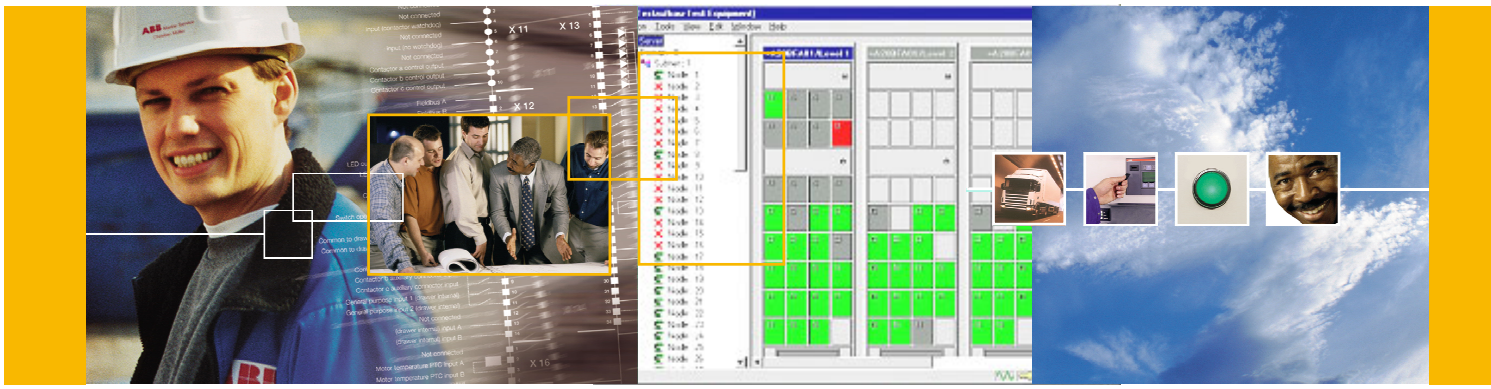
Protect^{IT} – MNS Motor Management INSUM®

Operator Station V2.3b
Installation Guide



INSUM® Operator Station Installation Guide

Version 2.3b

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Reference document 1TGB350018R1.0

INSUM® OS V2.3b
Installation Guide

Notes:

1 General Information

1.1 Objective

The INSUM Operator Station (OS) is a high performance and user friendly tool to configure, control, and monitor INSUM devices. It is a PC based software that runs under the Microsoft Windows™ environment.

This document describes the installation and start-up of the INSUM OS software.

Further information is provided as on-line help on the Software CD-ROM.

1.2 Related Version

This document refers to INSUM OS Version 2.3b.
This software can be used as an upgrade to former OS versions from V1.4 onwards.

1.3 Related Documents

1TGC 901007 B0201 INSUM Technical Information
1TGC 901021 M0201 INSUM MCU Users Guide
1TGC 901026 M0201 INSUM MCU Parameter Description
1TGC 901034 M0201 INSUM MMI Operating Instruction
1TGC 901030 M0201 INSUM MMI Quick Guide
1TGC 901042 M0201 INSUM Modbus Gateway Manual
1TGC 901052 M0201 INSUM Profibus Gateway Manual
1TGC 901060 M0201 INSUM Ethernet Gateway Manual
1TGC 901080 M0201 INSUM System Clock Manual
1TGC 901090 M0201 INSUM Control Access Guide
1TGC 901091 M0201 INSUM Failsafe Guide
1TGC 901092 M0201 INSUM Dual Redundancy Guide
1TGC 901093 M0201 INSUM Network Management Guide
SACE RH 0080 Rev.I PR112/ PD-L LON Works Interface V2.0
1SEP 407948 P0001 Users Manual Intelligent Tier Switch (ITS)

Notes:

2 System Overview

2.1 Architecture

INSUM OS integrated into the INSUM system uses a *Client-Server* architecture.

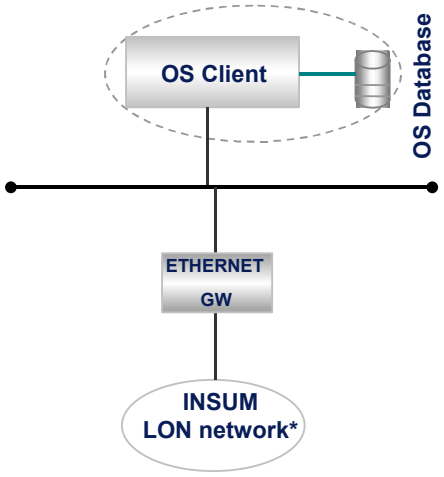
The client captures the functionality of the user interface and the data storage and retrieval. The client can be used standalone (off-line) to prepare and change parameter sets or to evaluate prerecorded logs and trends. Client software is running on an IBM compatible PC only.

The server monitors the LON-network and updates the client when changes are detected. For communications between client and server the TCP/IP network protocol is used. By default the INSUM Ethernet Gateway or the INSUM OS Interface Box are used as a server:

- The Ethernet Gateway is a hardware module that is directly connected to the INSUM backplane.
- The OS Interface is a hardware module that is temporarily connected with a cable to the backplane.

Alternatively, only in a Windows NT based environment the OS Server, a PC based program using the EASYLON PC Interface card with Watcher can be used as server. Then the PC is directly connected to the LON network.

2.1.1 INSUM OS Server based on Ethernet GW and INSUM OS Client based on PC

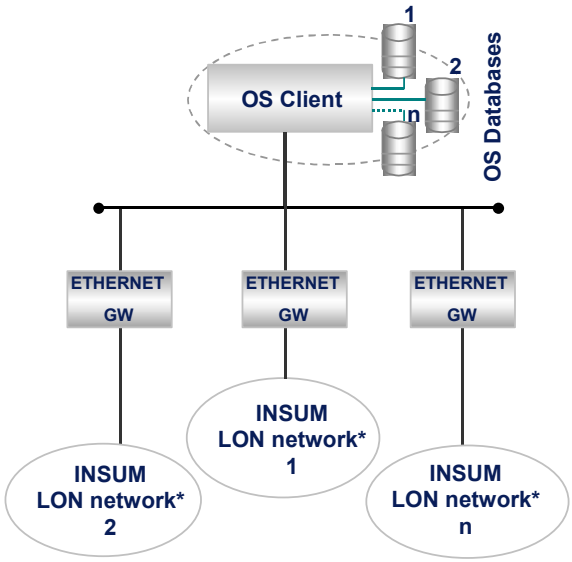


*INSUM LON network:
maximum 12 ICU devices (organized acc. to 8 in 16 rule: 8 devices per 16m bus)
maximum 128 field devices (MCU, ITS)

Notes:

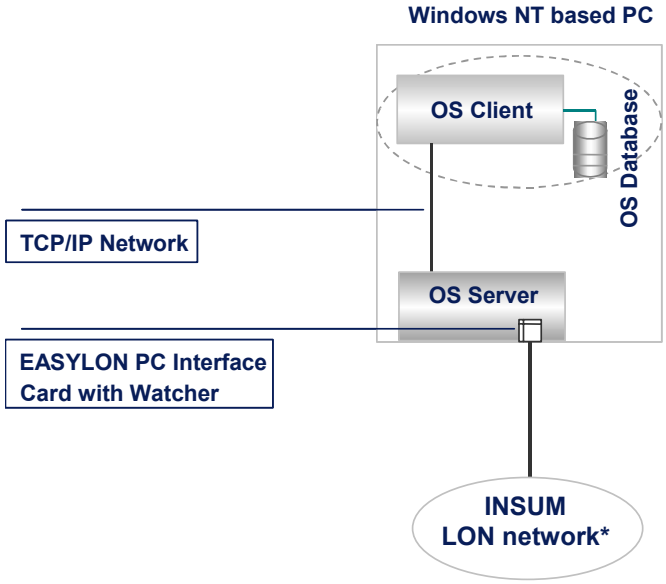
2.1.2 INSUM OS with additional database

It is possible to use one OS Client to access multiple INSUM Communication units distributed over one or more switchboards. For each communication unit a separate database is required. The OS can access one communication unit at a time only.



