

Integrated Monitoring and Control System

IMAC L

## Installation Procedure For OS / Engineering PC

Release D

## Table of Contents

1	General References .....	4
2	Introduction .....	5
3	Minimum Requirements for PC Hardware .....	5
4	Required Software Components .....	5
5	Installation of PC (BIOS, Operating System) .....	7
5.1	PC BIOS Settings .....	7
5.1.1	BIOS Settings for 'Power ON after Power Loss' .....	7
5.2	Installation of Windows XP .....	8
5.3	Installation of Drivers for special Hardware Components .....	8
6	Adjustment of Windows Settings .....	10
6.1	'User Account' Settings .....	10
6.2	'AutoLogin' Settings .....	14
6.3	'Screen Resolution' and 'Refresh Rate' Settings .....	16
6.4	'Screen Saver' Settings .....	19
6.5	'Power Options' Settings .....	20
6.6	'IP Address' Settings .....	22
6.7	'Automatic Updates' Settings .....	25
6.8	'Security Alert' Settings .....	26
6.9	'Firewall' Settings .....	27
6.10	'Daylight Saving' Settings .....	28
6.11	'Desktop Cleanup' Settings .....	29
6.12	'Computer Name' and 'Workgroup Name' Settings .....	30
6.13	'Shared Access' Settings .....	32
6.14	'Automatic Start' Settings .....	34
7	Installation of Applications .....	36
7.1	Adobe Acrobat Reader .....	36
7.2	File Packing Utility .....	39
7.3	Microsoft Excel .....	40
7.4	WinLock Software .....	42
7.4.1	WinLock Installation .....	43
7.4.2	Winlock Settings .....	45
7.5	Simatic Manager Software .....	49
7.5.1	Installation of Simatic Manager .....	49
7.5.2	Language Setting of 'Simatic Manager' .....	56
8	IMAC L Software .....	57
8.1	Unpacking the 'IMAC L Template project' .....	58
8.2	Installing Microsoft 'Visual C++ 2008 Redistributable' Software .....	60
8.3	Installing 'WibuKey' Software .....	63
8.4	Installing AlphaVision 'Engineering' / 'Runtime' Licenses .....	67
8.4.1	Installing the AlphaVision License File 'VISION.LIC' .....	68
8.4.2	Installing 'WibuKey' Hardware USB License Key for AlphaVision .....	68
8.4.3	Installing a Software License Key for AlphaVision .....	70
8.4.4	Checking the validity of AlphaVision License Keys .....	74
8.5	Creating Desktop Shortcuts .....	76
8.5.1	Desktop Shortcuts for IMAC L Engineering PC .....	76
8.5.2	Desktop Shortcuts for IMAC L OSs .....	76
8.6	OS specific IMAC L Settings .....	77
8.6.1	Setting the OS-Number for Alpha-Vision .....	77
8.6.2	Modifying the 'OS Watchdog Settings' .....	78
8.6.3	Modifying the 'UDP Communication Settings' .....	79
8.6.4	Setting up 'OS Automatic Start' for IMAC L Software .....	80
9	Unpacking the IMAC L Simatic S7 Project .....	81
10	Backups of IMAC L Software .....	83
10.1	Backups of Simatic Software .....	83
10.2	Backups of AlphaVision PC Software .....	84
10.2.1	Create Backups of IMAC L on PCs using '7-Zip' .....	84
10.2.2	Restore Backups of IMAC L on PCs using '7-Zip' .....	85

10.2.3	Multiple IMAC L Versions / Projects on one PC.....	86
11	Updating IMAC L to a newer AlphaVision.....	87
11.1	Installation of AlphaVision Software Packages.....	88
11.1.1	AlphaVision Package ‚Basis‘.....	89
11.1.2	AlphaVision Package ‚DCS‘.....	89
11.1.3	AlphaVision Package ‚Goodies‘.....	89
11.1.4	AlphaVision Package ‚Siemens‘.....	90
11.1.5	AlphaVision Package ‚SoftPLC7‘.....	90
11.2	Create AlphaVision ‚PMU‘ Project for IMAC L.....	91
11.3	Copy files from existing IMAC L Project.....	93
11.4	Create an ‚OS‘ Project from ‚Engineering PC‘.....	94
11.5	Updating the AbvSPU Signal Processing Unit.....	95
11.5.1	Compiling the AbvSPU Signal Processing Unit.....	95
11.5.2	Distributing the AbvSPU Signal Processing Unit to PCUs.....	96
11.6	Compiling & Building the IMAC L Project.....	97
11.7	Special Hints for Updates.....	97

#### Releases:

- 0.1 First Draft (for internal revision only)
- 0.2 Second Draft
- A First Release – December 2004
- B Second Release – March 2005
- C Third Release – February 2006
- D Fourth Release – June 2009

## 1 General References

To provide a clear overview, this description does not include specific references to all parts of the system and cannot possibly consider every assembly situation.

Any Problems related to hardware components, their installation and function should be discussed and rectified in cooperation with the respective manufacturer

Should you require further IMAC L specific information, or should problems with a standard installation arise, that this description does not cover adequately enough, please consult your Siemens marine engineering partner to receive the desired information.

We would also like to state that the contents of this description does not exist due to prior arrangement, consent or a legal position and does not alter any existing agreements.

All Siemens commitments ensue from the respective sales contract, which also contains the complete and solely valid warranty control. These contractual warranty determinations will not be expanded or limited by the execution of this system description.

In addition, no claims on the efficiency of the individual customer specific units can be deflected by this description. The contractually agreed upon scope of delivery for each specific contract is the decisive factor for the exact scope of supply for each unit.

### Warning

During the operation of electrical appliances or units, it is inevitable that certain parts of these units will contain high voltage.

When warnings are disregarded, grievous bodily harm or material damage can occur.

Only qualified personnel should operate or work in proximity with these appliances or units.

These personnel must be familiar with all the warnings and maintenance measures according to this system description or related descriptions e.g. SIMATIC-PLCs.

The flawless and safe operation of these appliances and units will be provided by adequate transport, special storage, mounting and installation as well as thorough service and maintenance.

Siemens keeps the right to change technical details without prior notification.

## 2 Introduction

This manual describes the installation procedures required to setup and install 'IMAC L' Engineering PCs and Operator Stations (OSs).

If you should install the 'IMAC L Engineering System' to a PC with an existing Windows installation, you may skip the instructions for the basic installation of the operating system. Nevertheless you have to carefully check all Windows settings and required drivers to comply with the settings described in this document (be it default settings or custom settings). This document cannot cover any whatsoever customized installation of any existing PC.

The recommended installation procedure of the Windows Operating System is 'from scratch'. Real Operator Stations to be delivered to a customer necessarily require a installation 'from scratch'. All Prior Data stored on primary Partitions of the hard disk will be lost. Some Data (e.g. in existing extended partitions) may be preserved during installation (but please do not rely on this !).

In any case and independent of the type of Installation you choose please always create a backup of any existing Data residing on your PC before proceeding !

## 3 Minimum Requirements for PC Hardware

- ☐ Personal Computer with Pentium III (or higher) or AMD Athlon XP Processor
- ☐ Clock Frequency > 2,4 GHz
- ☐ 1 GB Memory
- ☐ Graphics Card with >= 32 MB of Video Memory
- ☐ CD-ROM or DVD-ROM Drive
- ☐ Ethernet LAN Network Interface Controller (NIC) 100 Mbit with TCP/IP capability
- ☐ Keyboard
- ☐ Pointing Device (Mouse, Trackball)
- ☐ BIOS must be capable of booting from CD-ROM
- ☐ Windows XP Prof. (English), Service Pack 3 without any other Microsoft Hotfixes
- ☐ NTFS File System

## 4 Required Software Components

The following table gives an overview of the software components to be installed for Operator Stations and Engineering PCs :

Software Component	OS	Engineering	Comment
MS Windows XP Prof. en, SP3	Yes	Yes	English version of XP required, not just an English language pack ! <u>Only SP3, no other Hotfixes !</u>
Adobe Acrobat Reader 8 or later	Optional	Yes	For viewing documentation
File packing tool (e.g. WinZip, WinRar, 7Zip)	Optional	Yes	
Microsoft Excel 200x	No	Yes	English Version required not just an English language pack !
Simatic Step 7 V5.3 SP1 (or higher), optionally current HSP for recent hardware	No	Yes	
AlphaVision Software >= V10.0	Yes	Yes	
Crystal Office WinLock	Yes	No	

- 1 The following table gives an overview of the software Licenses required for IMAC L :

Software Component	Licenses required	Comment
MS Windows XP Prof. en, SP3	One per PC	
WinZip or WinRar or 7Zip	One per PC	
Microsoft Excel	One per PC	
Simatic Step 7	One per PC	
AlphaVision 'Runtime' for OS	One per PC	Free demo without license (30 min. limit)
AlphaVision 'Engineering'	-	Master license available for Siemens Marine Engineering. For internal use only. 'WiBu Key' Key hardware holding the required license key has to be bought.
	(One per OS)	For use outside of Siemens Marine Engineering (e.g. selling to ship owner)
AbvSPU Signal Processing Unit	One per PCU	
Crystal Office WinLock	One per OS	Free 30 days demo

- 2

## 5 Installation of PC (BIOS, Operating System)

### 5.1 PC BIOS Settings

**Attention:** Misadjusted settings in PC's BIOS setup may cause a PC to fail or be unreliable. Please change only those settings described explicitly here. All other settings should be left in the 'Manufacturer's Default' positions.

In cases of doubt and for detailed information on BIOS setup modification procedures of an individual PC please consult the PC's mainboard documentation.

Before installing the Operating System please check the BIOS setting of every PC to fulfill the requirements of this section. After modifications check, if settings were successful.

To change the settings of a PC's BIOS setup, please proceed as follows:

- To enter a PC's BIOS setup program, you have to press a specific key during the early part of the PC's boot sequence. Usually the key to be pressed is shortly displayed on the screen during boot (e.g. "F10 = BIOS Setup"). Common keys to enter the BIOS setup program are 'F10' (e.g. HP/Compaq), 'DEL', or 'F2'. With modern, fast booting PCs it may sometimes be difficult to identify the correct time to press this key. Repeated pressing of the key during the early part of booting helps to find the correct time. If you can't identify the correct key to press, please consult the PC's mainboard documentation.
- Navigate through the menus using the cursor keys. Modify the settings as required by this manual.
- After Modification of settings is completed, you have to save these settings. Look for a menu like 'SAVE CHANGES & EXIT' to do so. The PC will then reboot.

#### 5.1.1 BIOS Settings for 'Power ON after Power Loss'

On board of ship a power loss (black out) is a common situation. OSs usually will have an uninterrupted power supply, but it has to be taken into account, that the UPS units will not last forever. Therefore a power loss to an OS PC is a standard situation. For IMAC L Operator Stations it is important, that the PCs will automatically revert to the same power condition as they were before the power loss. Alternatively it is possible to have an 'Always ON' setting, but this will cause PCs to be switched on after a power loss, even if they were switched off before the power loss.

Many BIOSes have a setting that determines the behavior of the PC after a power loss.

- In the BIOS menus look for 'Startup' options.  
For HP/Compaq PCs the required setting is typically allocated in

***"Advanced → Power-On Option"***

The required settings item is

***"After Power Loss"***

The required setting of this item is

***"Previous State"***

- For other PC manufacturers you may need the mainboard documentation to identify the required menu / setting.

## 5.2 Installation of Windows XP

Please observe, that an **original real 'english' version** of Windows XP is required. Any other language version of XP with an additional English language pack will not be suitable for IMAC L!

