

# Engineering Guide

## Data Manager v11 Application

### Introduction

The Data Manager v11 Application 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.

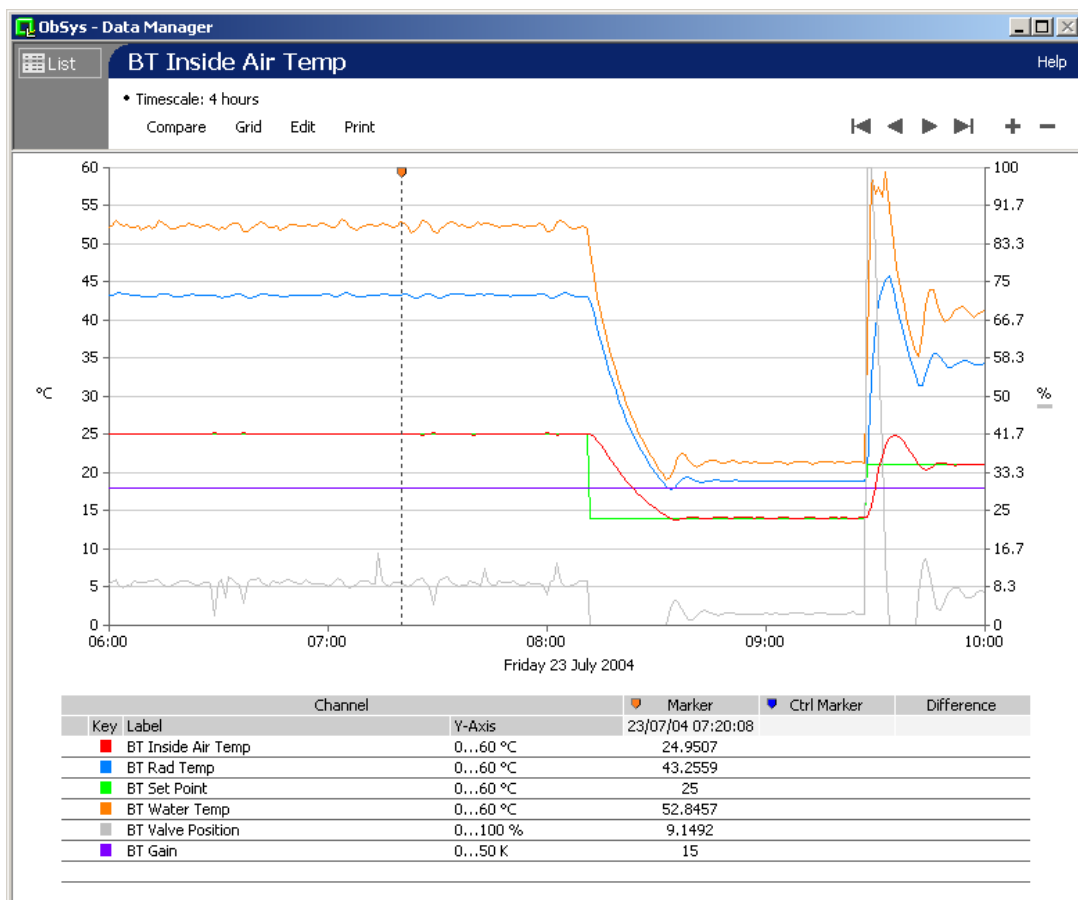
Data Manager is part of the North ObSys management suite and is therefore able to collect data from many different manufacturers' systems including Data acquisition modules, Power meters, BMS controllers, Lighting, and Power management systems such as UPS generators.

The logs collected by Data Manager may also be accessed from WebView.

