User Guide

Data Manager v11 Window

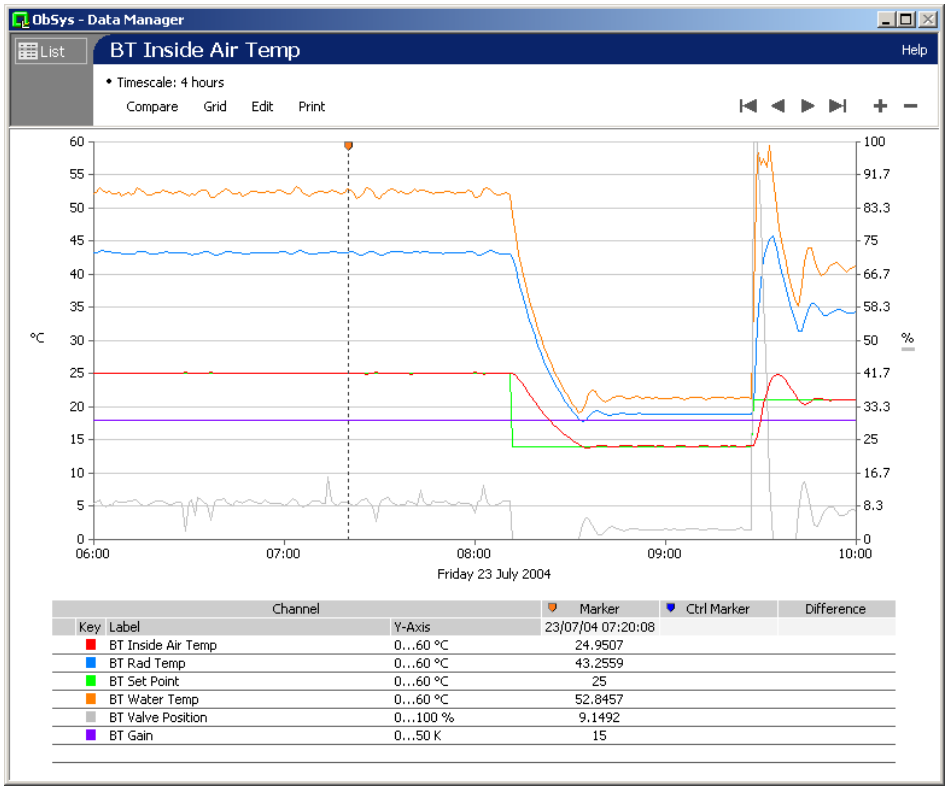
Introduction

The Data Manager v11 Window is used to collect, record and manage historical data values. Data Manager can be configured with up to 4000 data channels, each recording a single object's value.

Data Manager is part of the North ObSys suite and is therefore able to collect data from many different manufacturers' systems including Data acquisition modules, Power meters, BMS controllers, Lighting, and Power management systems such as UPS generators.