Please install the required Windows XP operating system according to standard procedures:

- ❑ Install all optional PC hardware components as required.
- ❑ Boot from Windows XP installation CD and complete the installation procedures

Use the following settings during XP installation:

- Format OS partition with 'NTFS' file system. The minimum partition size for the Windows partition is 15 GB.
- Localization is 'English US' including English keyboard settings
- Select 'Computer name' according to use (e.g. OS1, OS2, ENGINEERING)
- When prompted for an administrators password, take a written note of the selected password and put it to your internal project documentation. The half-life of your memory is smaller than you might imagine ;-)
- Set the Time Zone in XP to the home port or major operation base of the ship.
- Select an identical network workgroup name for all computers in the same network (suggested for IMAC L: 'WORKGROUP')

- ❑ Boot from Windows XP installation CD and complete the installation procedures

## 5.3 Installation of Drivers for special Hardware Components

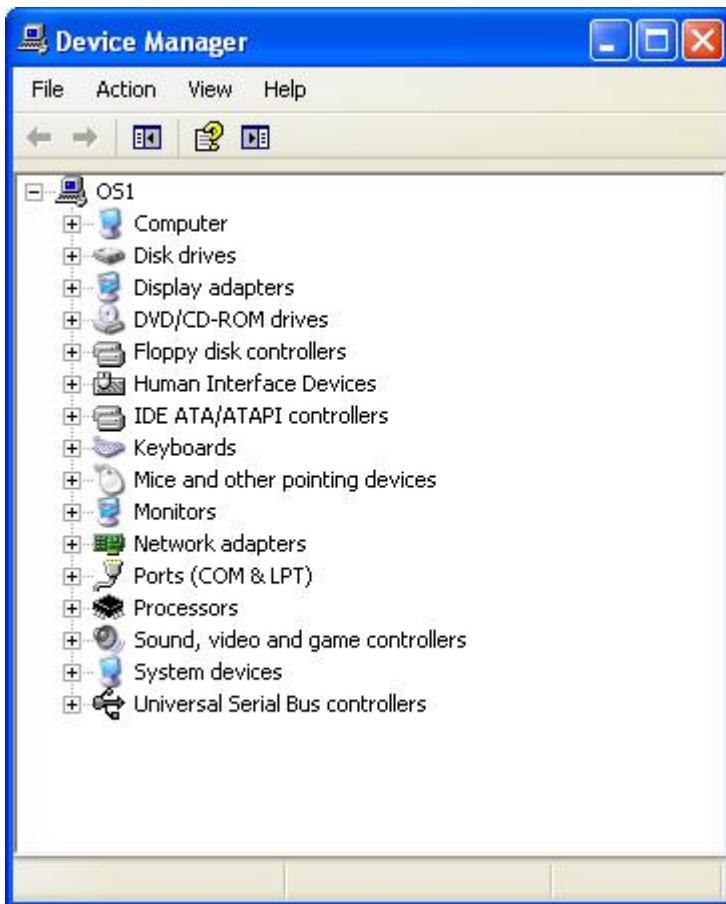
Windows XP will automatically detect most of the common 'Plug & Play' hardware components and install appropriate Windows built-in drivers. Nevertheless there are hardware components for which Windows has no built in drivers available. If this happens, it will be necessary to install these drivers from disks supplied by the hardware manufacturer instead. In most of these cases Windows will announce, that it has detected a new hardware component. The dialogues following this announcement will guide you through the hardware driver installation procedure. Please proceed according to the manual / installation guide delivered with your hardware.

In case of doubt you can check for missing or faulty drivers :

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'System'
- Click on tab 'Hardware'
- Click on button 'Device Manager'

The 'Device Manager' Window will show all detected devices in a tree style (similar to Explorer file system display) :





Look for devices with '**Question Mark**', '**Exclamation Mark**' or '**Stop Sign**' Symbols. Devices bearing these colored symbols will usually not work due to driver or resource problems or missing drivers. Usually more information on a specific device is available :

- Select a device by clicking on it
- Click on 'Action → Properties'.

Hint : Install all missing or faulty drivers according to manufacturers instructions. Installation of drivers may include one or more boot-sequences of your PC in order to be completed. Close all active applications before starting to install device drivers.

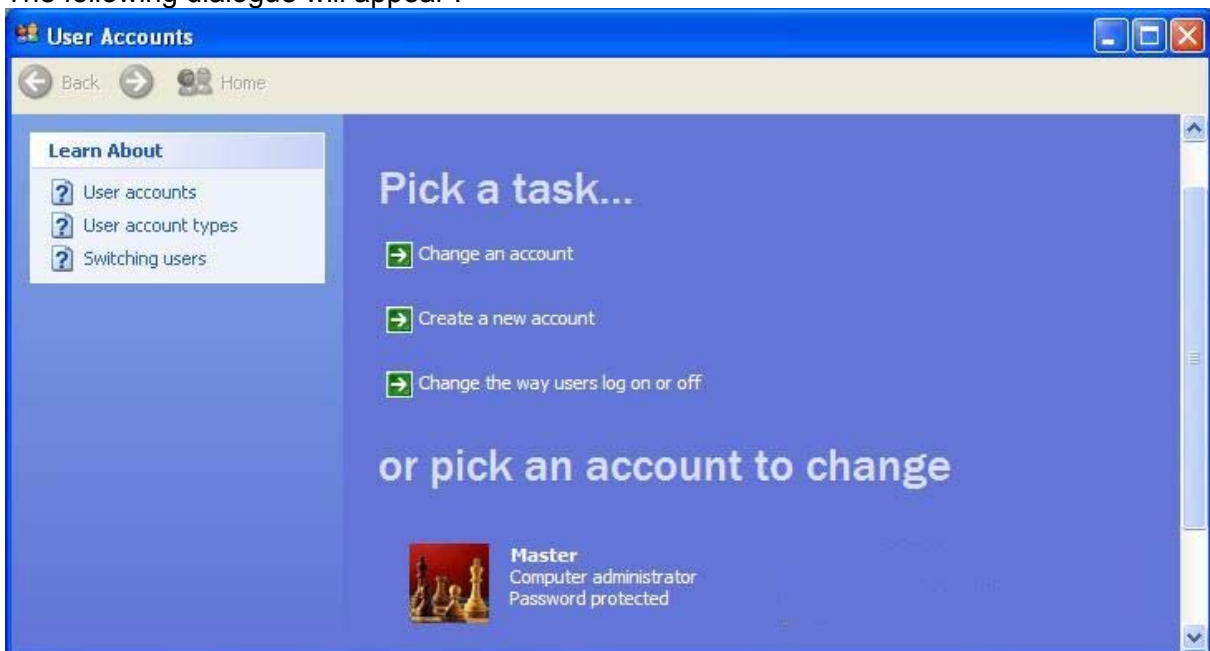
## 6 Adjustment of Windows Settings

### 6.1 'User Account' Settings

An computer account with sufficient user rights is required for IMAC L. This account will be used to setup an OS for 'AutoLogin'. If the account 'Admin' does not exist, create a new account as follows. Otherwise (if it should already exists) adjust it's properties:

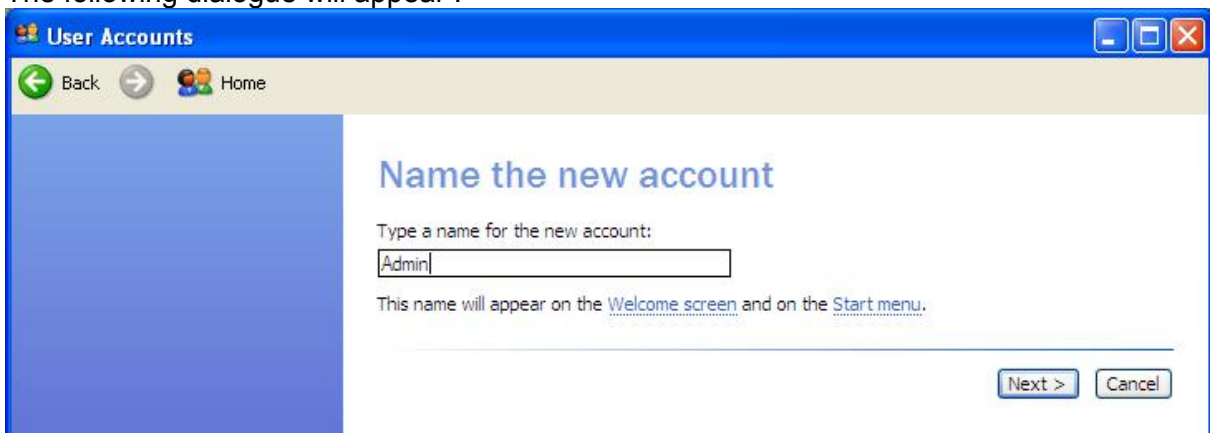
- Click on 'Start → Settings → User Accounts'

The following dialogue will appear :



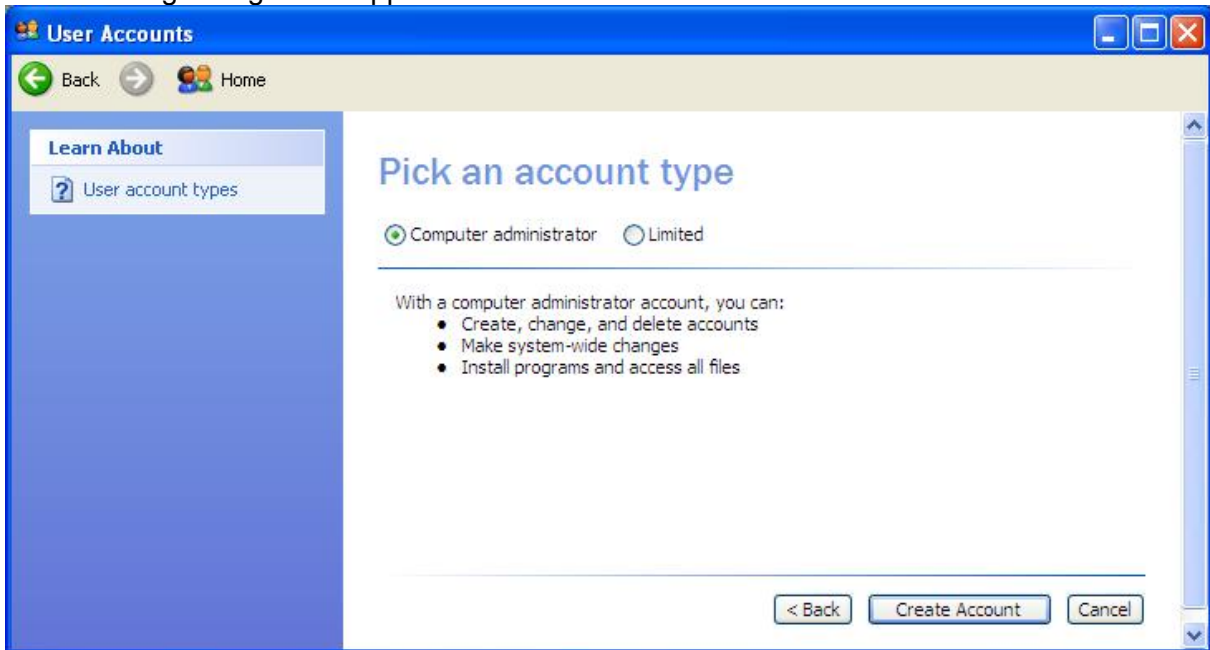
- Click on 'Create a new account'

The following dialogue will appear :