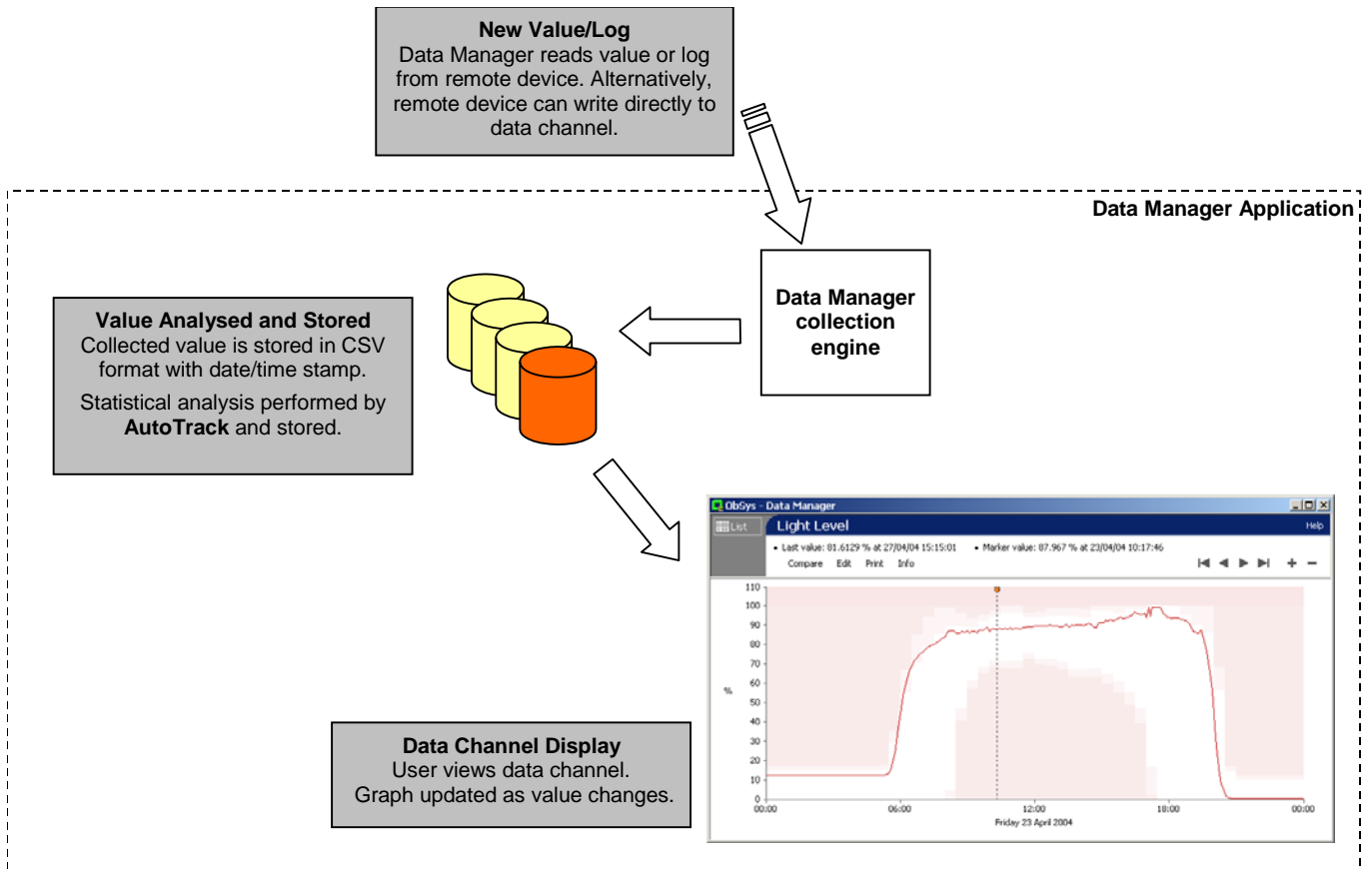
### Key Features

- Ease of Engineering – data channels may be configured from the Data Manager window. From ObView, a data channel may be added or viewed with 'one-click'.
- Compatibility – Data Manager works alongside the data logging available from both the LogMax and UserData modules. Existing log data may be imported from these modules, or from any XOM (eXtensible Object Model) compatible device such as Commander, Trend, York, and Cylon controllers, etc.
- AutoTrack – provides powerful statistical analysis of the data collected by Data Manager, constantly monitoring and learning a data channels behaviour. A user can then be alerted when a value is approaching or outside its normal operating behaviour.
- Workstation or Client/Server operation – Data Manager may operate in either a workstation environment where all data collection and display are performed on a single PC, or a client/server environment. In a server configuration Data Manager collects data and makes this available, via an IP network, for display by a client.

For Data Manager to collect data it must remain open. Options are available to inhibit closing the window.