*INSUM LON network:
maximum 12 ICU devices (organized acc. to 8 in 16 rule: 8 devices per 16m bus)
maximum 128 field devices (MCU, ITS)

2.1.3 INSUM OS Server and Client on one PC



*INSUM LON network:
maximum 12 ICU devices (organized acc. to 8 in 16 rule: 8 devices per 16m bus)
maximum 128 field devices (MCU, ITS)

Note: Solution shown above is limited to Windows NT based environment!

Notes:

2.2 System requirements

Computer Hardware Recommendations:

- Pentium II 733 MHz or faster
- 128 MB RAM
- min. 40 MBytes of free hard disk space
- Video Resolution 1024 x 768 pixels, True Color(16 Bit) or better
- Network Interface Card 10/100 Mbps
- CD-ROM drive for installation
- Keyboard, mouse

PC Software Recommendations:

- Windows 2000 Professional or Server, English or German version, Service Pack 2 or Service Pack 3, Access 2000
- Windows XP Professional or Home, English or German version, Access XP
- Windows NT Workstation or Server, English or German version, Service Pack 6, Access 97/Service Release 2, ODBC32

Additional requirements if PC is used as OS Server or combined system:

- EasyLON PC interface card with watcher interface

System requirement to install the additional database:

- Minimum 20 Mbytes of additional free hard disk space per additional database installed

Notes:

3 Getting Started

3.1 Prerequisites

To be able to carry out the INSUM OS installation or any related maintenance process the user must have Windows *Administrator Privileges*.

Before the installation of the INSUM OS the Windows operating system with the required service pack and the corresponding Access version must be installed. If only OS Server Diagnostics or OS Server is installed Access is not required.

The TCP/IP network must be installed and started. If OS Client and OS Server are to be installed on the same PC, and there is no network card installed please install TCP/IP protocol and the MS Loopback adapter.

If the OS Server is to be installed (Windows NT only) the EASYLON PC Interface card with Watcher must be installed.

The power schema of the computer must be checked. The computer must not change to sleep, shutdown or hibernate state while running the INSUM OS.

When updating from a former OS version please do a backup of the databases installed.

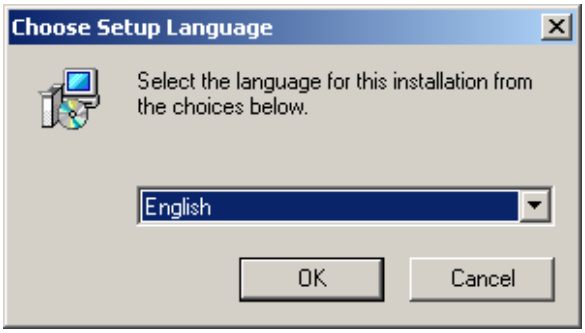
3.2 Installation of INSUM OS

3.2.1 Preparations

- User must have the Administrative Privileges or should log in as Administrator in order to install INSUM OS on the PC.
- Please close all applications before installing the INSUM OS software.
- Disable virus protection before running setup: Some virus protection programs can interfere with the setup program. You can re-enable the virus protection program after setup is complete.

3.2.2 Initial steps

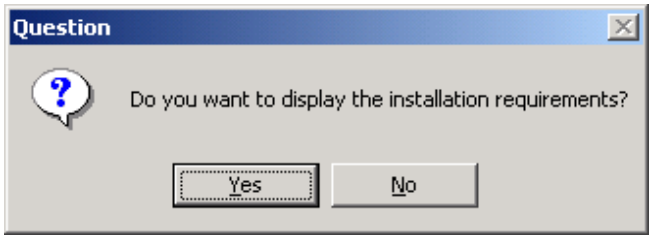
1. Insert INSUM OS Installation Disc in the CD Drive.
2. The CD will automatically start the setup program. If that does not happen please click on the Start button and select "Run...".Enter "@:\Setup" (@ is to be replaced by the drive letter of your CD Drive). Click on the OK button to start the setup.
3. INSUM OS can be installed at present in English or German version. The user can select the option at the start up of installation.



4. After the selection of the language the setup initializes and gathers the information about the system. The setup will perform the system suitability check on the machine against the system requirements, as listed above. If the system is found unsuitable to install INSUM OS, setup can not continue and the user is informed accordingly, as below.

Notes:

To facilitate the user to know about the configuration requirement on the system, setup proposes to display the installation requirement as mentioned above in this document.



It is advised to press 'Yes' and view the system installation requirements.

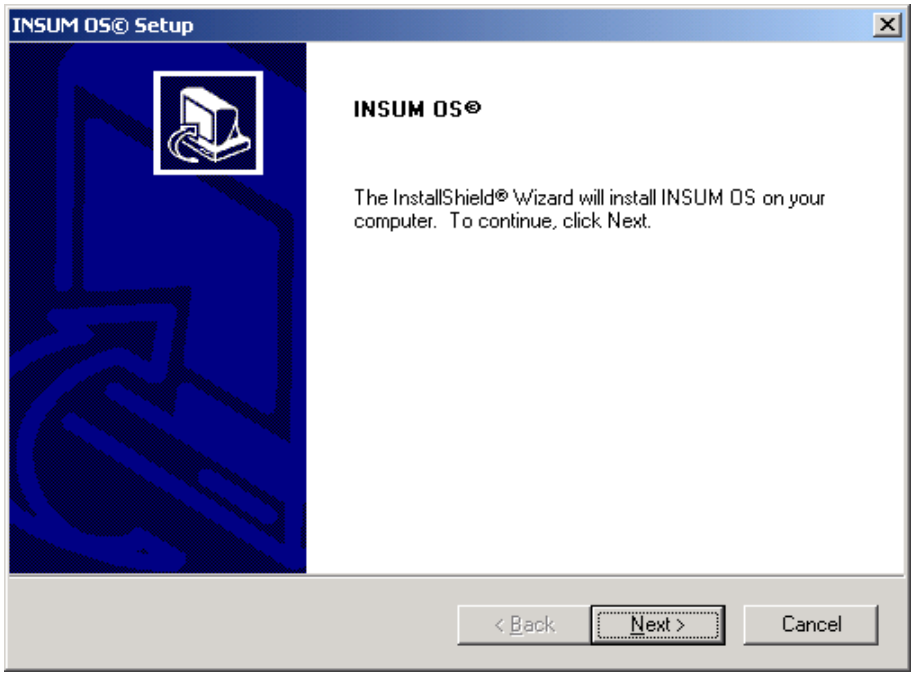
If the machine passes the system requirements check, setup proceeds further depending on one of the following installation options (scenarios):

Option	Application	Go to…
Initial installation	Executed when there was no OS version installed before or when upgrading to V2.3b from a former version.	Scenario A Paragraph 3.2.3
Maintenance	Executed if the InstallShield is re-invoked with the same OS version already installed. This allows to install additional databases or to change installation options.	Scenario B Paragraph 3.2.4
Upgrade	Executed if the InstallShield is re-invoked with any newer version of OS after 2.3a.	Scenario C Paragraph 3.2.5
Downgrade	The OS and the InstallShield do not support any downgrade. To downgrade INSUM OS please remove INSUM OS and reinstall the required version.	

3.2.3 Scenario A: Initial Installation

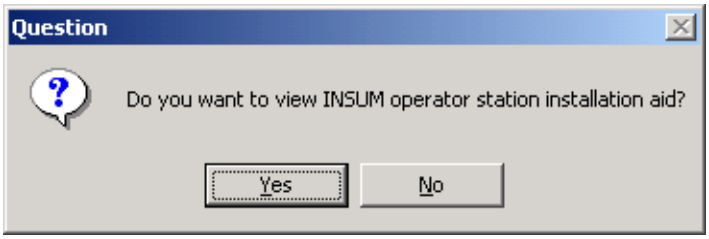
(Steps 1 through 4 see paragraph 3.2.2)