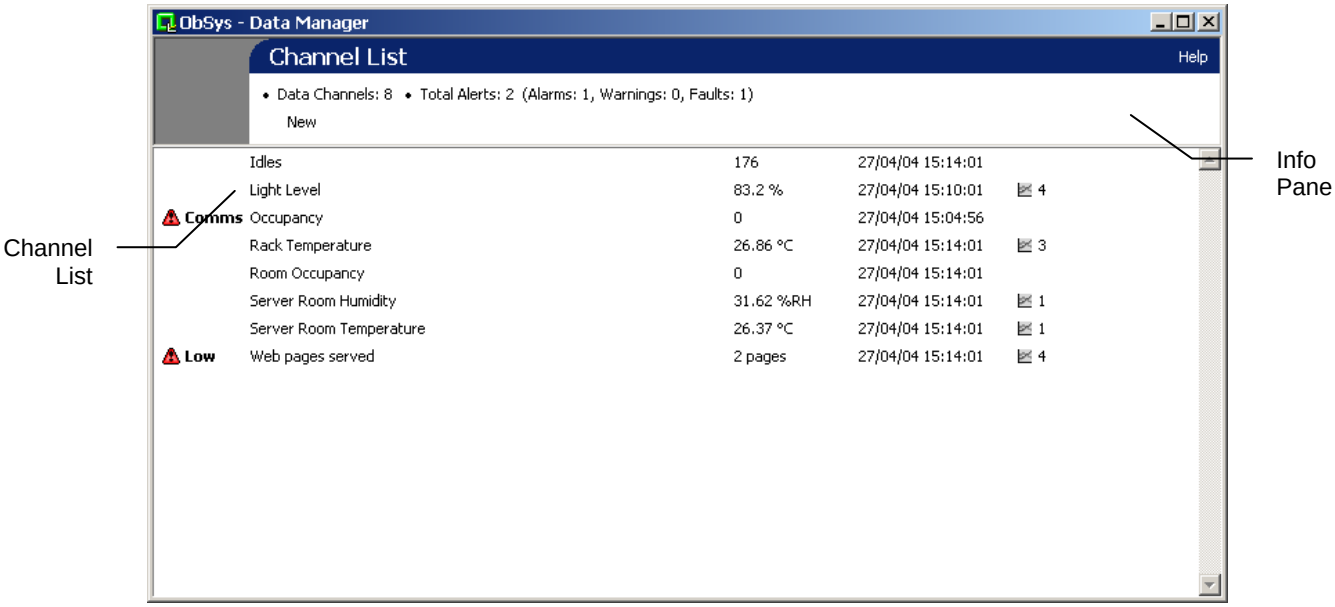
Key Features

- Up to 4000 data channels may be configured, each recording 500,000 readings.
- When used with ObView, also part of the North ObSys suite, a 'one-click' set up allows a new data channel to be added with ease.
- The channel list window provides a summary of all configured channels; displaying the current value, time last recorded, alarm status and number of associated channels.
- Data is displayed and updated in real-time.
- AutoTrack uses artificial intelligence to track the data channel and detect if the value is in or approaching an abnormal condition based on the particular day and time.
- Abnormal values identified by AutoTrack are alerted to the user. Optionally, an alarm event may be delivered via ObSys to Alarm Manager, a users email, SMS, etc.
- A data channel can be displayed with up to six associated channels for data comparison. Markers allow readings from these data channels to be analysed.
- Data may be imported from or exported to other applications (such as Microsoft Excel) using standard comma separated value files (CSV).
- Data Manager can import and display logs from other XOM (eXtensible Object Model) compatible devices such as Trend controllers, North LogMax devices, York controllers, Cylon controllers, etc.
- Data Manager can collect values from remote locations via XOM compatible networks including IP, Compass and dial-up networks.
- Operation with an ObSys standalone workstation or a client/server configuration.



The Channel List Window

The Data Manager channel list window provides a summary of the configured data channels.



The Info Pane

Located at the top of the window, the info pane displays general information about the data channels including the total number of channels configured and the number currently in alarm.

The New button allows a data channel to be created. This is described later in the *Data Channels* section.

The Channel List

The channel list displays a selectable list of the configured data channels, sorted alphabetically. Each list entry includes:

- Alarm state – high/low value alarm, high/low value warning, or communications fault.
- Channel name.
- Value with units.
- Date and time last value recorded.
- Number of associated channels for Compare feature.