## Operation



### Data Collection

Each data channel is configured from within the Data Manager application by specifying a source object and read rate. A read rate between 1 minute and 1 week may be specified; if a higher resolution is required the value may be written directly to the channel.

### Storing and Analysing the Data

Data Manager stores the data collected within a comma separated values (CSV) format file. The data collected is analysed depending on the configuration of the channel.

The data is compared against standard high and low alarm limits to generate an alarm condition.

AutoTrack also performs statistical analysis on the data learning its weekly behaviour or profile. If the data moves outside of this profile an alarm condition is generated, also if the data approaches the edge of this profile a warning condition is generated.

### Viewing the Data

The Data Manager window allows the data collected to be viewed and studied. From the channel list window all data channels are listed with their current value, alarm condition, and time the last value was collected.

Selecting a channel to view displays the channel in real-time with its AutoTrack profile. The channel may also be compared with six additional data channels.

### Using Information Collected by Data Manager

Other applications or modules may also use the features provided by Data Manager.

- Alarms Events – when an alarm or warning condition is detected by Data Manager this may be sent as an alarm event to an XOM compatible device such as: Alarm Manager application, an e-mail recipient, an SMS message, etc.
- Objects – each data channel has objects available that may be accessed by XOM compatible devices. Objects available include: alarm state, current value, date value last read, log data, etc. For example, OBVEngine could be used to read the current alarm state and take proactive action to prevent an alarm condition.
- Files – data collected is stored within a comma separated values (CSV) format file. This file may be exported to other applications such as a spreadsheet or database, e.g. Microsoft® Excel. CSV files may also be imported to Data Manager from other applications such as the LogFile module, or a spreadsheet, etc.

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## **Engineering**

### **Step 1 – Install Data Manager**

Refer to the 'ObSys CD sleeve' for details on how to install ObSys. Data Manager is installed along with the ObView components. A shortcut for Data Manager will be added to the Start menu.

### **Step 2 – Launching Data Manager**

Double click the Data Manager shortcut to launch the application. If ObServer is available, the Data Manager window will appear and open a channel to ObServer. If ObServer is not available, Data Manager will close.

Command-line parameters are available to control how the window is displayed. Refer to the [Command Line](#) section below for more details.

### **Step 3 – Configure Data Manager using Objects**

Once Data Manager is running and connected to ObServer, other applications can access objects within Data Manager to configure it. Use your object engineering software, such as ObView, to view and modify Data Manager objects as necessary.

Objects are available to configure a label, alarm object, access security level, trace colours, print margins, and network path. Refer to the [Objects](#) section below for more details.

### **Step 4 – Configure Data Channels**

Channels are added to Data Manager from its window, refer to the '[Data Manager v11 Window User Guide](#)' document for more information.

Data Manager should remain running to collect data. If the window is closed all the data collection and analysis it provides will stop. Options are available to prevent a user closing the application, and hiding the window when minimised.

### **Step 5 – Using the Data Manager Window**

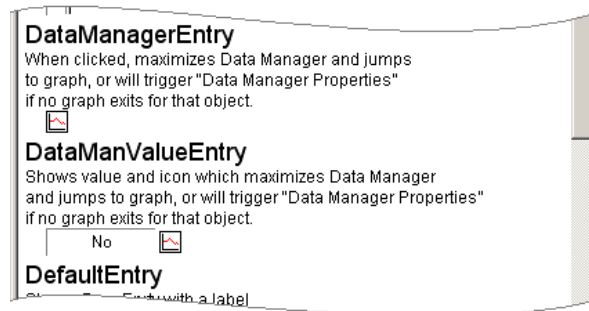
Refer to the '[Data Manager v11 Window User Guide](#)' document for more information on using the Data Manager window.