5. Setup displays a welcome screen:



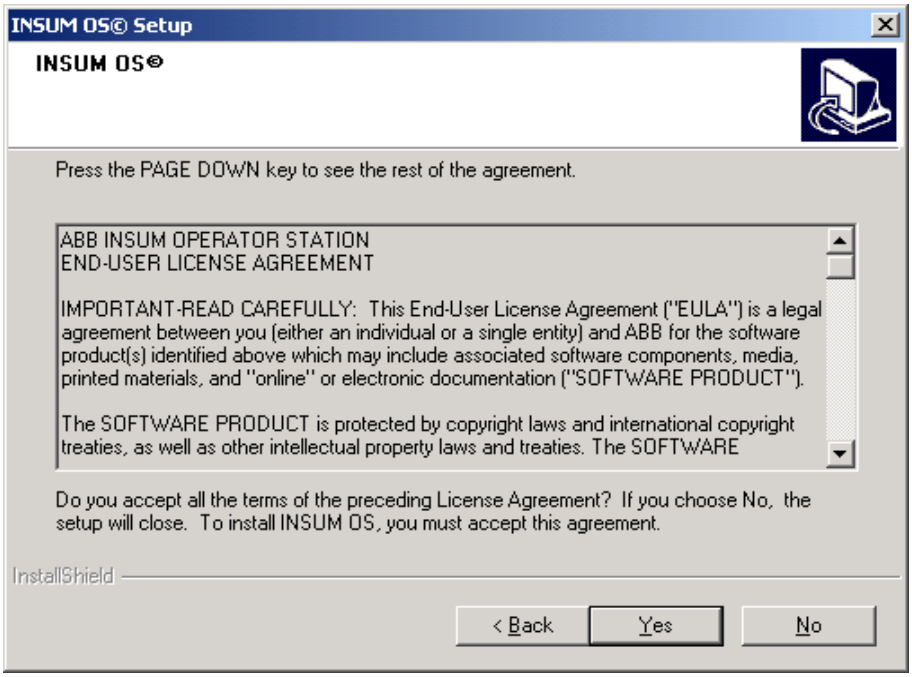
Notes:

6. If all other windows applications are closed and no virus program is running, user can click on 'Next' and proceed. At this point the setup will prompt to view the 'Installation Aid'.



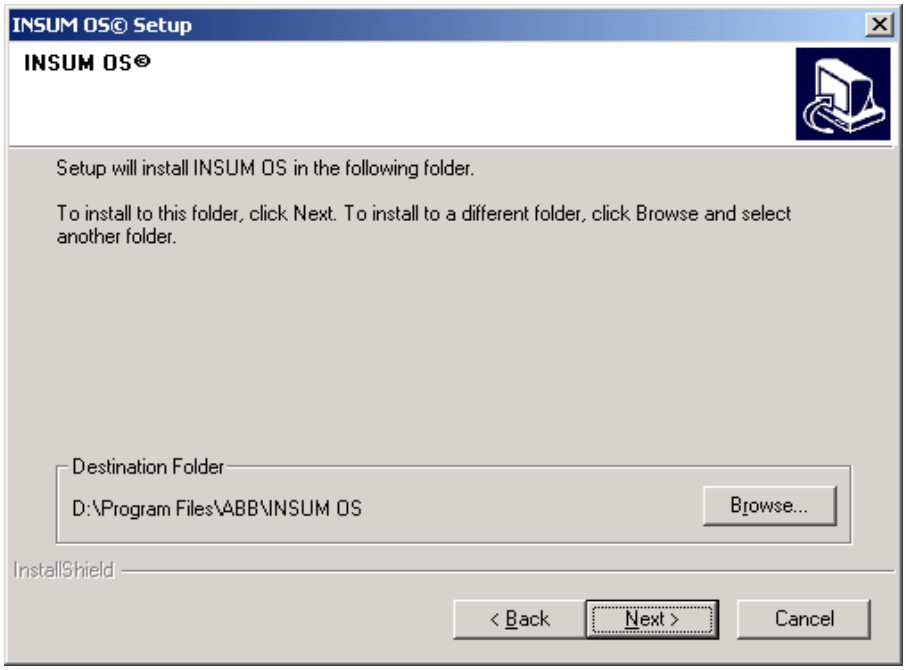
It is strongly recommended to view and take the printout of the document. This will ease the installation during subsequent steps.

In the next step, user has to read the license agreement carefully and if it is accepted then proceed by clicking 'Yes' or abort the setup by clicking 'No'.



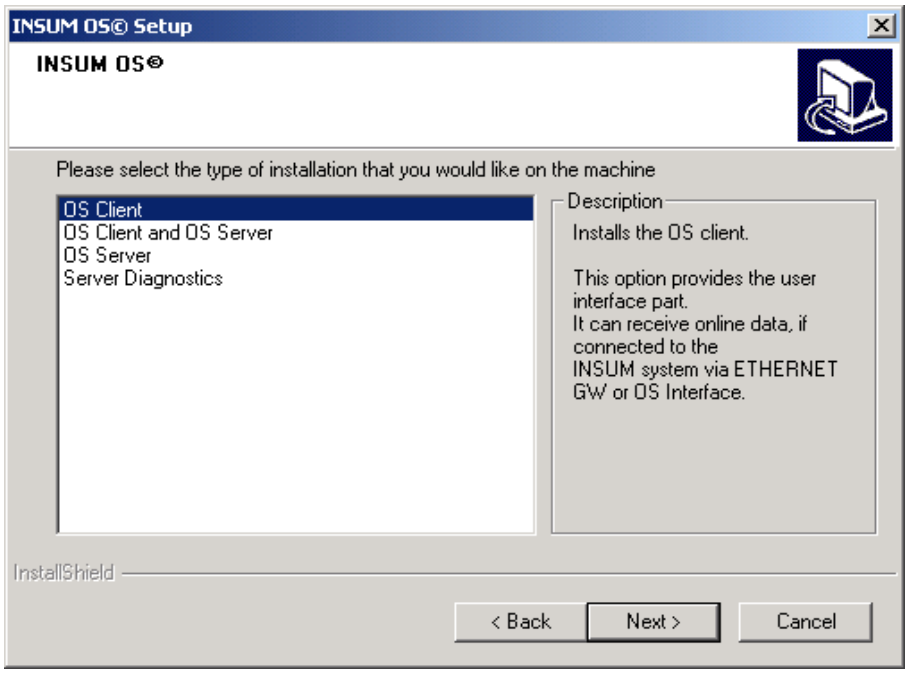
Notes:

7. The setup prompts for the folder wherein the INSUM OS to be installed. By default the program will be installed in <Program Files>\ABB\INSUM OS.



After the selection of the folder, the user can proceed further by clicking 'Next'.

8. In the next step, user has to select the type of installation:

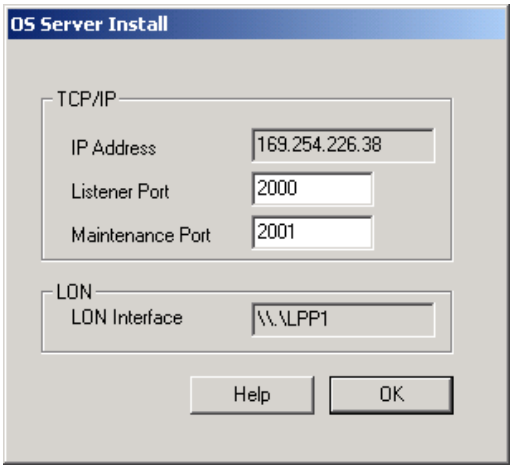


If only 'OS Client' or 'Server Diagnostics' is selected, the setup will directly advance to step 9.

If the user intents to install the option 'OS Client and OS Server' or 'OS Server', setup will check for the installation of EASYLON PC Interface Card. It will only be possible to continue the installation if the card is present else the setup will generate a message as below and return to the installation type selection dialog.