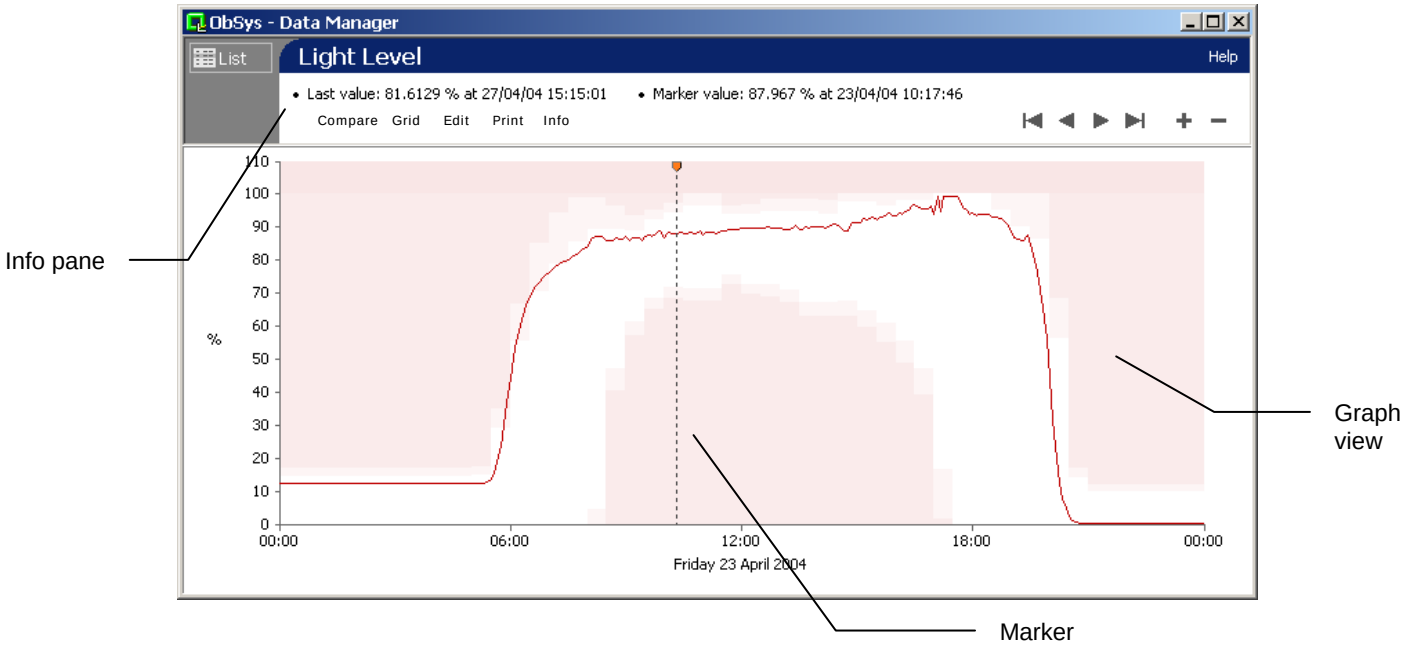
Double-click on a list entry to view the data channel.

Right-clicking on a list entry displays a menu with the following options:

- View, Edit or Delete the selected data channel.
- More Info – view information related to the channel, only visible if configured for the channel.
- New – add a new data channel.

The Graph Windows

Selecting a data channel displays the graph window.



The Info Pane

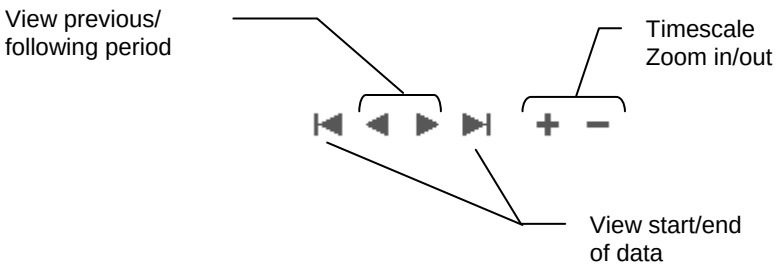
The info pane displays information about the data channel along with controls for adjusting the graph view. The List button in the top left returns to the channel list window.

The following buttons are available:

- Compare – toggles the graph window between the graph view and compare view.
- Grid – toggles the graph y-axis grid lines.
- Edit – edits the current data channel configuration, this is described later in the *Data Channels* section.
- Print – prints the current view.
- Info – view information related to the channel, only visible if configured for the channel.

Graph View

The graph view displays a trace showing the historical data for the selected channel. The y-axis displays the channel value and units; the x-axis displays the timescale of the view. Using the controls on the info pane the timescale of the view can be adjusted to show a period of data between 1 minute and 1 year. Also, the view can be scrolled to show the following or previous periods data.



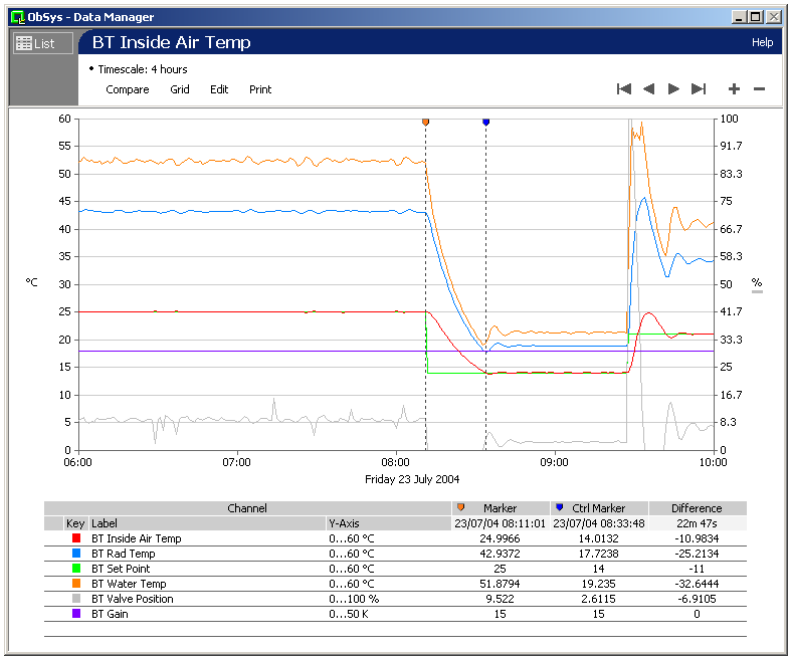
The shaded areas, if present, indicate the AutoTrack limits. If the trace passes into the shaded area the value is out-of-range and an alarm generated.

