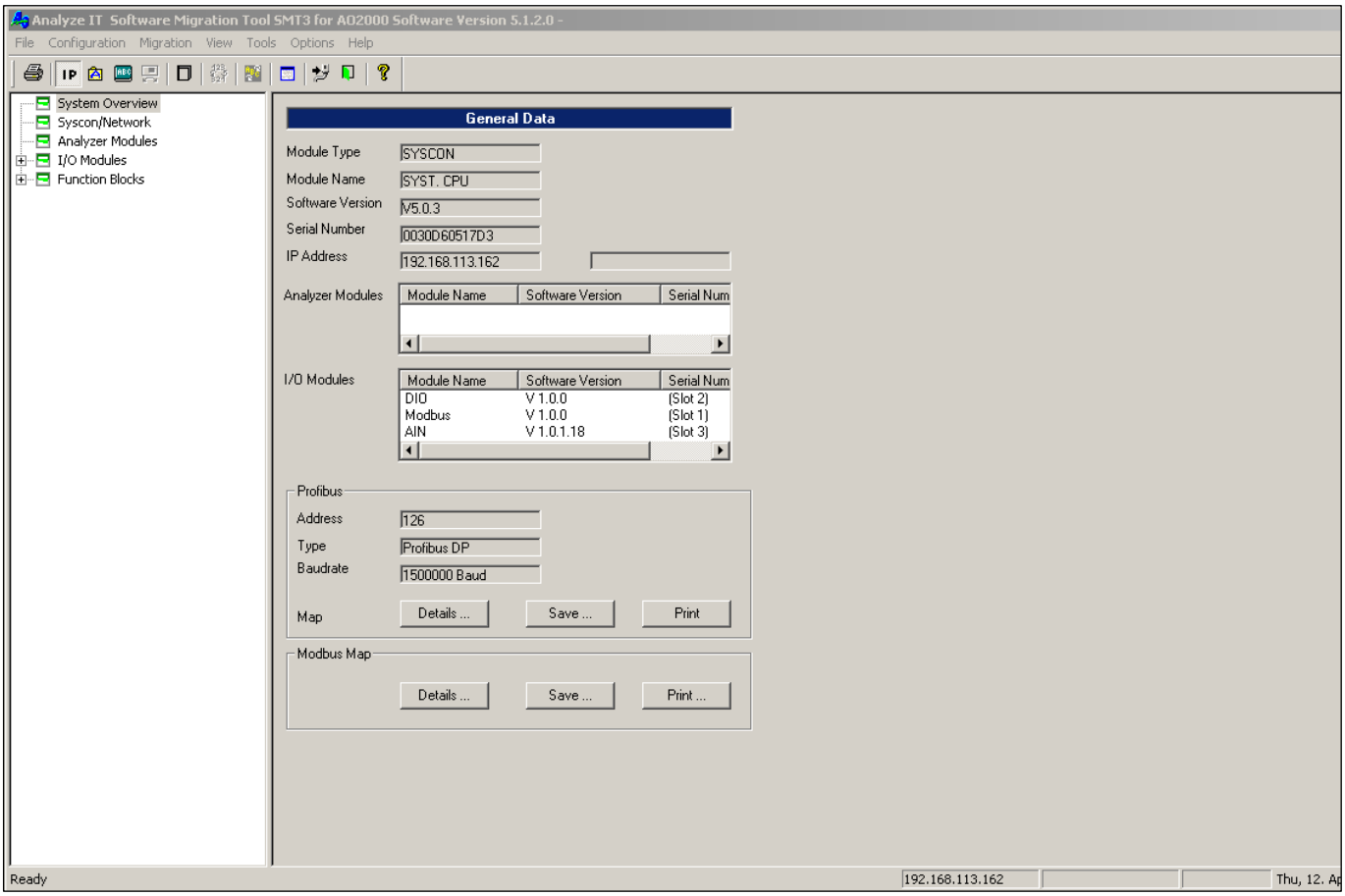
SMT Software Migration Tool

Software-Version 5.1

Operator's Manual

42/24-25 EN Rev. 5



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Chapter 1 Description

Description

Application

The software migration tool SMT is intended for updating software and backing up the AO2000 gas analyzer configuration files.

Versions

SMT is available as a full version and a basic version.

Full Version

The “SMT” full version offers complete functionality.

CAUTION!

We strongly recommend obtaining training from ABB Analytical prior to using the full version of SMT. The risks of improper use include damaging or destroying the AO2000 gas analyzer configuration.

Basic Version

The “SMT Light” basic version has reduced functionality compared to the full version. It is contained on the free CD-ROM that is supplied as standard equipment with an AO2000 gas analyzer.