Notes:

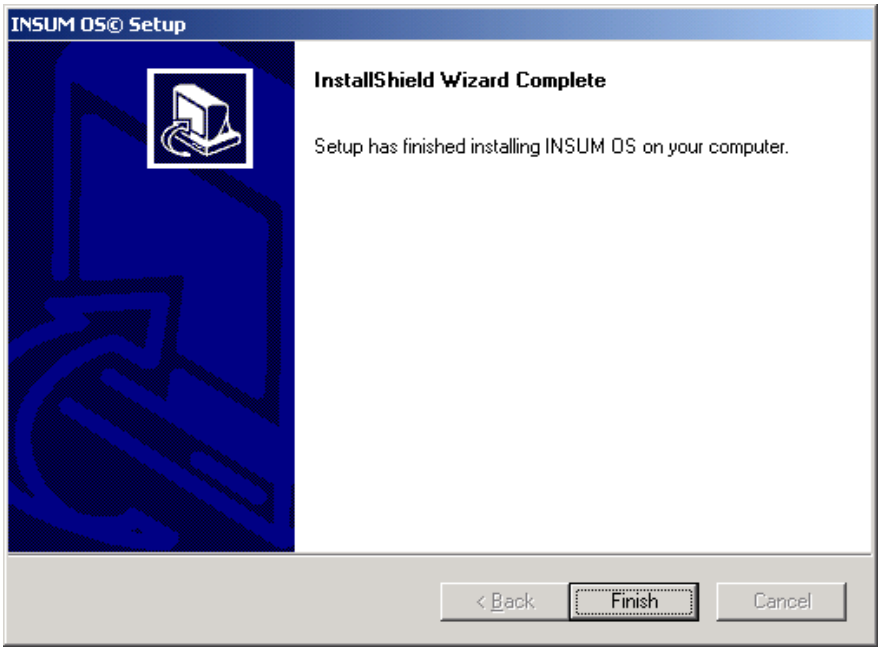
If the EASYLON Card is in place the setup will continue the installation. At the end of the installation, the following window will be shown for server configuration wherein the IP Address field will be directly read from the machine. **At this point there is no need to change any of the fields, the user can continue with the default entries.**



After pressing 'OK' the selected resources will be checked and allocated. If there is an error the user will be prompted and is offered to correct the options. However if the errors are ignored the OS Server may not be usable.

Note: To fix any problems with the server installation please uninstall and reinstall the OS Server from the maintenance option 'Maintain program components'.

9. Setup will install INSUM OS with the selected installation option under the selected folder. After setup has finished, close the INSUM OS setup by pressing "Finish".



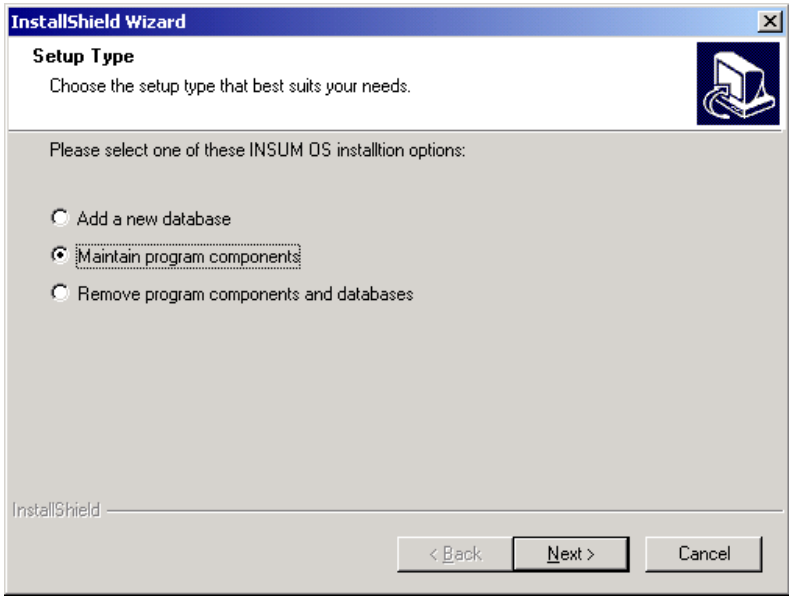
Note: In some cases the user is requested to reboot the computer if some shared Windows resources were modified.

Notes:

3.2.4 Scenario B: Maintenance

(Steps 1 through 4 see paragraph 3.2.2)

5. Setup displays the program maintenance screen and allows to select one of the maintenance installation options:



Add a new database will generate a new database for the OS. The user can choose the database directory and the database name. INSUM OS is configured to use the newly installed database as the default and to offer the Server configuration screen utility during startup.

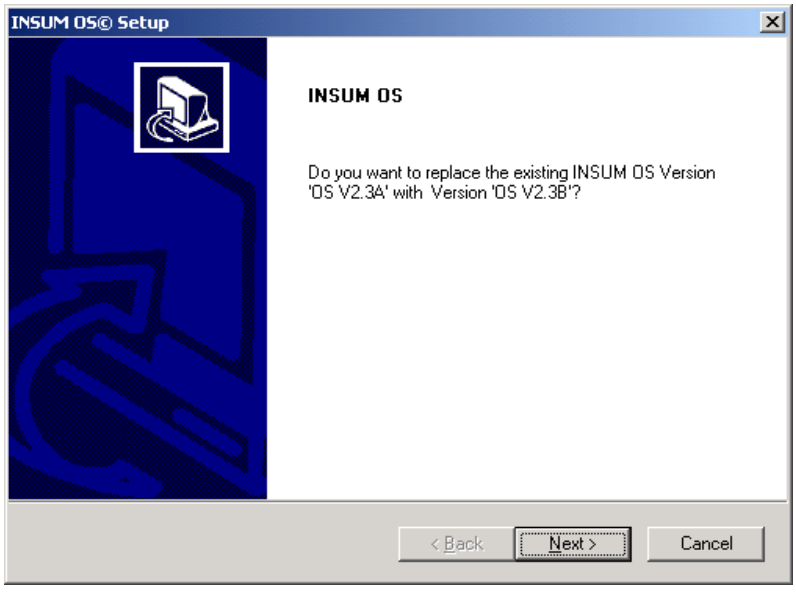
Maintain program components allows to install/remove parts of the INSUM OS programs.
Note: Removing the client will also remove the default database 'OSData'.

Remove program components and databases will remove the installed OS programs and the databases after additional confirmation by the user.

3.2.5 Scenario C: Upgrade

(Steps 1 through 4 see paragraph 3.2.2)

5. Setup displays a welcome screen to inform about the currently installed version and the version that will be installed:



Notes:

After selecting 'Next' the installation will be upgraded with exact the same options selected than before. To change Program options re-invoke the setup after completion to perform the desired steps in maintenance mode.

The INSUM OS will install a program folder with up to 4 items, depending on the selected installation type:

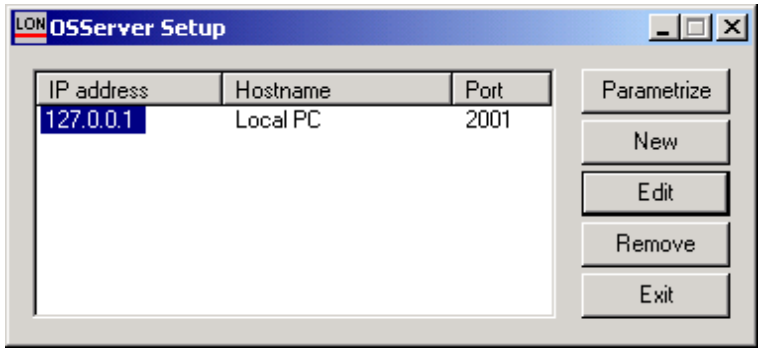
Installation type	Application
OS Help	The topic 'Getting Started' is the start-up aid to the user that explains the server configuration and designing of Main Panel Layout View for the operation of INSUM OS
OS Client	To start INSUM OS user interface
OS Server Setup	Utility to configure the server and to request the license for the OS client
OS Log Viewer	Shows the possible error messages during the installation and in subsequent use of Ethernet GW, OS Interface or OS Server. (User must give the reference of the error message when referring to the server installation problem.)

After the successful installation of INSUM OS client, select the INSUM OS Help entry from the start menu. The topic 'Getting started' will guide you on the startup activities.

3.2.6 Configuration of the installed Server

The INSUM OS server utility must be run after the above installation in order to configure the server and to use online services.

The OS Server Setup Utility can be started after the OS Installation. When started the OS Server Setup Utility will show the IP Address and the Port. The info will be directly taken from the machine.