To find the value of the trace at a specific time click on the graph view, this will display the marker. The value at the marker position is displayed in the info pane.

The graph view will dynamically update with the latest channel values and scroll to show this latest data.

Compare View

Selecting the Compare button from the info pane toggles between the graph view above. The compare view is shown below.



The compare view displays up to six additional channels to compare with the selected data channel. A key showing the channels displayed with y-axis range is displayed below the graph.

As with the graph view, using the controls on the info pane the timescale can be adjusted to show a period of data between 1 minute and 1 year. The view can also be scrolled to show the following or previous periods data.

Markers

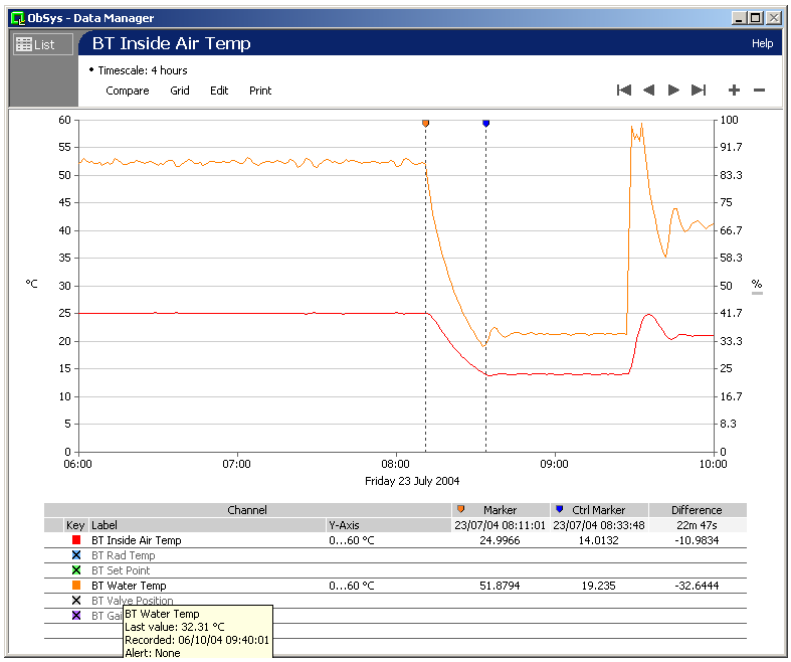
Clicking on the graph will set the marker; the value at the marker position for each trace is displayed below the graph view. A second control marker can also be set by holding the Ctrl key and clicking on the graph. When both markers are displayed the difference between them is also shown.

Y-Axis

Click the Y-Axis button on the info pane to select an alternative scale on the right y-axis.

Hiding a channel

To hide a channel from the graph click on the key colour, click again to re-enable the graph.



Data Channels

Data Manager records an objects value in a data channel. Up to 4000 channels may be configured, and therefore 4000 objects may be recorded. Each data channel may record up to 500,000 values from its configured object.

A data channel has several parameters that may be configured in order to collect, manage and display the data it records.

Adding a New Data Channel

For a data channel to start recording values it needs to be configured. A new channel can be added from the Data Manager list window or from an engineered ObView window.

From Data Manager

To create a new channel from the Data Manager list window select New. Next, complete the data channel parameters shown on the properties window - these are described below.