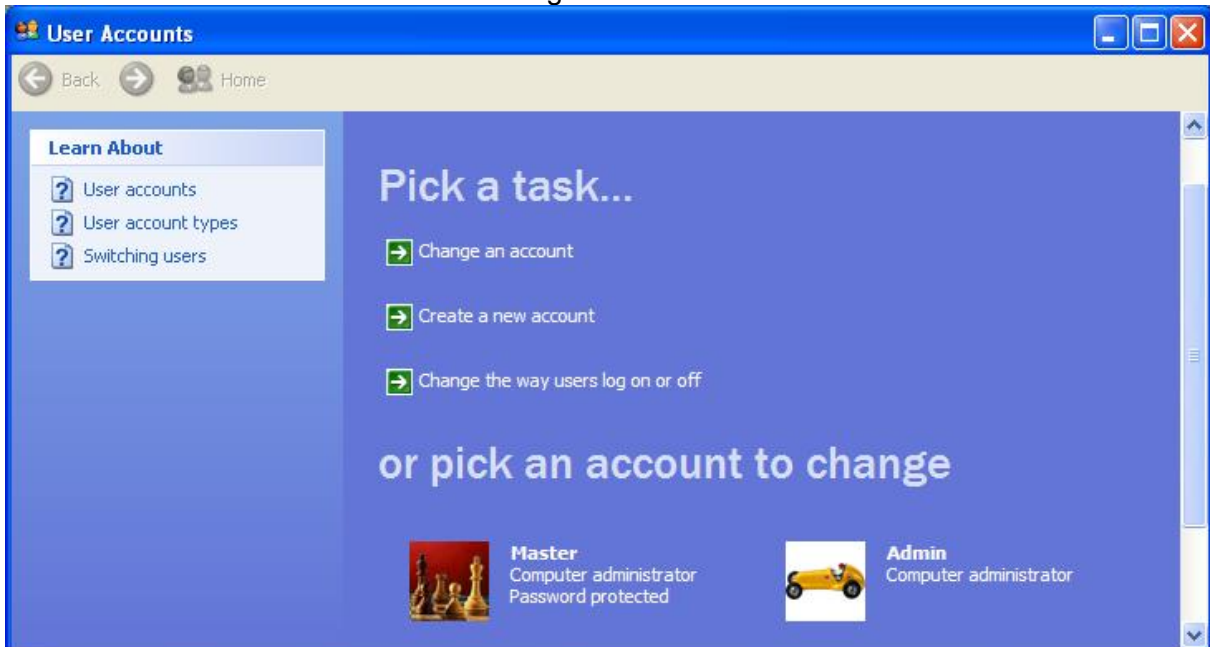
- Enter the Name 'Admin' in the entry field
- Click on button 'Next'

The following dialogue will appear :



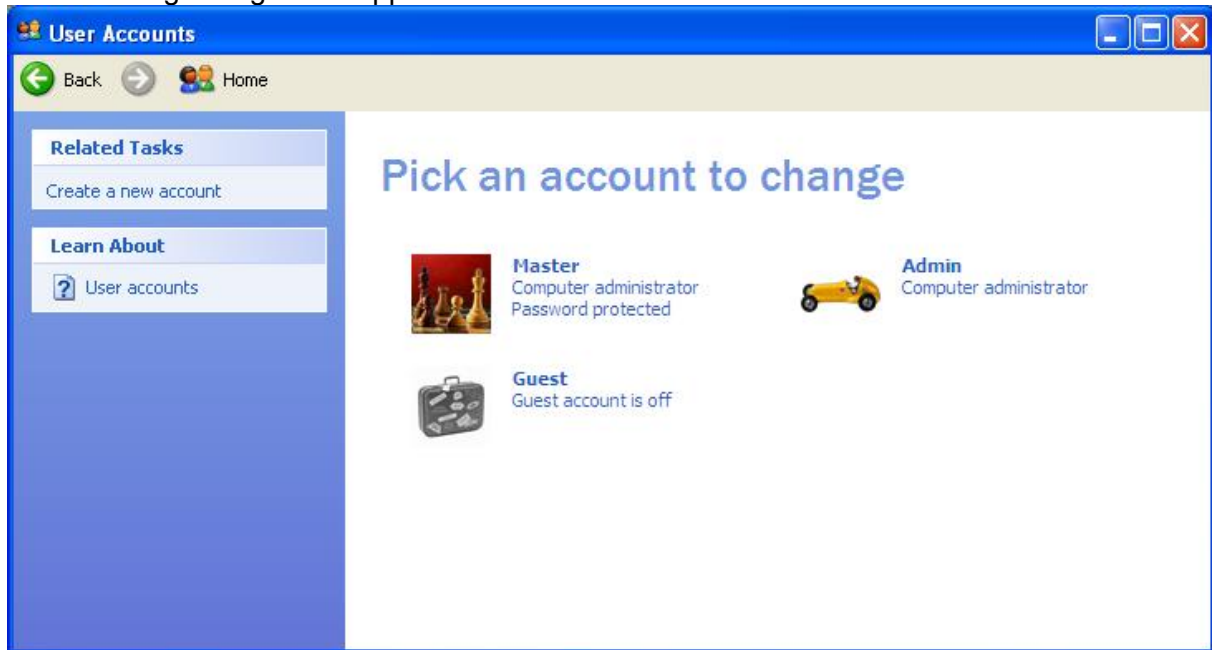
- Click on 'Computer administrator' radio button
- Click on button 'Create Account'

You are back to the 'User Accounts' Dialogue:



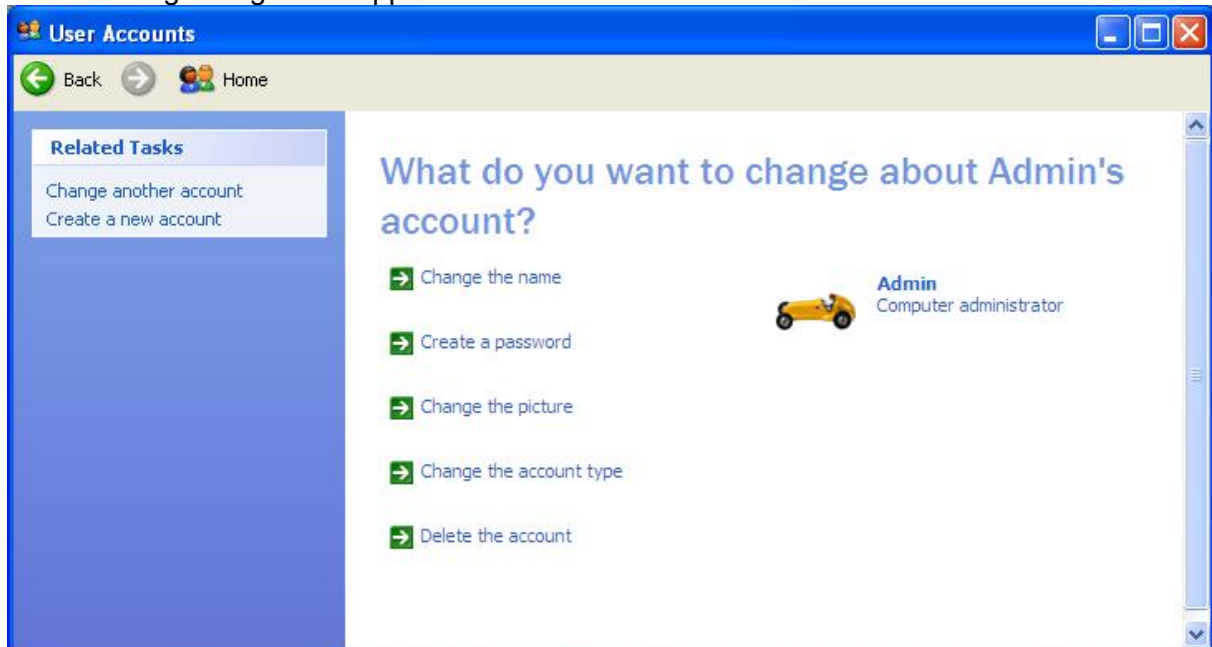
- Click on 'Change an account'

The following dialogue will appear :



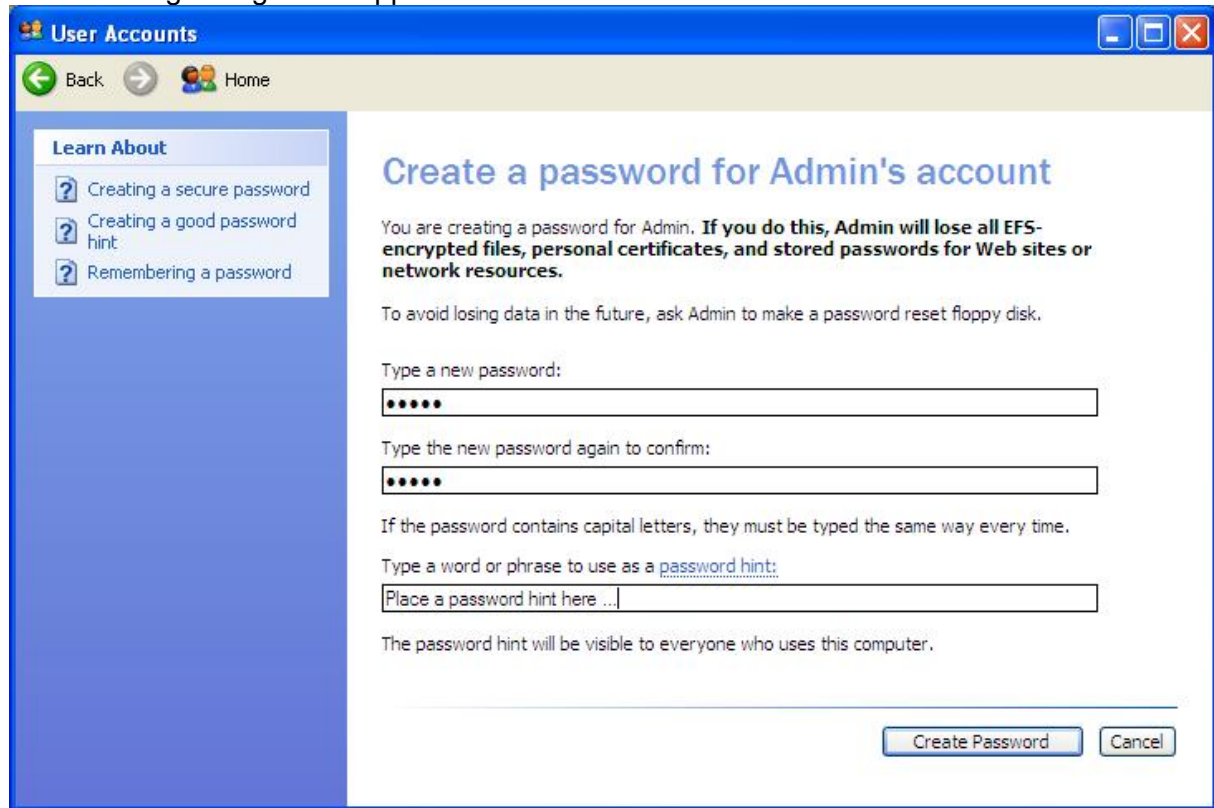
- Click on 'Admin' icon

The following dialogue will appear :



- Click on 'Create a password'

The following dialogue will appear :



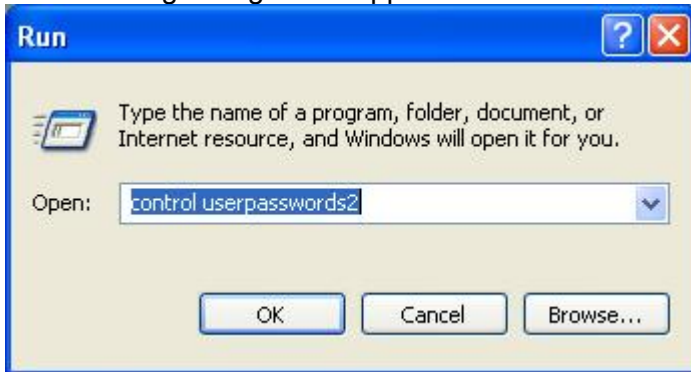
- Carefully enter a new password (twice) and select a suitable password hint. Observe, that Windows passwords are case-sensitive!
- **Take a written note of the selected password and put it to your → project documentation !!**
- Click on 'Create a password'
- Close the 'User Accounts' dialogue
- Click on 'File → Close' to close 'Control Panel'
- Reboot your PC.
- During this reboot log in as 'Admin' with the password as defined here.

## 6.2 'AutoLogin' Settings

IMAC L Operator Stations have to start up Windows XP without prompting for a login (to make an OS operational again without operator interference e.g. after a power loss). Use this procedure to set this up:

- Click on 'Start → Run'

The following dialogue will appear :



- Enter 'control userpasswords2'
- Click on 'OK'

The following dialogue will appear :





- Deselect (uncheck) 'Users must enter a user name and password ...'
- Click on 'Apply'

The following dialogue will appear :



- Enter User name 'Admin' (see above)
- Carefully enter the 'Admin' password (twice). Mistyped User name or passwords will not be immediately detected (this happens only during next boot).
- Click on 'OK' to close 'Automatically Log On' dialogue
- Click on 'OK' to close the 'User Accounts' dialogue

Then Reboot the PC in order to check, if AutoLogin works properly:

- Click on 'Start → Turn Off Computer... → Restart'.

