Operator manual

Kongsberg MDM 500
Marine Data Management

Kongsberg MDM 500

Operator manual

This manual provides you with the basic information required to operate the Kongsberg MDM 500. For a more detailed description of the operation and functionality, including menus and all parameters, refer to the *Kongsberg MDM 500 Reference manual*.

Revision status

Document number: 363578 / Current revision: C		
Rev.A	09.09.2011	First version.
Rev.B	14.12.2011	Added sensor drivers, updated dialogs.
Rev.C	30.09.2013	Updated for SW release 2.0.0. Added sensor drivers (DESO25, Water Temperature)

Copyright

Disclaimer

Warning

Support information

If you require maintenance or repair, contact one of our offices, distributors or dealers. You can also contact us using the following address: km.hydrographic.support@kongsberg.com. If you need information about our other products, visit http: //www.km.kongsberg.com.
See also *Support information* on page 12.

Table of contents

About this manual

Purpose

The purpose of this operator manual is to present the descriptions and procedures required to operate the Kongsberg MDM 500 in a safe and efficient manner.

It is not within the tasks of this manual to describe all functions and parameters in detail. It is therefore also important that you study the other documents that are provided with your system. For detailed descriptions of all functions and parameters, refer to the *Kongsberg MDM 500 Reference manual*.

MDM 500

Study this chapter to familiarize yourself with the Kongsberg MDM 500.

Topics

363578/C

System description

The Kongsberg MDM 500 Marine Data Management system is a Windows-based utility for storage and distribution of the data recorded by the various sensors normally found on oceanographic research vessels.

These sensors may include instruments such as:

- navigation systems
- weather sensors
- sound propagation sensors
- hydrographic instruments

The MDM 500 collects data from these sensors, and stores the data in a relational database. All sensors are physically connected to the MDM 500 system through dedicated Client computers ore are accessible over the LAN. Each Client computer offers the necessary software drivers to accept and decode the information provided by the sensors. You can use any number of Client computers on your MDM 500 system. You can also connect any number of sensors to each Client computer, this is only limited by the interface capabilities on each computer.

Data may also be distributed to other instruments or computers on board. Each Client computers offers a remote output. You can add any number of Client Monitor computers to the network to supervise the data traffic.

Example 1   Data distribution

The exact time received from the GPS system may be distributed to all personal computers on the network, as well as all to other instruments that need time data.

Position data from the GPS may be distributed to any system on sensor that need geographic information.

By means of the MDM 500 applications and tools provided, you may select which sensor to log data from. For each sensor you can define logging parameters, such as the sampling rate.

All data from sensors without their own logging facility are recorded. From sensors with their own logging facility, usually only a reduced data set is recorded.

The MDM 500 provides a selection of either alphanumerical or graphical data for on-line monitoring. Reports based on the data stored in the database can be generated, either as standard reports or custom reports via an open database connectivity (ODBC) protocol interface.

System diagram

A simplified system diagram is provided.

Figure 1   MDM 500 Marine Data Management

(CD022400-001)
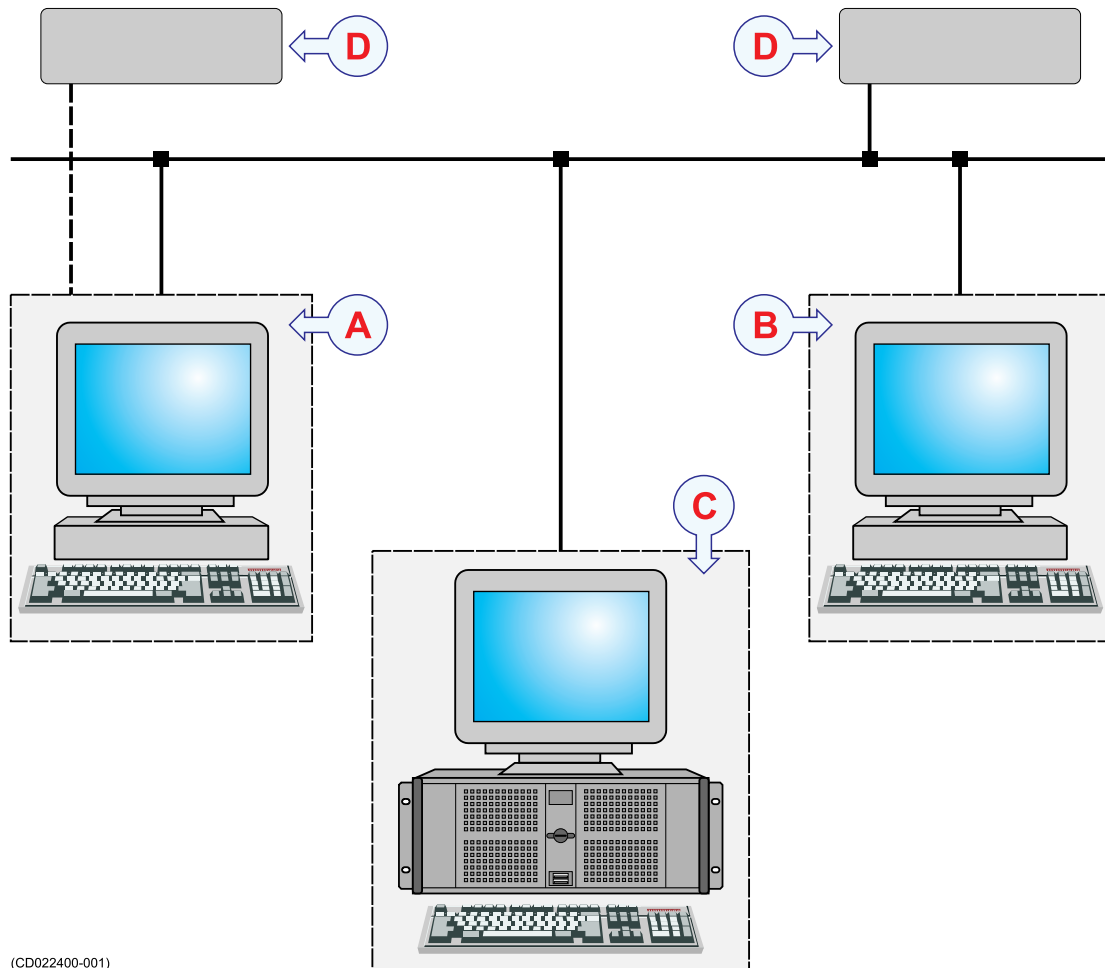
A   This is the Client computer.

Any number of Client computers may be used in a MDM 500 system. Any number of peripheral sensors may be connected to each Client computer by means of serial or Ethernet lines. Each Client computer runs the MDM 500 Client Manager software, as well as any tool applications that are required. The Client Manager software also provides the necessary drivers to accept and decode the information from the sensors.

B   This is the Client Monitor computer.

Any number of Client Monitor computers may be used in a MDM 500 system. No sensors are connected to this computer. The MDM 500 Client Manager software allows you to monitor the information provided by any sensor connected to the network.

C   This is the MDM 500 Server computer.

Only one Server computer is used in the MDM 500 system. he Server computer runs the MDM 500 Server Manager software, as well as any tool applications that are required. The Server computer also provides the database application supported by the necessary data storage hardware.

Normally, no sensors are connected to this computer. However, it is possible to install the Client Manager software on the Server computer, and thus allow this computer to have two roles in the system. The relevant sensors are then connected directly to the Server computer.

D   This is an external sensor.

Any number of external sensors can be connected to the Client computer by means of serial or Ethernet lines. The number of sensors is only limited by the interface capabilities on the Client computer. Several different sensor types may be connected to collect navigation, weather, sound propagation or hydrographic data.

System modules

Topics

Hardware

The design philosophy for the MDM 500 is to use standard high-end personal computers both for the MDM 500 main server, spare server and MDM 500 client computers.

All MDM 500 software will run under any personal computer with the Windows 7 operating system.

All data equipment belonging to the MDM 500 system, including the hubs must be connected to a uninterrupted power supply.

Interchangeability

The hardware can be upgraded with parts approved by Kongsberg Maritime without changing any MDM 500 software.

New sensors and/or instruments are added by installing a new driver on the relevant Client computer. All interface configuration is done on the Client computer, while other logging parameters are defined on the Server computer.

Software

The following software applications, modules and drivers are implemented:

1   MDM 500 Server Manager

This is the main software application on the MDM 500 Server computer. It provides a relational database management system for storing sensor data and reduced data sets from single- and multibeam echo sounders. It also controls the data recording and distribution, as well as the overall system performance. A Display Driver module allows the software to communicate with you.

2   MDM 500 Tools

A set of tool applications is available for dedicated purposes.

- SVP Editor
- SVP Manager (no longer used, replaced by SVP Editor)
- Report Manager
- Watchdog

3   MDM 500 Client Manager

This is the main software application that runs on the Client and Client Monitor computers. The Client Manager holds all the Sensor Drivers to render possible the data inputs from the peripheral sensors and instruments. It also provides an Output Data Formatter to distribute the sensor data on the internal MDM 500 format. A Display Driver module allows the software to communicate with you.