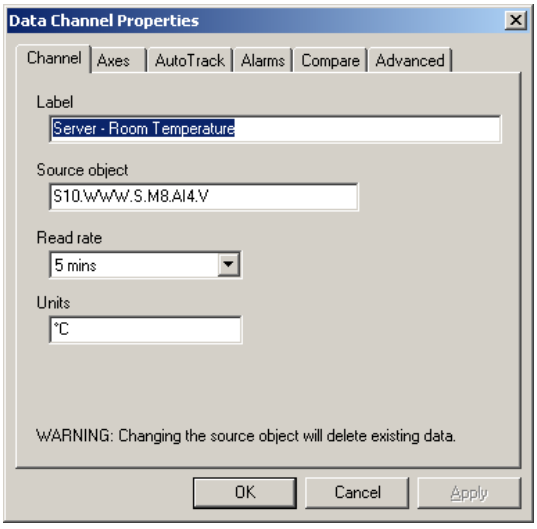
From ObView

To create a new channel from ObView click on the Data Manager icon next to the object you wish to record, as shown left. Next, complete the data channel parameters shown on the properties window - these are described below. Required parameters will have already been completed as part of the 'one-click' set up.

Data Channel Properties

A data channel has several fields that may be configured from the data channel properties window:

Channel



- Label – a description of the channel, maximum 64 characters.

  Tip: The channel list is sorted alphabetically, group channels using a common name at the start of the label.

  Note: To delete a data channel clear the label.

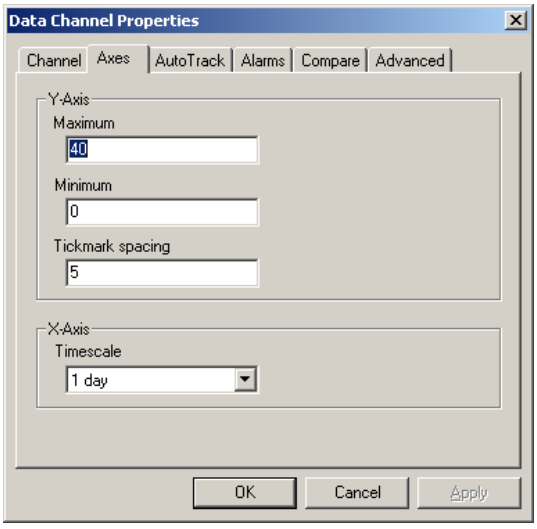
- *Source object – object reference within ObSys to collect data from. The object could be a sensor value or remote log.*

  Note: Changing the Source Object of a data channel will delete all recorded values and AutoTrack information for the channel.

- *Read rate – specify the frequency at which Data Manager collects data, in the range 1 min to 1 week.*

- *Units – the units of measurement for the data, maximum 8 characters.*

Axes

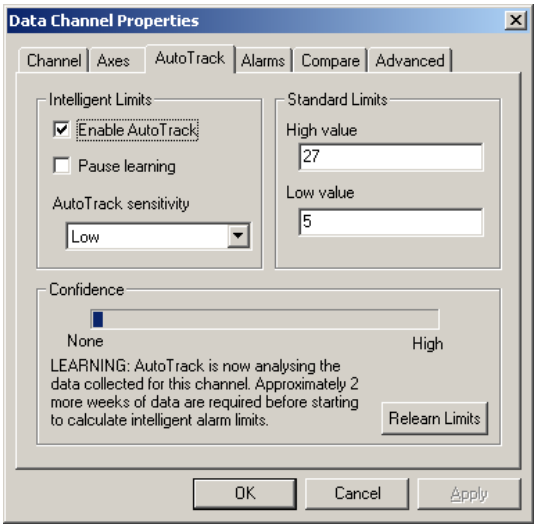


- Y-Axis – specify the maximum and minimum range of the y-axis, along with tick-mark spacing.

- X-Axis – specify the default timescale of the graph view in the range 1 minute to 1 year.

  Note: The X-Axis timescale may be changed when viewing the graph using the controls on the info pane.

