MicroSCADA Pro DMS 600 4.3
Installation manual
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About this manual

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Release: A/2009

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1.3. General

This manual describes the installation of MicroSCADA Pro Distribution Management System DMS 600 (later in this manual DMS 600) software. The DMS 600 4.3 is a direct
successor to DMS 600 4.1/4.2 and Open++ Opera 3.3. Existing Open++ Opera installa-
tions can be upgraded directly to DMS 600 4.3.

This document complies with the program version 4.3.

Additional information such as Release Notes can be found on the program distribution
media.

1.4. Use of symbols

This publication includes warning, caution and information symbols where appropriate
to point out safety-related or other important information. It also includes tips to point
out useful hints to the reader. The corresponding symbols should be interpreted as follows:

⚠️ Warning icon indicates the presence of a hazard which could
result in personal injury.

⚠️ Caution icon indicates important information or a warning
related to the concept discussed in the text. It might indicate
the presence of a hazard, which could result in corruption of
software or damage to equipment/property.

ℹ️ Information icon alerts the reader to relevant factors and
conditions.

💡 Tip icon indicates advice on, for example, how to design your
project or how to use a certain function.

Although warning hazards are related to personal injury, and caution hazards are associ-
ated with equipment or property damage, it should be understood that operation of
damaged equipment could, under certain operational conditions, result in degraded process
performance leading to personal injury or death. Therefore, comply fully with all warnings
and caution notices.

1.5. Document conventions

The following conventions are used for the presentation of material:
• The names of menus and menu items are boldfaced. For example, the File menu.
• The following convention is used for menu operations: MenuName > MenuItem > CascadedMenuItem. For example: select File > Coloring > Topology by Feeders.

• The Start menu name always refers to the Start menu on the Windows® Task Bar.
• System prompts/messages and user responses/input are shown in the Courier font. For example, if you enter a value out of range, the following message is displayed: Entered value is not valid. The value must be 0 to 30.
• The names of push and toggle buttons are boldfaced. For example, click OK.
• The words in names of screen elements (for example, the title in the title bar of a window, the label for a field of a dialog box) are initially capitalized.
• Capital letters are used for the name of a keyboard key if it is labeled on the keyboard. For example, press the ENTER key.
• Lowercase letters are used for the name of a keyboard key that is not labeled on the keyboard. For example, the space bar, comma key, and so on.
• Press CTRL+C indicates that you must hold down the CTRL key while pressing the C key (to copy a selected object in this case).
• Press ESC E C indicates that you must press and release each key in sequence.
• The names of the directories and files (for example, DMS600/Settings.exe) are initially capitalized and shown in the italic font.
• The names of MS Access tables, queries and fields are capitalized (for example CODE field in INFOCODE table).

1.6. Terminology

The following is a list of terms associated with the DMS 600 that you should be familiar with. The list contains terms that are unique to ABB or have a usage or definition that is different from the standard industry usage.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActiveX</td>
<td>A set of technologies that enable software components to interact with one another in a networked environment, regardless of the language in which the components were created.</td>
</tr>
<tr>
<td>Application Program Interface; API</td>
<td>A set of routines that an application program uses to request and carry out lower-level services performed by a computer operating system.</td>
</tr>
<tr>
<td>Classic monitor graphics</td>
<td>Graphics style of older DMS system versions. Can still be used in DMS 600.</td>
</tr>
<tr>
<td>Disturbance Data Form</td>
<td>A part of Trouble Call Management, which is used to handle customer complaints and fault notifications.</td>
</tr>
<tr>
<td>DXF import</td>
<td>A tool used for reading DXF/DWG files containing the network data exported from 3rd party GIS systems, and writing them to the DMS 600 database.</td>
</tr>
<tr>
<td>DMS 600 database</td>
<td>Database for dynamic data in DMS 600.</td>
</tr>
<tr>
<td>DMS 600 Network Editor; DMS 600 NE</td>
<td>A program primarily used to model the distribution network onto the network database.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DMS 600 Server Application; DMS 600 SA</td>
<td>An application used for data exchange between MicroSCADA and instances of DMS 600 WS.</td>
</tr>
<tr>
<td>DMS 600 Workstation; DMS 600 WS</td>
<td>A program for the operative personnel of electric companies to monitor and operate their medium and low voltage distribution networks.</td>
</tr>
<tr>
<td>Free data form</td>
<td>Free data forms are the general way to present DMS 600 database content.</td>
</tr>
<tr>
<td>Free database object</td>
<td>Free database objects are user-defined object types, which can be added to the network database.</td>
</tr>
<tr>
<td>Free data form control</td>
<td>A control which can present data from a database table or a query in a user-defined layout. See also Data Access Objects.</td>
</tr>
<tr>
<td>Hot Stand By; HSB</td>
<td>A system to secure database connection with two servers. Each server is capable of continuing the service by itself, if the connection to the other server is lost.</td>
</tr>
<tr>
<td>Internet Protocol; IP</td>
<td>The messenger protocol of TCP/IP, is responsible for addressing and sending TCP packets over the network. IP provides a best-effort, connectionless delivery system that does not guarantee that packets arrive at their destination or that they are received in the sequence in which they were sent. See also Transmission Control Protocol.</td>
</tr>
<tr>
<td>IP address</td>
<td>Internet address (for example 127.0.0.1)</td>
</tr>
<tr>
<td>Local Area Network; LAN</td>
<td>A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other device on the network. See also Wide Area Network.</td>
</tr>
<tr>
<td>MicroSCADA monitor</td>
<td>Enables interaction with the operator and the base system computer. The monitor may be of Visual SCIL or X-monitor type. MicroSCADA monitors are always connected to SYS 500 or SYS 600. MicroSCADA Monitor Pro is a new application that can show the Monitor Pro graphics of SYS 600.</td>
</tr>
<tr>
<td>MicroSCADA Monitor Pro</td>
<td></td>
</tr>
<tr>
<td>MicroSCADA OPC Server</td>
<td>An implementation of the interface specification OPC Data Access Custom Interface Standard, Version 2.05A, on the MicroSCADA system.</td>
</tr>
<tr>
<td>Monitor Pro graphics</td>
<td>New graphics style in SYS 600.</td>
</tr>
<tr>
<td>Network database</td>
<td>Database for network data.</td>
</tr>
<tr>
<td>OPC item</td>
<td>OPC item is an index for MicroSCADA process object containing the whole path with an application number. OPC item has properties (process object attributes) like alarms and time stamps.</td>
</tr>
<tr>
<td>DMS Interface Package</td>
<td>A tool used to cross-connect MicroSCADA and DMS 600.</td>
</tr>
<tr>
<td>Protocol</td>
<td>A set of semantic and syntactic rules that determine the behavior of functional units in archiving communication.</td>
</tr>
<tr>
<td>SCIL API</td>
<td>MicroSCADA API for C programmers that is used to connect DMS 600 to MicroSCADA.</td>
</tr>
</tbody>
</table>
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Application Program Interface</td>
</tr>
<tr>
<td>DMS</td>
<td>Distribution Management System</td>
</tr>
<tr>
<td>DMS 600</td>
<td>MicroSCADA Pro Distribution Management System DMS 600</td>
</tr>
<tr>
<td>dxf</td>
<td>Vector file format</td>
</tr>
<tr>
<td>HSB</td>
<td>Hot Stand By</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>LIB 500</td>
<td>MicroSCADA Application Library</td>
</tr>
<tr>
<td>LIB 510</td>
<td>MicroSCADA MV Application Library</td>
</tr>
<tr>
<td>LV</td>
<td>Low voltage</td>
</tr>
<tr>
<td>MicroSCADA</td>
<td>MicroSCADA SYS 500 version 8.4.2, 8.4.3, 8.4.4 or 8.4.5 or MicroSCADA Pro Control System SYS 600 version 9.x</td>
</tr>
<tr>
<td>MV</td>
<td>Medium voltage</td>
</tr>
<tr>
<td>SCADA</td>
<td>Supervisory Control And Data Acquisition</td>
</tr>
</tbody>
</table>
### Abbreviation

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI</td>
<td>Support System Interface</td>
</tr>
<tr>
<td>SYS 600</td>
<td>MicroSCADA Pro Control System SYS 600 version 9.x</td>
</tr>
<tr>
<td>TCM</td>
<td>Trouble Call Management</td>
</tr>
<tr>
<td>TCP</td>
<td>Transmission Control Protocol</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>Transmission Control Protocol/Internet Protocol</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
</tbody>
</table>

### Related documents

#### Table 1.8-1 MicroSCADA Pro DMS 600 related documents

<table>
<thead>
<tr>
<th>Name of the manual</th>
<th>MRS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MicroSCADA Pro DMS 600 4.3 System Overview</td>
<td>1MRS756665</td>
</tr>
<tr>
<td>MicroSCADA Pro DMS 600 4.3 Integration with SYS 600</td>
<td>1MRS756666</td>
</tr>
<tr>
<td>MicroSCADA Pro DMS 600 4.3 Operation Manual</td>
<td>1MRS756667</td>
</tr>
<tr>
<td>MicroSCADA Pro DMS 600 4.3 System Administration</td>
<td>1MRS756669</td>
</tr>
<tr>
<td>MicroSCADA Pro SYS 600 9.3 Installation and Administration Manual</td>
<td>1MRS756634</td>
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</tbody>
</table>

### Document revisions

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision number</th>
<th>Date</th>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.3</td>
<td>9.10.2009</td>
<td>New document</td>
</tr>
</tbody>
</table>
2. Requirements for installation

2.1. System requirements

The minimum software and hardware requirements for the DMS 600 system are listed in the System Overview.