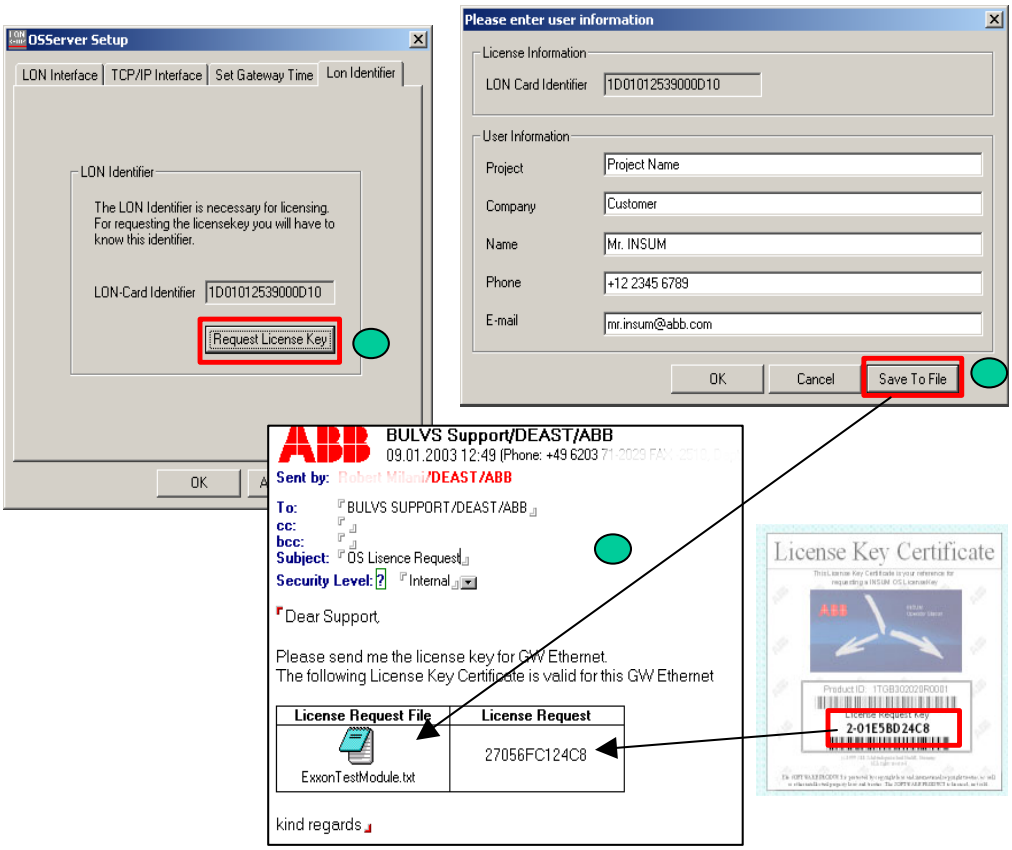


While parameterizing the only option the user is supposed to fill in is the 'license' property page. The OS Server Setup Utility will take care of the other information to be filled in.

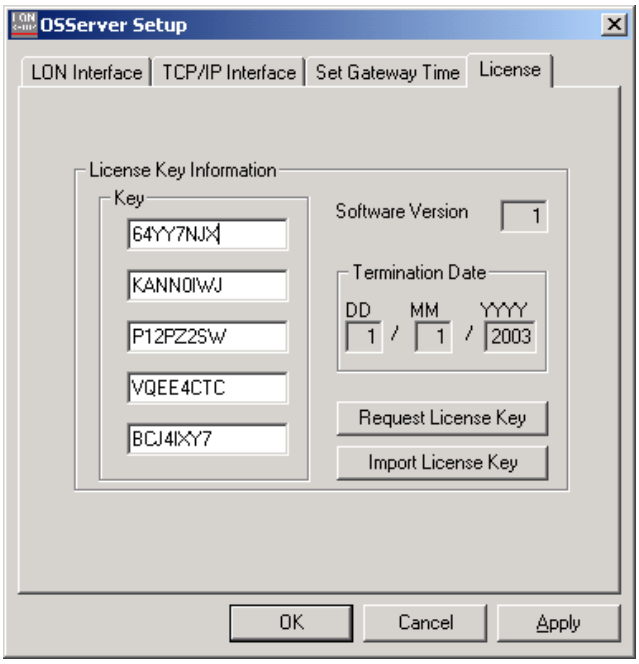
Notes:

3.2.7 License request

The license is requested using the 'Request License Key' button. The file created here has to be saved and sent to bulvs.support@de.abb.com.



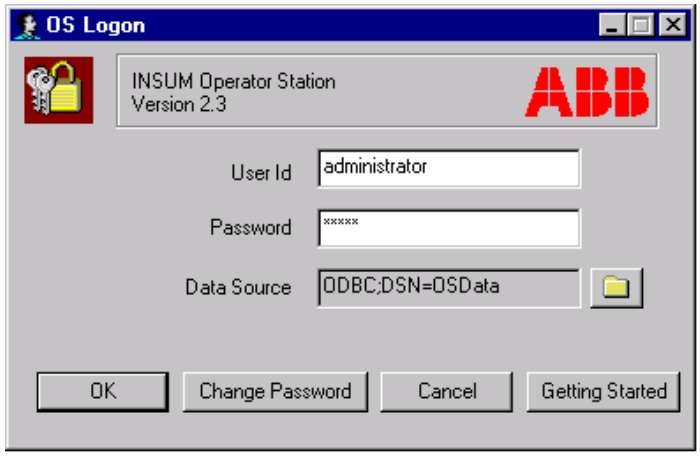
After the receipt of valid license key, the user can enter all the License Key fields or import directly with the button 'Import License Key'. The 'Apply' button performs the check on the entered data. If the data entered are correct, the utility will show the 'Termination Date' and 'Software Version' for the valid license key. If the license key is not correct or not valid a warning will be given.



Notes:

3.3 Log On

After the successful installation of INSUM OS Client and INSUM OS Server (Ethernet GW), the user can start the INSUM OS either by clicking the INSUM OS icon on the desktop or from 'Start menu bar''. The "OS Logon" dialog is shown.



At the "OS Logon" window user has to enter the **User Id** and **Password** to login as an authorised user of INSUM OS. For the first login, the user can use the default **User Id** *administrator* and default **Password** *admin* (case sensitive).

3.3.1 Change of user rights

The administrator can create new users and modify the rights for every user. It is recommended to change the default password for administrator because all the user-controlled options are accessible by the administrator. This can be done after entering the default **Password** *admin* by selecting **Change password** on the logon window.

Caution: Be sure to remember the new password, otherwise you will not be allowed to log in.

3.3.2 Installation of additional databases

INSUM OS client will be started with the default **Data Source**. The database connected to this data source saves all information about one switchgear and the appropriate connection data. The proper OS Database must be selected during login, particularly when the same INSUM OS is used to manage more than one ICU. The OS will start with the selected database and will show the information accordingly.

The additional database can be installed by INSUM OS Set-up CD. Thereby a **Data Source** is created automatically which refers to the **Database**. INSUM OS remembers the active database when the user stops the session.

Alternatively the database can set as a start option. To reach this an icon or link has to be created to start the INSUM OS application (OSClient.exe). The following options can be added in Properties->Shortcut->Target:

/usr: <user> Changes the **User Id** to the value given by <user>. The user should be a known user profile.

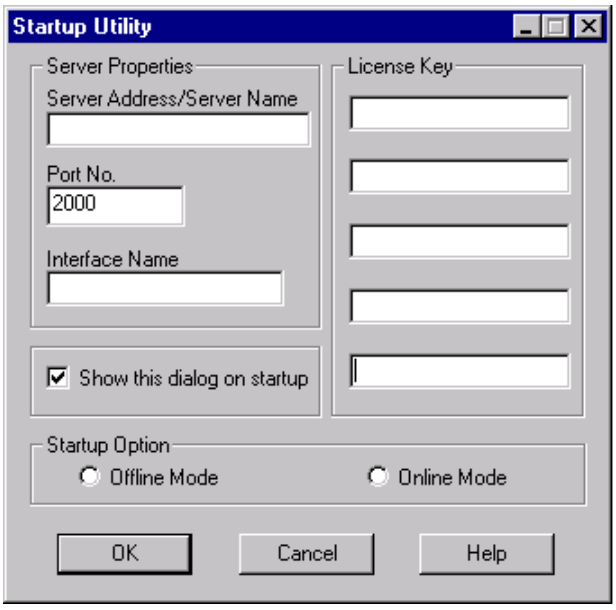
/dsn: <source> Changes the **Data Source** to the value given by <source>. The named source has to be installed before.

Example: If the user wants to set **Data Source** *station5* as default the following line has to be inserted:"...\OSClient.exe"/dsn: station5

If the OS client detects a previous version of a database, it will try to update that database at startup. This changing is not reversible, but INSUM OS creates a safety copy of the database before changing the format. If it is not possible to change the format of the database the client shows an error message. Please contact bulvs.support@de.abb.com giving details about this message.