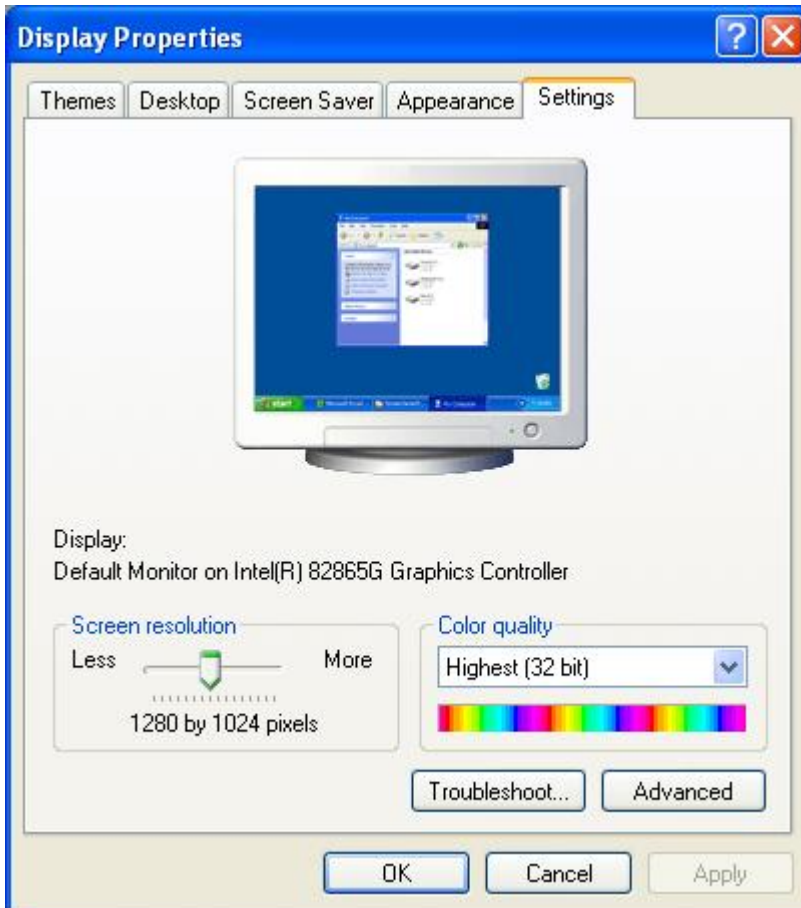
The OS should reboot without requesting a username or password during Windows start.

If a failure message is displayed during booting and AutoLogin is not successful, it is very likely that in the 'Automatically Log On' dialogue you entered either the User name or at least one of the passwords wrongly. In this case repeat the above procedure with the correct entries.

## 6.3 'Screen Resolution' and 'Refresh Rate' Settings

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Display'
- Click on tab 'Settings'

You should see the following 'Display Properties' dialogue :



- Adjust the Screen Resolution to '1280 by 1024 pixels'
- Adjust Colors to 'Highest (32 bit)'
- Click on 'Apply'

Hint : If these settings are not available, check your hardware and the correct installation of all required drivers for your graphics card and your monitor.



The screen will flicker for a short time. Then the screen will reappear with the new (higher) screen resolution. The following dialogue will appear :



You now have 15 seconds to click on 'Yes' to accept the new settings. Otherwise Windows will automatically revert to the previous settings.

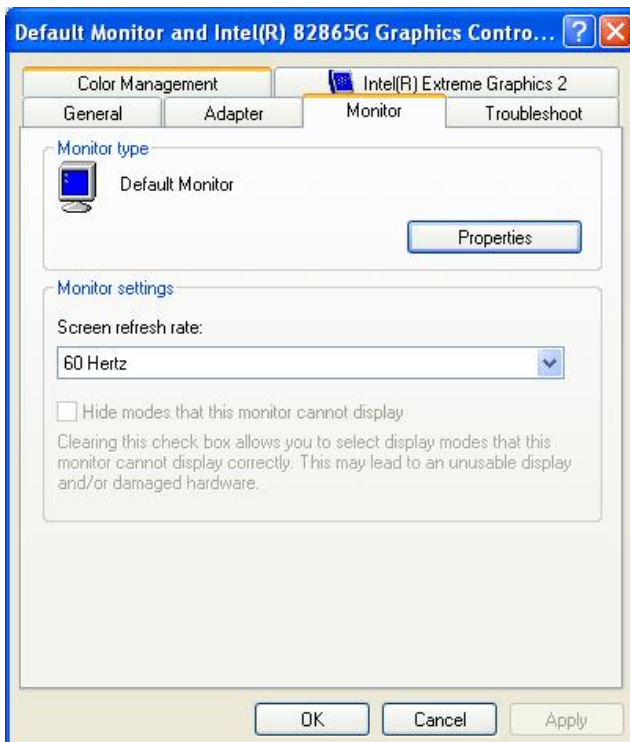
Hint : If, after clicking on 'OK', the screen will either stay black or display 'garbled' contents, your Monitor is not capable to display the required screen resolution. Wait for 15 seconds. Windows will automatically revert to its previous settings. Replace your monitor and retry !

The 'Display Properties' dialogue will still be displayed after this setting (although the dialogue will appear smaller now due to the increased screen resolution).

- Click on button 'Advanced'
- Click on tab 'Monitor'

Hint : the dialogue that appears if you click on 'Advanced' will vary in its appearance depending on the graphics card driver installed in your PC. Compared to the screenshot above, more or other 'tabs' may appear. Nevertheless there should always be a 'Monitor' tab available.

The following dialogue will appear :



Adjust the 'Refresh Frequency' of your monitor to a suitable rate :

- For VDU-based monitors higher settings are usually better (Frequencies  $\geq 85$  Hertz are assumed to be flicker-free). The maximum permissible rate for your monitor depends on the screen resolution you have selected and your monitors 'video bandwidth'. If the checkbox 'Hide modes ...' is checked, Windows will usually just offer those refresh frequencies which your monitor is able to handle.
- If you have a TFT-type flat screen monitor always keep this setting at '60 Hertz' !

Hint : After adjusting the screen resolution and refresh frequency it is usually necessary to re-adjust your monitors settings for picture 'SIZE' and 'POSITION'. Adjust these settings so that the display will neatly fit into the monitors display area. Consult your monitors manual for more information on how to do this.

- Click on button 'Apply' to accept your changed settings.

The screen will flicker for a short time. Then the screen will reappear with the new (higher) refresh frequency. The following dialogue will appear :



You now have 15 seconds to click on 'Yes' to accept the new settings. Otherwise Windows will automatically revert to the previous settings.

Hint : If, after clicking on 'OK', the screen will either stay black or display 'garbled' contents, your Monitor is not capable to display the selected refresh frequency. Wait for 15 seconds. Windows will automatically revert to its previous settings. Retry with a lower refresh frequency !

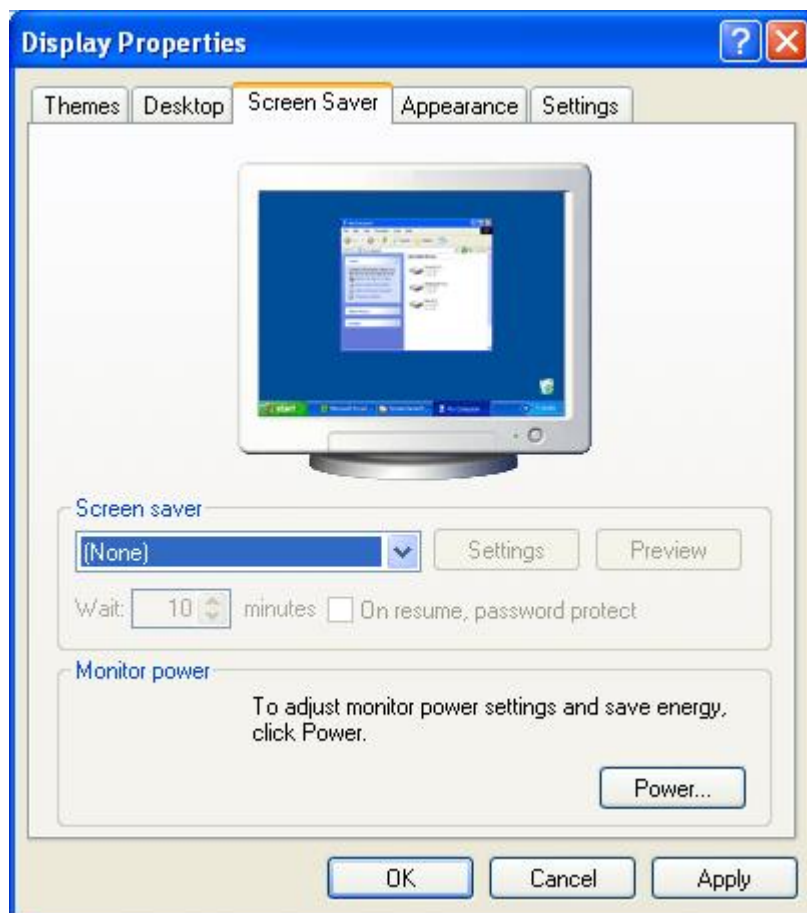
- Click on 'OK' to close 'Monitor Settings' dialogue
- Click on 'OK' to close 'Display Properties' dialogue
- Click on 'File → Close' to close 'Control Panel'

## 6.4 'Screen Saver' Settings

Hint : For Operator Stations (OS) used for control and monitoring, the use of screensavers or monitor power saving functions is generally not permitted. Alarm- or other important display information might be hidden behind an active screensaver ! The use of screen savers and / or energy saving modes for VDUs is only permitted for Engineering PCs not serving as an OS.

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Display'
- Click on tab 'Screen Saver'

You should see the following 'Display Properties' dialogue :



- Select (none) for an OS PC.
- For other PCs select a Screensaver according to your preferences.
- Modify this Savers specific settings, if desired (button 'Settings')
- Adjust the waiting time according to your preferences.

Please adjust the 'Energy saving features of your monitor' in the lower part of this dialogue (button 'Power ...') according to your preferences. For IMAC L OS PC s power saving has to be switched OFF here !

- Click on button 'Apply' to accept your changed settings.
- Click on 'OK' to close 'Display Properties' dialogue
- Click on 'File → Close ' to close 'Control Panel'

## 6.5 'Power Options' Settings

For use as an IMAC L OS the Power Saving options of Windows XP have to be adjusted as follows:

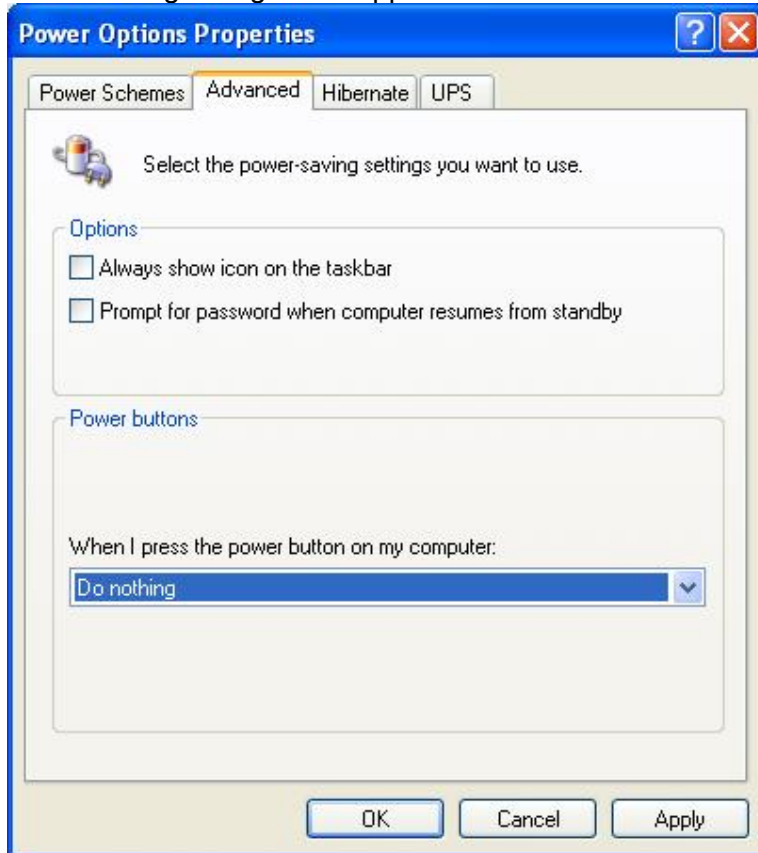
- Click on 'Start → Settings → Power Options'.