2.2. Other requirements

The operation system software required is Microsoft® Windows 2000 with Service Pack 3 or later, MS Windows XP with Service Pack 1 or later, or Windows Server™ 2003. MS SQL Server, Oracle or MS Access can be used as database for DMS 600. Also other database servers can be used if they support the required features of a DMS 600 database. MS SQL Server 2000 and 2005 and Oracle 10g (Release 2) have been tested by ABB. When Access is used, MS Access 2000 or newer versions of the relational database software are supported (for more information about MS Access versions, see 8.1, General about MS Access) should be installed on the fileserver computer. MS Access 95 or 97 can still be used when upgrading an existing installation to DMS 600 version 4.3. In this case, the databases remain in their existing format.

DMS 600 can be installed with MicroSCADA, without SCADA, or with other SCADA systems using OPC Data Access interface. However, if DMS 600 will be used with MicroSCADA SYS 500 (version 8.4.2, 8.4.3, 8.4.4, or 8.4.5) or with MicroSCADA Pro Control System SYS 600 (version 9.x), these applications must be installed on the server computer before the installation of DMS 600. On the workstation computers you may use MicroSCADA workstation and the Hummingbird™ Exceed version 5.1.3 or later.

In order to install the full DMS 600 system, a MS Windows user needs to have Administrator rights. They are needed to be able to update the MS Windows registry settings.

It is recommended to define a shared directory in the fileserver computer before the installation of DMS 600 fileserver, primary or secondary.

If more than one operating system is used and the disk is shared, DMS 600 must be installed on the disk of the operating system.

In order to be able to use a resource that is not administered by the local computer (for example, a Hot Stand By server), the “MicroSCADA” user name must be defined on the remote computer that administers that resource. The password of MicroSCADA user has to be the same on different computers as well.

The MicroSCADA application must be shut down before installing DMS 600 Server (including the MicroSCADA interface) on a computer having an existing DMS 600 Server installation. The reason is that the processes and other components cannot be updated if they are in use. (In Hot Stand By systems the DMS Server must be installed
to both computers when they are cold. Therefore, the hot MicroSCADA server must be changed between the installations.

2.3. Licenses

DMS 600 is initialized using a license file (for more information about DMS 600 licenses, see System Administration). The license consists of two files, License Information Customer.txt and License.ini, which are delivered by ABB. The file License.ini is needed during the full installation of DMS 600. License information updates are performed with a separate setting program (for more information on updating license information, see 4.5, License updating). The file License Information Customer.txt contains the license information in text format.

DMS 600 can be installed with a special demonstration license. The full license can be added later on.
3. Installation of DMS 600

3.1. Alternative methods to install DMS 600 to server computers

Drive names are just examples. Programs in one computer can also be installed in the same drive.

Alternatives 3, 4 and 5 describe how the redundant server system (the Hot Stand By system) can be installed.

Figure 3.1-1 Alternative methods to install DMS 600
The setup program installs DMS 600 on the computer. It copies the required files to the selected destination folder and constructs a correct directory tree. The setup program adds the required menu items and adjusts the required MS Windows registry settings.

The setup program creates DMS600, the MS Windows environment variable. The working directory of DMS 600 programs is stored in this variable. The working directory is also added to the MS Windows path variable. This enables the start-up of DMS 600 Workstation (DMS 600 WS) and DMS 600 Network Editor (DMS 600 NE) from the MicroSCADA window when MicroSCADA SYS 500 version 8.4.2, 8.4.3, 8.4.4 or 8.4.5 is used with the DMS systems.

When terminal services are used, alternative 1, or, in case of HSB, alternative 3 is normally used. In this case no workstation installations are required since the workstation uses Windows Remote Desktop connection or terminal server client. However, there can be standard client installations used in parallel with terminal server clients. For advanced automatic operations, such as automatic fault restoration and creating HTML documents, use of separate workstation is recommended.

### 3.2. Database server installation

#### 3.2.1. About the database software installation

Install the database software (SQL Server or Oracle) separately into the file server computer or a separate computer. The software includes ready-made SQL scripts that create database objects like tables and views.

For Hot Stand By systems, use the database server software instead of MS Access. Set the replication features of the database to allow two databases to be updated reliably.

⚠️ The database software cannot be installed to the Windows operating system compressed directories. If the disk is compressed, remove the compression from the installation directory (for example, C:\Program Files\Microsoft SQL Server), as well as from the DMS installation directory. This is required also in the demo installation since it installs the SQL Server.

After the installation of the DMS 600 fileserver, the server directory includes a subdirectory SQL which contains the subdirectories SQLServer and Oracle. The subdirectories include their own versions of the scripts for creating database and database objects in the SQL Server and Oracle. For further information, see 3.2.4, Creating a database and database objects in MS SQL Server 2005 and 3.2.5, Creating a database and database objects in Oracle 10g.
If you are going to create a database in Oracle, keep the password used when installing the database software. You will need it when creating a database. For further information, see 3.2.5, Creating a database and database objects in Oracle 10g.

3.2.2. Divided databases

The DMS 600 installation supports divided databases in the way that you can create the Network database (Network DSN) with static network data by running Network_mdb.sql, and the DMS 600 database for operational data by running Opera_mdb.sql.

It is not required nor recommended to divide databases, but if divided databases are used (for example, to limit the amount of tables in each database), create views by running the scripts Views_Network_Separate.sql and Views_Opera_Separate.sql for the SQL Server. These scripts use the database names OPERA_ONLY and NETWORK_ONLY. Rename them according to the database name.

3.2.3. Database server names

DMS 600 requires database server names in order to run correctly with redundant databases. If you leave the database server names empty, when the MS SQL or Oracle database is selected during installation, or when server settings are edited, the names will be filled in automatically as the names of the primary and the secondary file server.

The server names are network addresses (for example, \Computer1 or Computer1, or an IP-address like 10.10.200.200). The DSN definitions are not filled in automatically. However, network DSN1 and network DSN2 can be left empty if the same data source is used for them as for the DMS 600 DSNs.

3.2.4. Creating a database and database objects in MS SQL Server 2005

After installing the MS SQL Server 2005 database software, create a database using Microsoft SQL server Management Studio.

1. Open the first file Network_mdb.sql with the Management Studio.
2. Select the correct database in the drop-down list.
3. Click the Execute button.
4. Do the same for the Opera_mdb.sql, Views.sql, Network_default_data.sql and Opera_default_data.sql files.

Network_mdb.sql and Opera_mdb.sql create database tables.
Since the views require the tables, run the scripts *Network_mdb.sql* and *Opera_mdb.sql* before *Views.sql*.

When you execute a file, the default database becomes the Master.

5. Reselect the correct database.

![Figure 3.2.4-1 Selecting the DMS 600 database](image.png)

### 3.2.5. Creating a database and database objects in Oracle 10g

After installing the Oracle database software, create the database and database objects. This can be done using the Oracle tool *Database Configuration Assistant*.

1. Start and continue the process as guided by the *Database Configuration Assistant*.
2. In the Database Content step, select *Custom Scripts*.
3. Add the scripts to the list in the correct order.

   *Network_mdb.sql* and *Opera_mdb.sql* create database tables.

   Since the views require the tables, add the scripts *Network_mdb.sql* and *Opera_mdb.sql* create database tables to the list before *Views.sql*.
4. Open the DMS600User.sql script file.
5. Change the password from default 1234 to the one used in the installation phase, and the username as DMS600.

The password must be the same as used when installing the database software, and the username must be DMS600. Otherwise, you must modify the schema name DMS600 in all scripts for the given username.

6. Run running the scripts by clicking Next.
7. After finishing the installation, if required, redefine the Oracle server settings for the DMS600 installation by opening Settings located in the created DMS 600 program group in the Windows Start Menu.