After confirming the "OS Logon" dialog by pressing **OK** and acceptance of the user, INSUM OS client shows (after the first start) the "Startup Utility" dialog.

Notes:



The user can start the OS client either in **Online Mode** or in **Offline Mode**.

If **Online Mode** is chosen, some settings have to be done to allow a successful connection. Please refer to paragraph 3.4**.**

If **Offline Mode** is chosen only the field **Interface name** has to be filled out. Please refer to paragraph 3.5

3.4 Start INSUM OS in Online Mode

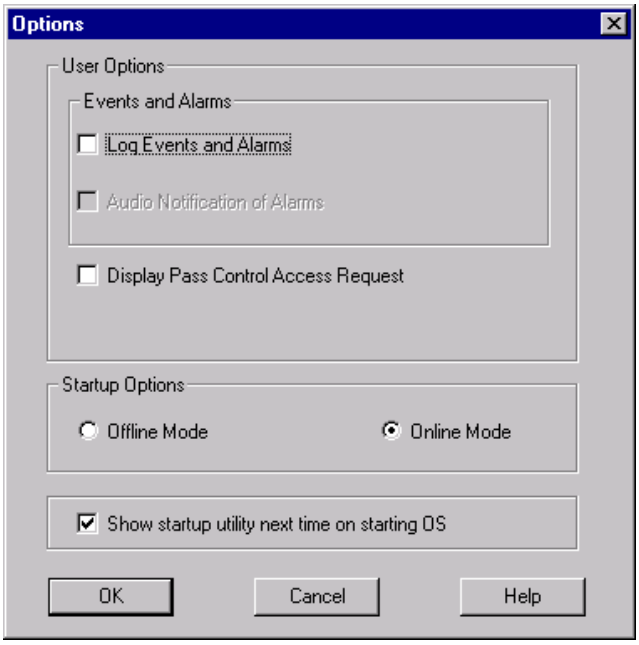
In order to use the online services, the following requirements must be fulfilled:

- The INSUM OS Server must be installed.
- The INSUM OS Server must be running.
- The INSUM OS Server must be connected to the INSUM system.

After a successful OS Logon the **Startup utility** dialog is shown. Should INSUM OS not start with **Startup utility** dialog, please perform the steps below:

On the Main Menu

Select **Tools => Options**

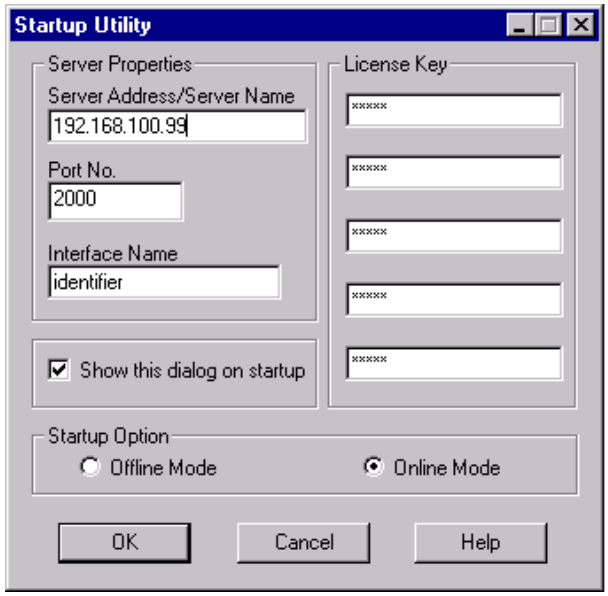


Notes:

Select **Online Mode** in the **Startup Options** field.
Select **Show startup utility next time on starting OS.**
Restart INSUM OS.

In the shown **Startup Utility** as the **Startup Option** the field **Online Mode** has to be selected. Furthermore the following fields should contain information:

- Server Address/ Server Name
- Port No. (default value 2000)
- License key
- Interface name:
  Use the same information like for Server installation.



Counsel: If no IP address is entered INSUM OS client tries to connect to a local installed INSUM OS server.
After all settings are done user can confirm **Startup Utility** by pressing **OK**.
If it is not possible to get a connection to the server, one of the following error messages is shown.

1. No connection to the server

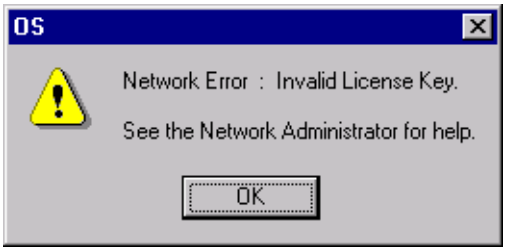
Verify the network and the server settings:

- Check PC and TCP/IP settings (for details see Ethernet Gateway Manual)
- Check server name, IP-Address and Port No!
- Is the Port No the same as the server Port No (default value 2000)?
- Is the Ethernet gateway respectively the OS server running?
- Is the network installation okay (cable, hubs...)?
- Try to save the Server Log Messages during the connection establishment in a file.
  Follow these steps:
  – Start the OS Log Viewer.
  – Select option **Protocol** and press **Start** to enter the file name.
  – Press **Start Log**.

All messages in the Log-window are saved to the file. Maybe it is possible to increment the number of Log messages by carefully increasing the Log-Level.

Notes:

2. Network Error: Invalid License Key



Check the license key:
- Is it the correct license key?
- Matches this license key to the Ethernet Gateway/ OS Server?

Press **OK** and the Startup utility is started again what allows to change the settings.
The user can leave the **Startup Utility** dialog by using **Offline Mode** if it is not possible to get a connection to the server.

Note: The **Cancel** button doesn't close the Startup utility window but it restores the settings of the last successful Logon. All information are written into associated windows.

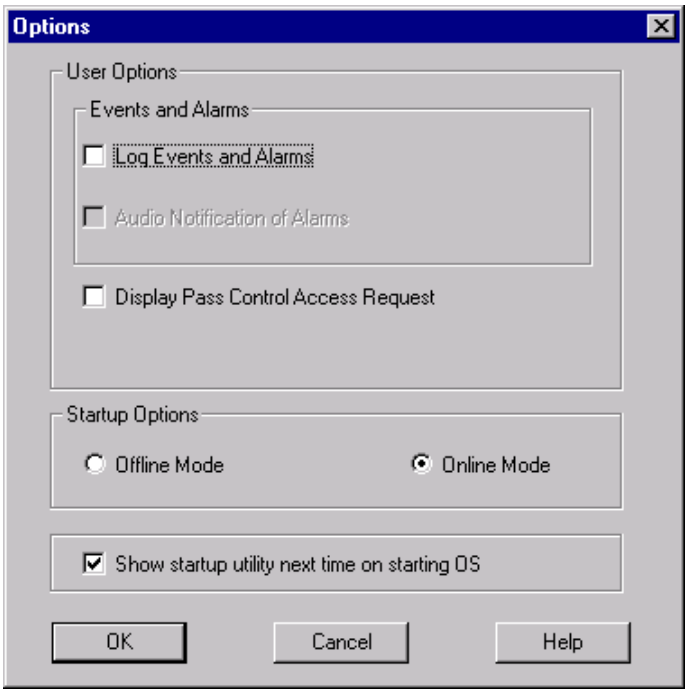
After a successful connection INSUM OS client starts the main window. If the server is online the dialog **Auto Insert Devices** is launched. This feature can be used to create the device list automatically.
Afterwards more devices and the front panel view can be created manually. Please refer to paragraph 3.6.