Functionality

Function	SMT	SMT Light
Software Update	X	X [1)]
Configuration file		
Save (Backup)	X	X
Replace Serial Number	X	X
Load	X	X
System Overview		
Display, Print and Save (Backup)	X	X
Tree View	X	–
Function Block Navigation	X	–
Log Content Backup	X	X
Load a text file for user interface	X	X

1) For restrictions please refer to section “Perform Update”, page 10.

Communications

An Ethernet connection (peer-to-peer or network) is used for communication with the AO2000 central unit (see page 7).

Language

SMT is only available in an English language version.

Chapter 2 Installation

System Requirements

System Requirements

- Windows XP/Windows Vista/Windows 7 operating system
- Minimum of 16 MB free memory (RAM)
- Minimum of 10 MB free hard disk space
- CD-ROM Drive
- Ethernet interface
- Ethernet connection with TCP/IP protocol

Install SMT

Uninstall Other Program Versions

Before installing SMT or SMT Light, uninstall the old program version.

Before installing the full version, uninstall the basic version.

Install SMT

Step	Action
1	Insert the CD-ROM with the SMT or SMT Light program.
2	Run the “ao_smt.exe” or “ao_smt_l.exe” file.
3	Follow the instructions of the installation program. Accept the recommendation of the installation program for the name of the folder in which SMT or SMT Light shall be installed. All software tools are installed in this folder by default.

Setting TCP/IP Parameters in AO2000

Setting TCP/IP Parameters in AO2000

The TCP/IP parameters in AO2000 have to be checked and changed if necessary for proper operation of SMT.

Menu Path in AO2000

`MENUE → Configure → System → Network → TCP/IP Network`

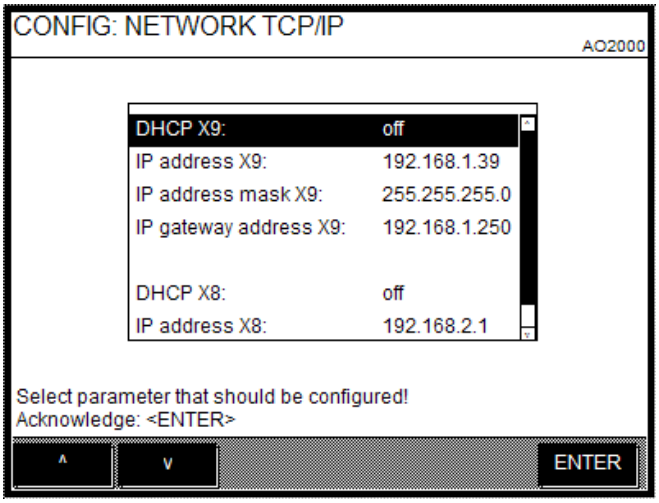
Point-to-Point Connection

The IP address of AO2000 is factory-set to 192.168.1.1. When using a point-to-point connection the IP address in AO2000 must be harmonized with the setting in the PC (see “Setting TCP/IP Parameters in the PC”, page 6).

Figure 1

TCP/IP Settings for a Point-to-Point Connection

(Example)



Network Connection

Both Ethernet 10/100/1000BASE-T interfaces can be used to link the gas analyzer to an Ethernet network (with TCP/IP protocol). The first Ethernet interface is referred to as X9 and the second one as X8.

The parameters to be set depend on the DHCP (Dynamic Host Configuration Protocol) setting:

DHCP on: Device name (max. 20 characters, no blanks and special characters),
DHCP off: IP address, IP address mask und IP gateway address.

Addresses

The IP address, IP address mask and IP gateway address must be obtained from the system administrator.

- Addresses of TCP/IP classes D and E are not supported.
- The address bits that can be varied through the address mask cannot all be set to 0 or 1 (broadcast addresses).

Point-to-Point Connection

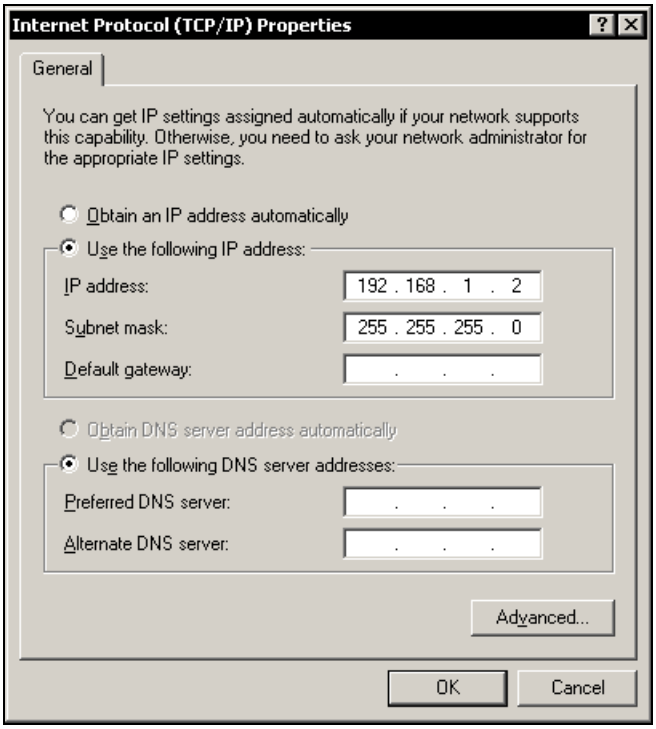
When using a point-to-point connection enter the IP address and subnet mask in the Internet Protocol Properties according to Figure 2.