3.2.6. Creating a database when upgrading from MS Access database to a relational database server

When there is a previous version of DMS 600 using the MS Access database, and the new installation uses a relational database server, for example, for redundancy reasons, upgrade the software according to the following steps.

1. Install and prepare the relational database server.
   For further information, see 3.2.1, About the database software installation, and 3.2.4, Creating a database and database objects in MS SQL Server 2005 or 3.2.5, Creating a database and database objects in Oracle 10g.
2. Upgrade the existing server installation using MS Access database with the installation program.
This installation updates the database structure.

Do not take the relational database server into use yet. For information on taking the relational database server into use, see 3.5.7, ODBC DSN definitions.

3. Start the Network Editor program and update the binary network model. This performs also the required data conversions to the new database structure.

4. Run SQL script Drop_Foreign_Keys.sql to the relational database server to allow data import without foreign key constraint restrictions.
   In case of divided databases, run the script rows below the comment -- NEXT DMS DATABASE TABLES separately to the DMS database.

5. Start the data import from the Access databases to the relational database server.

6. In MS SQL Server, select the created database.

7. Open the pop-up menu by right-clicking it.

8. Select Tasks/Import Data.

9. After importing all data, recreate the foreign key constraints running SQL script Add_Foreign_Keys.sql to the relational database server.
   In case of divided databases, run the script rows below comment -- NEXT DMS DATABASE TABLES separately to DMS database.

10. In DMS 600 settings, change the server settings to use the created relational database server(s).
    Open Settings in DMS 600 group in Windows Start menu, select Server settings and Use ODBC Database.

3.3. Demos package

The demo package is included in the installation package. The setup program includes the MicroSCADA application (directory name Aplopera) which is modified from the LIB 500 demo application. This program includes all definitions for the MicroSCADA - DMS 600 interface.

The easiest way to get DMS 600 to properly communicate with MicroSCADA is to install the LIB 500 demo application. Of course, it is possible to use any other application available by performing all required actions. In this case, see more detailed description in Integration with SYS 600 manual.

Demo installation also installs a demo package for DMS 600 (for example, databases and background maps). The demo installation package is designed to be easy as possible for a single computer. If the demo application is used in several workstation systems, use the settings program (Settings.exe) to define fileserver names (for more information about defining fileserver names, see 4.4, Server settings).

The demo installation installs SQL Server Express as an instance with the name computer name\DMS600. The demo databases are restored from the backup file DMS.bak to this installation. If a database with the name DMS600 already exists, it is first backed up to
3.4. Starting Setup program

Although the setup program retains the original databases, it is still recommended to make backup copies of the original databases containing valuable data before starting the setup program.

Before reinstalling or upgrading DMS 600, make sure that all DMS 600 programs are shut down. When updating a DMS 600 fileserver or DMS 600 Server Application (DMS 600 SA) all DMS 600 programs and MS Access connections should be shut down. It is also strongly recommended to exit all Windows applications before running the setup program.

To install DMS 600 in Windows 2000 Server, Windows XP, Windows Server 2003, and Windows Vista:

1. Open the Control Panel.
2. Select Add/Remove Programs dialog.
3. Select Add new programs.
4. Click the CD or Floppy button. The installation wizard opens.
5. Install DMS 600 according to the instructions in the installation wizard.

In Windows 2000 it is also possible to install DMS 600 by double-clicking the Setup.exe file or running the Setup.exe program from the RUN menu by typing the file name and path.

3.5. Installation wizard

3.5.1. Welcome to DMS 600 Setup program

The Installation Wizard will guide you through the installation of DMS 600. The dialogs that open during the installation depend on the selections made in the beginning of the installation. If you cannot open a dialog, go to the next one.

When the wizard is started, a Welcome dialog that contains a short description of the installed program opens.

The Installation Wizard dialogs contain the following buttons:
• Next > continues the installation.
• < Back returns to previous dialog boxes.
• Cancel cancels the installation.
  After Cancel has been clicked, the setup program asks for confirmation. Click Exit Setup to exit the wizard or Resume to continue the installation.
• Help in some dialogs opens a help window for different options or fields.

3.5.2. Overwriting existing version

DMS 600 information
If a previous version of DMS 600 (Open++ Opera) has been installed on the computer, a dialog box with product information about the installed version will open.

Click Next > to overwrite the existing version.

DMS 600 SA information
If a previous version of DMS 600 SA (Open++ OperaSA) has been installed on the computer, a dialog box with program information about the installed version will open.

Click Next > to overwrite the existing version.

DMS 600 NE information
If a previous version of DMS 600 NE (Open++ OperaNE) has been installed on the computer, a dialog box with program information about the installed version will open.

Click Next > to overwrite the existing version.

DMS 600 WS information
If a previous version of DMS 600 WS (Open++ OperaWS) has been installed on the computer, a dialog box with program information about the installed version will open.

Click Next > to overwrite the existing version.

SYS600/DMS600 interface information
If a previous version of SYS600/DMS600 Interface Package has been installed on the computer, a dialog box with interface information about the installed version will open.
3.5.3. Read me file

The Read Me File dialog shows last minute information and notes on DMS 600.

3.5.4. Destination location

Destination Folder shows the default installation path (for example C:\DMS600). This directory should be shared or located under a shared directory. The destination folder information is saved in the DMS environment variable of MS Windows.

To view the sharing permissions a directory in Windows Explorer:

1. Select the directory and right-click it.
2. Select Sharing from the popup menu.
3. Select Shared as.
4. Click Permissions.
5. Check that Full Control is selected in the Type of access field.

To change the destination directory click Browse. When updating a previous installation, Browse is unavailable, and the default installation directory of the previous installation is used.

3.5.5. Select components

The Select Components dialog includes the following information:
- All DMS 600 installation options.
- Disk space required for each option and total required disk space.
- Disk space remaining on the selected destination drive.

<table>
<thead>
<tr>
<th>Option:</th>
<th>Functioning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Server 1 - Primary</td>
<td>If checked, DMS 600 is installed on a computer that will act as a primary fileserver.</td>
</tr>
<tr>
<td>File Server 2 - Secondary</td>
<td>If checked, DMS 600 is installed on a computer that will act as a secondary fileserver.</td>
</tr>
<tr>
<td>Server Application</td>
<td>If checked, DMS 600 SA is installed on a computer that will run DMS 600 SA (MicroSCADA base system computer).</td>
</tr>
<tr>
<td>Workstation</td>
<td>If checked, DMS 600 WS is installed on a computer using the services of fileservers and DMS 600 SA.</td>
</tr>
<tr>
<td>Network Editor</td>
<td>If checked, DMS 600 NE is installed on a computer using the services of fileservers and DMS 600 SA.</td>
</tr>
</tbody>
</table>
### Functioning:

<table>
<thead>
<tr>
<th>Option:</th>
<th>Functioning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pdf Documents</td>
<td>If checked, DMS 600 document files (pdf files) are installed on the computer. Online help files are installed during DMS 600 File Server installation.</td>
</tr>
<tr>
<td>Data Access Objects (DAO 3.5)</td>
<td>If checked, the data access objects are installed on the computer. The DAO are needed for database handling.</td>
</tr>
<tr>
<td>Disturbance Data Form</td>
<td>If checked, the Disturbance Data Form (DDF) is installed on a computer. If this is checked without File Server – or Workstation components (the first five components of this dialog), a separate stand-alone installation of DDF is used, in which the configuration data has to be input in a similar way as in Figure 3.5.7-2.</td>
</tr>
<tr>
<td>DXF import</td>
<td>If checked, the DXF import tool is installed on a computer using the services of fileservers and DMS 600 SA.</td>
</tr>
<tr>
<td>Demo</td>
<td>When the check box is selected, other check boxes are selected automatically and a demo program is installed on a computer.</td>
</tr>
</tbody>
</table>

File Server 1 and File Server 2 cannot be selected at the same time.

After installing DMS 600 Server Application, the installation must be completed as described in Integration with SYS 600. When updating from Open++ Opera version 3.1, the action program starting DMS 600 NE should also be updated to achieve support for Terminal Services.

If your working directory is not on the C drive or if the Aplopera application is not used as the application number 1:

1. Open the DMS Grouping Tool.
2. Update the working directory.
3. Click Apply.

For more information about the DMS Grouping Tool, see Integration with SYS 600.

### Define servers

Fileserver directories should be shared directories and given in the format `\Computer_name\Shared directory name`. Fileserver directories can be defined as "not shared" (for example, `C:\DMS600`) but note that the correct use of DMS 600 WS and DMS 600 NE requires that the disk resources of DMS 600 fileservers can be mapped from the workstation.