3.5 Start INSUM OS in Offline Mode

After a successful OS Logon the Startup utility dialog is shown. Should INSUM OS not start with the **Startup utility** dialog, please perform the steps below:

On the Main Menu

- Select **Tools** => **Options**



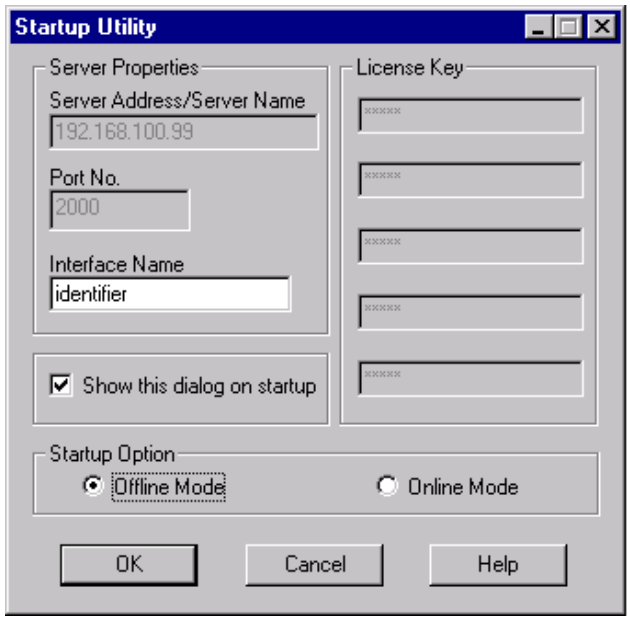
- Select **Online Mode** in the **Startup Option** field.
- Select **Show startup utility next time on starting OS.**
- Restart INSUM OS.

Notes:

In the shown **Startup Utility** as the **Startup Option** the field **Offline Mode** has to be selected. Except the **Interface Name** no other configuration is necessary. The fields:

- Server Name/ Server Address
- Port No.
- License key

are deactivated.



After confirming this dialog with **OK** INSUM OS client starts in **Offline Mode** and shows the main window. Afterwards devices and the front panel view can be created manually. The paragraph 3.6 deals with this topic.

3.6 Creation of devices and the Main Panel Layout View

The Main Panel Layout View is the main screen in the INSUM OS. This screen shows the main menu that allows navigation to the different functions of INSUM OS. The left part of the screen shows the tree structure of the devices created. The tree structure can be viewed in different ways. The right part shows the configured panel layout of the INSUM-MNS System.

Important:
The layout of all field devices in panel layout view should conform the physical switchboard view configuration.
The INSUM OS supports the handling of the following devices.

Field Units:

- Motor Control Unit1 (SW 2.1, 3.0)
- Motor Control Unit2 (SW 2.1)
- Motor Control Unit3 (SW 3.0)
- Intelligent Tier Switch (ITS)

ICU devices:

- Gateways SW 2.3 (Profibus-DP, Modbus, Ethernet TCP/IP)
- Man Machine Interface SW 2.3 (MMI)
- INSUM Operator Station SW 2.3 (INSUM OS)

Counsel: It must be ensured that the Device Identifier, Device type, Starter type and LON Address of the devices are known while creating the devices.

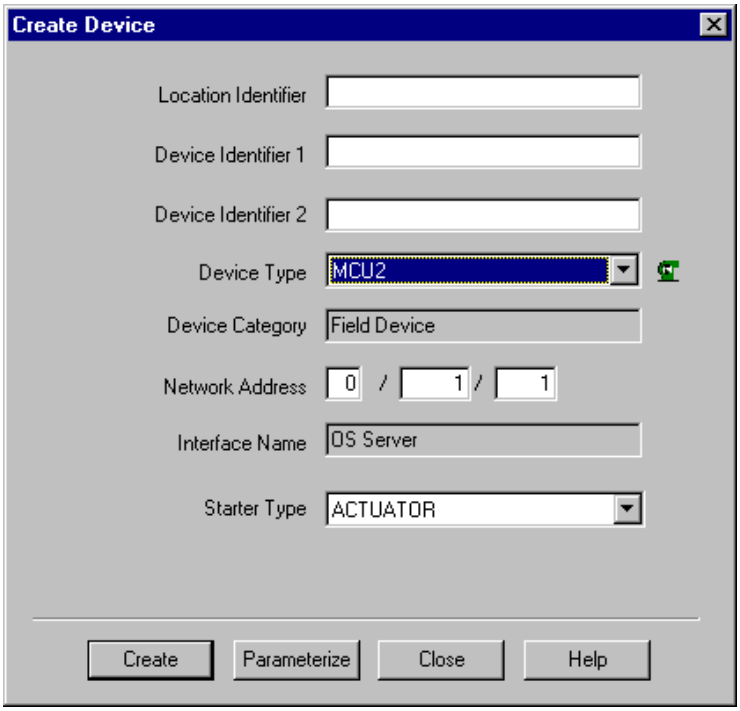
For ICU devices, the CA Priority assigned must be unique. The CA Priority is very significant if the **Control Access Mechanism** is used.

What means Control Access?
INSUM works in a multi-mastership concept. In other words, the MCU's can be controlled from different stations on backbone like the DCS (via Gateways), INSUM OS, MMI or Local Control Station like MCP simultaneously. When the Control Access is defined and enabled on MCU, the MCU accepts the commands only from an authorized station at that moment. Commands from all other unauthorized stations are ignored.

Notes:

Perform the steps below to design the main panel in INSUM OS:
Start creating the INSUM devices in the project. After creating the devices can be placed at the appropriate locations of the main panel layout.

Select **Function => Device Management => Create**



The different devices can be selected from **Device Type** and an associated type of drive from **Starter Type** (only MCU). The INSUM OS shows the created devices on the left-hand side in the tree view. A '**X**' mark or an icon with red background will be shown for the devices what are not online currently.

Counsel: Devices are created with default parameter. The default parameter template installed in the database matches the default parameter template of the devices. To change the default parameter template perform the following steps:

Select **Tools** => **Parameter-Template**

The **Device Type Selection** dialog is shown. After choosing the device type the default parameter template can be changed. The following information obtain to all dialogs:

- The Users will be allowed to view or change the parameters depending on their access rights.
- The range information for a parameter is displayed as the fly over text when the mouse focus is on that field.
- The validation of the field is done when the User moves from one page to another page of the default parameter. Both the data type checking and the range validation are taken care of.

Now it is possible to start creating the front panel view manually.

Counsel: It is important to have information on the dimensions and type of MNS cubicle and MNS drawers. The INSUM OS supports all standard parts of the ABB MNS.

The configuration of main panel layout in INSUM OS is defined in a structured manner. The user has to follow the following sequence.

First step: Create the **New Station.** Enter the appropriate description for easy identification.

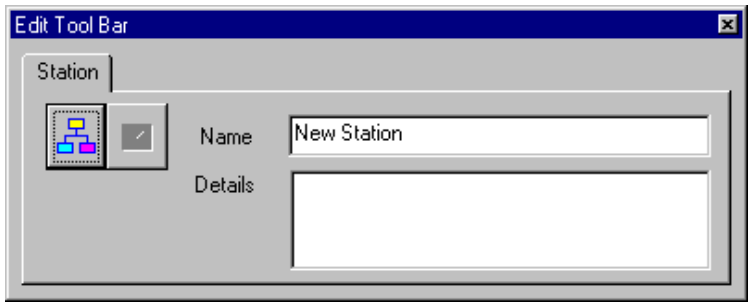
Second Step: Create the **New Simplex or Duplex Cabinet**. Enter the appropriate description for easy identification.

Notes:

Third Step: Start the configuration of Main Panel by adding the MNS Cubicles, Modules, Doors, and Cover plates at the appropriate locations as per the actual arrangement drawing of the INSUM-MNS Switchboard. The modules have to be selected from the field units created before. After the completion of the configuration these modules displays the dynamic status of the devices in the field.