The IP address of AO2000 is factory-set to 192.168.1.1 (see “Setting TCP/IP Parameters in AO2000”, page 5).

Figure 2

TCP/IP Properties for a Point-to-Point Connection

(Example)



Network Connection

When using a network connection ask the system administrator for the IP address, subnet mask and IP gateway address and enter these data likewise in the Internet Protocol Properties.

Ethernet Connection

Versions and Required Cables

- Point-to-point connection: Twisted-pair cable with RJ45 plugs, pin configuration: 1–3, 3–1, 2–6, 6–2
- Connection via an Ethernet network: Twisted-pair cable with RJ45 plugs

Cables are standard Ethernet cables and are not delivered with SMT or AO2000.

Test the Ethernet Connection

In order to test the Ethernet connection enter “ping *IP address*” (where *IP address* is the IP address of AO2000) in “Start → Run…”.

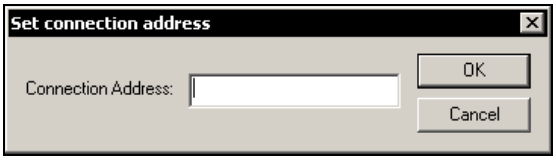
In case of a working connection the gas analyzer should prompt with “Reply from *IP address*: bytes=32 time<10ms TTL=255” (the numbers are device specific).

If you get the following prompt “Request timed out” the network connection is not working properly. Please consult your system administrator.

The *network name* can be entered instead of the *IP address*.

Configure SMT

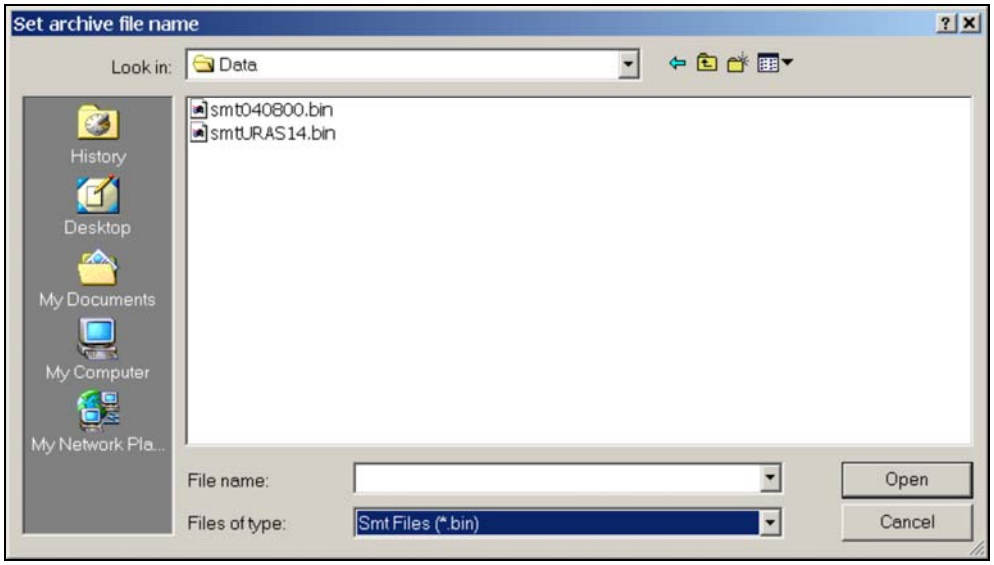
Enter the Device Address



Enter the gas analyzer's IP address or network name in the "Configuration → Set connection address" menu (see also the "Setting TCP/IP Parameters in AO2000" section, page 5).

The device address entered is displayed on the status line.

Set the Configuration File Name



Enter the directory and name for the configuration file in the "Configuration → Set archive file name" menu.

The configuration file is saved as a binary file. The file extension ".bin" is added automatically.