The Output Data Formatter also provides an auxiliary data output to the network.

For use on a Client Monitor computer, the Client Manager includes a Input Data Decoder module. This module will convert the sensor data from the internal MDM 500 format to formats fitted for supervision.

The MDM 500 Client Manager can be started in different modes:

- Normal mode: this is the mode described in this manual.
- Floating mode: in this mode you can show more than six sensor forms simultaneously, and they can be moved freely around the screen.

  Floating mode is started by adding the parameter –floating when starting the Client Manager.

- Debug mode: this is a special mode used for debugging. In this mode a log file `mdm.log` is created in the folder `MDM 500` under %AppData%

  Note _____

  The log file is not deleted automatically and can become very large. Do not use Debug mode for normal operation, it is provided for investigation of problems.

  _____

  Debug mode is started by adding the parameter –debug when starting the Client Manager.

Network security

Equipment manufactured by Kongsberg Maritime are frequently connected to the ship's local area network. Connecting any computer to a network will always expose the data on that computer to all other computers connected to the network. Several threats may immediately occur:

- Remote computers can read the data.
- Remote computers can change the data.
- Remote computers can change the behaviour of the computer, for example by installing unwanted software.

Usually, two parameters are used to define the threat level:

- The likelihood that any remote connection will do any of the above.
- The damage done if a remote connection succeeds doing this.

Because Kongsberg Maritime has no information regarding the complete system installation on any vessel, we can not estimate the threat level and the need for network security. For this reason, we can not accept responsibility for network security. Systems provided by Kongsberg Maritime are regarded as stand-alone systems, even though they may be connected to a network for sensor interfaces and/or data distribution.

Important

No safety applications are installed on any Kongsberg Maritime computers to protect these against viruses, malware or unintentional access from external users.

Securing the MDM 500 itself has no meaning unless there is a policy in place that secures all computers in the network, including physical access by trained and trusted users. This must always be a task for the customer to implement.

If you wish to connect the MDM 500 to the ship's network, you must implement the same security mechanisms on the MDM 500 computer(s) as for the rest of the network. In the tentative standard from Det Norske Veritas (DNV) - *Integrated Software Dependent System (DNV-OS-D203)* – this is described as a task for the network responsible person in charge of the overall behaviour of the network system. Some key elements here must be:

- The same anti-virus protection on all computers, including routines for updating this protection.
- The same settings for the firewall on all computers.
- Controlled physical access to computers on the network.
- Trusted operators.
- Log-in access mechanisms
- Same policy for attaching peripheral equipment to the computers (USB devices, hard drives etc)
- Installation of programs on any computer in the network, verification that each program is authentic.
- Definition of which programs are allowed to run on each computer.

- Logging mechanism of computer activity, and inspection of these logs.

How to define and implement these rules depends on each end user's network system configuration, which again must be a result of the policies and threat levels the end user has defined for the complete installation. For some products the network consists of only processor units or work stations, transceivers and a few sensors. On other vessels, larger computer systems can be installed to include numerous products and data systems. As the DNV-OS-D203 suggests, there must be one responsible person for the security of a system, large or small.

Scope of supply

A typical Kongsberg MDM 500 Marine Data Management will comprise the following items:

1   Software dongle

2   DVD with database software

3   CD with MDM 500 software

Optionally, the following items may be provided:

1   Server computer

Typically, a Hydrographic Work Station (HWS) computer is provided. Keyboard and mouse is included.

2   Client computer(s)

Typically, a Hydrographic Work Station (HWS) computer is provided. Keyboard and mouse is included.

3   Colour display(s)

Support information

If you need technical support on the MDM 500 system you must contact a Kongsberg Maritime office. A list of all our support offices is provided on http://www.km.kongsberg.com.

You can also contact our main support office in Norway.

- **Address**: Strandpromenaden 50, 3190 Horten, Norway

- **Telephone**: +47 33 02 38 00

- **Telephone, 24h**: +47 815 35 355

- **E-mail address**: km.hydrographic.support@kongsberg.com

- **Website**: http://www.km.kongsberg.com

Getting started

This chapter describes how to get started with the basic operation of the MDM 500.

It contains a brief overview of the basic system operation and procedures. If you are a first time user, we recommend that you read through this chapter while operating the MDM 500 so that you can familiarize yourself with the menus, dialog boxes and display presentations.

This chapter assumes that the MDM 500 Marine Data Management system has been installed on a Server computer, and that a number of sensors have connected and set up using one or more Client computers. If this is not the case, observe the dedicated procedures.

Topics

System familiarization

Even though the MDM 500 Marine Data Management system may be implemented with numerous Client and/or Client Monitor computers, the Server computer with the Server Manager software is the heart of the system.

The Server computer is set up as an HTTP server. This means that you can access the Server computer from any other computer on the network by means of a standard web browser. This HTTP access is used when you wish to install the Client Manager software – and Tools – on any Client or Client Monitor computer.

All operation of the various applications conform to standard procedures for Windows® software. It is assumed that you are familiar with normal operation of Windows® software, and with standard web browsers and similar programs.

Note _____

The name of the Server computer is vital for access to the HTTP server.

To access the server, use the following address in the browser's address field: http://computername:80

_____

Related topics

- *System description* on page 7
- *System diagram* on page 8

Power on/off procedures

These procedures explain how to switch the MDM 500 system on and off.

How to power up the MDM 500

Purpose

This procedure explains how to power up the Kongsberg MDM 500 system.

Note _____

The MDM 500 system runs on standard commercial computers. In a typical operational environment, these may not have been supplied by Kongsberg Maritime.

_____

1 Verify that the peripheral sensors are all operational, and that they are connected to the Client computer(s).

2 Power up the Server and Client computer(s) as described in the relevant computer manuals.

3 Allow the operating systems to start, and log in as a system user.

Unless your system administrator has made other arrangements, the standard log-on credentials are:

- User name: `operator`
- Password: `simrad1`

4 Start the relevant applications from the operating systems **Start** button, or click the icons on the desktop.

How to power off the MDM 500

Purpose

This procedure explains how to power off the Kongsberg MDM 500.

Note _____

The MDM 500 computers will normally be kept permanently operational, especially during a survey. On most vessels, the system is only powered down when the ship is berthed.

_____

1   Close down the applications using the relevant **Exit** commands.

2   Power down the computer(s) using the functionality provided by the operating system.

How to perform basic operations

In most operational environments, the Kongsberg MDM 500 is powered up and activated as long as one or more hydrographic instruments are in use. Observe these brief procedures to familiarize yourself with the basic operations of the MDM 500 system.

Topics

How to start the MDM 500 applications

All MDM 500 applications are started like any other Windows® programs. As a minimum requirement for operation, the Server Manager and Client Manager must be operational with one or more active sensors.

Note _____

On the Server computer, the Server Manager and Watchdog applications will start automatically once you log on.

_____

1   Click the **Start** button in the bottom left corner of the desktop.

2   Click **All programs**.

3   Locate the **MDM 500** group.

4   Click to start the relevant application:

- Server Manager
- Client Manager
- SVP Manager
- Watchdog
- Report Manager

Tip _____

The same programs may also be started from the desktop or the task bar if the relevant short-cut icons have been created.

_____

How to start logging

This procedure explains how to start the logging operation. It is assumed that all relevant sensors have been connected, and that the recording configuration has been completed.

1   Access the **Server Manager** dialog on the Server computer.

The Server Manager application is already running, and you need to see the **Server Manager** dialog.

→   *How to start the MDM 500 applications* on page 15

2   Click the button **Start logging**

How to stop logging

This procedure explains how to stop the logging operation.

1   Access the **Server Manager** dialog on the Server computer.

The Server Manager application is already running, and you need to see the **Server Manager** dialog.

→   *How to start the MDM 500 applications* on page 15

2   Click the button **Stop logging**

3   Verify that you will in fact stop the logging.

How to monitor the MDM 500 operation

Once the MDM 500 is up and running it will need neither attention nor adjustments. However, you may still wish to monitor the operation.

1 **Alternative 1**: Use the functionality in the **Client Manager** dialog.

    a Open the **Client Manager** dialog on the Client computer(s).

        The Client Manager application is already running.

        → *How to start the MDM 500 applications* on page 15

    b On the main menu, click **File →Status bar**, and observe that the dialog expands to include a text field.

    c In the Status bar, click **Show status information**.

    d On the **Check for status information** list, check the individual boxes to select from which of the sensors you wish to see messages from.

    e In any sensor form in the **Client Manager** dialog, click **Show info**, and observe that the form expands to include a text field.

2 **Alternative 2**: Use the Watchdog application

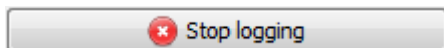   **a** Start the Watchdog application.

        → *How to start the MDM 500 applications* on page 15

        → *Introduction to Watchdog* on page 22

    b Observe the messages provided by the Watchdog.