On the Main Menu

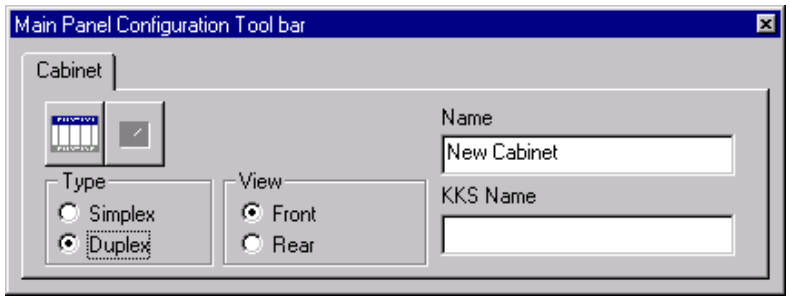
First Step: Select **Edit** => **New** => **Station**



 Enter the appropriate description and click the icon to add the new station. To add a cabinet user has to zoom into the cabinet view. This can be done by double clicking on the created station or

Select **View** => **Zoom In**

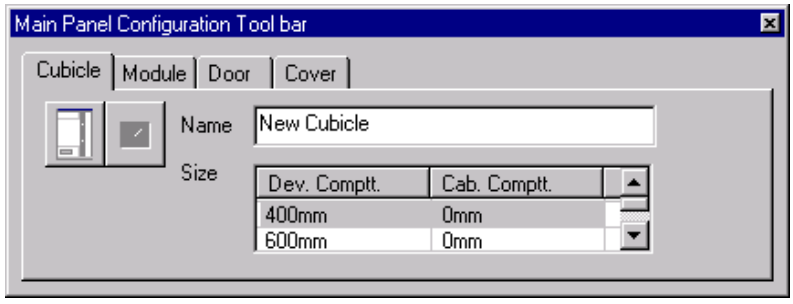
Second Step: Select **Edit** => **New** => **Simplex or Duplex Cabinet**



 Enter the appropriate description and click the icon to add the new cabinet. To add a cubicle user has to zoom into the cubicle view. This can be done by double clicking on the created cabinet or

Select **View** => **Zoom In**

Third Step: Select **Edit** => **Start Configuration**



 Select Tab **Cubicle**. Click the icon, drag to the editable area, and click it to add the cubicle.

Notes:


Select Tab **Module**. Select the desired device and size. Click the icon, drag to the appropriate location in the cubicle where the module is placed, and click it to add.


Select Tab **Door**. Select the size. Click the icon, drag to the desired location and click it to add. To Stop placing the doors on the cubicle, press **Esc** key or click the right mouse button.


Select Tab **Cover**. Select the size. Click the icon, drag to the desired location and click it to add. To Stop placing the doors on the cubicle, press **Esc** key or click the right mouse button.

After the completion of configuration, the session can be finished by:

Select **Edit** => **Complete Configuration**

Note: Use **'Zoom In'** option in the main menu **'View'** to expand the view from Station to Cabinet view and Cabinet to Cubicle view. Use **'Zoom Out'** to navigate vice versa.

The completely configured Main Panel view then can be used as the Main Operating Screen while using INSUM OS.

Notes:

4 Support in case of trouble

In case of any trouble while installing or working with INSUM OS, try first to reinstall the base software as mentioned in the software requirements (Windows etc.)

Note that any changes in Windows software and files (e.g. installation of a new Internet Explorer) may cause system problems.

In case of further problems contact your local ABB representation. In extremely urgent cases contact the following Support address: bulvs.support@de.abb.com. Details about the hardware and software used should be provided in any case.

Notes:

5 Annex A - INSUM Terms and Abbreviations

Abbreviation	Term	Explanation / Comments
	Alarm	Alarm is defined as status transition from any state to abnormal state. Status transition to abnormal state can be data crossing over the predefined alarm limit.
	Backplane	INSUM backbone, holds following INSUM devices: Router, Gateways, Clock, Power Supply. Part of the INSUM Communication Unit, see ICU
CA	Control Access	A function of INSUM system that allows definition of operating privileges for each device level (e.g. PCS, Gateway, field device)
CAT	Control Access Table	Table containing control access privileges
CB	Circuit Breaker	Circuit breaker unit (here: ABB SACE Emax with electronic release PR112-PD/LON)
CT	Current Transformer	Current Transformer
DCS	Distributed Control System	see also PCS
Eth	Ethernet	Ethernet is a local area network (LAN) technology. The Ethernet standard specifies the physical medium, access control rules and the message frames.
	Event	An event is a status transition from one state to another. It can be defined as alarm, if the state is defined as abnormal or as warning as a pre-alarm state.
FD	Field Device	Term for devices connected to the LON fieldbus (e.g. motor control units or circuit breaker protection)
FU	Field Unit	see Field Device
GPI	General Purpose Input	Digital input on MCU for general use
GPO	General Purpose Output	Digital output on MCU for general use
GPS	Global Positioning System	System to detect local position, universal time and time zone, GPS technology provides accurate time to a system
GW	Gateway	A Gateway is used as an interface between LON protocol in INSUM and other communication protocols (e.g. TCP/IP, PROFIBUS, Modbus)
HMI	Human Machine Interface	Generic expression for switchgear level communication interfaces to field devices, either switchboard mounted or hand held
ICU	INSUM Communications Unit	INSUM Communications Unit consists of devices such as backplane, Gateways, Routers, System Clock and power supply. It provides the communication interface within INSUM and between INSUM and control systems. Formerly used expressions: SGC, SU
INSUM	INSUM	Integrated System for User optimized Motor Management. The concept of INSUM is to provide a platform for integration of smart components, apparatus and software tools for engineering and operation of the motor control switchgea
INSUM OS	INSUM Operator Station	Tool to parameterise, monitor and control devices in the INSUM system
ITS	Integrated Tier Switch	The Intelligent Tier Switch is an ABB SlimLine switch fuse with integrated sensors and microprocessor based electronics for measurement and surveillance
LON	Local Operating Network	LON is used as an abbreviation for LonWorks network. A variation of LON is used as a switchgear bus in the INSUM system
LonTalk	LonTalk protocol	Fieldbus communication protocol used in LonWorks networks

Notes:

Abbreviation	Term	Explanation / Comments
LonWorks	LonWorks network	A communication network built using LonWorks network technology, including e.g. Neuron chip and LonTalk protocol
MCU	Motor Control Unit	Motor Control Unit is a common name for a product range of electronic motor controller devices (field device) in INSUM. A MCU is located in a MNS motor starter, where its main tasks are protection, control and monitoring of motor and the related motor starter equipment.
MMI	Man Machine Interface	The switchgear level INSUM HMI device to parameterize and control communication and field devices.
MNS	MNS	ABB Modular Low Voltage Switchgear
	Modbus, Modbus RTU	Fieldbus communication protocol
NV,nv	LON Network Variable	Network variable is a data item in LonTalk protocol application containing max. 31 bytes of data.
Nvi, nvi	LON Network Variable input	LON bus input variable
Nvo, nvo	LON Network Variable output	LON bus output variable
OS	Operator Station	see INSUM OS
PCS	Process Control System	High level process control system
PLC	Programmable Local Controller	Low level control unit
PR	Programmable Release	Circuit breaker protection/release unit (here: ABB SACE Emax PR112-PD/LON)
	PROFIBUS DP	Fieldbus communication protocol with cyclic data transfer
	PROFIBUS DP-V1	Fieldbus communication protocol, extension of PROFIBUS-DP allowing acyclic data transfer and multi master.
PTB	Physikalisch-Technische Bundesanstalt	Authorized body in Germany to approve Ex-e applications.
PTC	Positive Temperature Coefficient	A temperature sensitive resistor used to detect high motor temperature and to trip the motor if an alarm level is reached.
RCU	Remote Control Unit	Locally installed control device for motor starter, interacting directly with starter passing MCU for local operations.
	Router	Connection device in the LON network to interconnect different LON subnets. Part of the INSUM Communications Unit.
RTC	Real Time Clock	Part of the INSUM System Clock and and optionally time master of the INSUM system
SCADA	Supervisory Control and Data Acquisition	
SGC	Switchgear Controller	Former term used for INSUM Communications Unit
SU	Switchgear Unit	Former term used for INSUM Communications Unit
	System Clock	INSUM device providing time synchronisation between a time master and all MCUs. Part of the INSUM Communication Unit, see ICU
TCP/IP	Transmission Control Protocol /Internet Protocol	TCP/IP is a high-level, connection oriented, reliable, full duplex communication protocol developed for integration of the heterogenous systems.
TFLC	Thermal Full Load Current	See MCU Parameter Description for explanation
TOL	Thermal Overload	See MCU Parameter Description for explanation

Notes:

Abbreviation	Term	Explanation / Comments
	Trip	A consequence of an alarm activated or an external trip command from another device to stop the motor or trip the circuit breaker.
UTC	Coordinated Universal Time	Coordinated Universal Time is the international time standard, formerly referred to as Greenwich Meridian Time (GMT). Zero (0) hours UTC is midnight in Greenwich England, which lies on the zero longitudinal meridian. Universal time is based on a 24 hours clock.
VU	Voltage Unit	Voltage measurement and power supply unit for MCU 2
	Wink	The Wink function enables identifcation of a device on the LON network. When a device receives a Wink-message via the fieldbus, it responds with a visual indication (flashing LED)

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