The following dialogue will appear :



- Select Power scheme 'Home/Office Desk'.
- Modify all three settings to 'Never'
- Click on button 'Apply' to accept your changed settings.
- Click on Tab 'Advanced'

1 The following dialogue will appear :



2  
3

- |   |                      |  |
|---|----------------------|--|
| 4 | - Deselect (uncheck) | 'Prompt for password when computer resumes ...'  |
| 5 | - Select             | 'Do nothing' from the 'Power buttons' combo box. |
| 6 | - Click on button    | 'Apply' to accept your changed settings.         |
| 7 | - Click on           | 'OK' to close 'Power Options' dialogue           |
| 8 | - Click on           | 'File → Close' to close 'Control Panel'          |

## 6.6 'IP Address' Settings

All Operator Stations, Engineering PCs and PCUs will need to have a fixed and unique IP address assigned to them according to the following Scheme :

Type of Device	IP Address assignment
PCUs	<b>223.223.000.00x</b> (x = PCU-No.)
Operator Stations	<b>223.223.000.10x</b> (x = OS-No.)
Other Devices (e.g. Engineering PC)	<b>223.223.000.20x</b> (x = Device-No.)

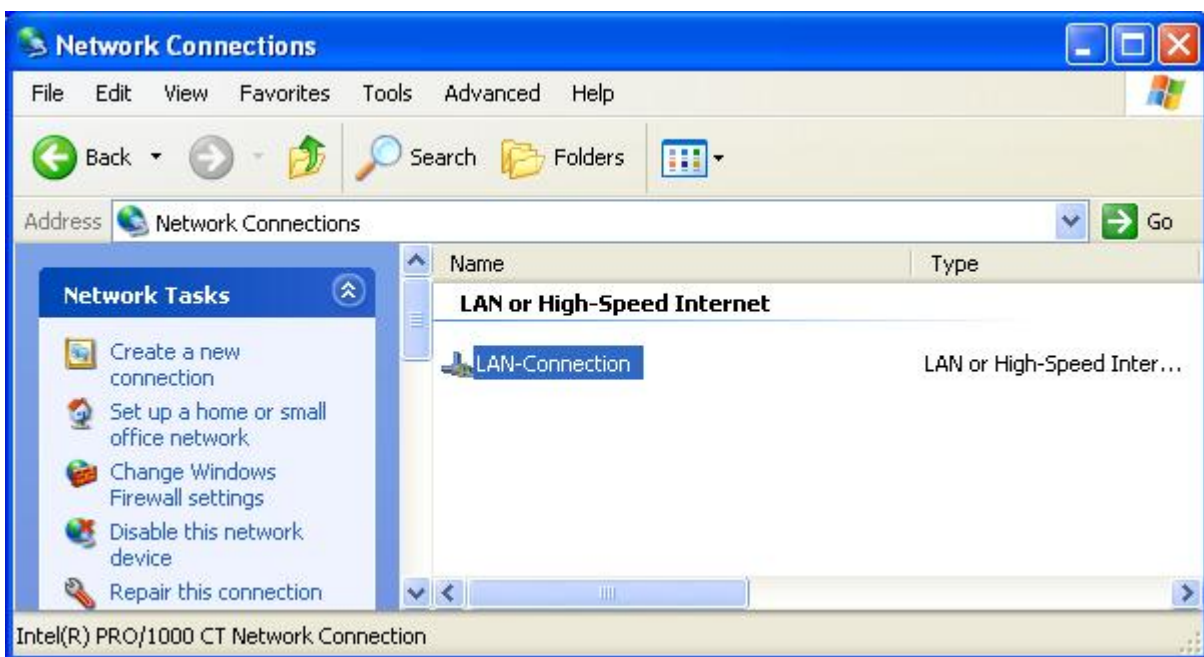
The Subnet-Mask has to be : **255.255.255.0** for all devices !

Assignment of IP addresses using DHCP servers is not allowed for IMAC L components.

To modify the IP address assignment of the PC proceed as follows:

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Network Connections'

The following dialogue will appear :

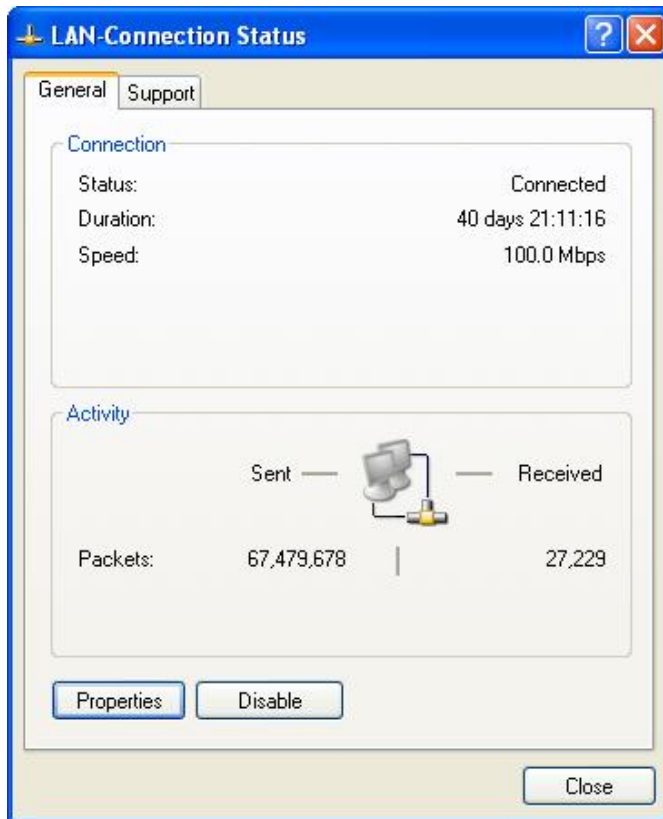


- Double-Click on 'LAN Connection'

Hint : If your PC should have multiple network cards, more than one entry will show up in this list. Identify the entries in this list and make sure to select the one to be used for the IMAC L Ethernet Bus connection.



1 The following dialogue will appear :



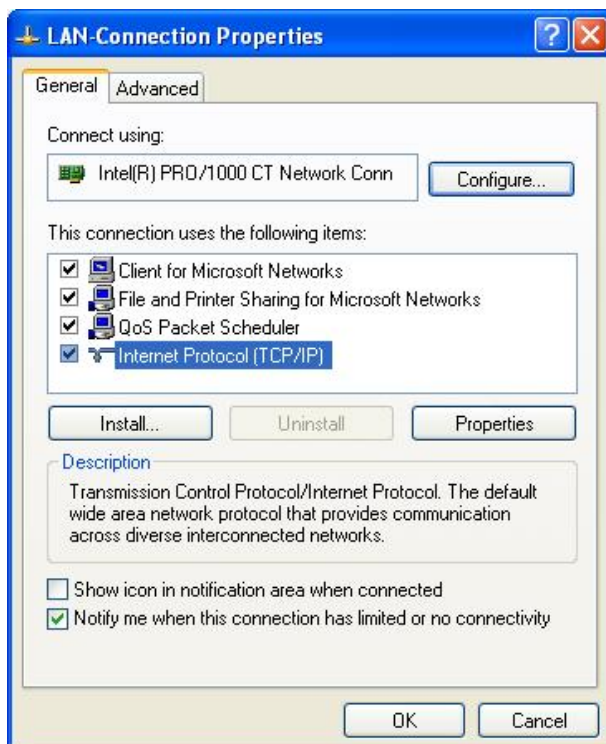
2

3

4 - Click on 'Properties'

5

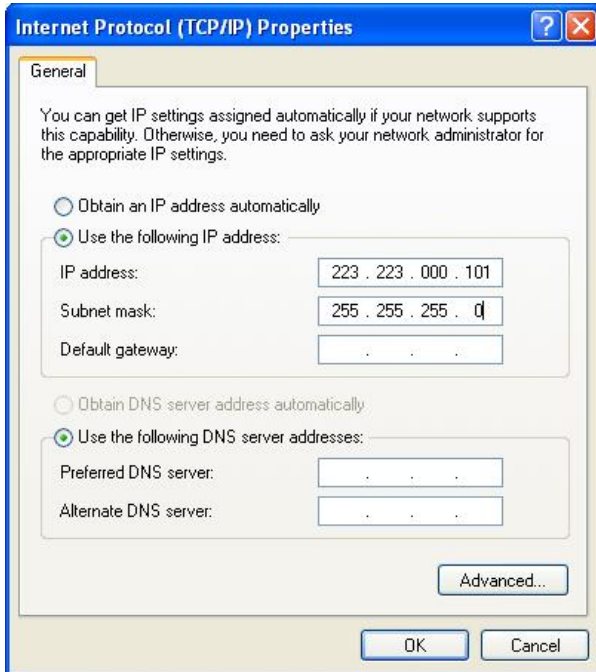
6 The following dialogue will appear :



7

- Select the item 'Internet Protocol (TCP/IP)'
- Click on Button 'Properties'

The following dialogue will appear :



- Enter IP-address and subnet mask according to table above (this example shows settings for the first IMAC L OS).
- Click 'OK → OK → Close' to close the properties windows

Then Reboot the PC in order to let these changes take effect:

- Click on 'Start → Turn Off Computer... → Restart'.

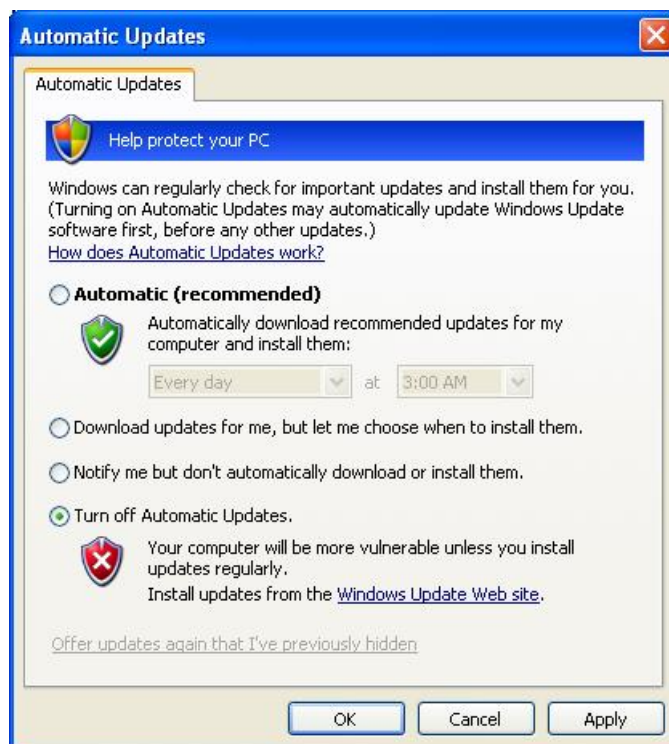


## 6.7 'Automatic Updates' Settings

For IMAC L Windows XP has to be installed with **Service Pack 3 only**. No additional Hotfixes, Security Patches or other Windows Updates are allowed. Therefore Microsoft Windows **'Automatic Update'** is not allowed for IMAC L and has to be turned off:

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Automatic Updates'

The following dialogue will appear :



- Select 'Turn off Automatic Updates'
- Click on button 'Apply' to accept your changed settings.
- Click on 'OK' to close 'Automatic Updates' dialogue
- Click on 'File → Close ' to close 'Control Panel'

## 6.8 'Security Alert' Settings

The settings for Windows alarms regarding security settings have to be modified in order to avoid undesired alarms during the IMAC L operation:

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Security Center'

The following dialogue will appear :



- Click on 'Change the way Security Center alerts me' (left, bottom).