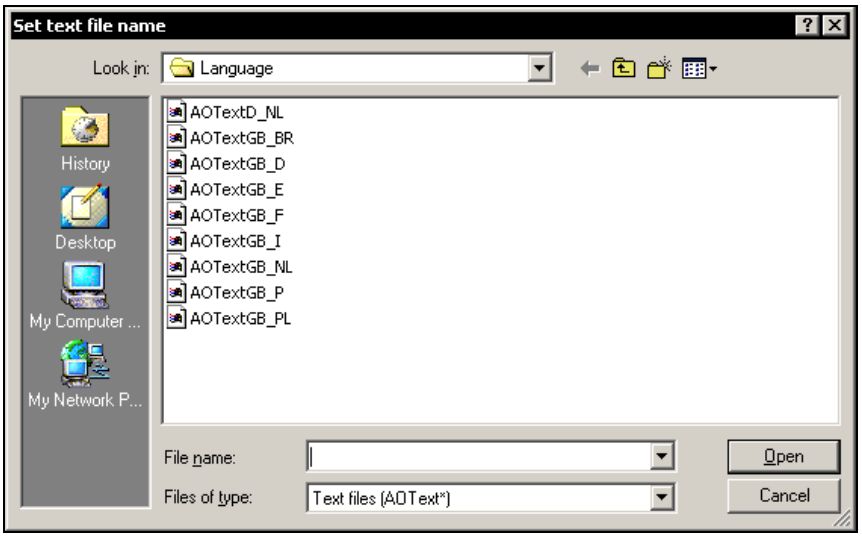
The configuration file is accessed

- when saving configuration data using the "Migration → Save configuration data" menu, see page 14
- when loading configuration data using the following menus:
  "Migration →Load configuration data" menu, see page 14,
  "Tools → Replace serial number", see page 15,
  "Tools → Logbook list", see page 17.

The configuration file name is displayed on the status line.

Continued on next page

Set the User Interface Language



The “Configuration → Set language file” menu is used to enter the name of the text file containing the two gas analyzer user interface languages that will be loaded in the gas analyzer when performing an update.

If no selection is made, the language combination loaded and the language selected on the gas analyzer will remain in effect.

The text file name is displayed on the status line.

Available Language Combinations

Language Combination	File Name
German – Dutch	AOTextD_NL
English – Brazilian Portuguese	AOTextGB_BR
English – German	AOTextGB_D
English – Spanish	AOTextGB_E
English – French	AOTextGB_F
English – Italian	AOTextGB_I
English – Dutch	AOTextGB_NL
English – Portuguese	AOTextGB_P
English – Polish	AOTextGB_PL

To load a text file without updating the gas analyzer, use the “Change language” tool, see page 16.

Status Line

The “View → Status bar” menu allows a status line at the lower edge of the screen to be displayed or hidden.

Error List

The “View → Error List” menu allows an error list to be displayed in the lower portion of the window or hidden.

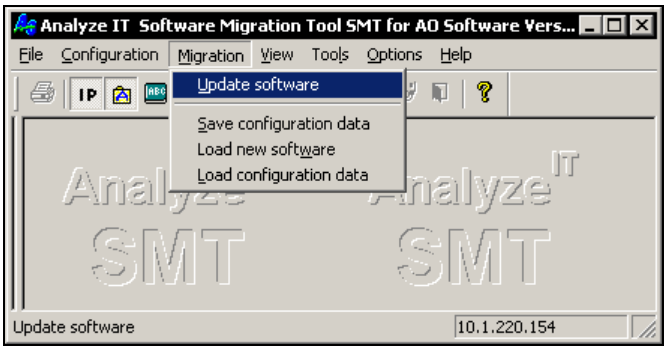
Perform Update

Software Versions

"SMT" allows the update from software version 2.0.u or 3.0.v or 4.0.w or 5.0.x or 5.1.y to software version 5.1.z.

"SMT Light" allows the update only from software version 2.0.u or 3.0.v or 4.0.w or 5.1.z to software version 5.1.z. "SMT Light" does not allow an update from software version 5.0.x or 5.1.y to software version 5.1.z.

Perform Update



Step	Action
1	Select the "Migration → Update software" menu.
2	Click the "Yes" button in the dialog box that appears. The update will automatically run in three steps: 1 Saving configuration data from AO2000 in the file selected using the "Configuration → Set archive file name" menu (see page 8). 2 Booting AO2000, loading system software, rebooting. 3 Loading configuration data from the selected file into AO2000; saving the configuration in AO2000.

Perform Step-by-Step Update

The update can also be performed in a step-by-step manner. Thereby the following sequence must be observed.

Step	Action	Explanation
1	"Save configuration data"	Saving configuration data
2	"Load new software"	Loading system software
3	"Load configuration data"	Loading and saving configuration data in AO2000

CAUTION!

The "Load new software" function overwrites the AO2000 configuration data.

After an update, check the AO2000 autocalibration parameters and time zone, date and clock values.

Update from Software Version 2.0 to Software Version 5.1

Hardware Requirements

- Software version 5.1 can be installed only in a gas analyzer equipped with Syscon III.
- In a gas analyzer with Syscon III and software version 5.1
  - maximum 3 IO boards can be installed in slots X11 to X13;
  - at least 1 analog output module and 1 digital I/O module must be installed;
  - the number of analog I/O boards must be equal to or greater than before conversion and update;
  - the total number of digital I/O boards and modules must be greater than before conversion and update.
- I/O boards not used anymore in the gas analyzer with Syscon III and software version 5.0 must be deleted from the old gas analyzer (Syscon I, V 2.0) prior to conversion and update.
- If instead of the present I/O boards other I/O boards shall be installed in the gas analyzer after conversion to Syscon III, the serial numbers must be changed before the update (see “Replace the Serial Number in a Configuration File”, page 15).