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## Launching Data Manager from ObView

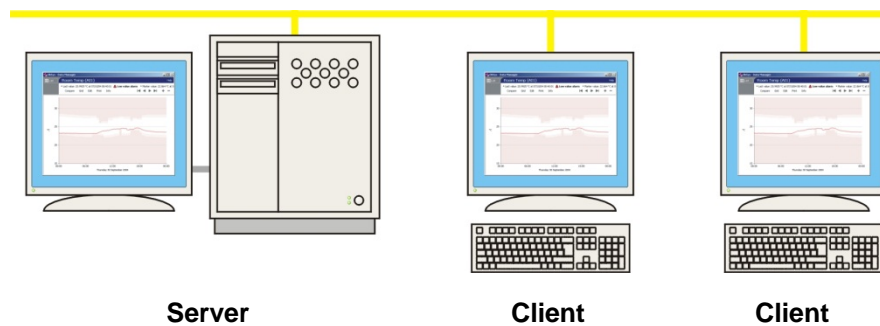
When engineering an ObView page it is possible to include an object with a button that launches Data Manager and displays the log for that value. If Data Manager had not been configured to log the value then it will prompt the user for the required information, with some information already completed such as object reference.

To add an object to your ObView page with a Data manager button, select any Float, Num, NoYes or OffOn type object then right-click and select Alternative Items from the menu. Two alternative items are available that include a button to launch Data Manager.



## Client/Server Operation

Data Manager by default is configured for standalone operation, where it both collects and displays data. Data Manager may also be used in a client/server configuration where one PC is configured to collect, analyse and store data – the server; other PCs are then configured to access this data – the clients.



A client/server configuration is useful when several PCs need to access the same information – all information is contained on one server PC that can be maintained by the organisations IT department.

The server could then be located in an environmentally controlled environment with redundant power supplies and UPS backup; RAID hard drives and included in a regular backup scheme.

For further information please refer to the [Data Manager v11 Setup](#) Object Specification.

## WebView Integration

WebView, the ObSys web server component, is also configured to display the basic log data for all configured data channels.

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# AutoTrack

## Operation

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.

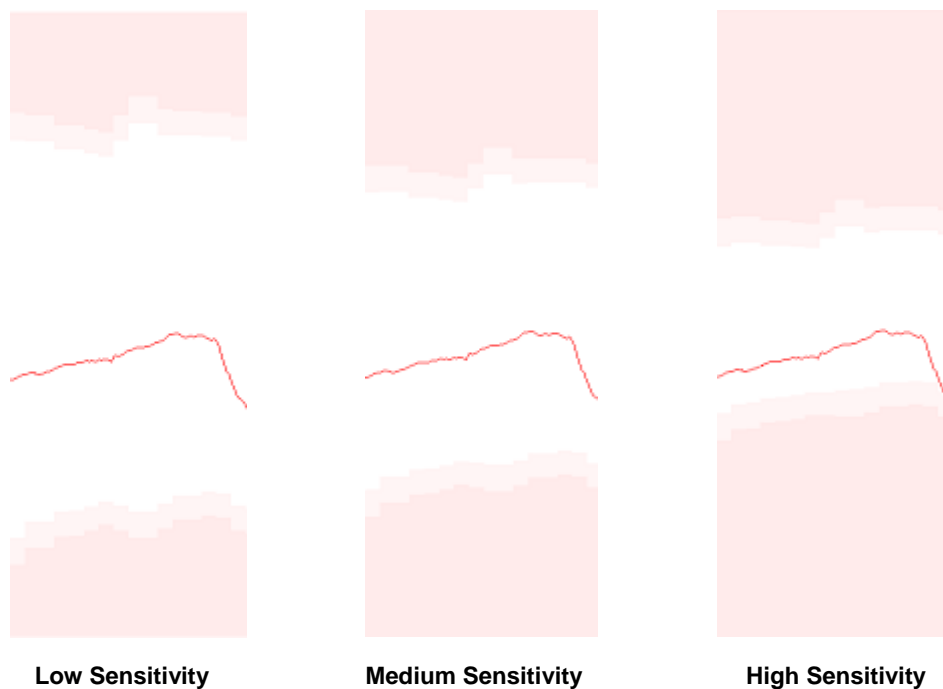
Data Manager alerts are indicated in the channel list view and an alarm event can be sent to ObSys; this may then be routed onwards to Alarm Manager, a users email, a text message (SMS) or a printer, etc.

## Confidence

AutoTrack monitors the data channel and calculates a weekly profile. Before AutoTrack can start to calculate a profile at least four weeks of data are required. As more data is collected the confidence increases.

## Sensitivity

When configuring AutoTrack a sensitivity level is specified. This level is used when calculating the AutoTrack intelligent limits, as the following diagram illustrates:



## Resetting AutoTrack Data

If a sensor is faulty and the range of values becomes abnormal you may wish to clear the data learnt and restart AutoTrack by selecting 'Relearn Limits' from the Data Manager window.