3 **Alternative 3**: Use the Server Manager application

    a Access the **Server Manager** dialog on the Server computer.
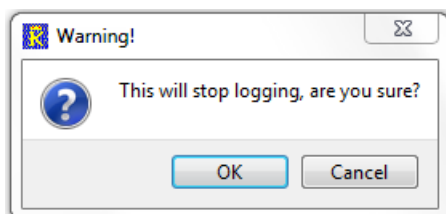
        The Server Manager application is already running, and you need to see the **Server Manager** dialog.

        → *How to start the MDM 500 applications* on page 15

    b Observe the information in the **Network Items** table.

        The table provides one row for each sensor connected to the system. The row identifies the sensor by its name, and the number of received and stored telegrams. Each row is thus dynamic, and you can use this information to verify that you are in fact receiving data from the various sensors.

How to run a report with data from a single sensor

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from a single sensor.

1 Start the **Report Manager** application on the Server computer.

        → *How to start the MDM 500 applications* on page 15

        → *Introduction to Report Manager* on page 21

2 In the main dialog, click the **Queries & Reports** button and observe that the **Queries & Reports** dialog is opened

3 Select the start and stop dates for the recorded data you wish to include in the report.

Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4 Use the **Instrument** drop-down box to select which instrument (sensor) you wish to retrieve data from.

5 Use the **Telegram** drop-down box to select which telegrams from the chosen sensor you wish to see.

If you wish to include all the telegrams, click the **All Telegrams** box.

6 In the **Dataitem** list, click to select which field(s) in each telegram you wish to include in the report.

If you wish to include more than one field, hold down the **Shift** key and click to select the desired group of fields.

7 Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note _____

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

_____

8 Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→ *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

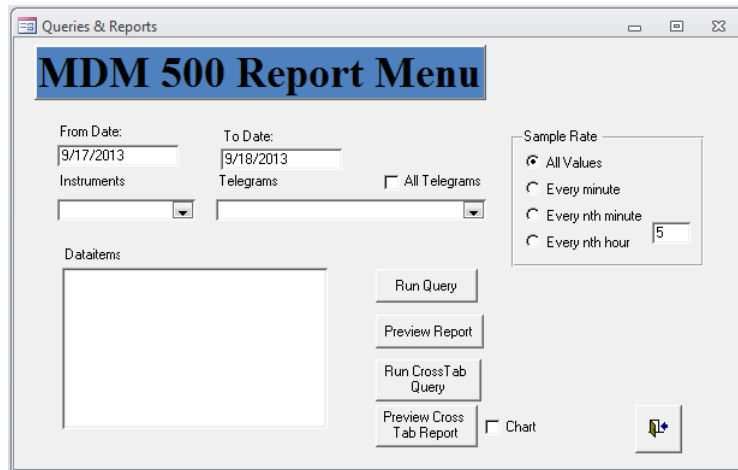## How to run a report with data from two sensors

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from two sensors.

1   Start the **Report Manager** application on the Server computer.

    →   *How to start the MDM 500 applications* on page 15

    →   *Introduction to Report Manager* on page 21

2   In the main dialog, click the **Queries & Reports 2** button and observe that the **Queries & Reports 2** dialog is opened

3   Select the start and stop dates for the recorded data you wish to include in the report.

    Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4   For each of the two sensors, use the **Instrument** drop-down boxes to select which instrument (sensor) you wish to retrieve data from.

5   For each of the two sensors, use the **Telegram** drop-down boxes to select which telegrams from the chosen sensor you wish to see.

    If you wish to include all the telegrams from the first sensor, click the **All Telegrams** box.

6   In the **Dataitem** list, click to select which field(s) in each telegram you wish to include in the report.

    If you wish to include more than one field, hold down the **Shift** key and click to select the desired group of fields.

7   Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

    All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note ————————————————————————————————

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

8   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→   *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

How to run a report with data from a group of sensors

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from a chosen group of sensors.

1   Start the **Report Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

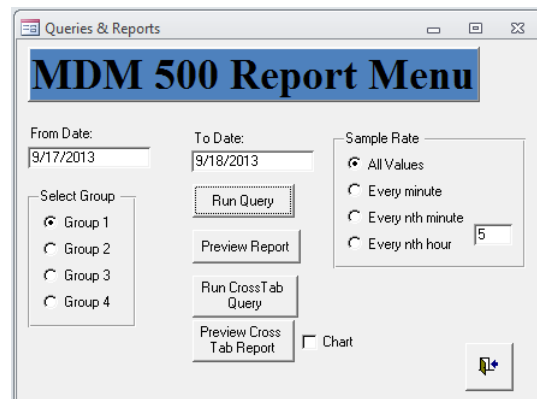→   *Introduction to Report Manager* on page 21

2   In the main dialog, click the **Group Queries** button and observe that the **Group Queries** dialog is opened

3   Select the start and stop dates for the recorded data you wish to include in the report.

Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4   Click the appropriate box to select which group of sensors you wish to retrieve data from.

5   Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note ───────────────────────────────

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

──────────────────────────────────

6   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→   *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

MDM 500 Tools

Several auxiliary applications are available. These are generally referred to as "Tools". The following tools are available:

• SVP Editor

• SVP Manager (no longer used, replaced by SVP Editor)

• Report Manager

• Watchdog

The tools can be installed on any computer in the MDM 500 system.

Introduction to SVP Manager

The SVP Manager is a tool for receiving and distributing sound velocity profile (SVP) and conductivity, temperature and depth (CTD) data. It can receive these data from various sensors over a serial line, a network line, or from a file. Data can also be converted and distributed on various formats over the local network to remote recipients.

Once the data from the sensor is imported, it is automatically stored in the MDM 500 database.

Note _____

The SVP Manager has been replaced by SVP Editor from release 2.0 of MDM 500. The SVP Manager is still included but may be removed in future releases.

_____

Related topics

• *Introduction to SVP Manager* on page 21

• *Sound velocity profile procedures* on page 50

Introduction to Report Manager

The Report Manager allows you to run queries and print reports based on the stored data. You are also permitted to edit sensor names for the reports.

By means of the Report Manager it is easy to view the data recorded from any given sensor, from any two sensors combined, or from the Cruise Recorder. The data can be printed using the built-in report template, or you can create your own layout. The data can also be copied and pasted into other applications, such as office text editors and spreadsheets.

Related topics

• *Introduction to Report Manager* on page 21

• *About reports and queries* on page 22

• *Report procedures* on page 42

Introduction to Watchdog

The Watchdog application monitors the status of the Server Manager and the Client Manager with the Sensor Drivers. It will provide you with a warning if there is anything wrong with the MDM 500 system.

You can install the Watchdog on any computer in the in the MDM 500 system, and it may run on several computers simultaneously. Since the MDM 500 system is designed to operate without any user interventions, you may choose to install the Watchdog application on computers that are being monitored more frequently.

About reports and queries

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

Topics

- *Standard reports* on page 22
- *Cross tab reports* on page 23

Standard reports

A standard report provides the actual recorded data in a tabular format. Each row in the table contains the information from one record with columns for time stamp, field name and value. You can generate these reports using the **Run Query** and **Preview Report** buttons in the applicable dialogs.

- The **Run Query** option outputs the report for on-screen view. This format can easily be exported to a suitable file format using the functionality in the Report Manager's host application.

- The **Preview Report** option outputs the report for printed output, and provides additional information in a report header. To start the printing, use the functionality in the Report Manager's host application.

Example 2   Standard report from a typical GPS sensor

Time stamp	Field	Value
30/08/2011 11:01:11	Clock	111438.000
30/08/2011 11:01:11	Latitude	6325.814
30/08/2011 11:01:11	Longitude	1023.731
30/08/2011 11:01:11	Quality	8.000
30/08/2011 11:01:13	Clock	111440.000
30/08/2011 11:01:13	Latitude	6325.814
30/08/2011 11:01:13	Longitude	1023.731
30/08/2011 11:01:13	Quality	8.00

Cross tab reports

Cross tabulation is the process of creating a contingency table from the multivariate frequency distribution of statistical variables.

In statistics, a contingency table (also referred to as cross tabulation or cross tab) is a type of table in a matrix format that displays the (multivariate) frequency distribution of the variables. It is often used to record and analyze the relation between two or more categorical variables.

— http://en.wikipedia.org

The **Run Cross Tab Query** and **Preview Cross Tab Report** buttons in the Report Manager dialogs allow you to output the sensor data in a contingency table.

In this table format, information that are common in multiple related records are grouped. You can generate these reports using the **Run Cross Tab Query** and **Preview Cross Tab Report** buttons in the applicable dialogs.

- The **Run Cross Tab Query** option outputs the report for on-screen view. This format can easily be exported to a suitable file format using the functionality in the Report Manager's host application.

- The **Preview Cross Tab Report** option outputs the report for printed output, and provides additional information in the report header. To start the printing, use the functionality in the Report Manager's host application.