I/O Boards and I/O Modules Default Assignment

- First, the analog I/O boards are assigned to slots X11 to X13.
- Subsequently, the digital I/O boards are assigned to further free slots.
- Surplus I/O boards are assigned to “external” slots.
- Digital I/O modules can be assigned also to digital I/O boards.

Update from Software Version 2.0 to Software Version 5.1

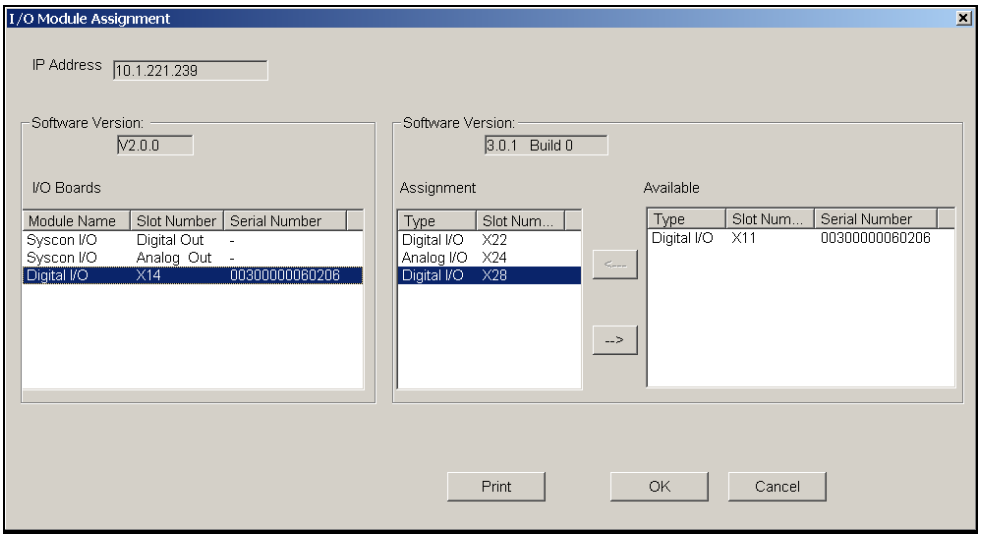
The update from software version 2.0 to software version 5.1 is also possible using the “SMT Light” program version.

The update must be performed in a step-by-step manner.

Step	Action
1	“Migration → Save configuration data”: Save configuration data of (old) software version 2.0.
2	Convert gas analyzer from Syscon I to Syscon III.
3	“Migration → Load new software”: Load new software version 5.1.

Continued on next page

Step	Action
4	"Migration → Load configuration data": The "I/O Module Assignment" dialog appears.



	In the "I/O Boards" list (left) the Syscon I/O's and I/O boards as in the V 2.0 configuration file saved in step 1 are displayed. In the "Assignment" list (middle) the (new) I/O modules and I/O boards on Syscon III (V 5.1) as assigned to the Syscon I/O's or old I/O boards by SMT are displayed. Modules assigned to each other are displayed in the same row. In the "Available" list (right) the I/O boards and I/O modules which are not assignable are displayed.
5	Click "OK" to accept the assignment. The configuration file will be loaded into AO2000. Click "Cancel" to abort the update. The configuration file will not be loaded into AO2000. Click "Print" to save the module assignment in an ASCII file. Perform steps 6 to 9 to change the assignment:
6	1 Select the I/O module in the "Assignment" panel whose assignment shall be canceled. 2 Move the I/O module with "→" into the "Available" panel.
7	1 Select the I/O module in the "Available" panel which shall be assigned instead. 2 Select the old I/O module in the "I/O Boards" panel which the new module shall be assigned to. 3 Move the new I/O module with "←" into the "Assignment" panel.
8	Repeat steps 6 and 7 for each I/O module whose assignment shall be changed.
9	Click "OK" to accept the changed assignment. The configuration file will be loaded into AO2000.

Update from Software Version 3.0/4.0/5.0 to Software Version 5.1

Hardware Requirements

- Software version 5.1 can be installed only in a gas analyzer equipped with Syscon III.
- In a gas analyzer with Syscon III and software version 5.1
  - maximum 3 IO boards can be installed in slots X11 to X13;
  - the number of analog I/O boards must be equal to or greater than before conversion and update;
  - the total number of digital I/O boards and modules must be greater than before conversion and update.
- I/O boards not used anymore in the gas analyzer with Syscon III and software version 5.1 must be deleted from the old gas analyzer (Syscon II, V 3.0 or 4.0) prior to conversion and update.
- If instead of the present I/O boards other I/O boards shall be installed in the gas analyzer after conversion to Syscon III, the serial numbers must be changed before the update (see “Replace the Serial Number in a Configuration File”, page 15).

