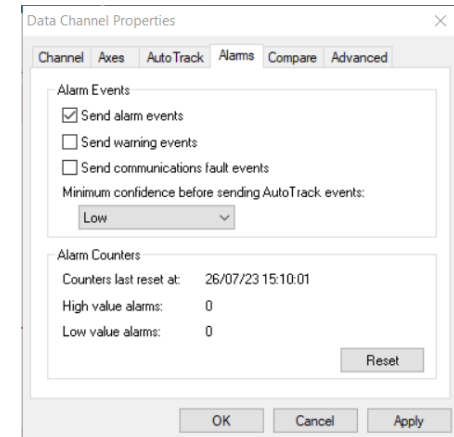
If the value falls outside of the limits, the channel list will show 'Low' or 'High' against the entry, as an indication that the value is currently outside of the specified limits.



Sending alarms

Data Manager can send an alarm event when a collected value is outside the visual warning levels. Alarms will describe whether the channel value is 'high', 'low', or has returned to its 'ok' state.

- 🖥️ To have an alarm sent when visual warning levels are exceeded, follow these steps:
 - View the **Memory Available** channel, and press **Edit** again
 - Select the **Alarms** tab
 - Enable **Send alarm events**
 - Press **OK** to save the changes and return to the log view.

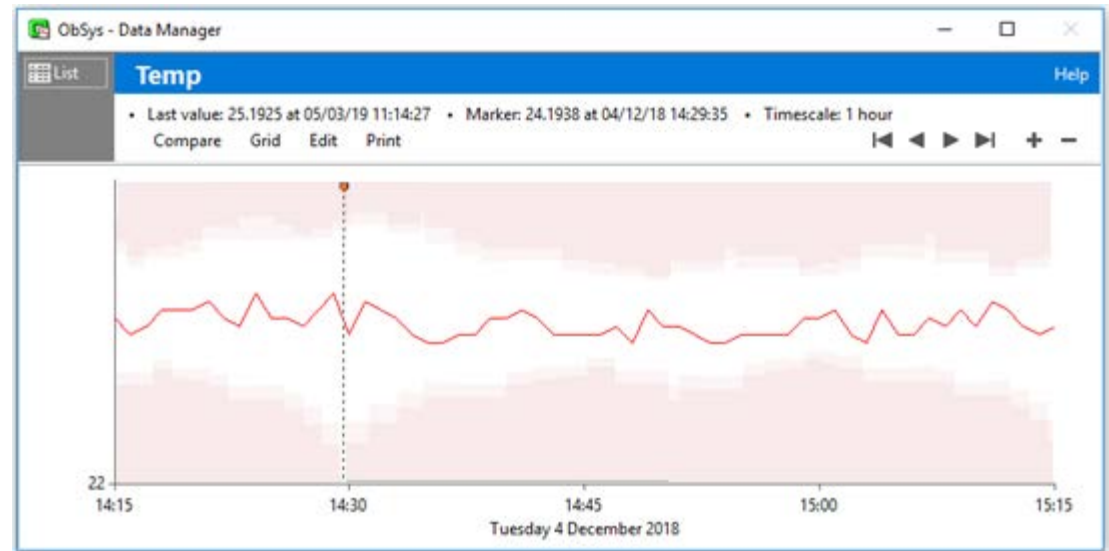


Auto-Tracking

Data Manager's channels support auto-tracking. Values can be analysed based on the time of their collection during the week, to generate knowledge of how the value varies across the different times of each day of the week. Alarms events can be sent if the value is outside of the normal range for the value at that time of the week.

Auto-tracking produces different high and low limits for each 15-minute period of the week by performing statistical analysis of values it has taken during each particular 15-minute period over many weeks.

For example, if Data Manager has collected a room's light level value at midnight on each Sunday over several weeks, it starts to learn that Sunday midnight readings are low (and don't vary much). If one week the value is high, it knows something is out-of-the-ordinary, and can send an alarm message. In the same scenario, auto-tracking has learned that the light level around Friday lunchtime is medium to high, and varies (depending clouds), and so a high reading on a Friday lunchtime is expected, and no alarm is sent.