Example 3   Cross tab report from a typical GPS sensor

Time stamp	Clock	Latitude	Longitude	Quality
30/08/2011 11:01:11	111438.000	6325.814	1023.731	8.000
30/08/2011 11:01:13	111440.000	6325.814	1023.731	8.000
30/08/2011 11:01:15	111442.000	6325.814	1023.731	8.000
30/08/2011 11:01:17	111444.000	6325.814	1023.731	8.000

About the message system

The MDM 500 system provides a comprehensive message system to allow for operational monitoring.

Note

The messages provided by the various MDM 500 applications are not logged to disk.

Topics

- *Message providers* on page 24
- *Client Manager messages* on page 24
- *Server Manager messages* on page 24
- *Watchdog messages* on page 24

Message providers

The messages can be viewed in following applications:

1   Client Manager

The **Client Manager** dialog provides messages in

- The dedicated status bar at the bottom of the dialog
- Under each sensor form when the **View info** option is checked

2   Server Manager

The **Client Manager** dialog provides messages on the right hand side of the main dialog. In addition, the communication with each sensor is monitored in the **Network Items** table.

3   Watchdog

The **Watchdog** dialog provides messages in the main dialog.

Client Manager messages

The following messages types are provided in the status bar of the **Client Manager** dialog:

- Telegrams in ASCII format
- Messages from the Sensor Driver(s)

The following messages types are provided under the sensor forms in the **Client Manager** dialog:

- Formatting messages
- Time-out messages
- Connection failures

Server Manager messages

The following messages types are provided in the **Server Manager** dialog:

- Logging messages
- Operational messages
- Status messages
- Server Manager failures

Watchdog messages

The following messages types are provided in the **Watchdog** dialog:

- Time-out warnings
- Driver errors
- Client Manager failures

On-line help

The MDM 500 Reference manual is available as on-line help on the Server and Client Manager application. Click the **Help** button on the main menu to open the help file.

Operational procedures

This chapter contains several operational procedures explaining how you can put your MDM 500 to use.

Are there any procedures missing? Are you performing an operation that we have not explained? Write an e-mail to km.hydrographic.support@kongsberg.com and let us know. We may then include the procedure in the next version of this manual.

Topics

- *Basic procedures* on page 26
- *Logging procedures* on page 27
- *Sensor interface procedures* on page 36
- *Report procedures* on page 42
- *Sound velocity profile procedures* on page 50

Basic procedures

For basic procedures, see the *Getting started* chapter.

Topics

- *How to power up the MDM 500* on page 14
- *How to power off the MDM 500* on page 14
- *How to start the MDM 500 applications* on page 15
- *How to start logging* on page 16
- *How to stop logging* on page 16
- *How to monitor the MDM 500 operation* on page 17

Logging procedures

These procedures explain how to start and stop logging on the MDM 500 system.
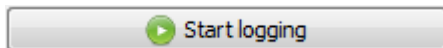
Topics

How to start logging

This procedure explains how to start the logging operation. It is assumed that all relevant sensors have been connected, and that the recording configuration has been completed.

1 Access the **Server Manager** dialog on the Server computer.

  The Server Manager application is already running, and you need to see the **Server Manager** dialog.

  → *How to start the MDM 500 applications* on page 15

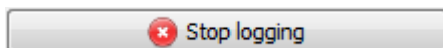2 Click the button **Start logging**

How to stop logging

This procedure explains how to stop the logging operation.

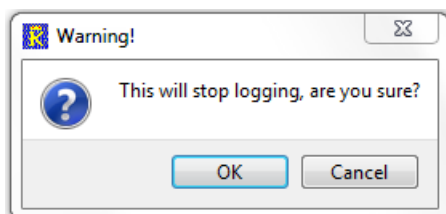1 Access the **Server Manager** dialog on the Server computer.

  The Server Manager application is already running, and you need to see the **Server Manager** dialog.

  → *How to start the MDM 500 applications* on page 15

2 Click the button **Stop logging**

3 Verify that you will in fact stop the logging.

How to define logging groups

The data recorded by the MDM 500 can be organized in four logging groups. By means of the **View Configuration** dialog, you can control which sensor data (telegrams) that is saved in each group, and the interval of the samples.

These groups are later used during reporting, as a dedicated report allows you to retrieve information from a group of sensors. By means of such logging groups, you may collect the information from related sensors.

	Field	ID	Master	Sampling	Interval
1	APOS-SNS-Clock	2601001	TRUE	MSECONDS	6
2	APOS-SNS-Pos_item	2601002	FALSE	ALL	0
3	APOS-SNS-Transceiver	2601003	FALSE	ALL	0
4	APOS-SNS-Transducer	2601004	FALSE	ALL	0
5	APOS-SNS-Roll	2601005	FALSE	ALL	0
6	Pitch	2601006	FALSE	ALL	0

1   Access the **Server Manager** dialog on the Server computer.

The Server Manager application is already running, and you need to see the **Server Manager** dialog.

→   *How to start the MDM 500 applications* on page 15

2   Click **View Configuration** to open the **View Configuration** dialog.

The **View Configuration** dialog controls the entire logging operation.

The left side of the dialog contains a list of all the peripheral sensors currently interfaced to the MDM 500 system. For each sensor, you can expand the structure to see the telegram formats supported and the fields in each telegram.

The right side of the dialog provides you with four logging groups.

By means of the functionality provided, you can place any sensor data in any logging group, and control how often the data shall be recorded.

3   Observe the supported sensors on the left side of the **View Configuration** dialog.

Each sensor is presented with a tree structure offering relevant telegrams and telegram fields.

4   For the chosen sensor, break down the structure, and click once on the telegram field you wish to include in a logging group.

5   Click **Add** to place the chosen field into one of the logging groups.

You can add as many fields you like into one logging group.

You can add the same field into several logging groups.

6   Click **OK** to save the current settings and close the dialog box.

7   Observe the related procedures:

→   *How to define logging groups* on page 28

→   *How to define the logging parameters* on page 29

→   *How to recall the content of the logging groups* on page 31

→   *How to change logging group organisation on recorded data* on page 32

How to define the logging parameters

This procedure explains how to define the main parameters for logging, mainly how often you shall record information from each sensor.

1   Access the **Server Manager** dialog on the Server computer.

The Server Manager application is already running, and you need to see the **Server Manager** dialog.

→   *How to start the MDM 500 applications* on page 15

2   Click **View Configuration** to open the **View Configuration** dialog.

The **View Configuration** dialog controls the entire logging operation.

The left side of the dialog contains a list of all the peripheral sensors currently interfaced to the MDM 500 system. For each sensor, you can expand the structure to see the telegram formats supported and the fields in each telegram.

The right side of the dialog provides you with four logging groups.

By means of the functionality provided, you can place any sensor data in any logging group, and control how often the data shall be recorded.

3   Observe the supported sensors on the left side of the **View Configuration** dialog.

Each sensor is presented with a tree structure offering relevant telegrams and telegram fields.

4   Observe the logging groups on the right hand side of the **View Configuration** dialog.

	Field	ID	Master	Sampling	Interval
1	APOS-SNS-Clock	2601001	TRUE	MSECONDS	6
2	APOS-SNS-Pos_item	2601002	FALSE	ALL	0
3	APOS-SNS-Transceiver	2601003	FALSE	ALL	0
4	APOS-SNS-Transducer	2601004	FALSE	ALL	0
5	APOS-SNS-Roll	2601005	FALSE	ALL	0
6	Pitch	2601006	FALSE	ALL	0

5   Set up the logging parameters using the functionality provided.

1   **Field**

This column identifies the sensor, selected telegram, and the information provided by the telegram.

2   ID

This column identifies the sensor, the selected telegram, and the information using the sensor identification number.

3   Master

This parameter allows the settings identified for the relevant sensor (data item) to be used for the other sensors in the same group. The following options are available:

a   True: The relevant sensor (data item) is set up as Master to share its data recording parameters (Sampling and Interval). In order to inherit these settings, the **Sampling** parameter for the other sensors must be set to *Slave*.

b   False: The relevant sensor will not share any parameters.

Only one of the sensor connected to any given group can be set up as Master. The status for all the other sensors in the same group will then automatically be set to *False*.

Note ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

The information provided by the Master data item will always be logged first. The other data items will then be logged in the order they appear in the group. For this reason, we recommend that the Master data item is placed at the top of each group.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

4   Sampling

This parameter controls how much of the data provided by the sensor that are saved to the database. The following options are available:

a   All

All data telegrams received from the sensor are saved to the database.

b   MSeconds

Only the telegrams received every given millisecond will be stored. The interval (number of milliseconds between each capture) is controlled by the **Interval** parameter.

c   Sample

Only every "x" telegram are saved, for example every fifth. The interval is controlled by the **Interval** parameter.

d   Slave

The **Sampling** and **Interval** parameters are inherited from the sensor (data item) currently set up as Master.

5   Interval

This parameter controls interval between each saved data telegram. The parameter field is only activated when **Sampling** is set to *MSeconds* or *Sample*. You are then permitted to enter any valid integer.

Example 4   Sample and Interval settings

> If you only wish to save the telegrams provided every second, set **Sampling** to *MSeconds* and **Interval** to *1000*.

> If you only wish to save every tenth telegram, set **Sampling** to *Sample* and **Interval** to *10*.