The following dialogue will appear :



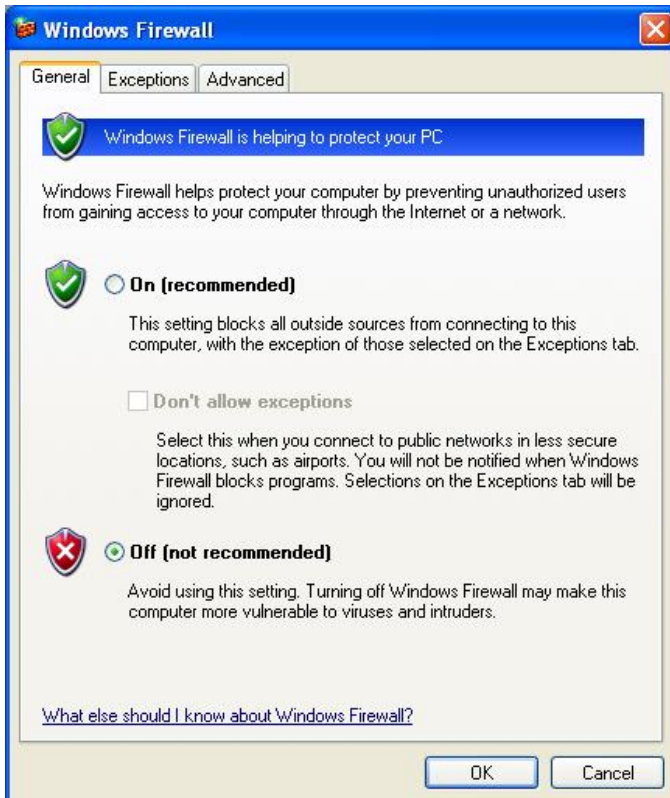
- Deselect (uncheck) all three items in this dialogue
- Click on 'OK'
- Close the 'Security Center' Window

## 6.9 'Firewall' Settings

The settings for the Windows Firewall have to be modified in order to avoid undesired malfunctions of the IMAC L operation:

- Click on 'Start → Settings → Windows Firewall'.

The following dialogue will appear :



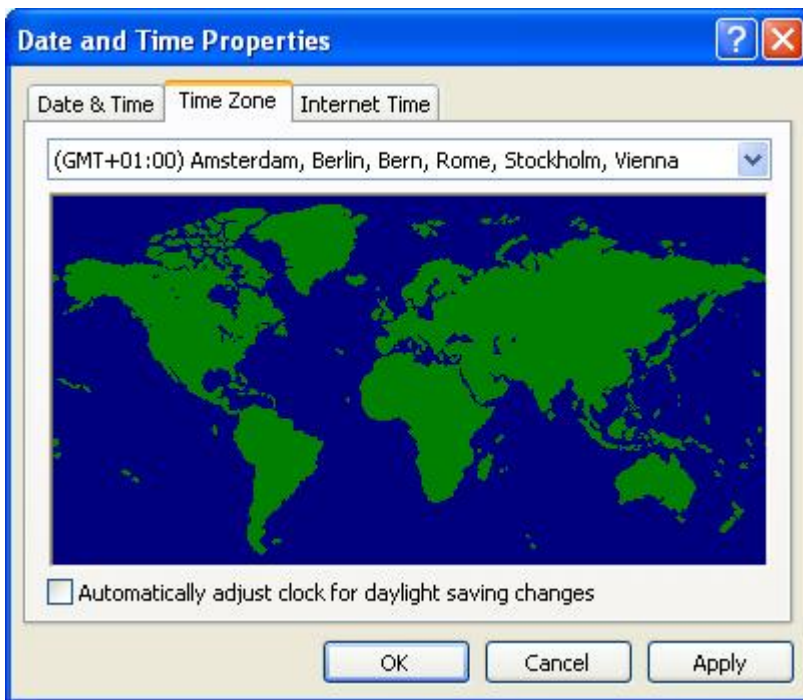
- Select 'Off (not recommended)'
- Click on 'OK' to close 'Windows Firewall' dialogue
- Click on 'File → Close ' to close 'Control Panel'

## 6.10 'Daylight Saving' Settings

With IMAC L the setting of local time is up to an operator with sufficient user rights – or to a ships master clock (if there is one and it is connected to IMAC L). This requires, that the Windows feature for 'Automatic clock adjusting for daylight saving' has to be turned off:

- Click on 'Start → Settings → Date and Time'
- Click on Tab 'Time Zone'

The following dialogue will appear :



- Deselect (uncheck) 'Automatically adjust clock ...'
- Click on button 'Apply' to accept your changed settings.
- Click on 'OK' to close 'Automatic Updates' dialogue
- Click on 'File → Close' to close 'Control Panel'

## 6.11 'Desktop Cleanup' Settings

Windows XP has a function to automatically suggest a 'cleanup' of the desktop for icons on the desktop that have not been used for more than 60 days. If an operator should agree to such an operation, all these icons will be transferred to a folder and no longer be accessible directly from the desktop.

For an IMAC L OS it is very likely, that such a function would remove all icons from the desktop. Therefore this function has to be switched off.

To switch Desktop Cleanup off, please proceed as follows:

- Click on 'Start → Settings → Control Panel'.
- Double-Click on 'Display'
- Click on tab 'Desktop'
- Click on button 'Customize Desktop...'

The following dialogue will appear :



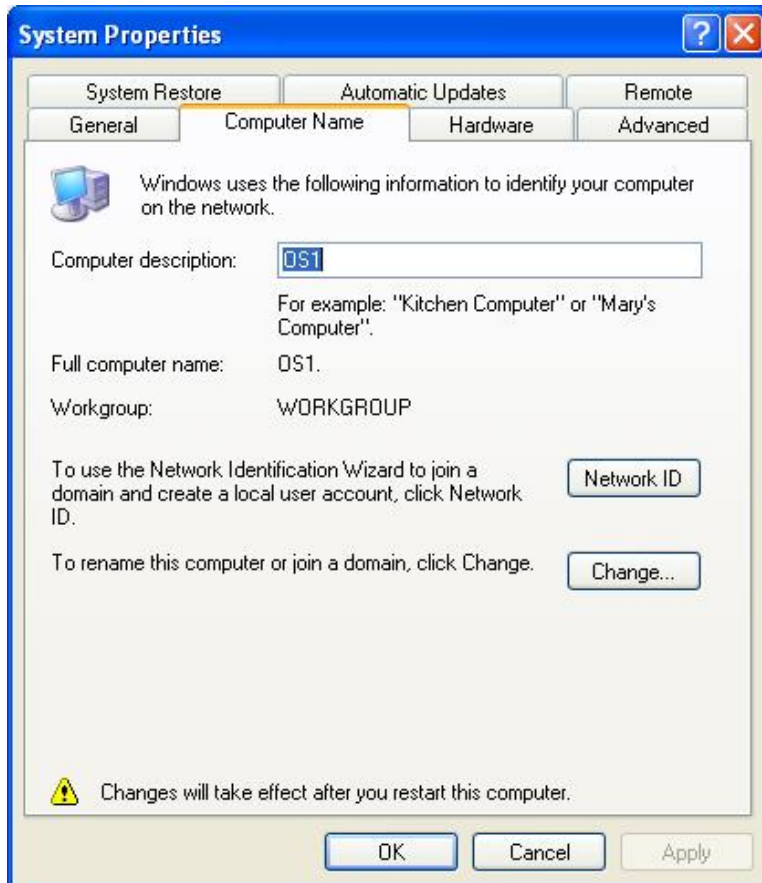
- Deselect (uncheck) 'Run Desktop Cleanup Wizard every 60 days'
- Click on 'OK' to close 'Automatic Updates' dialogue
- Click on 'Apply' in Window 'Display Properties'
- Click on 'OK' to close 'Display Properties'
- Click on 'File → Close' to close 'Control Panel'

## 6.12 'Computer Name' and 'Workgroup Name' Settings

For use with IMAC L, the computer names and the network Workgroup have to be set correctly:

- Click on 'Start → Settings → System'
- Click on Tab 'Computer Name'

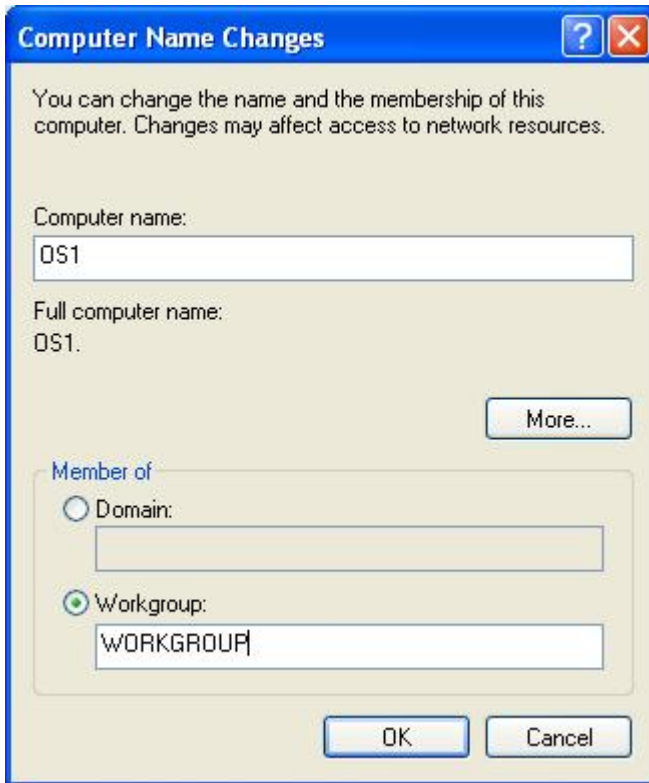
The following dialogue will appear :



- For 'Computer Description' enter 'OSx' (x = OS number) or 'ENGINEERING'
- Click on button 'Change'

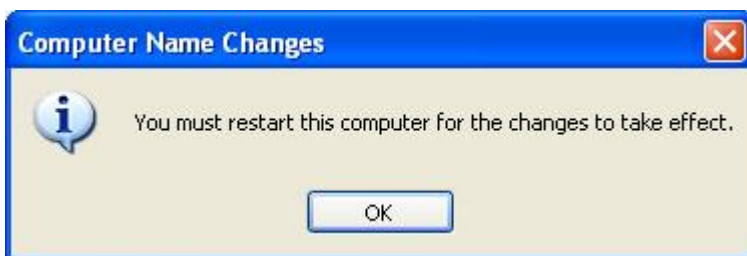


The following dialogue will appear :



- For 'Computer Name' enter 'OSx' (x = OS number) or 'ENGINEERING'
- Select (Check) 'Member of ... Workgroup'
- Enter the Workgroup name 'WORKGROUP' in the bottom entry field.
- Click on 'OK' to close 'Computer Name Changes'

The following dialogue will appear :



- Click on 'OK' in this dialogue
- Click on 'OK' to close 'System Properties' dialogue
- Click on 'File → Close' to close 'Control Panel'

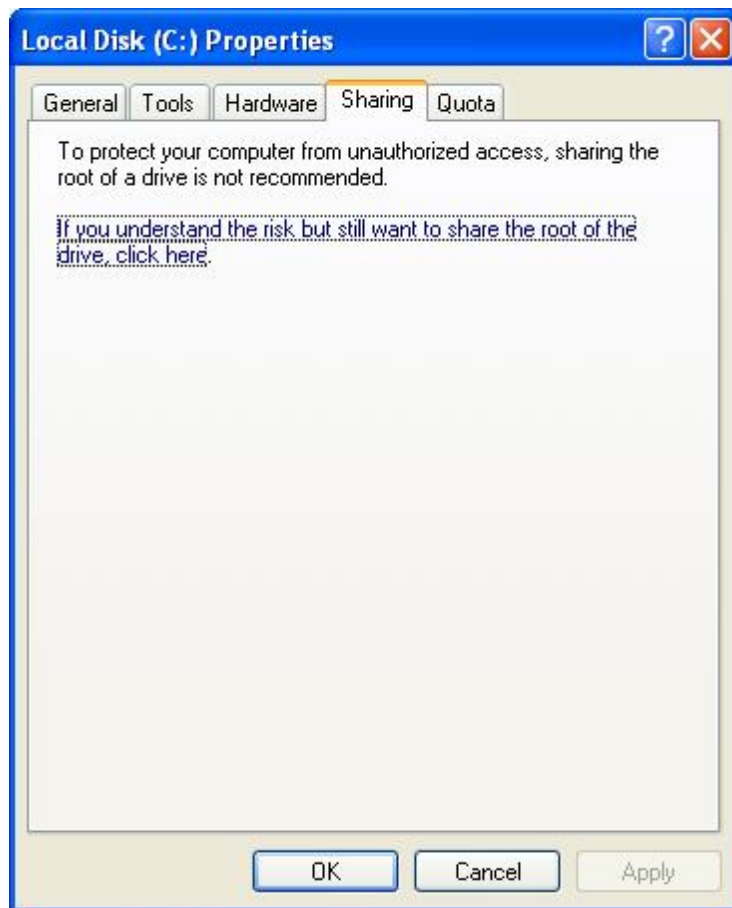
## 6.13 'Shared Access' Settings

For IMAC L it is required to have a network sharing access to the 'C' partitions of all OSs. This sharing access is used to distribute the IMAC L runtime files (\*.DIS / \*.DO) from the IMAC L Engineering PC to all OSs.