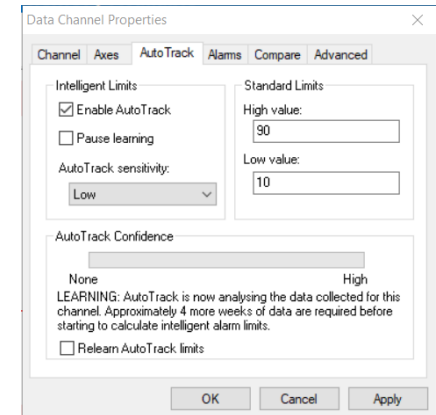
A different example is more appropriate to the control world: a control system is controlling the temperature within normal office hours to a setpoint of 21°C. Therefore if we measure the temperature on a Tuesday at 10am, it should be 21°C (or there about) – we have a problem if it's not! Similarly, because the inside temperature is not controlled during the night, it might drop to 15°C before morning, so at this time this temperature is not in an alarm condition.

NOTE: Auto-tracking, by its very nature, is not going to produce results until running continuously for over four weeks. The tutorial will cover setting this up, but results will take a while to collect!

- 📄 To enable auto-tracking to a channel, follow these steps:
 - View the **Memory Available** channel, and press **Edit** to edit channel properties
 - Select the **AutoTrack** tab
 - **Enable AutoTrack**
 - Press **OK** to save the changes and return to the log view.

AutoTrack sensitivity allows the selection of sensitivity of acceptable limits – the higher the sensitivity, the closer the limits are to the learned average value.

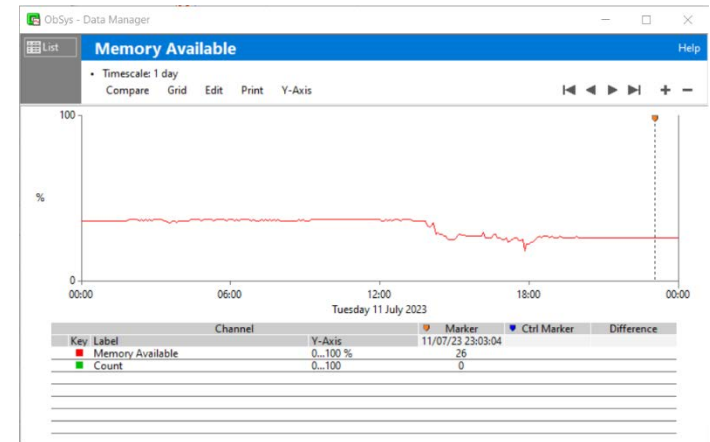
AutoTrack confidence shows how confident the auto-tracking is of the learned values – the more values it has read, the more confident it becomes.



Comparing logs

Data Manger can be used to compare how the value of one channel changes with up to six others. Measurements can be taken of differences in time and can show the differences in the values.

- To add a comparison to a channel, follow these steps:
 - View the **Memory Available** channel, and press **Edit**
 - Select the **Compare** tab
 - Set the first dropdown list to **Count**, to allow us to compare the Count channel
 - Press **OK** to save the changes
 - On the log view of Memory Available, press the **Compare** button to view the list of comparison channels against this one. Resize the window if required.



On the comparison view, the lower part of the window shows which colours represent which logs. It also shows the values of the logs at two different points in time – the Marker and the Ctrl Marker

- To set the Marker and Ctrl Marker, follow these steps:
 - Click on the graph to place the Marker line, as we did before
 - Hold the Ctrl key down, and click elsewhere on the graph to place the Ctrl Marker

Notice how the readings of each log channel is shown in the legend area below, along with a column showing the difference in time, and the differences in the values.

If necessary, individual logs can be temporarily hidden from the comparison view by clicking on its colour square in the Key column.

Basic Data Manager configuration

When Data Manager is running, it puts another object within ObServer's Configuration object – which needs to be re-scanned before it becomes visible.

- ☞ To access Data Manager's configuration object, follow these steps:
 - Check Data Manager is running
 - From the top-level of ObServer, select **Configuration**
 - Press **Scan**, to cause the configuration options to be rescanned – to include Data Manager
 - Once scanning has completed, select **Data Manager**
 - Press **Scan** again, to discover the available channels
 - A **Setup** item, along with an item for each data channel are available.

Inhibiting window close

- ☞ To inhibit the *Close window* option of Data Manager, follow these steps:
 - From the top-level of ObServer, select **Configuration, Data Manager**
 - Select **Setup** to view the current settings of the Data Manager window
 - Set **Close Inhibit** to 'Yes' to disable the close window feature.

Starting Data Manager automatically

- ☞ To set ObServer to start Data Manager automatically, follow these steps:
 - From the top-level of ObServer, select **Configuration, ObServer Start-up**
 - Set an unused **Command** to 'DataManager.exe'.

ObView...