6   Click **OK** to save the current settings and close the dialog box.

7   Observe the related procedures:

    →   *How to define logging groups* on page 28

    →   *How to define the logging parameters* on page 29

    →   *How to recall the content of the logging groups* on page 31

    →   *How to change logging group organisation on recorded data* on page 32

How to recall the content of the logging groups

The **View Configuration** dialog in the Server manager application allows you to record data from the sensors into four logging groups. This **Logging Groups** dialog provides you with a viewer to recall this information. You can recall any of the four groups, and see which sensors, telegrams and data items that are recorded into each group.

1   Start the **Report Manager** application on the Server computer.

    →   *How to start the MDM 500 applications* on page 15

    →   *Introduction to Report Manager* on page 21

2   Click **Logging Groups** to open the **Logging Groups** dialog.

3   In the **Group No** field, enter the group number you wish to investigate (1 to 4).

4   Observe that the information related to the chosen group and the sensor(s) in it are shown in the table.

The table provides the information about which sensor(s), telegrams and data items that are recorded in the specific group. The information in the table corresponds to the parameters that were defined in the **View Configuration** dialog in the Server Manager application.

The following columns are provided:

1   **ItemID**

This column provides the unique identification provided to each data item (part of a telegram) from a sensor.

2   **Instr**

This column identifies the sensor

3   **Tgm**

This column identifies the telegram

4   **DataItem**

This column identifies the data item (field).

5   **Master**

This column identifies if the recording of this specific data item is established as a master for all the other data items in the same group.

6   **Thin M**

This parameter controls how much of the data provided by the sensor that are saved to the database. It corresponds to the **Sampling** parameter in the **View Configuration** dialog

7   **Interval**

This parameter controls interval between each saved data telegram.

8   **Record**

This function allows you to leaf through the records in the database. Since this **Record** function is located <u>inside</u> the table, it allows you to step through the individual table rows.

9   **Search**

This function allows you to search through the records in the database. Since this **Search** function is located <u>inside</u> the table, it allows you to search for information within the data currently provided in the table. Click in the search field, write the phrase, and then push **Enter**.

5   Observe the related procedures:

→ *How to define logging groups* on page 28

→ *How to define the logging parameters* on page 29

→ *How to recall the content of the logging groups* on page 31

→ *How to change logging group organisation on recorded data* on page 32

How to change logging group organisation on recorded data

The **Data Values** dialog allows you to retrieve, examine and modify data recorded by a defined sensor. The dialog allows you to click through the currently selected sensors, and provide all relevant information related to:

• Recorded data for each individual data item (part of telegram)

• Group belonging

You can also use this dialog to change the sensor group organisation on previously recorded data. This organisation is initially defined in the **View Configuration** dialog in the Server Manager application. However, when you later generate reports, you may find that this organization was somewhat unfortunate. The **Data Values** dialog then allows you to change this.
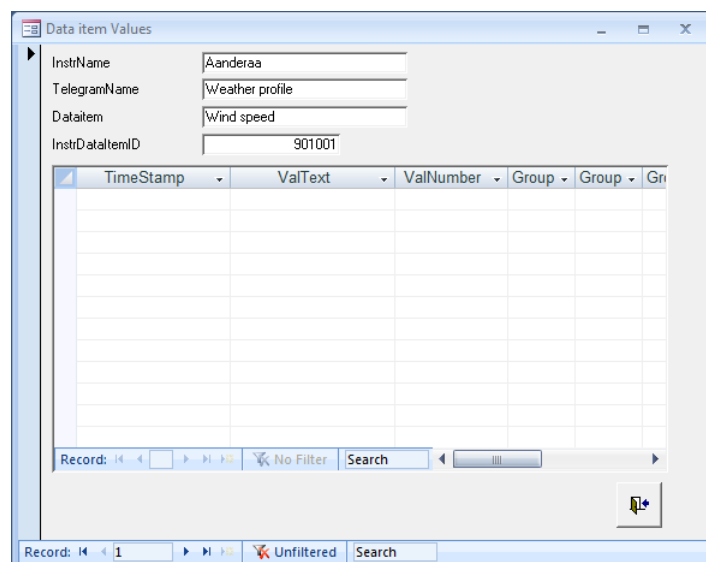
Note _____

*The changes you make to the sensor group organization using the **Data Values** dialog are permanent. If you wish to change back to the original configuration, you must do so manually using this procedure one more time.*

_____

1 Start the **Report Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to Report Manager* on page 21

2 Click the **Data Values** button to open the **Data Values** dialog.

The **Data Values** dialog allows you to view all data values recorded from a specific sensor.

3 In the **Data Values** dialog, enter the necessary information to identify the sensor and the telegram. Observe that the resulting information is provided in the table.

The table provides the current data item information from the sensor. Each line in the table corresponds to a reading from the chosen sensor. Each reading is time stamped.

Tip _____

If you have many sensors, you may use the **Record** or **Search** functions at the bottom of the dialog.

_____

4   Observe that you may change the sensor's group belonging using the **Group** column.

    a   **Group**

        This cell identifies the group of sensors the current sensor belongs to. These groups are defined in the **View Configuration** dialog in the Server Manager application.

        If the cells shows **-1**, this means that the sensor belongs to the group. If the value **0** is shown, the sensor does not belong to the group. These values can be changed manually, and you can thus rearrange the group organization you have previously made in the **View Configuration** dialog in the Server Manager application.

5   Click the **X** in the top right corner of the dialog to close it and save all settings.

6   Observe the related procedures:

   →   *How to define logging groups* on page 28

   →   *How to define the logging parameters* on page 29

   →   *How to recall the content of the logging groups* on page 31

   →   *How to change logging group organisation on recorded data* on page 32

How to delete data from the database

This procedure explains how to delete data from the database.

The data you delete from the database using the **Delete Data** dialog are permanently removed, unless you have previously made a backup with the data. This dialog must thus be used with extreme care.

You are only permitted to use a start data and an end date to select the data to be deleted. Both dates are inclusive. The recorded information from all sensors within the defined time period will be removed. You are not able to delete information for specific sensors.

Note ——————————————————————————————————

Make sure that you have made the necessary backup copies before you delete data from the database!

——————————————————————————————————————

1   Start the **Report Manager** application on the Server computer.

   →   *How to start the MDM 500 applications* on page 15

   →   *Introduction to Report Manager* on page 21

2   Click **Delete Data** to open the **Delete Data** dialog.

3   Enter today's date.

4   Select the start and stop dates for the recorded data you wish to delete.

      Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

5   Click **Remove**.
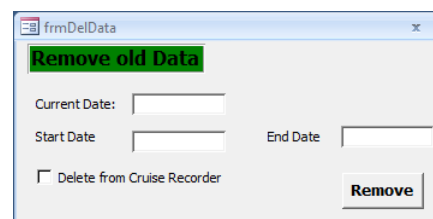
6   Click the **X** in the top right corner of the dialog to close it and save all settings.

How to temporary disable the input from a sensor

This procedure explain how to temporary disable the input from a dedicated sensor.

The sensor forms in the **Client Manager** dialog are used to display the information received from each sensor. This information is provided in text fields specific for each sensor type and the telegrams that are received. For each sensor, you can click to view additional information, disable the input from the sensor, and set up the communication parameters.

Maximum six sensor forms can be displayed simultaneously.

1   Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→   *How to start the MDM 500 applications* on page 15

2   Verify that the sensor you wish to modify is visible in a sensor form.

If not, activate the form as described in the applicable procedure.

→   *How to select which sensors forms to display in the Client Manager* on page 36

3   In the relevant sensor form, click the **Disable** button.

The input from the sensor is now disabled.

4   To reactivate the input, click the respective **Serial** or **Network** button to open the interface setup dialog.

You do not need to do any changes in the dialog.

5   Click **OK** to save the current settings and close the dialog box.

6   The sensor input is now active.

Sensor interface procedures

These procedures explain how to connect and set up sensors on the serial or network interfaces provided by the computers in the MDM 500 network.

Topics

How to select which sensors forms to display in the Client Manager

The **Client Manager** dialog allows you to define which sensors you wish to connect to the MDM 500 system. For each sensor input, you can set up the reception parameters, and you can disable or enable the data flow.

The sensor forms in the **Client Manager** dialog are used to display the information received from each sensor. This information is provided in text fields specific for each sensor type and the telegrams that are received. For each sensor, you can click to view additional information, disable the input from the sensor, and set up the communication parameters.

Maximum six sensor forms can be displayed simultaneously.

1   Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→   *How to start the MDM 500 applications* on page 15

2   Click **Select Sensor** to open the **Select Sensor** dialog.

3   In the **Select Sensor** dialog:

   a   Click on a sensor in the list, and drag it into one of the vacant rectangles.

   b   Double-click on a sensor in the list, and it will automatically use populate one of the vacant rectangles.

   c   Double-click on the sensor name in a rectangle to remove it.