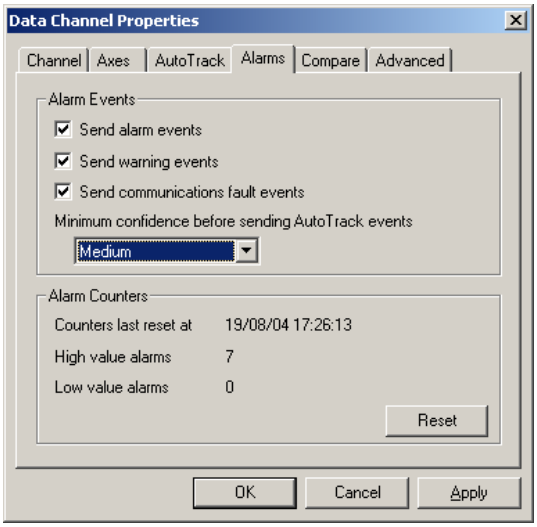
AutoTrack



- Enable AutoTrack – select this option to enable intelligent data analysis
- Pause learning – if you are happy with the AutoTrack profile learnt select this option to stop further learning
- AutoTrack sensitivity – specifies the sensitivity of the calculated intelligent alarm limits
- Standard Limits – high and low value alarm limits
- Confidence – the current confidence of the learnt profile data (No confidence, Learning, Low, Medium, or High)
- Relearn Limits – erases existing AutoTrack data and starts relearning

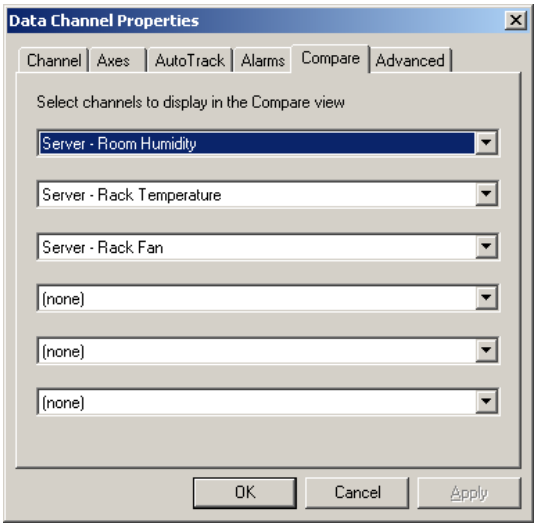
Refer to the *AutoTrack* section for further information.

Alarms



- Send alarm events – select this option to enable high value and low value alarm events.
- Send warning events – select this option to enable high value and low value warning alarm events.
- Send communications fault events – select this option to enable communications fault events.
- Minimum confidence – select the minimum AutoTrack confidence level before AutoTrack alarm/warning events are sent.
- Alarm Counters – count of how many times the data channel has been in a high or low alarm condition.

Compare

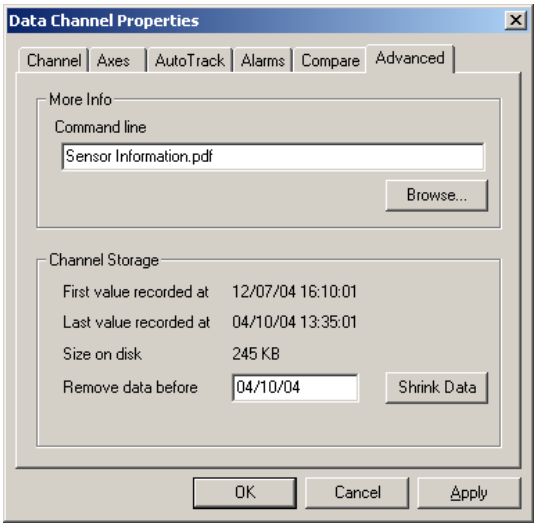


- Select up to six additional data channels to display in the compare view

Advanced

- Command line – specifies a command line to trigger when pressing the Info button.
- Channel Storage – information on the date of first and last value recorded, and storage used on the disk.

  Note: Refer to the ***System Requirements*** section for further information.



Viewing a Data Channel

From Data Manager

Double-click on the channel to view in the channel list window.

From ObView

Click on the Data Manager icon next to the object you wish to view.

Editing a Data Channel

To edit a data channel first view it as described above, then click the Edit button on the info pane. Adjust the parameters required as described in adding a new data channel above, and click OK.

Note: Changing the Source Object of a data channel will delete all recorded values and AutoTrack information for the channel.

Deleting a Data Channel

To delete a data channel, whilst editing the channel, clear the label parameter and click OK. Data Manager will prompt, 'Do you want to delete the data channel?' Click Yes to delete the channel.

Channel Storage

Data Manager stores the data for each channel in a standard comma separated value file (CSV).