It is required to enable this sharing according to the following procedure:

- Click on 'Start → Programs → Accessories → Windows Explorer'
- Right-Click on: Drive 'C:\'
- Select 'Properties' from the context menu that popped up
- Click on Tab 'Sharing'

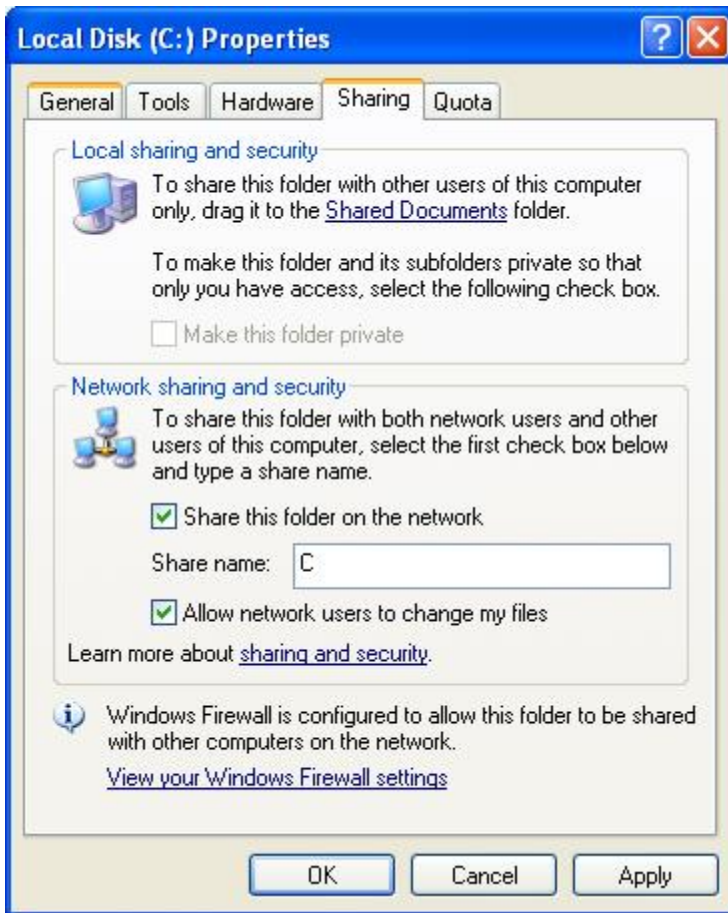
The following dialogue will appear :



- Click on 'If you understand the risk ..., click here.'
- (the dialogue will change it's appearance)



- 1 - Enable sharing for 'C' by modifying the settings to be like this:



- 2
- 3
- 4 - Click on 'Apply'
- 5

6 The new settings are applied to drive 'C:\' now. This may take a few moments. Then the  
7 dialogue closes automatically and sharing for drive 'C:\' is enabled now.

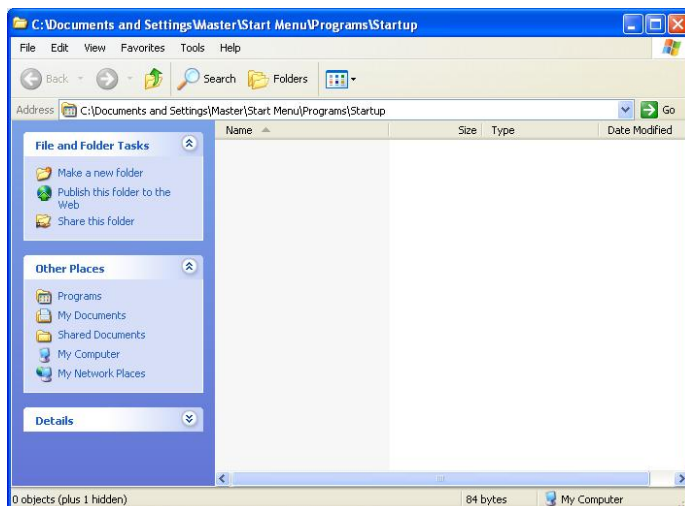
## 6.14 'Automatic Start' Settings

Programs can be setup to be automatically started after Windows XP has booted. This setting is typically used to cause IMAC L to be started automatically during the boot of a PC. This is a necessary setting for an IMAC L OS. For IMAC L this setting can only be done, after IMAC L has been installed. Nevertheless the basic setting procedure is described here, as it is a setting of the Windows XP operating system.

To enter an item to the Windows XP startup procedure, please proceed as follows:

- Click on 'Start → Programs'
- Point your mouse at 'Startup'
- Right-Click on 'Startup'. A context menu will open.
- Click on 'Open' in this context menu.

The Windows 'Startup Folder' will open :

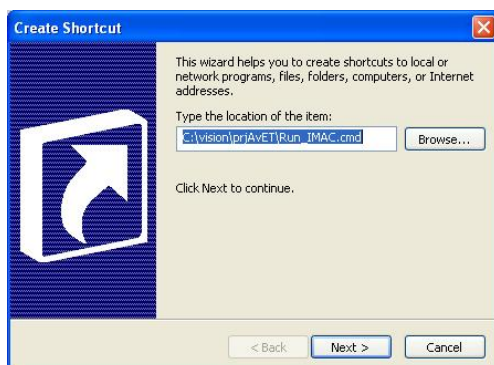


Please copy do only shortcuts to programs / batches into this folder, not the programs themselves.

To create a new link within the Startup folder:

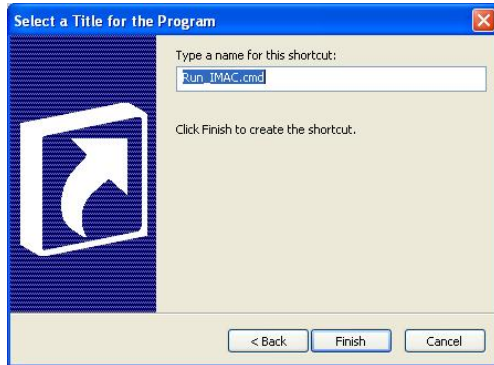
- Right-Click to the empty location in this folder's client area (on hand right side) (a context menu will open)
- Click on 'New' → 'Shortcut' in this context menu.

The following dialogue will appear :



- Enter the **[Drive]:\[Path]\[Filename]** of the program to be started  
(or use 'Browse...' function to locate it)
- Click on 'Next'

The following dialogue will appear :



- Click on 'Finish'
- Click on 'File → Close' to close the 'Startup Folder'

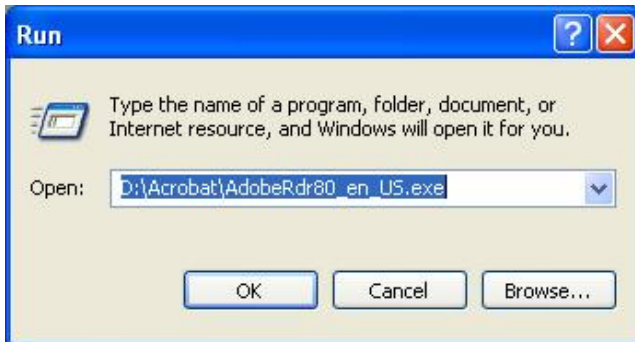
With the next PC reboot, the program(s) placed here will be automatically started.

## 7 Installation of Applications

### 7.1 Adobe Acrobat Reader

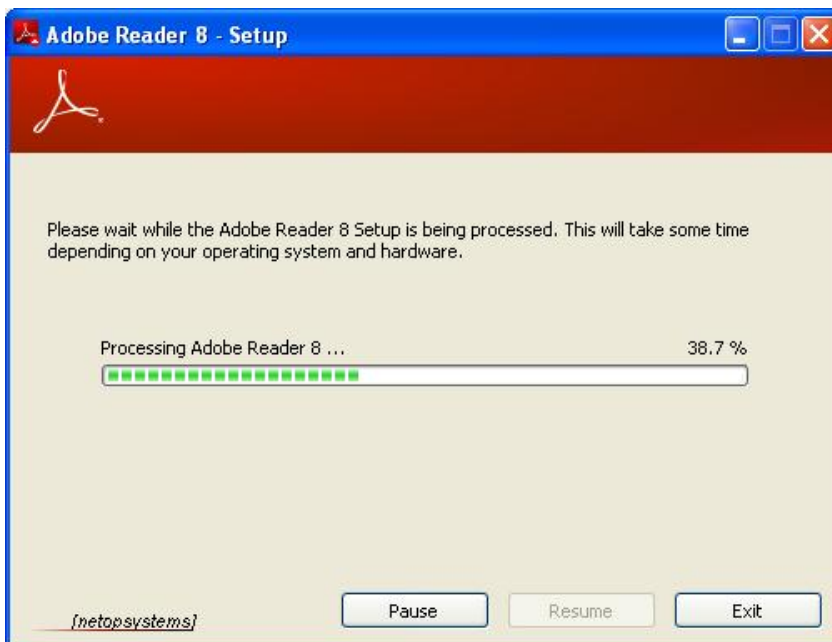
- Insert the 'IMAC L Engineering System Install CD' into the CD-ROM drive.
- Click on 'Start → Run'
- Enter 'D:\Acrobat\AdobeRdr80\_en\_US.exe'  
(replace D with the drive letter of your CD-ROM drive).