      Note _____

      *Even if the data from a sensor is not shown in a dedicated form in the **Client Manager** dialog, the MDM 500 will still be able to receive and log the data from it.*

4   Click **OK** to save the current settings and close the dialog box.

How to access the messages provided by the Client Manager

The **Client Manager** dialog provides messages in

- The dedicated status bar at the bottom of the dialog
- Under each sensor form when the **View info** option is checked

This procedure describes how to access the various messages in the Client Manager application.

1 Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→ *How to start the MDM 500 applications* on page 15

2 Click **File →Status bar**, and observe that the Status bar opens at the bottom of the dialog.

3 In the Status bar, click **Show status information**.
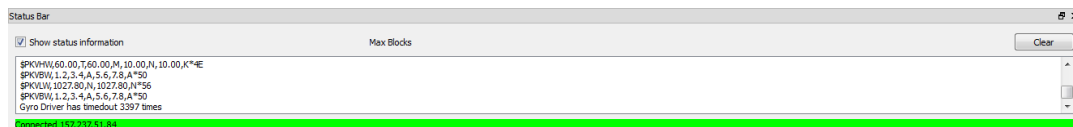
4 At the top of the dialog (under the **Select Sensors** button), click to choose which sensor interfaces you wish to see messages from.

→ *About the message system* on page 23

5 Under each sensor form, click **View info** to open a sensor specific message field.

How to define serial line parameters for the sensor interface

The sensor forms in the **Client Manager** dialog are used to display the information received from each sensor. This information is provided in text fields specific for each sensor type and the telegrams that are received. For each sensor, you can click to view additional information, disable the input from the sensor, and set up the communication parameters.

Maximum six sensor forms can be displayed simultaneously.

1 Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→ *How to start the MDM 500 applications* on page 15

2 Verify that the sensor you wish to modify is visible in a sensor form.

If not, activate the form as described in the applicable procedure.

→ *How to select which sensors forms to display in the Client Manager* on page 36

3 Click the **Serial** button in the form to open the **Serial Port Setup** dialog.

4 In the **Serial Port Setup** dialog, enter the applicable parameters for the serial line.

Which parameters to use are normally specified in the sensor documentation.

5 Click **OK** to save the current settings and close the dialog box.

How to define network parameters for the sensor interface

The sensor forms in the **Client Manager** dialog are used to display the information received from each sensor. This information is provided in text fields specific for each sensor type and the telegrams that are received. For each sensor, you can click to view additional information, disable the input from the sensor, and set up the communication parameters.

Maximum six sensor forms can be displayed simultaneously.

1   Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→   *How to start the MDM 500 applications* on page 15

2   Verify that the sensor you wish to modify is visible in a sensor form.

If not, activate the form as described in the applicable procedure.

→   *How to select which sensors forms to display in the Client Manager* on page 36

3   Click the **Network** button in the form to open the **LAN Port Setup** dialog.

4   In the **LAN Port Setup** dialog, enter the applicable parameters for the Ethernet communication.

5   Click **OK** to save the current settings and close the dialog box.

How to connect a new sensor to the MDM 500 system

This procedure explains how to connect a new sensor to a computer running the MDM 500 Client Manager software. Only a rough procedure is provided. For additional details, consult the documentation provided with the software modules provided by Kongsberg Maritime.

Note ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

When a new sensor shall be connected, you will need support from Kongsberg Maritime to provide the necessary sensor and database interfaces. You must then specify which type of sensor you will connect.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

1   Make the physical connection of the sensor to the Client computer.

Note that for some sensor types only a serial line interface is supported. Other sensors may be connected using a network interface.

2   On the Server computer, run the database script you received from Kongsberg Maritime.

To run the script, double-click the file name.

3   On the Client computer, stop the Client Manager application.

4   Locate the server sensor DLL files on the Client computer harddisk.

Observe the installation instructions provided with the software for further details.

5   Copy the new DLL to the same folder.

6   Restart the Client Manager application.

7 Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→ *How to start the MDM 500 applications* on page 15

8 Click **Select Sensor** to open the **Select Sensor** dialog.

The **Select Sensors** dialog box allows you to define which sensors you will set up and/or monitor in the **Client Manager** dialog.

9 In the **Select Sensor** dialog, observe the relevant sensor option in the list of sensors.

Click on the sensor name in the list, and drag it into one of the vacant rectangles.

10 Click **OK** to save the current settings and close the dialog box.

How to change the main identification number on a sensor

The **Installed Instruments** dialog allows you to retrieve, examine and modify the information related to each sensor. The dialog allows you to click through the currently active sensors, and see and/or modify all relevant information related to:

• Sensor identification

• Sensor name

• Type of sensor

• Physical location of the sensor

You may – in special circumstances – wish to provide a sensor with a new identification number. This may be useful if you for example install a new or updated driver with the same identification number as the old one. You must then changed the identification number on the old sensor to prevent the data from being erased.

For an overview of the identification numbers, see chapter *Driver descriptions* in the MDM 500 Reference manual.

Note _____

This function must be used with care!

_____

1 Start the **Report Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to Report Manager* on page 21

2 Click the **Installed Instruments** button to open the **Installed Instruments** dialog.

The **Installed Instruments** dialog allows you to view all the sensors currently providing information into your database.

3 Use the **Record** and/or **Search** functions at the bottom of the dialog to locate the requested sensor.

a Record

This function allows you to leaf through the records in the database. Since this **Record** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you to step through the individual sensors connected to the MDM 500 system. If you have very many sensors connected, you will need to click many times. You may then choose to use the Search function.

b Search

This function allows you to search through the records in the database. Since this **Search** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you search through the list of sensors connected to the MDM 500 system. Click in the search field, write the phrase, and then push **Enter**.

4 Observe the **New ID** text field.

a Enter the new identification number

b Click **Change**.

5 Click the **X** in the top right corner of the dialog to close it and save all settings.

How to remove a sensor from the MDM 500 system

This procedure explain how to remove a sensor from the MDM 500 system.

1 Open the **Client Manager** dialog on the Client computer(s).

The Client Manager application is already running.

→ *How to start the MDM 500 applications* on page 15

2 Verify that the sensor you wish to modify is visible in a sensor form.

If not, activate the form as described in the applicable procedure.

→ *How to select which sensors forms to display in the Client Manager* on page 36

3 In the relevant sensor form, click the **Disable** button.

The input from the sensor is now disabled.

4 Click **Select Sensor** to open the **Select Sensor** dialog.

The **Select Sensors** dialog box allows you to define which sensors you will set up and/or monitor in the **Client Manager** dialog.

5 Remove the sensor from the sensor forms.

6 Click **OK** to save the current settings and close the dialog box.

7   Access the **Server Manager** dialog on the Server computer.

The Server Manager application is already running, and you need to see the **Server Manager** dialog.

→   *How to start the MDM 500 applications* on page 15

8   Click **View Configuration** to open the **View Configuration** dialog.

The **View Configuration** dialog controls the entire logging operation.

The left side of the dialog contains a list of all the peripheral sensors currently interfaced to the MDM 500 system. For each sensor, you can expand the structure to see the telegram formats supported and the fields in each telegram.

The right side of the dialog provides you with four logging groups.

By means of the functionality provided, you can place any sensor data in any logging group, and control how often the data shall be recorded.

9   Remove the sensor from any logging groups, and make sure that none of the fields have been set up to master any input.

10   Click **OK** to save the current settings and close the dialog box.

11   Remove the sensor's physical connection to the Client computer.

Report procedures

This section provides procedures related to report generation using the Report Manager application.

The Report Manager allows you to run queries and print reports based on the stored data. You are also permitted to edit sensor names for the reports.

By means of the Report Manager it is easy to view the data recorded from any given sensor, from any two sensors combined, or from the Cruise Recorder. The data can be printed using the built-in report template, or you can create your own layout. The data can also be copied and pasted into other applications, such as office text editors and spreadsheets.

Tip ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

The data from the various sensors are stored in a standard commercial SQL database. If you have basic knowledge of the SQL language, you may easily create any report using "standard" SQL-tools provided with the Microsoft *SQL Server*. This option very flexible, but requires some SQL programming skills.

Topics

- *How to run a report with data from a single sensor* on page 17
- *How to run a report with data from two sensors* on page 19
- *How to run a report with data from a group of sensors* on page 20
- *How to run a report with data from all the sensors* on page 46
- *How to recall and view all the data recorded by a chosen sensor* on page 46
- *How to retrieve information about sensors connected to the MDM 500 system* on page 48

How to run a report with data from a single sensor

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from a single sensor.

1   Start the **Report Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

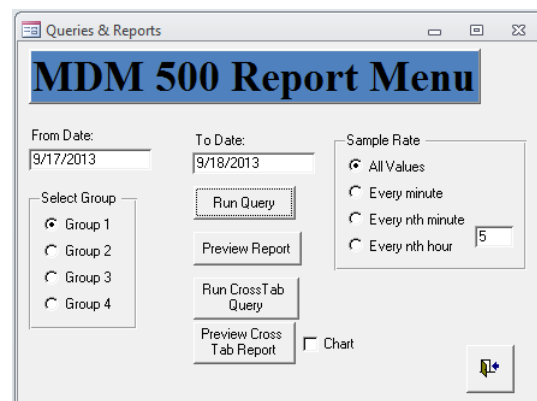→   *Introduction to Report Manager* on page 21

2   In the main dialog, click the **Queries & Reports** button and observe that the **Queries & Reports** dialog is opened

3   Select the start and stop dates for the recorded data you wish to include in the report.

Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4   Use the **Instrument** drop-down box to select which instrument (sensor) you wish to retrieve data from.