What is ObView

ObView is the application to use for creating and showing the most powerful desktop display system for ObSys.

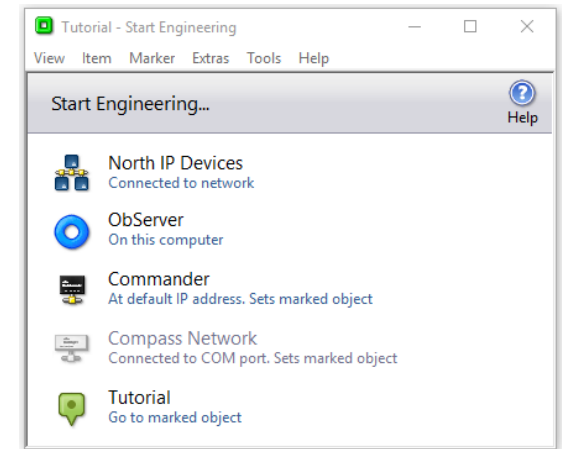
During this tutorial, we used ObView when we engineered ObServer. The Start Engineering page is ObView showing a pre-created view (created by North's support team), and other views are automatically-created object lists. ObView is more powerful than we have seen so far.

ObView 'views' can be created in several ways. The easiest is by copy-and-pasting from existing views, so engineers can quickly generate fancy dynamic graphics. The views can be linked together to form a user-navigable display system that appears to the user a single application, although it is possible to have several views displayed on the same PC at the same time.

Each view is usually made up from an optional background image, on top of which are placed items that show remote values.

ObView comes with standard and alternative items for each type of remote object; for example the standard item for a float-type object shows its label and value as text, while alternative items can show the same object as a thermometer, or as a raise/lower bar. The standard item for an off-on-type object shows the label and on-off value as text, while the alternative items can show the value as engineer-specified coloured text, one of two icons, or a stationary/rotating fan. Any of these items can be used on a new view.

New alternative items can be created using ObVerse, North's standard cause-and-effect strategy language, and these can be used and re-used on new views as required.



Creating a new site view

ObView can be used to create a new view of any object-type available via ObServer, but usually engineers create views of the whole site.

- 📄 To create a new view of the whole site, follow these steps:
 - Run **Start Engineering**, to view the pre-defined view of the site
 - From the menu, select **View, New**, to start creating a view
 - Set **Name of the new view** to 'Tutorial', and press **Next>** button
 - Set **Description** to 'Tutorial Example', and set **View Type** to 'Standard View'
 - Press **Finish** button to create the new view

As you can see, the original Start Engineering view is still available, and can be navigated, but we also have a new blank view

Adding stock items

ObView supports several stock items that can be added to a view – things that are not connected to a remote object.

- 📄 To add a background to the view, follow these steps:
 - Right-click near the top left-hand corner of the blank view, and select **Insert, Bitmap** from the popup menu, to start adding a bitmap and show the bitmap's dialog window
 - In the **Select Bitmap** tab, press **Select File** to browse your system for bitmap (.BMP) files.
 - Navigate to the ObSys Bitmap folder, choose a file, and press **Ok** to close the dialog window and view the background

- 📄 To add some text to the view, follow these steps:
 - Right-click somewhere in the view, and select **Insert, Text** from the popup menu
 - In the **String** tab of dialog box, set **Value** to 'Tutorial Title'
 - In the **Colour** tab of the dialog box, set **Colour** to dark red
 - Press **Ok** to set the Items properties, and return to the view – the Tutorial View text should appear in dark red

Changing an item's properties

Items on a new view can be changed by accessing their Property dialog window.

- 📄 To see the Property dialog window for an existing item, follow these steps:
 - Hold the **Shift** key, and right-click on the stock text item
 - Select **Properties...** from the popup menu
 - Disable the **Border, Value** tick-box, to remove the sunken border from the item
 - Press **Ok** to set the Items properties, and return to the view

Pressing the Shift key informs ObView you wish to edit an existing item on the view, rather than add another item.

Moving an item

Some of the properties of an item deal with its position (and sometimes size). These can be changed manually, as we did above, but there are easier ways

- 📄 To move an item, follow these steps:
 - Hold the **Shift** key, and **drag** the Tutorial Title text item (the cursor changes to a up/down/left/right arrow), to change the X and Y properties (position properties)
 - Hold the **Shift and Ctrl** keys, and **drag** the Tutorial Title text item (the cursor changes to a bi-directional arrow), to change the W and H properties (size properties), if they exist

Some items have fixed width and height, so cannot be resized. Some can be resized only in one direction.