In Windows 2000 and Windows XP, local network sharing cannot be used if the PC is disconnected from the network. To use the system without a network connection for demo purposes the file server directory must be defined (for example, `C:\DMS600`).
### Table 3.5.6-1 Boxes in the Define Servers dialog

<table>
<thead>
<tr>
<th>Option:</th>
<th>Functioning:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary File Server</strong></td>
<td>Contains the address of the primary DMS 600 files server (same as the destination folder). When updating a previous installation, the default value is obtained from the settings of the earlier installation.</td>
</tr>
<tr>
<td><strong>Primary Server Application Name</strong></td>
<td>Contains the name of the computer in which the primary DMS 600 SA is run. When updating a previous installation, the default value is obtained from the settings of the earlier installation. DMS 600 SA can be installed in a different computer than the files server (See 3.1, Alternative methods to install DMS 600 to server computers).</td>
</tr>
<tr>
<td><strong>Redundant Server System (HSB) exists</strong></td>
<td>Can be checked to copy all necessary files to the second server during installation. In a single server system, there is only one DMS 600 files server and one DMS 600 SA, but the redundant server system consists of two DMS 600 fileservers and two DMS 600 SA systems. Requires a Hot Stand By sublicense.</td>
</tr>
<tr>
<td><strong>Secondary File Server</strong></td>
<td>Contains the address of the secondary DMS 600 files server. When updating a previous installation, the default value is obtained from the settings of the earlier installation.</td>
</tr>
<tr>
<td><strong>Secondary Server Application Name</strong></td>
<td>Contains the location where the secondary DMS 600 SA is run. When updating a previous installation, the default value is obtained from the settings of the earlier installation. DMS 600 SA can be located in a different computer than the files server.</td>
</tr>
<tr>
<td><strong>Use ODBC Database (Instead of MS Access database)</strong></td>
<td>See 3.5.7, ODBC DSN definitions.</td>
</tr>
<tr>
<td><strong>Use Oracle</strong></td>
<td>See 3.5.7, ODBC DSN definitions.</td>
</tr>
</tbody>
</table>

DMS 600 NE uses only one static network database also in a redundant server system. Therefore, the primary files server path of each DMS 600 WS and DMS 600 NE must be addressed to the primary server, not to the secondary server.

The setup program will check if the file server directories exist. The program also checks the permissions of the directories.

If the directory of the file server is not found or the permissions are not sufficient, the message dialog is displayed. In that case:

1. Click **Back** to return to the previous dialog.
2. Define the file server name again or share the directory manually.

If the primary file server directory does not exist, the sharing of the primary file server directory can also be done with the **Do sharing** button displayed in the message dialog.

If you select the **Redundant Server System (HSB) exists** check box, the existence and the permissions of the secondary file server directory are checked. If you leave this check
box empty, the checking process of the secondary server is bypassed. The check box is automatically selected if the **File Server 2 - Secondary** check box is selected in **Select Components** dialog.

You can change the DMS 600 file servers and Server Application computer names after installation (for more information about servers, see 4.4, Server settings).

3.5.7. **ODBC DSN definitions**

If a relational database server is used, the ODBC connection to the database must be defined by defining a Data Source Name (DSN). This is done using the Data Sources (ODBC) tool that can be found in the MS Windows Control Panel. In Hot Stand By systems both servers must have their own DSN definitions. The DSNs must be defined for each workstation running DMS 600 applications.

After the Data Source has been defined, names can be given during installation by selecting the **Use ODBC database (Instead of MS Access database)** check box. When opening a window, DSN names can be given for both servers.

Static network data can reside in different databases. In this case the Network DSN can be defined. Usually this is not needed since all data can be in same database and the Network DSNs can be left empty as the system copies the DSN name to the network DSN.

The DSN names must the same in every workstation since names are saved to common settings on file server.

Select the **Use Oracle** check box if Oracle is used as the database. Oracle login data can be filled to enable automatic login to the database. The format of the string is: UID=user; PWD=password; where user is the username and password is the database password. Note that the ‘;’ characters are required.

When MS SQL server is used as the database, login data is not needed since integrated Windows authentication can be used so that the operating system username is used to login to the database.

When the telephone answering machine is used, the telephone answering machine DSN can be defined to get direct access to the database. If DSN is not given, MS Access database is used.

**Centralized ODBC data source name (DSN) definitions**

Instead of defining the DSN name to every workstation where DMS 600 is used, a central DSN definition file can be created. The file name has to end with “.dsn”. You
can name the file in installation or in the Server settings program. When the MS SQL Server is used, the file content has to be following:

[ODBC]

DRIVER=SQL Server

Trusted_Connection=Yes

DATABASE=DMS600

SERVER=SYS1

You can use an IP address instead of a server name.

A separate file has to be defined for both database servers. These files need to be stored in redundant systems on both file servers in Data subdirectories. When a filename without a path is given, the file is searched from the file server Data subdirectory. If a full path is given, it is used directly.

*Figure 3.5.7-1 Definition of servers in DMS 600 installation*
If ODBC is used, the configuration also applies to DXF import.

3.5.8. Select install options

The Select install options dialogue displays different installation options. The options depend on previously selected items and whether a previous installation is found.

Table 3.5.8-1 Options in the Select Install Options dialog

<table>
<thead>
<tr>
<th>Option:</th>
<th>Selections:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network presentation</td>
<td>Geographical or Schematic</td>
<td>This option is displayed only if no previous installation is found.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The geographical presentation of a network is mostly used for electric utilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The schematic presentation can be used to represent, for example, the electrical network of an industrial company.</td>
</tr>
<tr>
<td>Replace font file Opera.ttf</td>
<td>Yes or No</td>
<td>This option is displayed only if the font file has been installed previously.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you choose Yes, all possible modifications will disappear.</td>
</tr>
</tbody>
</table>
### Option:
<table>
<thead>
<tr>
<th>Selections:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patch current databases</td>
<td>This option is displayed only if a previous installation is found and SQL/Oracle database was not selected. If you choose <strong>Yes</strong>, your current network and DMS 600 databases are patched during the installation according to the model databases. This will take some time. If you choose <strong>No</strong>, you should patch databases after installation using AccPatch program in order to get DMS 600 to work properly.</td>
</tr>
</tbody>
</table>

The Opera.ttf file should not be modified. To modify the use of symbols, create a new True Type Font file to be used in the program. For more information, see System Administration. New model databases with a new structure are installed into the `\Data\Dbmodels` subdirectory of the working directory. In a new installation, the model databases are also installed into the data directory.

#### 3.5.9. HTML Help support

The DMS 600 HTML help requires MS Internet Explorer™ 3.02 or later to be installed (version 4 or later is recommended) in the destination computer.

If Internet Explorer 3.02 or later is not installed on the destination computer, the **Install setup files for Internet Explorer?** dialog is displayed. Select the **Install setup files for IE** and click **Browse** to determine the destination folder for the Internet Explorer setup files. Run `Setup.exe` for Internet Explorer after the DMS 600 setup.

Only the help support of Internet Explorer will be updated.

#### 3.5.10. Configuring demo installation for OPC interface

MicroSCADA Pro Control System SYS 600 version 9.x and MicroSCADA SYS 500 version 8.4.5 have a new communication feature based on OPC Data Access. All the process objects of MicroSCADA are exposed by the server as OPC items, and all the attributes of process objects are exposed as OPC item properties. The OPC Data Access interface of DMS 600 can be used in parallel with SCIL API in some communication tasks.
During the demo installation, you have the possibility to install a ready made system configuration file `Sys_bascon.com` to the system. This is the easiest way to install the demo system, but as a result, only the demo application will be available in the SYS 600 system (valid for SYS 600 version 9.1 or higher). For other SYS 600 versions, the installation opens the configuration file to an editor and the application has to be defined manually. In this case, define the application AplOpera as application number 1, as the application number 1 is used in the predefined OPC item names in the demo system.

If any other application number than 1 is used, OPC has to be configured again.

3.5.11. Cannot find MicroSCADA installation

If a MicroSCADA installation cannot be found, the user is asked whether the Server Application shortcut is added to the startup menu.

If a MicroSCADA version number cannot be found in the registry, the user is asked for a version number.

3.5.12. Select license

The options in this dialog depend on the existence of a `license.ini` file. The options are:

- **Install demo license.** This option installs the demo license.
- **I have a new "License.ini" file.** Click Next to select the license file from the directory tree. Click OK or double-click the file to install the new license. The installation program will automatically change the file name to `license.ini` and make a backup copy of the old `license.ini`. The selected licence file must contain the new license delivered by ABB.
- **I want to use the file "License.ini" already installed on my computer.** Click Next if you do not want to make changes to the existing license information.