5   Use the **Telegram** drop-down box to select which telegrams from the chosen sensor you wish to see.

If you wish to include all the telegrams, click the **All Telegrams** box.

6   In the **Dataitem** list, click to select which field(s) in each telegram you wish to include in the report.

If you wish to include more than one field, hold down the **Shift** key and click to select the desired group of fields.

7   Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note _____

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

_____

8   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→   *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

How to run a report with data from two sensors

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from two sensors.

1 Start the **Report Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to Report Manager* on page 21

2 In the main dialog, click the **Queries & Reports 2** button and observe that the **Queries & Reports 2** dialog is opened

3 Select the start and stop dates for the recorded data you wish to include in the report.

Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4 For each of the two sensors, use the **Instrument** drop-down boxes to select which instrument (sensor) you wish to retrieve data from.

5 For each of the two sensors, use the **Telegram** drop-down boxes to select which telegrams from the chosen sensor you wish to see.

If you wish to include all the telegrams from the first sensor, click the **All Telegrams** box.

6 In the **Dataitem** list, click to select which field(s) in each telegram you wish to include in the report.

If you wish to include more than one field, hold down the **Shift** key and click to select the desired group of fields.

7 Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note ——————————————————————————————

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

8   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→   *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

How to run a report with data from a group of sensors

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from a chosen group of sensors.

1   Start the **Report Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

→   *Introduction to Report Manager* on page 21

2   In the main dialog, click the **Group Queries** button and observe that the **Group Queries** dialog is opened

3   Select the start and stop dates for the recorded data you wish to include in the report.

Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4   Click the appropriate box to select which group of sensors you wish to retrieve data from.

5   Click one of the four **Sample Rate** boxes to choose how much data you wish to include in the report.

All allows you to include all the data recorded from within the chosen time span, while the other options will reduce the amount of data in your report.

Note ───────────────────────────────────

Consider the type of data before you choose to include mean values in your report. For example, mean depth values make sense, while mean positions do not.

───

6   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

→   *About reports and queries* on page 22

Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

How to run a report with data from all the sensors

The Report Manager application provided with the MDM 500 system allows you to create numerous report types. All these reports are based on queries made in the Report Manager dialogs, and the reports can be provided on different formats.

This procedure explains how to create a report with data recorded from all the sensors.

1   Start the **Report Manager** application on the Server computer.

    → *How to start the MDM 500 applications* on page 15

    → *Introduction to Report Manager* on page 21

2   In the main dialog, click the **All Selected Values** button and observe that the **Queries & Reports** dialog is opened

3   Select the start and stop dates for the recorded data you wish to include in the report.

    Enter the date on the format defined in your operating system setup. Note that both dates are inclusive.

4   Click one of the four report- and query buttons to generate the report based on the parameters you have entered.

    → *About reports and queries* on page 22
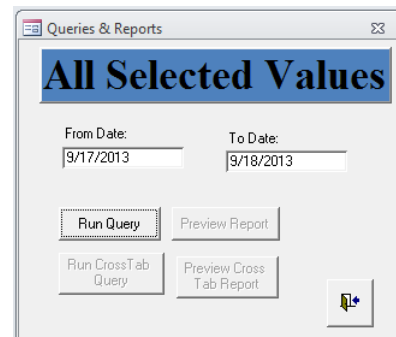
    Observe that the report is provided in the Report Manager's host application. For further functionality (including print and export), observe the toolbar.

How to recall and view all the data recorded by a chosen sensor

The **Data Values** dialog allows you to retrieve, examine and modify data recorded by a defined sensor. The dialog allows you to click through the currently selected sensors, and provide all relevant information related to:

• Recorded data for each individual data item (part of telegram)

• Group belonging

1   Start the **Report Manager** application on the Server computer.

    → *How to start the MDM 500 applications* on page 15

    → *Introduction to Report Manager* on page 21

2 Click the **Data Values** button to open the **Data Values** dialog.

The **Data Values** dialog allows you to view all data values recorded from a specific sensor.

3 In the **Data Values** dialog, enter the necessary information to identify the sensor and the telegram. Observe that the resulting information is provided in the table.

The table provides the current data item information from the sensor. Each line in the table corresponds to a reading from the chosen sensor. Each reading is time stamped.

Tip

If you have many sensors, you may use the **Record** or **Search** functions at the bottom of the dialog.

4 Observe that the table functionality allows you to leaf through the rows, and to search in the table.

a   Record

This function allows you to leaf through the records in the database. Since this **Record** function is located <u>inside</u> the table, it allows you to step through the individual table rows.

b   Search

This function allows you to search through the records in the database. Since this **Search** function is located <u>inside</u> the table, it allows you to search for information within the data currently provided in the table. Click in the search field, write the phrase, and then push **Enter**.

5 Observe the functions at the bottom of the dialog. You can use these to leaf and search through the sensors currently connected to the system

a   Record

This function allows you to leaf through the records in the database. Since this **Record** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you to step through the individual sensors connected to the MDM 500 system. If you have very many sensors connected, you will need to click many times. You may then choose to use the Search function.

b   Search

This function allows you to search through the records in the database. Since this **Search** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you search through the list of sensors connected to the MDM 500 system. Click in the search field, write the phrase, and then push **Enter**.

How to retrieve information about sensors connected to the MDM 500 system

The **Installed Instruments** dialog allows you to retrieve, examine and modify the information related to each sensor. The dialog allows you to click through the currently active sensors, and see and/or modify all relevant information related to:

• Sensor identification

• Sensor name

• Type of sensor

• Physical location of the sensor

1   Start the **Report Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to Report Manager* on page 21

2   Click the **Installed Instruments** button to open the **Installed Instruments** dialog.

The **Installed Instruments** dialog allows you to view all the sensors currently providing information into your database.

3   Use the **Record** and/or **Search** functions at the bottom of the dialog to locate the requested sensor.

a   Record

This function allows you to leaf through the records in the database. Since this **Record** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you to step through the individual sensors connected to the MDM 500 system. If you have very many sensors connected, you will need to click many times. You may then choose to use the Search function.

b   Search

This function allows you to search through the records in the database. Since this **Search** function is located at the bottom of the dialog and <u>outside</u> the table, it allows you search through the list of sensors connected to the MDM 500 system. Click in the search field, write the phrase, and then push **Enter**.

4   You are permitted to change the following information for each sensor:

    a   Type of sensor

    b   Location

    c   Remarks

5   Click the **X** in the top right corner of the dialog to close it and save all settings.

Sound velocity profile procedures

This section provides procedures related to retrieval and distribution of sound velocity information.

The SVP Manager is a tool for receiving and distributing sound velocity profile (SVP) and conductivity, temperature and depth (CTD) data. It can receive these data from various sensors over a serial line, a network line, or from a file. Data can also be converted and distributed on various formats over the local network to remote recipients.

Once the data from the sensor is imported, it is automatically stored in the MDM 500 database.

Note _____

The SVP Manager has been replaced by SVP Editor from release 2.0 of MDM 500. The SVP Manager is still included but may be removed in future releases.

_____

Topics

- *How to import and distribute SVP information* on page 50
- *How to read SVP information from a file* on page 51
- *How to add a new sound velocity sensor* on page 51
- *How to edit the input parameters for an existing sound velocity sensor* on page 52
- *How to define a receiving system for SVP information* on page 52
- *How to edit an existing receiving system for SVP information* on page 53
- *How to view or edit the latest sound velocity profile* on page 54
- *How to export the latest sound velocity profile* on page 55

How to import and distribute SVP information

This procedure explains how to set up the SVP Manager application for automatic import and distribution of sound velocity profile information.

1   Start the **SVP Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

→   *Introduction to SVP Manager* on page 21

2   Make sure that you have defined one or more sensors to provide the SVP information.

→   *How to add a new sound velocity sensor* on page 51

3   Make sure that you have defined the necessary instruments to receive the SVP information.

→   *How to define a receiving system for SVP information* on page 52

4   In the **Control** field in the **SVP Manager** dialog, click **Configure** to open the **Configure SVP Manager** dialog.

5   Make sure that the **Auto Enable** box is activated.

The SVP information is only distributed automatically when this box is checked. Alternatively, you must click the **Distribute** button for manual export. If you do this manually, you may edit the profiles before they are distributed.

6   If you operate on extended depths, enter a corresponding **Extend to** value.

This will allow the SVP Manager application to artificially extend the profiles to the requested depth.

7   Click **OK** to save the current settings and close the dialog box.

How to read SVP information from a file

This procedure explains how to read SVP information from a file.