I/O Boards and I/O Modules Default Assignment

- First, the analog I/O boards are assigned to slots X11 to X13.
- Subsequently, the digital I/O boards are assigned to further free slots.
- Surplus I/O boards are assigned to “external” slots.
- Digital I/O modules can be assigned also to digital I/O boards.

Update from Software Version 3.0/4.0/5.0 to Software Version 5.1

The update from software version 3.0 or 4.0 to software version 5.1 is also possible using the “SMT Light” program version.

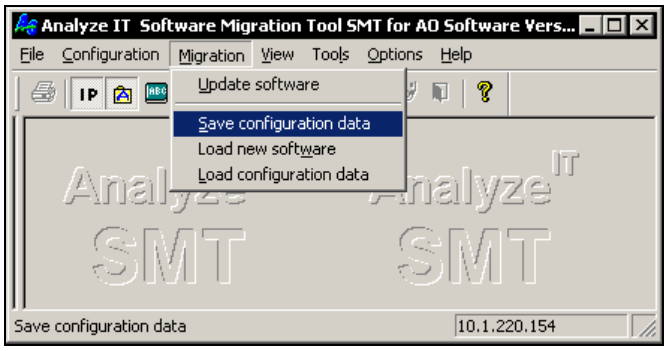
The update from software version 5.0 to software version 5.1 is only possible using the “SMT” program version.

The update must be performed in a step-by-step manner.

Step	Action
1	“Migration → Save configuration data”: Save configuration data of (old) software version 3.0 or 4.0 or 5.0.
2	Convert gas analyzer with V 3.0 or V 4.0 from Syscon II to Syscon III.
3	“Migration → Load new software”: Load new software version 5.1.
4	“Migration → Load configuration data”: Load configuration data in AO2000.

Save the Configuration File

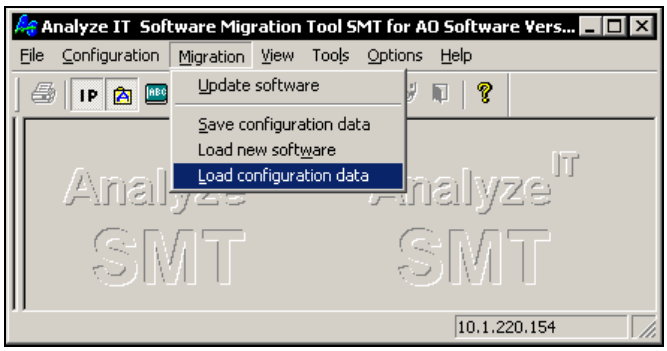
Saving the Configuration File



Step	Action
1	Select the name of the configuration file in the “Configuration → Set archive file name” menu (see page 8).
2	Select the “Migration → Save configuration data” menu.
3	Click “Yes” in the dialog box. The configuration file is saved.

Load the Configuration File

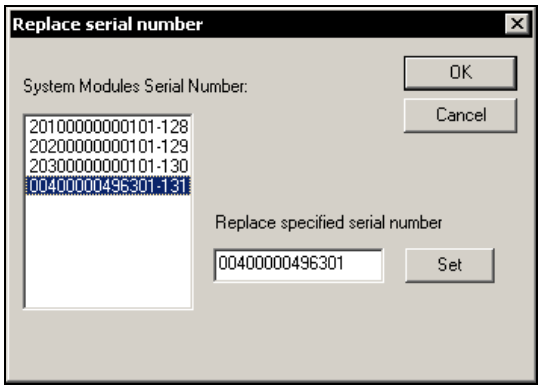
Loading the Configuration File



Step	Action
1	Select the name of the configuration file in the “Configuration → Set archive file name” menu (see page 8).
2	Select the “Migration → Load configuration data” menu.
3	Click “Yes” in the dialog box. The configuration file is loaded in the gas analyzer.

Replace the Serial Number in a Configuration File

“Replace serial number” Tool



The configuration data from a gas analyzer can be transferred to a different gas analyzer using the “Replace serial number” tool.

The serial number of a system module can be changed in a saved configuration file. The modified configuration file can be loaded into a gas analyzer.

CAUTION!