3.5.13. Select Start Menu group

Select a Start menu group from the list. The setup program adds DMS 600 items to the selected menu group.

3.5.14. Backup replaced files

The setup program can create backup copies of all files replaced during the installation. Use `Backup File Destination Directory` to select the directory to which the replaced files will be copied. To change the destination directory, click **Browse**.
If a DMS 600 fileserver has been installed previously in the same working directory, the existing setting files and databases are always copied to the backup files during installation (even when Backup Replaced Files was not selected).

### Table 3.5.14-1 File names for backup files

<table>
<thead>
<tr>
<th>File</th>
<th>Backup copies to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opera.prm</td>
<td>Opera&lt;installation_time&gt;.prm</td>
</tr>
<tr>
<td>Data\Common.prm</td>
<td>Data\Common&lt;installation_time&gt;.prm</td>
</tr>
<tr>
<td>Data\Opera.mdb</td>
<td>Data\Opera_&lt;installation_time&gt;.mdb</td>
</tr>
<tr>
<td>Data\Network.mdb</td>
<td>Data\Network_&lt;installation_time&gt;.mdb</td>
</tr>
<tr>
<td>Data\Genlang.mdb</td>
<td>Data\Genlang_&lt;installation_time&gt;.mdb</td>
</tr>
<tr>
<td>Data\Tam.mdb</td>
<td>Data\Tam_&lt;installation_time&gt;.mdb</td>
</tr>
<tr>
<td>Data\License.ini</td>
<td>Data\License_&lt;installation_time&gt;.ini</td>
</tr>
<tr>
<td>Netdata\Tempnet.dat</td>
<td>Netdata\Tempnet_&lt;installation_time&gt;.dat</td>
</tr>
</tbody>
</table>


### 3.5.15. Start installation

Click Start in the Start Installation dialog box to start the installation.

When you start the installation for the first time, the system asks you to register to the DMS Server Application using the password of Windows operating system for the MicroSCADA username. If you do not know the password, you can change it by using MicroSCADA control panel and MicroSCADA administrator program. The registration with the correct password is required to enable Server Application to provide the interfaces for other MicroSCADA Pro applications, such as Monitor Pro.

The Installing dialog box shows the progress of the installation with a percentage value and a graphics bar. The text label above the graphic bar shows the files that are being copied at that moment. Clicking Cancel will open the Exit setup dialog with the option to stop the installation before it is finished. In this case, the files that have already been copied must be deleted manually.

- **Info**  
  If a warning about bad image concerning an Ole2.dll file is displayed during installation, click OK. The warning is generated outside the DMS 600 Setup program.

- **Tip**  
  The MicroSCADA username and password can be changed after installation from the DMS 600 Server Application menu command Interface > Change SCADA Password... or by
running ChangeMicroSCADAPassword.bat. ChangeMicroSCADAPassword.bat file is located in the root of the file server installation path.

3.5.16. **Installation complete**

A successful installation or upgrade ends with the **Installation Complete** dialog. Click the **Finish** to complete the installation.

Open++ programs require at least the version 5.81 of Comctl32.dll. The version is checked after the Open++ programs are successfully installed. If an older version of Comctl32.dll is found in the destination computer, a message is displayed and the Microsoft installer program *50comupd.exe* will be run when you click **Finish**.

When the setup program finishes, the Programs menu will include the following items (depending on the selections made in the beginning of installation):

- Release Notes
- Settings
- Load Curve
- Server Application
- Network Editor
- Workstation

3.5.17. **Binary database update**

After the installation of DMS 600, it is recommended to first start DMS 600 NE, since DMS 600 NE updates the binary network file, if necessary. To update the binary database in DMS 600 NE, answer **Yes** to the question "Read network from database?", or select **File > Update Network Database** and answer **Yes** to the question. You need the *Network.dat* file to start DMS 600 SA and DMS 600 WS. If DMS 600 SA or DMS 600 WS is started first and *Network.dat* is incompatible, the text "Binary database (Network.dat) must be updated" is shown and the program quits.

If a previous version of DMS 600 (Open++ Opera version 3.2 or older) has been installed on the computer, the updating of *Network.dat* may take a long time. The update process can be speeded up, but **this is only recommended for advanced users**! If you hesitate at any point, let DMS 600 NE do the updating as described above.

Instructions to speed up updating process (for advanced users only!):

1. Before starting any DMS 600 programs, use MS Access to open the empty model network database that has been installed in the subdirectory *\Data\Dbmodels*. 

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2. Open the network database that contains network information.

3. Open the table LV_SECTION in design mode in both databases. Using model table as an example, create the field LV_SECTION_ID. Set data type to AutoNumber. Save changes. Id numbers will be generated automatically.

4. Open the table LV_SECTION in design mode again. Set the data type of LV_SECTION_ID to Number and set the same field properties as in the model database. Save changes.

5. Open the table MV_SECTION in design mode in both databases. Use the model table as an example and create the field MV_SECTION_ID. Set data type to AutoNumber. Save changes. Id numbers will be generated automatically.

6. Open the table MV_SECTION in design mode again. Set the data type of MV_SECTION_ID to Number and set the same field properties as in the model database. Save changes.

7. Open the tables LV_SECTION, MV_SECTION and SECTIONNUMBER. Copy the highest number in the field LV_SECTION_ID in the table LV_SECTION to the field LV_SECTION_ID in the table SECTIONNUMBER. Copy the highest number in the field MV_SECTION_ID in the table MV_SECTION to the field MV_SECTION_ID in the table SECTIONNUMBER. Save changes and close the databases.

8. Open DMS 600 NE. Update the binary network file by answering Yes to the question "Read network from database?", or by selecting File > Update Network Database and answering Yes to the question. This should take less time now since MV/LV section id numbers are already generated.

### 3.5.18. Username and password

A username and password are required to login to DMS 600 programs. After installation use the username "ADMIN" and the password "Admin" to log in DMS 600 programs. For more information about user management, see System Administration.

- Change the password for the "ADMIN" user right after installation to prevent unauthorized access to the system. DMS 600 passwords are case-sensitive. In addition, the following special characters are accepted: % * . – _.
4. Setting up DMS 600

4.1. General about configuring settings

There is a separate program (Settings.exe) for configuring the settings of DMS 600 after installation. The program can be found in the MS Windows Start menu (by default in "MicroSCADA Pro DMS 600" group), under the Settings.

The program can be used to configure:
- General settings (for example, optional functions inside the licenses)
- Map settings
- Server settings
- License updating

The running of the Settings.exe program opens the DMS 600 Settings dialog. You can select one check box or all check boxes at a time.

Remember to restart the DMS 600 application(s) after you have changed the settings.

4.2. General settings

The DMS 600 / General Settings dialog contains check boxes for activating and deactivating optional functions. For example, functions can be disabled during project execution until preparations, such as server connections, are ready. Most of the items are dependent on optional licenses. License dependencies are explained in the table below. You can select all check boxes freely but the selected function is in operation only if there is an appropriate license for it.