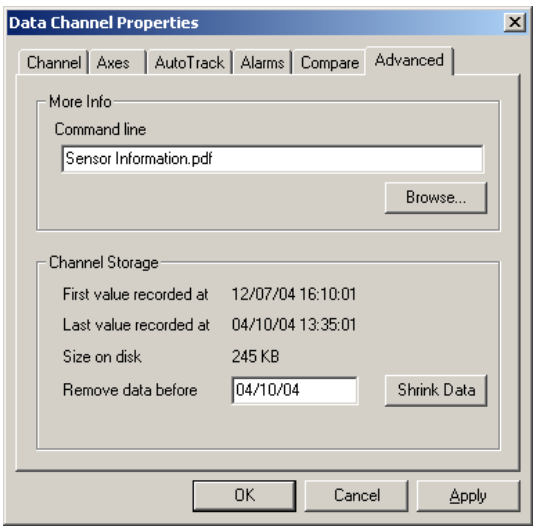
You may take a copy of these files and import them in to other applications, such as Microsoft® Excel. You may also wish to include these files as part of your backup plan.

Data Manager will continue to record data to these files until the hard disk is full.

To shrink a file, edit the channel and select the Advanced tab from the properties window (shown right). Next, enter a date that Data Manager should archive the channel data before and click Shrink Data.

You will then be prompted for a location to archive this data to.

Refer to the *System Requirements* section for more information of hard disk space.



AutoTrack

AutoTrack provides powerful statistical analysis of the data collected by Data Manager, constantly monitoring and learning a data channels behaviour.

Once AutoTrack has learnt a channels weekly profile it can use this data intelligently, detecting when a value is outside its usual operating range and alerting the user. AutoTrack can also detect when a value is approaching its usual operating range allowing a user to pre-empt an alarm condition.

Data Manager alerts are indicated in the channel list view and an alarm event can be sent to ObSys; this may then be routed onwards to Alarm Manager, a users email, a text message (SMS) or a printer, etc.

Once enabled, AutoTrack requires 4 weeks of collecting data before it can generate a weekly profile for the channel. The confidence of the profile, and intelligent alarm limits, is described using the following levels:

- None – less than four weeks of data collected, no profile available.
- Low, Medium, High – Data Manager has collected enough data to give a confidence rating accordingly.

The graph view displays the profile as a series of shaded areas (enhanced here for illustration). As the confidence level increases the shading will darken.

The darkest shade is used to indicate the standard alarm limits. These are static limits configured manually from the data channel properties window. If the value exceeds these limits a high/low value alarm is generated.

The next lighter shade is used to indicate the intelligent alarm limits, learnt by AutoTrack. If the value exceeds these limits, and the confidence is better than low, then a high/low value alarm is generated.

The lightest shade indicates the intelligent warning limits. Using these learnt limits AutoTrack warns the user when a value is approaching the alarm condition.

The sensitivity of the intelligent alarm limits may be adjusted from the channel properties window.

Using the Keyboard

Channel List Window

Use the following keyboard shortcuts for moving around the channel list.

Press	*To*
UP or DOWN ARROW	Move the highlight up/down
HOME	Move to the top of list and highlight first channel
END	Move to the end of list and highlight last channel
PAGE UP or DOWN	Move highlight a page up/down
ENTER	View data for the highlighted channel
CTRL + N	Create new channel
F1	Display this help
Any Alphanumeric key	Move the highlight to the next channel starting with this letter.

Graph Window

Use the following keyboard shortcuts for moving around the graph view.

Press	*To*
CTRL + C	Toggle compare view
CTRL + E	Edit channel
CTRL + H	Home (return to channel list)
CTRL + I	Info
CTRL + P	Print view
PLUS or MINUS sign on the numeric keypad	Timescale zoom in/out
LEFT or RIGHT ARROW	View previous/following period
HOME or END	View start/end of data
F5	Refresh view
F1	Display this help

System Requirements

Data Manager is part of the North ObSys suite and requires ObServer to communicate with different systems.

The size of hard drive storage available should be considered. If a data channel is reading a value every 15 minutes Data Manager will require 92KB for each month of data, if this is logged for 1 year the channel may require up to 1.1MB of storage. If this data is logged for 5 years the storage required may reach 5.3MB just for one channel.

Use this formula to calculate the storage required for a channel:

$$\text{Storage (MB)} = \frac{16.04}{\text{Read rate (mins)}} \times \text{Years}$$

Further Information

For more detailed information on engineering Data Manager refer to the *Data Manager v11 Application Engineering Guide*.