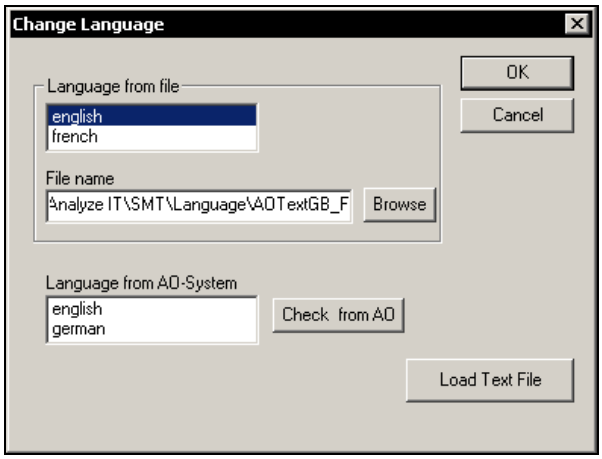
The applicable system module (analyzer module or I/O board) type and configuration must be absolutely identical in the configuration file and gas analyzer. Otherwise the gas analyzer configuration can be damaged or destroyed.

Procedure

Step	Action
1	Make a backup copy of the configuration file before proceeding.
2	Select the name of the configuration file in the “Configuration → Set archive file name” menu (see page 8).
3	Select the “Tools → Replace serial number” menu.
4	Select the serial number to be changed in the “System Modules Serial Number” field.
5	Replace the serial number in the “Replace specified serial number” field.
6	Use “Set” to enter the changed serial number in the configuration file.
7	Close the dialog box by clicking “OK”; this will save the changes to the configuration file.
8	Load the modified configuration file in the gas analyzer using “Migration → Load configuration data” (see page 14).
9	For additional gas analyzer hardware, the gas analyzer configuration must be changed after the configuration file is loaded.

Load a Text File

"Change language" Tool



The "Change language" tool is used to load into a gas analyzer a text file containing two languages for the user interface.

By default, German and English are loaded into the gas analyzer.

Available Language Combinations

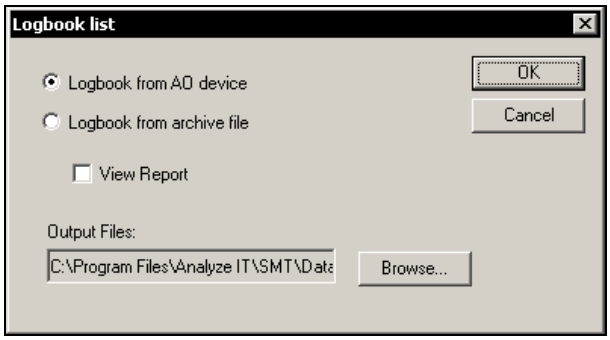
Language Combination	File Name
German – Dutch	AOTextD_NL
English – Brazilian Portuguese	AOTextGB_BR
English – German	AOTextGB_D
English – Spanish	AOTextGB_E
English – French	AOTextGB_F
English – Italian	AOTextGB_I
English – Dutch	AOTextGB_NL
English – Portuguese	AOTextGB_P
English – Polish	AOTextGB_PL

Procedure

Step	Action
1	Select the "Tools → Change language" menu.
2	Use the "Browse" button to select a text file (AO TextGB_F containing English and French in the example above).
3	Use the "Check from AO" button to display the languages currently in the gas analyzer (English and German in the example above). If the length of any text in the file differs from that loaded in the gas analyzer an message appears and any text with a different lengths is displayed in an list at the bottom of the window.
4	Load the selected text file in the gas analyzer using the "Load Text File" button.