Table 4.2-1 Check boxes of the General Settings dialog

<table>
<thead>
<tr>
<th>Check box:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents</td>
<td>Select if you want to use document archive properties in DMS 600. Requires the Extended Data Management license.</td>
</tr>
<tr>
<td>Free Database Objects</td>
<td>Select if you want to use free database objects in DMS 600. Requires the Extended Data Management license.</td>
</tr>
<tr>
<td>Free Data Form</td>
<td>Select if you want to use free data forms in DMS 600 NE. Requires the Extended Data Management license.</td>
</tr>
<tr>
<td>Free Form for WS</td>
<td>Select if you want to use free data forms in DMS 600 WS. Requires the Extended Data Management license.</td>
</tr>
<tr>
<td>Queries</td>
<td>Select if you want to use database analysis in the system. Requires the Extended Data Management license.</td>
</tr>
<tr>
<td>Estimation</td>
<td>Select if you want to use load estimation in the system. Requires the Network Analysis license.</td>
</tr>
<tr>
<td>Check box</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Use Velander’s factors</td>
<td>Velander’s factors or load curves are used in the calculation of peak power values. See Operation Manual for information on how to define load curves. Requires the Network Analysis license.</td>
</tr>
<tr>
<td>Use load curves</td>
<td></td>
</tr>
<tr>
<td>Field Crew</td>
<td>Select if you want to use field crew management in DMS 600 WS. Requires the General extensions sublicense.</td>
</tr>
<tr>
<td>Temporary Network Data</td>
<td>Select if you want to use the temporary network data management in DMS 600. Included in the DMS 600 (Base) license.</td>
</tr>
<tr>
<td>Customer Information</td>
<td>Select if the customer data is to be used. The use of customer data requires the CUSTOMERS table to be included in the database (for more information about importing the customer data, see System Administration). Requires the General extensions sublicense.</td>
</tr>
<tr>
<td>Only One Instance in WS</td>
<td>When this setting is selected, you cannot start several DMS 600 WS programs in one workstation (the functionality of OperaWS version 3.1). This feature may be advantageous if MicroSCADA monitors and DMS 600 WS applications must be set to start automatically, for example, in a switchover in a HSB system. This functionality requires changes to MicroSCADA application (for more information about the required changes, see Integration with SYS 600). Select this option if you want to disable running several instances of DMS 600 in each workstation. To use terminal services during the same session, unselect the checkbox.</td>
</tr>
<tr>
<td>SCIL API Interface</td>
<td>Select if you want to use SCIL API interface between DMS 600 and MicroSCADA. Included in the DMS 600 (Base) license.</td>
</tr>
<tr>
<td>OPC Interface</td>
<td>Select if you want to use OPC Data Access interface between DMS 600 and SCADA. Included in the DMS 600 (Base) license and can be used with MicroSCADA Pro Control System SYS 600 version 9.x and MicroSCADA SYS 500 version 8.4.5.</td>
</tr>
<tr>
<td>Use SCADA Graphics</td>
<td>Select if you want to use MicroSCADA monitor. Included in the DMS 600 (Base) license.</td>
</tr>
<tr>
<td>Alarms</td>
<td>Select if you want to use the alarm handling and alarm symbols in DMS 600. Requires the General extensions sublicense</td>
</tr>
<tr>
<td>Telephone answering machine</td>
<td>Select if you want to use an interface to a telephone answering machine. Requires the Telephone answering machine sublicense.</td>
</tr>
<tr>
<td>GSM messages</td>
<td>Select if you want to send SMS messages through a GSM modem. Requires the GSM messages sublicense.</td>
</tr>
<tr>
<td>Switching State Document</td>
<td>Select if you want to create HTML and Word documents of outages and switching states for the selected workstation. Requires the Switching State Document sublicense.</td>
</tr>
<tr>
<td>Transmission Voltage Level</td>
<td>Contains the transmission voltage level of the electric system; that is, voltages above this value are counted as transmission voltages. This parameter affects the topology and network analysis, and the coloring of the network.</td>
</tr>
</tbody>
</table>
4.3. Background map parameters

In the Map Settings dialog you can configure the background map parameters of DMS 600.

The program does not check the accuracy of entered information except the minimum and maximum values of co-ordinates. Therefore, the user is responsible for the accuracy of the entered information. Erroneous information may result in the incorrect operation of a DMS 600 program.

Table 4.3-1 Boxes of the Background Map Parameters dialog

<table>
<thead>
<tr>
<th>Field or check box:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>xmin_default</td>
<td>These boxes contain the minimum and maximum default values of the x and y</td>
</tr>
<tr>
<td>xmax_default</td>
<td>coordinates in the display of meters. The program checks that the values</td>
</tr>
<tr>
<td>ymin_default</td>
<td>are within the accepted range ±1999999. In industrial applications, the</td>
</tr>
<tr>
<td>ymax_default</td>
<td>range values are much smaller (approximately 1000 = 1 km). When updating</td>
</tr>
<tr>
<td></td>
<td>a previous installation or setting system parameters, the default values</td>
</tr>
<tr>
<td></td>
<td>are obtained from the corners of a created network or an adjusted map.</td>
</tr>
<tr>
<td>Enable manual check of DXF-conversion</td>
<td>Defines if the DXF-conversion program asks the user to define the values</td>
</tr>
<tr>
<td>coordinates</td>
<td>for the x and y coordinates at the beginning of the DXF conversion in DMS</td>
</tr>
<tr>
<td></td>
<td>600 NE.</td>
</tr>
<tr>
<td>X_scale_factor (DXF-conversion)</td>
<td>These boxes contain the factors by which the x and y coordinates in a</td>
</tr>
<tr>
<td>Y_scale_factor (DXF-conversion)</td>
<td>DXF-file are multiplied during DXF-conversion in DMS 600 NE. The</td>
</tr>
<tr>
<td></td>
<td>coordinate unit in the converted map must be 1 meter. The conversion is</td>
</tr>
<tr>
<td></td>
<td>made using the scale factor. The scale factor value is found by dividing</td>
</tr>
<tr>
<td></td>
<td>the coordinate unit of the original map material with 1 meter. For</td>
</tr>
<tr>
<td></td>
<td>example, if the x-coordinate of the original DXF-map is 1 millimeter, the</td>
</tr>
<tr>
<td></td>
<td>X_scale_factor must be 0.001. The value of X_scale_factor should be ≥ 0</td>
</tr>
<tr>
<td></td>
<td>and the value of Y_scale_factor should be ≠ 0.</td>
</tr>
<tr>
<td>x_add_in_DXF_conversion (m)</td>
<td>These boxes contain the default values for the parameters which are added</td>
</tr>
<tr>
<td>y_add_in_DXF_conversion (m)</td>
<td>to the x and y coordinates at the beginning of the DXF conversion in DMS</td>
</tr>
<tr>
<td></td>
<td>600 NE, if the &quot;Enable manual check of DXF-conversion coordinates&quot; check</td>
</tr>
<tr>
<td></td>
<td>box is selected. The values are given in meters. The user can change the</td>
</tr>
<tr>
<td></td>
<td>values after prompting for the parameters during conversion. For example,</td>
</tr>
<tr>
<td></td>
<td>if the x_add_in_DXF_conversion parameter is set to 100000 the x-coordinates</td>
</tr>
<tr>
<td></td>
<td>of the original DXF map will be moved 100,000 meters left. When updating</td>
</tr>
<tr>
<td></td>
<td>a previous installation, or configuring system parameters, the default</td>
</tr>
<tr>
<td></td>
<td>value is obtained from the settings of the earlier installation.</td>
</tr>
</tbody>
</table>
4.4. Server settings

In the Server Settings dialog you can configure server settings for DMS 600 and MicroSCADA SCIL API connection.

The DMS 600 fileserver and DMS 600 SA computer name fields are described in 3.5.6, Define servers. The secondary server and computer names are used if the Hot Stand By sublicense exists. If the secondary fields are defined to be empty, the redundant server system is not used even if the Hot Stand By sublicense exists.

Fileserver directories should be shared and given in the format \Computer_name\<Shared directory name>. The fileserver directories can be defined as "not shared" (for example, C:\DMS600) but note that the correct use of DMS 600 WS and DMS 600 NE requires that both disk resources of DMS 600 fileservers can be mapped from the workstation.

In Windows 2000 and Windows XP, local network sharing cannot be used if the PC is disconnected from the network. To use the system for demo purposes without a network connection, the file server directory must be defined (for example, C:\DMS600).

The Server Settings program will check if the directories of the file servers exist. The program also checks the permissions of the directories. If the file server directory is not found or the permissions are not sufficient, a message is displayed. Share the directory manually or define the file server name again. If the Secondary File Server field is left empty, the checking process of secondary server is bypassed.

The addresses of the MicroSCADA SCIL API connection can also be changed with this dialog. The fields to change are described in 4.6.1, Configuring SCIL API interface. These fields are used if the SCADA connection sublicense exists. OBDC DSN definitions can also be changed with this tool. For more information see 3.5.7, ODBC DSN definitions.

4.5. License updating

In the Use License Updating dialog box you can install or update DMS 600 license information after the program installation.

The options available in the dialog depend on the existence of a License.ini file. The possible alternatives are:

- **Install demo license.** This option installs the demo license.
• **I have a new "License.ini" file.** Click **Ok** to select the license file from the directory tree. Click **OK** or double-click the file to install the new license. The installation program will automatically change the file name to `license.ini` and make a backup copy of the old `license.ini`. The selected licence file must contain the new license delivered by ABB.

• **I want to use the file "License.ini" already installed on my computer.** Click **Next** if you do not want to make changes to the existing license information.

If there is no license installed, DMS 600 will generate the ’No License’ error message after start up.

### 4.6. Setting up DMS 600 SA interfaces

#### 4.6.1. Configuring SCIL API interface

To change the DMS 600 SA specific Support System Interface settings after start up:

1. Select **Settings > SCIL API Parameters**. The **Settings** dialog opens.
2. Define the settings described in the following table.