1   Start the **SVP Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

→   *Introduction to SVP Manager* on page 21

2   Make sure that you have defined one or more sensors to provide the SVP information on file format.

For each sensor, you must also provide the file format.

→   *How to add a new sound velocity sensor* on page 51

3   Click on the sensor name in the **SVP Sources** list.

4   Click **Read File**.

5   Observe that an operating system dialog opens to collect the file from an available disk.

The information contained in the file is automatically stored in the MDM 500 database.

If **Auto Enable** (in the **Configure SVP Manager** dialog) is activated, the information is automatically distributed to all the SVP receivers.

6   Click **OK** to save the current settings and close the dialog box.

How to add a new sound velocity sensor

This procedure explains how to add a new sound velocity sensor to the MDM 500 system.

The **Add SVP Source** dialog is used to define the name, source, location and data type for the sensor to be used.
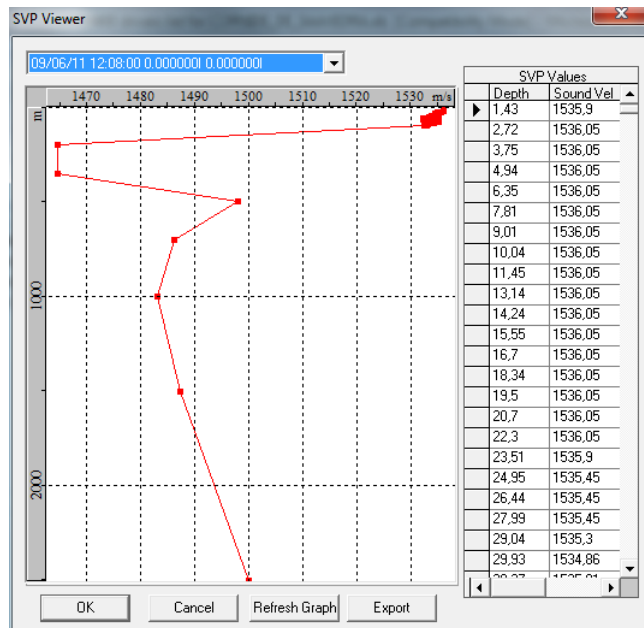
1   Start the **SVP Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

→   *Introduction to SVP Manager* on page 21

2 In the **SVP Source** field, click **Add** to open the **Add SVP Sources** dialog

3 Enter the name, source, location and data type for the new sound velocity sensor.

For more information about the parameters, see the dialog description in the *MDM 500 Reference manual*.

4 Click **OK** to save the current settings and close the dialog box.

How to edit the input parameters for an existing sound velocity sensor

This procedure explains how to edit and existing sound velocity sensor to the MDM 500 system.

The **Add SVP Source** dialog is used to edit the name, source, location and data type for the sensor to be used. Note that dialog is identical to the **Add SVP Source** dialog.

1 Start the **SVP Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to SVP Manager* on page 21

2 In the **SVP Source** field, click on a sensor, then click **Edit** to open the **Edit SVP Sources** dialog

3 Edit the name, source, location and/or data type for the sound velocity sensor.

For more information about the parameters, see the dialog description in the *MDM 500 Reference manual*.

4 Click **OK** to save the current settings and close the dialog box.

How to define a receiving system for SVP information

This procedure explains how to define a remote receiving system for sound velocity information. This could be any other instrument – for example a multibeam or single beam echo sounder – that needs this information to provide correct results.

The **Edit SVP Receiver** dialog is used to edit the name, IP address, port number and data type for an existing remote system receiving the sound velocity profile information.

1 Start the **SVP Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to SVP Manager* on page 21

2 In the **Receiver** field, click **Add** to open the **Add SVP Receiver** dialog

3 Define the new receiver by adding the name, IP address and port number for the remote instrument.

For more information about the parameters, see the dialog description in the *MDM 500 Reference manual*.

4 Check the **Automatic Transfer** box to ensure that the sound velocity profiles are automatically transferred to the recipient system.

5 Click **OK** to save the current settings and close the dialog box.

How to edit an existing receiving system for SVP information

This procedure explains how to edit an existing remote receiving system for sound velocity information. This could be any other instrument – for example a multibeam or single beam echo sounder – that needs this information to provide correct results.

The **Edit SVP Receiver** dialog is used to edit the name, IP address, port number and data type for an existing remote system receiving the sound velocity profile information.

1 Start the **SVP Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to SVP Manager* on page 21

2 In the **Receiver** field, click a receiving instrument in the list, then click **Edit** to open the **Edit SVP Receiver** dialog

3 Edit the receiver parameters by changing the name, IP address or port number.

For more information about the parameters, see the dialog description in the *MDM 500 Reference manual*.

4 Check the **Automatic Transfer** box to ensure that the sound velocity profiles are automatically transferred to the recipient system.

5 Click **OK** to save the current settings and close the dialog box.

How to view or edit the latest sound velocity profile

This procedure explains how to view and/or edit the latest SVP profile.

Tip ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

If you wish to edit your profiles before they are distributed to the receivers, you must disable the **Auto Enable** function in the **Configure SVP Manager** dialog. You can manually distribute your edited profile using the **Distribute** button.

⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

1   Start the **SVP Manager** application on the Server computer.

→   *How to start the MDM 500 applications* on page 15

→   *Introduction to SVP Manager* on page 21

2   Observe that the time of latest SVP profile is identified in the **Last SVP received at** field

3   Click **View Stored** to open the **SVP Viewer** dialog.

The **SVP Viewer** dialog displays the latest sound velocity profile stored in the database.

Individual points in the profile can be edited by changing the values in the table. This feature can be used to remove obvious errors in the profile. Points cannot be removed, but changing the value of individual points in the profile equal to the previous or next value has the same effect as removing it.

If you right-click in the curve, a short-cut menu appears.

4   Click **OK** to save the current settings and close the dialog box.

5 Click **View** to open the **SVP Edit** dialog.

The **SVP Edit** dialog displays the latest received sound velocity profile.

Individual points in the profile can be edited by changing the values in the table. This feature can be used to remove obvious errors in the profile. Points cannot be removed, but changing the value of individual points in the profile equal to the previous or next value has the same effect as removing it.

If you right-click in the curve, a short-cut menu appears.

6 Click **OK** to save the current settings and close the dialog box.

Depth	SVel
0.5	1659.0
10.1	1660.0
10.3	1666.0
10.8	1667.0
11.1	1666.1
11.5	1555.0
12.2	1465.5
14.2	1468.3
15.4	1460.3
200.0	1464.5
350.0	1464.5
500.0	1498.0
700.0	1486.2
1000.0	1483.0
1500.0	1487.2
2500.0	1500.0

SVP - 08/24/11 12:04:00
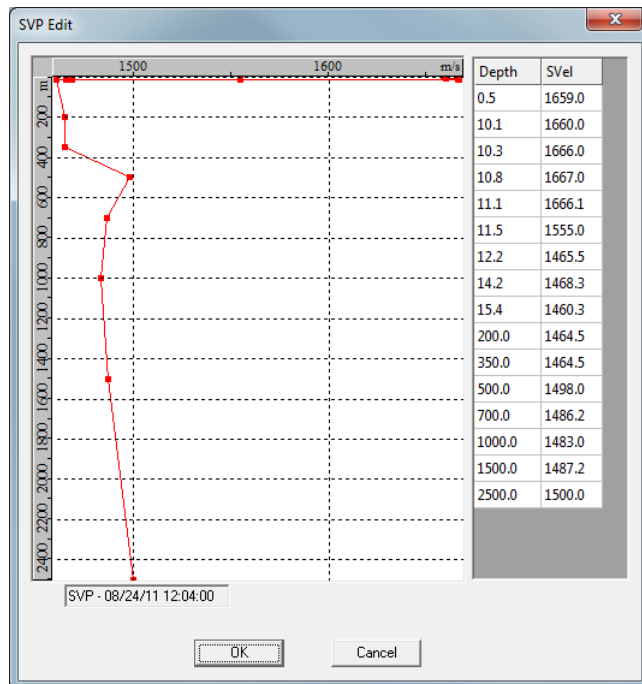
How to export the latest sound velocity profile

This procedure explains how to export the latest SVP profile.

Tip

If you wish to edit your profiles before they are distributed to the receivers, you must disable the **Auto Enable** function in the **Configure SVP Manager** dialog. You can manually distribute your edited profile using the **Distribute** button.

1 Start the **SVP Manager** application on the Server computer.

→ *How to start the MDM 500 applications* on page 15

→ *Introduction to SVP Manager* on page 21

2 Observe that the time of latest SVP profile is identified in the **Last SVP received at** field

3 Click **View Stored** to open the **SVP Viewer** dialog.

The **SVP Viewer** dialog displays the latest sound velocity profile stored in the database.

Individual points in the profile can be edited by changing the values in the table. This feature can be used to remove obvious errors in the profile. Points cannot be removed, but changing the value of individual points in the profile equal to the previous or next value has the same effect as removing it.

If you right-click in the curve, a short-cut menu appears.

4 Click **OK** to save the current settings and close the dialog box.

Index