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## Exporting Data

Data Manager stores the data collected within a comma separated values (CSV) format file. A copy of this file may be taken and used by another application such as Microsoft® Excel.

The CSV file has the format:

“dd/mm/yy hh:mm:ss,value,notes”

From the Data Manager window a ‘Shrink Data’ feature is available that exports old data to a separate CSV file.

## Importing Data

There are several ways of importing information to Data Manager:

- Data Manager can read a log directly from an XOM compatible device (e.g. Trend, Cylon, LogMax, etc)
- An existing log, i.e. from a LogMax module, can be archived to a CSV file using the LogFile module then imported in to Data Manager.
- A Data Manager compatible CSV file could be imported.

To import a CSV file in to Data Manager:

- Create a new data channel and configure with an object to collect future data. Make a note of the channel name
- Close Data Manager
- Open the %COMMON\_APPDATA%\North Building Technologies\ObSys\\DataManager folder
- Delete the <channel name>.csv file
- Copy the archive CSV file to this folder and rename to <channel name>.csv
- Restart Data Manager

## Disk Space

In addition to the ObSys system requirements, the size of hard drive storage used should also be considered. Data Manager will continue to store values until the hard drive is full.

If a data channel is reading a value every 15 minutes Data Manager will require approximately 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:

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

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## Engineering Reference

### Command-Line Parameters

The command line for running Data Manager uses the following optional parameters. If a parameter is not specified the value configured using objects is used.

Parameter	Use	Values
OC	ObServer Channel	Number: 1...199 = Use specified channel
CI	Close Inhibit flag	Flag: 0=Close allowed 1=Close inhibited
X	X coordinate of the window top left corner on screen	Number (pixels)
Y	Y coordinate of the window top left corner on screen	Number (pixels)
W	Window width	Number (pixels)
H	Window height	Number (pixels)

Using the command line, Data Manager may also be triggered (from ObView, Windows shortcut, etc) with a data channel to display. If the data channel has not been configured the user will be prompted to configure the new channel.

Parameter	Use	Values
O	Object reference	Object
L	Label	Text

Example command lines include:

```
C:\Program Files\North Building Technologies\ObSys\DataManager.exe  
C:\Program Files\North Building Technologies\DataManager.exe OC=61;CI=1;X=0;Y=0;W=600;H=300  
C:\Program Files\North Building Technologies\DataManager.exe O=S1.M4.SC.V;L=Room Temperature  
C:\Program Files\North Building Technologies\DataManager.exe  
O=S1.M5.AI1.V;L=Humidity;X=0;Y=200;W=800
```

### Objects

When the Data Manager application is launched the following objects are created within ObServer. Use object software, such as ObView, to view or modify these objects.

Object	Label	R/W	Type
O.DM	Data Manager configuration	-	[DataManager v11]

### File Storage

Data Manager stores values in the following files:

```
\ObSys\<sitename>\DataManager\*.csv - channel data  
\ObSys\<sitename>\DataManager\*.bin - AutoTrack data  
\ObSys\<sitename>\DataMgr.dat - Data manager channel configuration data
```

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## Notes

### ObSys Licence Units

The Data Manager application is enabled when installing ObSys with enhancement applications.

### Revision History

Version	Build Date	Details
1.0	1/10/04	Application released
1.0	5/9/05	Fixed problem with displaying last logged value in list view, on newly added channel.
1.0	25/4/06	Fix: AutoTrack alarms – confidence not recalculated correctly. Modification: Now retry a value 15times to improve communications over modem links.
1.0	13/8/07	Modification: If object is a LOG do not force data collection on a time division (e.g. :00, :15). Improved appearance for WinXP platforms
1.0	17/10/07	Modification: Add ability to configure a longer pause between reads. Useful for slow systems.
1.1	1/9/08	Modification: add object access to log channels, for save/load and WebView access. Fix: If saving csv in Excel the date/time is reformatted. DM now supports this format. Fix: In list view, corrected calculation of 'associated channels' icon. Modification: Add minimise to tray option Modification: Remove 'are you sure' prompt if closing DM network version.
1.1	1/12/09	Increased maximum channels to 4000.