*Table 4.6.1-1 SCIL API parameters*

<table>
<thead>
<tr>
<th>Box</th>
<th>Function</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>Username for the Support System Interface</td>
<td>1...20 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: ABB</td>
</tr>
<tr>
<td>Password</td>
<td>Password for the Support System Interface</td>
<td>1...20 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Default: Opera</td>
</tr>
<tr>
<td>IP-address (Primary Micro-SCADA)</td>
<td>IP address of the primary MicroSCADA (normal state hot)</td>
<td>Default: 127.0.0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Used only if the SCADA Connection sublicense is included.</td>
</tr>
<tr>
<td>TCP-port (Primary Micro-SCADA)</td>
<td>TCP port of the primary MicroSCADA (normal state hot)</td>
<td>Default: 1333</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Used only if the SCADA Connection sublicense is included.</td>
</tr>
<tr>
<td>IP-address (Secondary Micro-SCADA)</td>
<td>IP address of the secondary MicroSCADA (normal state warm)</td>
<td>Default: 127.0.0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Used only if the SCADA Connection sublicense is included.</td>
</tr>
<tr>
<td>TCP-port (Secondary Micro-SCADA)</td>
<td>TCP port of the secondary MicroSCADA (normal state warm)</td>
<td>Default: 1333</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Used only if the SCADA Connection sublicense is included.</td>
</tr>
<tr>
<td>Data transfer intensity level</td>
<td>Defines DMS 600 SA frequency of operation and its internal waiting times</td>
<td></td>
</tr>
</tbody>
</table>
The IP address "127.0.0.1" refers to the used computer. Because the MicroSCADA base system is always running on the same computer, no other address is needed and it is not possible to change the default value.

Analog username, password, IP address and TCP port settings are defined in the DMS Grouping Tool (for more information about the DMS Grouping Tool, see Integration with SYS 600).

The updating of connections to MicroSCADA server computers is done through a separate program (for more information about updating MicroSCADA connections, see 4.4, Server settings).

4.6.2. Configuring OPC interface

MicroSCADA Pro Control System SYS 600 version 9.x and MicroSCADA SYS 500 version 8.4.5 have a new communication feature based on OPC Data Access, which can be used in parallel with SCIL API interface.

To change DMS 600 SA specific OPC Data Access interface settings after start up:
1. Select **Settings > OPC Parameters**. The **Settings** dialog opens.
2. Configure the settings of the following table.

*Table 4.6.2-1 OPC interface settings*

<table>
<thead>
<tr>
<th>Box</th>
<th>Function</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Data transfer intensity level | Defines the functionality of OPC interface. | 1…5  
  Default: 3 = most delays and waiting times are 1000 ms |
| Position indication updateinterval | Defines how often all OPC items of the position indication group are updated (seconds). | |
| Measurement indication updateinterval | Defines how often all OPC items of the measurement indication group are updated (seconds). | |
| Alarm indication updateinterval | Defines how often all OPC items of the alarm indication group are updated (seconds). | |
| Burst timeout | If the amount of new events from OPC Server are so high that DMS 600 SA cannot handle them all during given Burst timeout, DMS 600 SA will enter into the burst situation mode. | The burst situation mode means that all data values are updated only to the memory and the display, not to the database. |
4.6.3. Using DMS600 OPC DA client to connect to OPC DA server in a remote computer

Because of the enhanced security settings in Windows XP Service Pack 2 (SP2), additional configuration changes are required in DMS. To open the OPC interface on a remote computer using DCOM in Windows XP SP2, access rights have to be defined also for the client (DMS) computer. On the server side, Remote Access and Launch and Activation permissions have to be defined.

For more information, see the following links:

- [http://www.opcfoundation.org](http://www.opcfoundation.org) (select Downloads/White Papers from the menu)

The white paper "Using OPC via DCOM with Windows XP Service Pack 2" explains the needed configuration changes with some alternatives.

If Windows does not function properly after the changes (Copy-Paste not working in Windows Explorer etc.), delete the registry key "HKEY_LOCAL_MACHINE\Software\Microsoft\Ole\DefaultAccessPermission". Do not delete any other keys. Restart Windows after deleting the key.

Multiple Domains

An OPC connection from one domain to other, or to a Workgroup is not directly possible. When you have multiple Windows domains, there are configuration requirements in both domains to allow Domain A trusts users from Domain B and vice versa. For DCOM to work properly, you have to have the trust going both ways because there are DCOM calls going both ways. Windows security functions will try and validate the security credentials of the user going both ways.
5. Hot Stand By support (HSB)

5.1. Installing Hot Stand By support (HSB) afterwards

If the primary server has been used before the installation of the secondary server, its databases and files are not empty. The secondary server installation installs empty databases and empty files to the secondary server. The data inserted using the primary server has to be copied to the secondary server.

The installation needs a Hot Stand By sublicense. If you do not have the license, contact your vendor.

To install the secondary server of HSB system afterwards:
1. Install the secondary server by checking the File Server 2 – Secondary check box during installation (for more information about installation, see 3.5.5, Select components).
2. Copy manually the DMS 600 database, Common.prm, Genlang.mdb and License.ini files (including the HSB license) from the Data directory of the primary server to the Data directory of the secondary server.
3. Copy manually the maps from the Map directory of the primary server to the Map directory of the secondary server.
4. Use the Settings tool (Settings.exe) to update server settings in every workstation (for more information about settings, see 4.4, Server settings).

DMS 600 WS and DMS 600 SA can be used with a primary or secondary server. DMS 600 WS and DMS 600 SA updates the DMS 600 database in both servers. When a server is reconnected, DMS 600 SA or DMS 600 WS notices this and updates data automatically.

DMS 600 NE can only be used when the primary server is connected. The network database is only at the primary fileserver. This means that network editing and some administrative tasks can be done only when the primary fileserver is connected.

5.2. Redundant hot standy by (HSB) system configuration with database replication

A relational database server (MS SQL Server or Oracle) is strongly recommended for HSB systems. A database replication feature is needed to present the data updated only to DMS (manual disconnectors, open line cuts, etc.) correctly in switch-over situations. If all important data in the system is stored in SCADA, this data can be shown correctly
without a relational database replication. Otherwise the MS SQL Server or Oracle needs to be used since MS Access does not include reliable database replication features.

When database replication is in use, a network editor can also be used when either of the database servers is available. The replication arrangement makes the databases identical even if the installation tools use the words primary and secondary server.

**Replication using MS SQL Server**

Replication with two redundant servers requires usage of Merge Replication. In the replication, one server is defined as the Publisher and the other one is defined as the Subscriber. Changes made to both servers are replicated when possible continuously in both directions. The continuous replication keeps both databases updated in normal conditions. When one of the servers is unavailable, it cannot receive updates. However, when servers are reconnected through a LAN, the agent service will automatically update all the database changes made during the downtime.

Before starting the replication process, change the log on the account for the SQL Server (MSSQLSERVER) and SQL Server Agent services to “This account” using Services in Windows Control Panel. Use a Windows username with the same password for both database servers (for example username MicroSCADA). This is needed so that replication run by SQL Server Agent Service can access the other server. The selected username has to be defined in SQL Server Logins, and it must have sysadmin, processadmin and bulkadmin server roles. Restart the MSSQLSERVER service after making the changes.

The DMS 600 database is installed using the available scripts on the first database server. This server can be defined as the Publisher. The whole DMS 600 database can be published for replication. In the other server, an empty database is created. After that, a subscription to the previously created publication can be added. In this phase both tables and views must be selected. When the subscription is taken into use, the whole database structure with the data is copied to the server.

When the publication is created, the Merge Agent Security has to be defined. Select Run under the SQL Server Agent service account. (Before replication definition the service account has been changed.)

When the database structure needs to be changed, you can re-create the entire replication.

Overview of the Merge Replication can be found e.g. in the following link: http://msdn2.microsoft.com/en-us/library/ms152746.aspx.

Useful step-by-step instructions can be found also at the following address: http://www.codeproject.com/database/MergeReplication.asp.
Replication using Oracle

Oracle has several Distributed Databases Concepts. For HSB systems with two redundant database servers, Oracle Multimaster Replication with Asynchronous Replication can be used for high availability. When you use asynchronous replication, information about a data manipulation language (DML) change on a table is stored in the deferred transactions queue at the master site where the change occurred. These changes are called deferred transactions. The deferred transactions are pushed (or propagated) to the other participating master sites at regular intervals, which you can define.

Oracle Enterprise Manager Console can be used to configure and administer replication environments. The tool can be used to define Master databases for a master group. For more information, see Oracle 10g manual: Oracle® Database Advanced Replication.
6. **Uninstallation of DMS 600**

6.1. **General about uninstallation**

The uninstallation program (Unwise.exe) uninstalls DMS 600 from the computer. The success of uninstallation depends on in how many parts the installation process was performed. The fewer parts there are, the better the uninstallation succeeds. After executing the uninstallation program it may be necessary to remove the rest of the installed parts manually (for more information about selecting parts to be uninstalled, see 6.3.11, Manual checking).