Copying items

Most items that are added to new view are just copied from existing views. They work just as they did in the original view, but you have access to their properties to change certain features

- ☞ To copy an item from one view to another, follow these steps:
 - From **Start Engineering**, navigate to **ObServer, Configuration**
 - Hold **Shift**, and right-click on the **Local Date & Time** label
 - Select **Copy Item** from the popup menu, to copy the item to the clipboard
 - On your new view, drag the bottom border of the view, to make the view larger
 - Right-click near the bottom of the Tutorial view, and select **Paste Item** from the popup menu – the date and time object now appear on you view

Copying alternative items

- ☞ To copy an alternative item from one view to another, follow these steps:
 - Navigate to **ObServer, Configuration** once more, hold **Shift**, and right-click on the **Local Date & Time** label
 - Select **Alternative Items** from the popup menu, to view alternative ways of viewing a DateTime object – the list shows the alternative view name and actual item linked to you chosen object
 - Right-click on the item called **TimeEntry**, and select **Copy Item** from the popup menu
 - Right-click in some blank space of the Tutorial view, and select **Paste Item** from the popup menu – the time appears

Note: Remember to close the alternative Items window as you go, or you will have many open by the end of the day, each of which will be reading lots of data from your system.

Opening site views

We have a simple view now – not very exciting yet, but it works. There are several ways of opening a view.

Opening from Start Engineering

ObSys setup installed a shortcut to Start Engineering in the Windows Start menu system, so this is the first way to start a view you have created.

- 📖 To open the Tutorial view from Start Engineering, follow these steps:
 - First, save the Tutorial view, by simply closing the view
 - Run **Start Engineering**, and select **View, Open Alternative...** - this shows a list of existing site views, each with a title and jump button
 - Click on the **green square** labelled Tutorial, to open the Tutorial view

Opening from a desktop shortcut

Users are normally used to starting applications using shortcuts. ObView creates shortcuts to view itself.

- 📖 To create a shortcut to Tutorial view, follow these steps:
 - Select the **View** dropdown menu from the **Tutorial view window**, then **Add to Desktop**
 - Now close the Tutorial view, and re-open it by double-clicking on the desktop shortcut

Opening from another view

A view can have an item that, when pressed, will run another view – either replacing the current one, or in addition to the current view.

 To add a link to ObServer's Object List view onto the Tutorial view, follow these steps:

→ From **Start Engineering**, open **ObServer**

→ Right-click on **Configuration**, and select **Alternative Items** on the popup menu

→ Right-click on the **ButtonEntry** red button, and select **Copy Item** from the popup menu

→ On the Tutorial view, right-click in unused space, and select **Paste Item** from the popup menu

Test it by clicking the **Configuration** button, and then pressing **Back** to get back to the Tutorial view Notice that ObView saved the changes automatically?

Creating a new object view

Although most new views are created for the whole site, it is possible to create a view for a particular type of object, after which it is possible to use the view on all objects of the particular type. For example, if a new view is created for a M7001 Zip module, it can be used to view any M7001 – it is even possible to get ObView to use the view instead of its default list view.

- 📖 To create an alternative view for a Zip Universal Input, follow these steps:
 - Run **Start Engineering**, and navigate to the **Zip System, M7004A, Universal Input 1**, to see the default view of a Universal Input
 - From the menu, select **View, New...**, and set the **Name** of the view to 'Tutorial' – this will be the Tutorial view of the object-type
 - Press **Next**, and set the description to 'Another Tutorial', and the **View Type** to 'Standard'
 - Press **Finish** to create the view
 - Add some alternative items to the view – they MUST be from within the object itself, since this is an alternative view of the object-type.
 - Close the view, and ObView will save it
- 📖 To list Alternative Views of a particular Object, follow these steps:
 - From the menu of the Start Engineering view of Universal Input 1, select View Alternative to list the alternative views of the current object
 - Select the Tutorial view from the View List, to see your new Tutorial view of Universal Input 1
 - Repeat the process to see the same new view of Universal Input 2

Notice that we add items as we did for a site view – except any objects contained in items must be within the object-type we are creating the view for; we cannot for example create a view of one type of Zip module that shows a value from a different type of Zip module.

Revision history

Version	Build Date	Details
1.0	01/08/2023	Released



North Building Technologies Ltd
+44 (0) 1273 694422
support@northbt.com
www.northbt.com

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Author: TM
Checked by: JF

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