Output Log Contents

“Logbook list” Tool

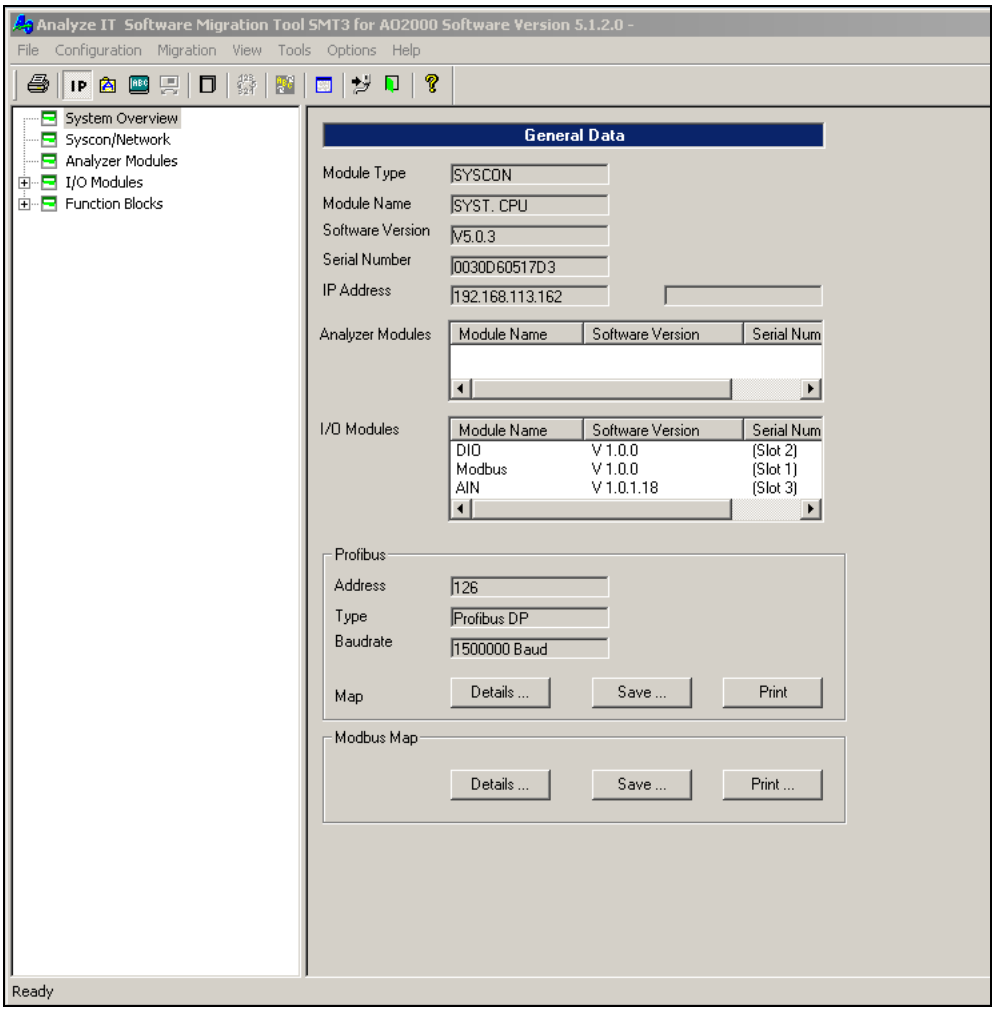


The “Logbook list” tool is used to save the contents of a gas analyzer or configuration file log as text (logbook listing); in this format it can be processed using MS Excel. Additionally, the log can be viewed on the screen.

Procedure

Step	Action
Save log as text file	
1	To save the AO2000 log: Set the AO2000 IP address using the “Configuration → Set connection address” menu (see page 8). To save the log from a configuration file: Select the name of the configuration file in the “Configuration → Set archive file name” menu (see page 8).
2	Select either “Logbook from AO device” or “Logbook from archive file” in the “Tools → Logbook list” menu. Select “View Report” to display the log on screen.
3	Use the “Browse” button to select a file name or enter the name of the file to which the log is to be saved.
4	Save the log as a text file using the “OK” button.
Open text file in MS Excel	
1	Open the saved text file in MS Excel. The Text Assistant is automatically started.
2	In step 1 select the default settings by clicking “Continue”.
3	In step 2 select “Tab” and “{none}” as text delimiters. Click the “Continue” button.
4	In step 3, in “Preview Marked Data”, mark all columns and select “Text” as the data format. Click the “Finish” button.
5	The logbook listing will be displayed in sequence, sorted from most recent to oldest entries. In the “Status” column, appearing messages are marked with “+”, canceled messages with a “-” and informational messages with “+-”. Acknowledged messages are shown with a “q” following the status symbol.

“System overview” Tool



The “System overview” tool has the following functions:

- Display the system overview (including navigation using links, see page 19),
- Print the system overview,
- Save the system overview as an ASCII file.

The “System overview” can only display a view of the connected gas analyzer; it cannot display the contents of a saved system overview file.

The tree view and navigation capabilities are only found in the full version of SMT.

Continued on next page

Procedure

Step	Action
1	Set the AO2000 IP address using the “Configuration → Set connection address” menu (see page 8).
2	**Display** the system overview: Select the “Tools → System overview” menu. A tree view is displayed in the left pane. The right pane shows the details of the element selected in the tree view.
	Save the system overview: Select the “File → Save as” menu and enter or select the file name in which the system overview is to be saved.
	 **Print** the system overview: Select the “File → Print” menu. A print preview is possible using the “File → Print preview” menu. The “Print” and “Print preview” commands are only available if the cursor is in the tree view pane. Use the “Options → Printer font” menu to select the printer font to be used for print output. This setting also applies to the print preview.

Navigating in the System Overview

The detail view of most elements contains linked fields that are shown in white. Clicking on one of these fields brings up the detail view of the element selected.

Example 1:
The system overview detail view contains lists of analyzer modules and I/O modules. Clicking on these names brings up the detail view of the analyzer module selected.

Example 2:
The function block detail view has the input and output fields linked. Double-clicking one of these fields brings up the detail view of any function block associated with this input or output.

Profibus Map

Details…	The Profibus map is displayed on the screen.
Save…	The Profibus map is saved into a text file. This file can be edited using e.g. Microsoft Excel.
Print	The Profibus map is output on a printer.

Modbus Map

Details…	The Modbus map is displayed on the screen.
Save…	The Modbus map is saved into a text file. This file can be edited using e.g. Microsoft Excel.
Print	The Modbus map is output on a printer.

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