6.2. **Starting uninstallation**

Before uninstalling DMS 600, make sure that all DMS 600 programs are shut down.

To uninstall DMS 600 from Windows 2000 Server, Windows XP, and Windows Server 2003, uninstall DMS 600:
1. Open the Control Panel.
2. Select Add/Remove Programs.
3. Select Change or remove programs.
4. Select DMS 600 4.3.
5. Click Change/Remove. An uninstallation wizard opens.
6. Uninstall DMS 600 according to the wizard.

In Windows 2000, you can also use the Control Panel for uninstalling. You can also uninstall the DMS 600 by double-clicking the file Unwise.exe, which is located in the installation destination folder (for more information see 3.5.4, Destination location), or by running the Unwise.exe program by typing the file name and path in the RUN menu.

6.3. **Uninstallation wizard**

6.3.1. **General about uninstallation wizard**

This uninstallation wizard will guide you through the uninstallation of DMS 600. The dialogs that open during uninstallation depend on the selections in the beginning of the uninstallation. If some dialog is not opened, go to the next.

The uninstallation wizard dialogs contain the following buttons:
• **Next >** continues the installation.
After **Cancel** has been clicked, the setup program asks for confirmation. Click **Exit Setup** to exit the wizard or **Resume** to continue the installation.

6.3.2. **Select uninstall method**

The **Select Uninstall Method** dialog is displayed for the selection of the uninstallation method.

Select the method to be used in the uninstallation process:

- An **Automatic** uninstallation removes the default uninstall options.
- The **Custom** option enables the selection of the files to be removed.
- The **Repair** option performs reinstallation, that is, re-edits the registry, re-edits or recreates .INI files, reinstall all files, and self-registers files again.

6.3.3. **Select private files to remove**

The **Select Private Files to Remove** dialog is opened if the Custom uninstallation method has been selected. Select the files or click **Select All** to select all listed files to be removed. **Select None** selects none of the listed files to be removed.

6.3.4. **Select system files to remove**

The **Select System Files to Remove** dialog box is opened next if the customized uninstallation method has been selected. Select the files or click **Select All** to select all listed files to be removed. **Select None** selects none of the listed files to be removed.

Use caution when removing system files as they may be used by other programs.

6.3.5. **Select directories to remove**

The **Select Directories to Remove** dialog box is opened next if the customized uninstallation method has been selected. Select the directories or click **Select All** to select all listed directories and all files and directories within these directories to be removed. **Select None** selects none of the listed directories to be removed.
6.3.6. **Select INI files to remove**

The Select INI Files to Remove dialog box is opened next if the customized uninstallation method has been selected. Select the files or click **Select All** to select all listed files to be removed. **Select None** selects none of the listed files to be removed.

6.3.7. **Select INI items to edit**

The Select INI Items to Edit dialog box is opened next if the customized uninstallation method has been selected. Select the items or click **Select All** to select all listed items to be changed back. **Select None** selects none of the listed items to be changed back.

6.3.8. **Select registry keys to remove**

The Select Registry Keys to Remove dialog box is opened next if the customized uninstallation method has been selected. Select the registry keys or click **Select All** to select all listed registry keys to be removed. **Select None** selects none of the listed registry keys to be removed.

6.3.9. **Select sub-systems to remove**

The Select Sub-Systems to Remove dialog box is opened next if the customized uninstallation method has been selected. Select the sub-systems or click **Select All** to select all listed sub-systems to be removed. **Select None** selects none of the listed sub-systems to be removed.

6.3.10. **Perform uninstall**

Click **Finish** in the Perform Uninstall dialog to start the removal of DMS 600 files.

The dialog box then shows the progress of the uninstallation with a progress bar. The text label above the progress bar shows the files that are being removed at that moment. Clicking **Cancel** will open the dialog box that includes the option to stop the removing of files before the uninstallation is finished.

Restart the computer after uninstallation, if a new installation of DMS 600 will be performed after the uninstallation.
6.3.11. Manual checking

The complete uninstallation of DMS 600 assumes that the following steps are carried out with the uninstallation program or manually:

• Deletion or renaming of the DMS 600 directories.
• Deletion or renaming of the DMS 600 registry settings. The registry settings can be changed from the RUN menu by typing `Regedit`. Check the following registry keys:

  HKEY_LOCAL_MACHINE\software\ABB\Opera\Packages\MS-OPERA INTF

  HKEY_LOCAL_MACHINE\software\ABB\Opera\Packages\OPERANE

  HKEY_LOCAL_MACHINE\software\ABB\Opera\Packages\OPERASA

  HKEY_LOCAL_MACHINE\software\ABB\Opera\Packages\OPERAWS

  HKEY_LOCAL_MACHINE\software\ABB\Products\Opera

• Deletion or renaming of the DMS600 environment system variable. The system variable can be changed by clicking the System icon in the Control Panel. Select the Environment tab and select the DMS600 variable for deleting or renaming.
• Deletion of the DMS600 variable from the MS Windows Path variable. The Path variable can be changed by clicking System in the Control Panel. Click the Environment tab and delete the character string "%DMS600%" from Path variable.
• Customization of the Start and Programs menus by editing C:\WINNT\Profiles\All Users\Start Menu or C:\Documents and Settings\All Users\Start Menu\Programs.
7. The computer network

7.1. Backups of network database

The original network database is saved to the primary fileserver. The original network database is not replicated to the secondary fileserver. The backups of network database must be approved by the system administrator.

7.2. Regional servers

DMS 600 can be optimized for slow network connections. This feature is useful if there is a slow Wide Area Network (WAN) connection instead of a LAN between central and district offices and any terminal services are not used. Additional regional servers can be used to store network data locally to keep the start-up time of the programs reasonable. These regional servers can store the binary network file and on-line help information. The local workstations can use the data from the regional server. The regional servers must be in operation all the time, or at least when network data is updated at the central office. If these regional servers are specified in the system, DMS 600 NE also updates network data to these servers. For performance reasons the binary network file data should be updated only in a central office where the network database server is located.

Direct editing of Common.prm and Opera.prm files has to be done with special care.

EXAMPLE:

The additional servers are defined manually to the [Additional_Servers] section of the Common.prm file.

[Additional_Servers]

number=2

1=\server1\DMS600\testdir1

2=\server2\DMS600\testdir2

For each workstation using an additional server, the directory for the network data is defined manually to the [General] section of the Opera.prm file.
[General]

Server1_Netdata=\server1\DMS600\testdir1

7.3. Terminal services

Normally DMS 600 uses the client-server architecture, which means that, for example, DMS 600 WS applications are run using the client computer’s processor and memory. The network model is loaded to the main memory of the client workstation.

However, DMS 600 programs can be run in a terminal session using Windows 2000 Server or Windows Server 2003 (these include Terminal Services). This is advantageous, for example, when network connections are slow or when using dial-up modems.

MicroSCADA Pro SYS 600 uses new monitor type (MicroSCADA Monitor Pro) terminal services instead of Exceed to spread applications to workstations, at least when Monitor Pro graphics and tools are used. In this case also DMS 600 will run under terminal services so that the integration of user interfaces can work.

DMS 600 supports running several instances of DMS 600 WS in the same workstation computer. This applies to standard Windows 2000 and Windows Server 2003 workstations. In standard workstations only one DMS 600 NE is allowed but in terminal services each session can run one DMS 600 NE.

During installation DMS 600 should be installed as a common application for all users using Control Panel - Add/Remove Programs.

If terminal services are used, functionality can be affected by the parameter Only One Instance in WS which can be set with the setting program (for more information about configuring settings, see 4.2, General settings).
8. **MS Access**

8.1. **General about MS Access**

MS Access relational database software installation may be required for the fileserver computer (or in both fileserver computers in the case of a Hot Stand By (HSB) environment) to be able to configure databases and troubleshoot. Other computers running instances of DMS 600 WS do not need MS Access, because DMS 600 can use databases directly after proper installation with the setup program. When MS SQL Server or Oracle is used as the database software, MS Access may still be used for database reporting.

If the installation is new, MS Access 2000 or newer is the required version. MS Access® 95 or 97 can still be used if an existing installation is upgraded to DMS 600 version 4.3. In this case, the databases remain in their existing format. However, it must be noted that localization (language translation of the user interface strings) can be done only using Access 2000.

**Installation of Access 2000 or later**

Install Access 2000 or later version using the advanced wizards in order to have the linked table manager installed.

**Installation of Access 95 or Access 97**

In the first dialog box of the MS Access Installation Program, you must select the Custom installation option. In the next dialog box, all components (also Advanced wizards in MS Access 97 or Development tools 2496 kb in MS Access 95) must be selected in order to install the Linked Table Manager needed in DMS 600.

The language of MS Access can be English or a localized version.
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