The following dialogue will appear :



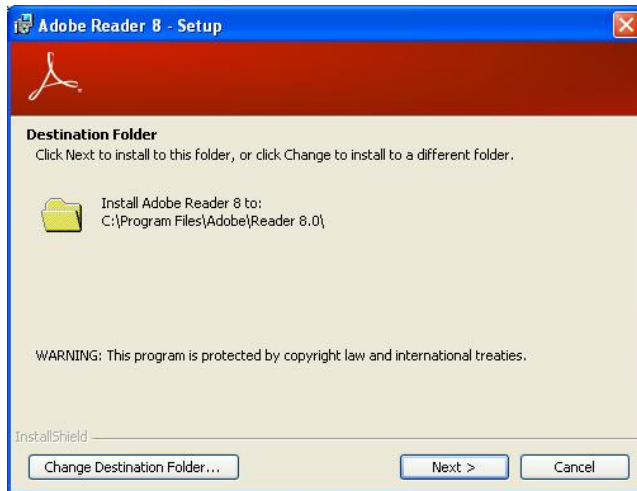
- Click on 'OK'

The Installation of Adobe Acrobat Reader 6.0 will start :



### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications



1

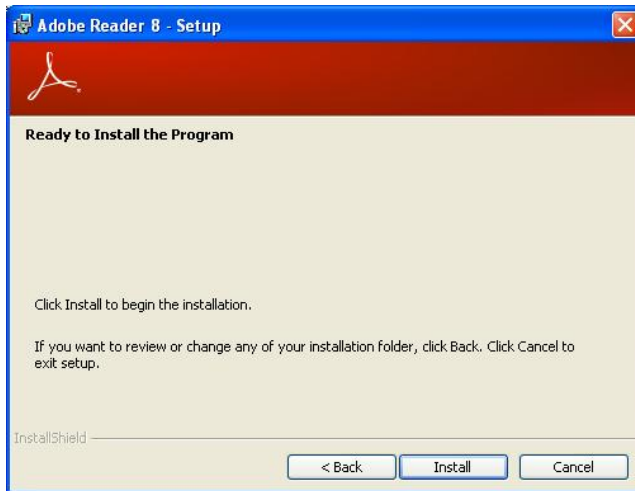
2

3

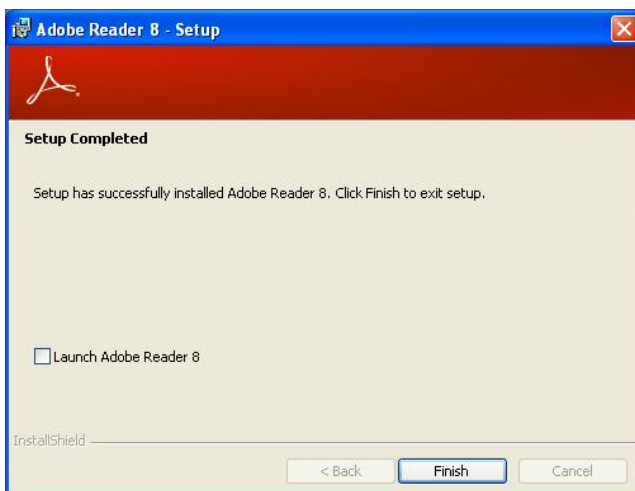
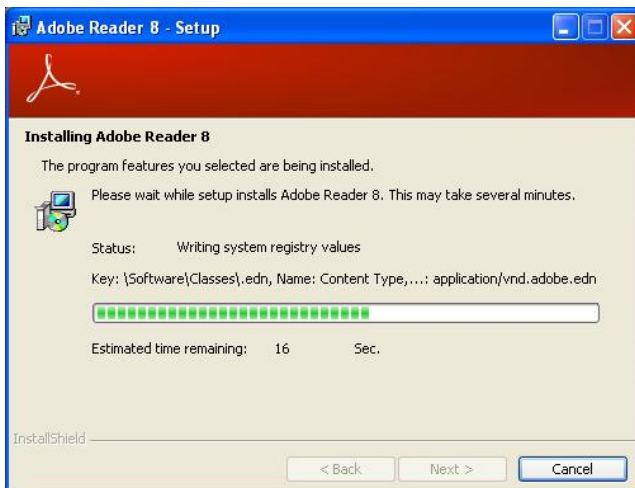
- Click on **'Next'** :

### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications



- Click on *'Install'* :



- Click on *'Finish'* :

## 7.2 File Packing Utility

IMAC L requires a file packing utility for engineering and installation, that is capable of creating and handling ZIP files including 'File Paths'. Install a file packing tool of your choice with it's standard options. Typical possible utilities are:

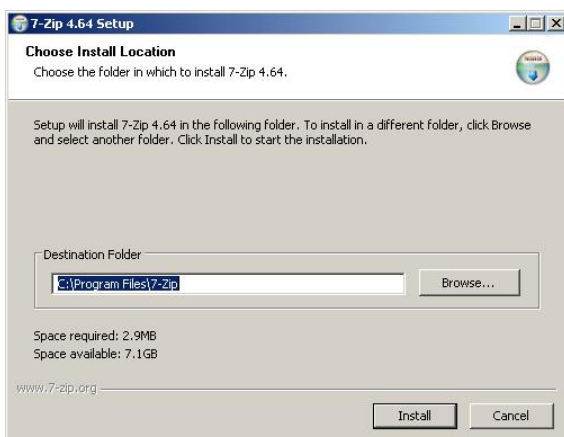
- 7Zip                      Open source freeware, commercial use is allowed
- WinZip                  Commercial software (license required)

The 'IMAC L Engineering System Install CD' contains 7-Zip version 4.65. More recent versions (if available) can be downloaded from <http://www.7-zip.org>.

This Manual describes the installation of 7-Zip:

- Insert the 'IMAC L Engineering System Install CD' into the CD-ROM drive.
- Click on                'Start → Run'
- Enter                    'D:\7-Zip\7-Zip.exe'  
(replace D with the drive letter of your CD-ROM drive).

The following dialogue will appear :



- Click on                'Install'



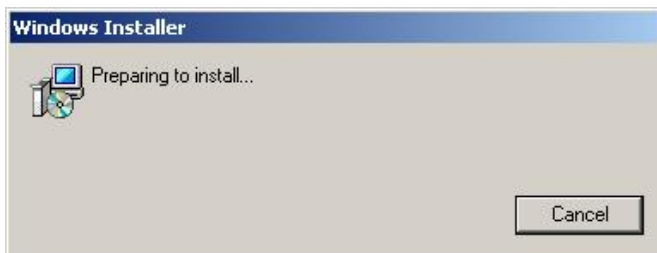
- Click on                'Finish' :

## 7.3 Microsoft Excel

This software is required for Engineering PCs only!

IMAC\_L will require Microsoft Excel (Version Excel 2000 or Excel 2003, NOT 2007!) for editing the IMAC L measuring points list on engineering PC's. This Installation Example will show the installation of a complete Office 2000 (small business edition) package.

- Insert the 'Microsoft Office 2000' installation CD into the CD-ROM drive. The installation will start automatically:



- Enter the Microsoft Office 'CD-Key' (to be found on a sticker, which is in most cases affixed to the CD-ROMs protective envelope)

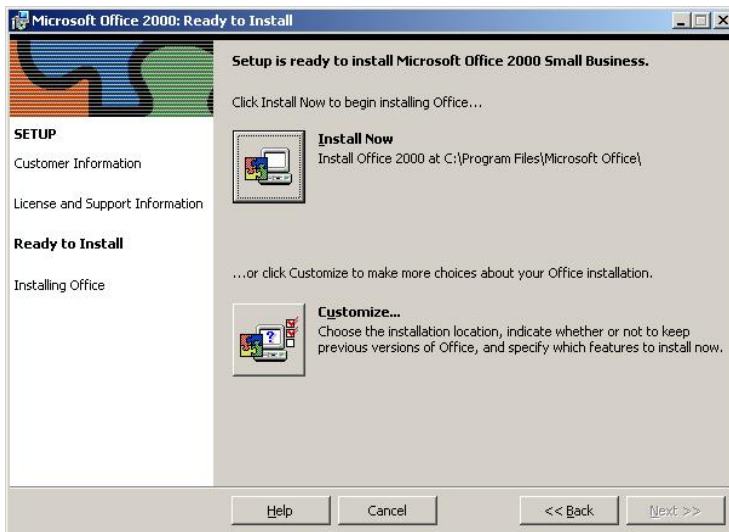




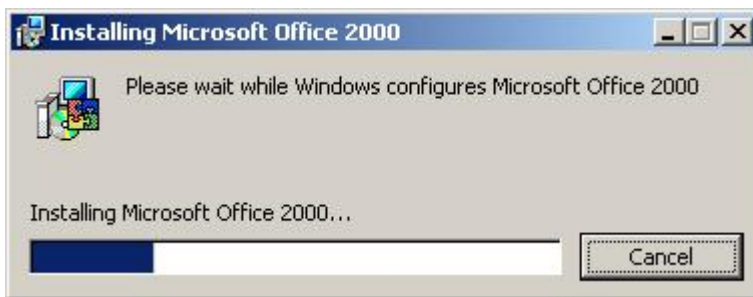
### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications

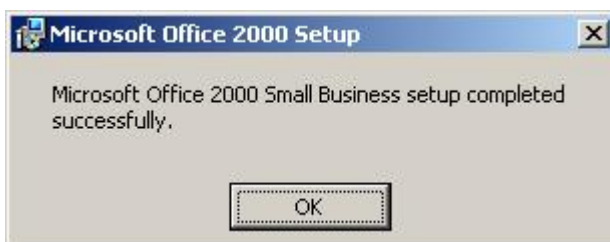
- 1 - Click on Button 'Install Now'



- 2
- 3 - The installation progress will be displayed.



- 4
- 5 - Click on Button 'OK' to finish the installation



- 6
- 7

## 7.4 WinLock Software

This software is required for Operator Stations only!

Its purpose is to prevent, that an operator can use an Operator Station as a standard PC. This is highly undesired due to several important reasons.

Therefore all standard key combinations and functions, that can be used to perform a task-switch or the starting of any additional applications have to be prevented. WinLock performs this set of interlocks and gives password protected access to Windows. Shutting down a PC will still be possible.

This level of protection is usually only required after commissioning and delivery of a project. Before this time (during engineering & commissioning) the Winlock protection may sometimes be annoying, because it may be frequently necessary to access the Windows desktop and Windows functions.

### **Important Hint:**

The IMAC L standard templates will contain a key combination (CTRL-X, ALT-F4) to easily terminate the HMI application during engineering and testing. In order to completely secure a OS against inadvertent or intentional operator tampering, these keys have to be removed as well:

PMU.EXE → AbvBrowser → File → 'Global Events' → 'K C X UsrExit()' → Delete).

PMU.EXE → AbvBrowser → File → 'Global Events' → 'K A F4 UsrExit()' → Delete).

### **Important Hints regarding the WinLock password:**

- Remember (or better write down) the password used for WinLock. Without this password no 'usual ways' to exit the HMI application will exist. Put this password to your internal project documentation, because it might become important for later service and repair. WinLock is quite resistive to attempts of intrusion. Be careful !
- Don't use trivial passwords (like 'IMAC L'). Stick to standard procedures for choosing secure passwords (min. length of 8, mix of letters, digits and special characters).
- This password should be kept secret. If a customer insists on knowing this password, the possible consequences should be made clear (loss of warranty, risk of malfunctions). In any case this is a 'Chief Engineer Only' password ! The customer may not change this password (or Siemens Service will not have access to the OSs any more).

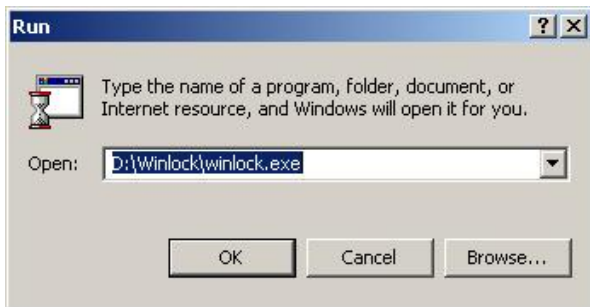
### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications

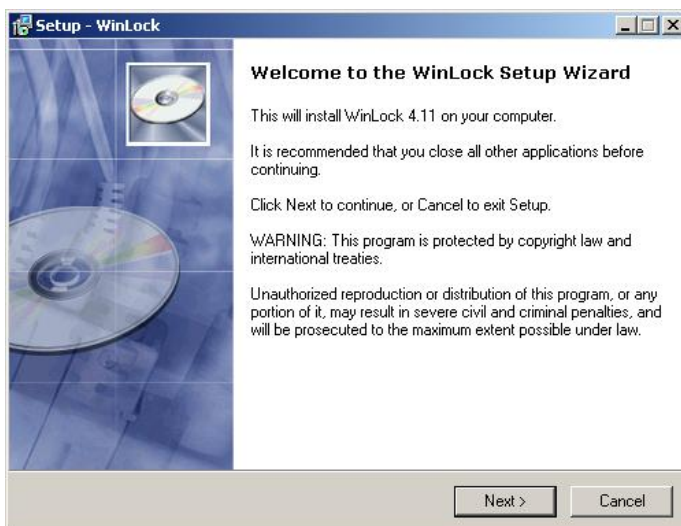
#### 7.4.1 WinLock Installation

To install WinLock (unregistered Demo version from 'IMAC L Engineering System Install CD':

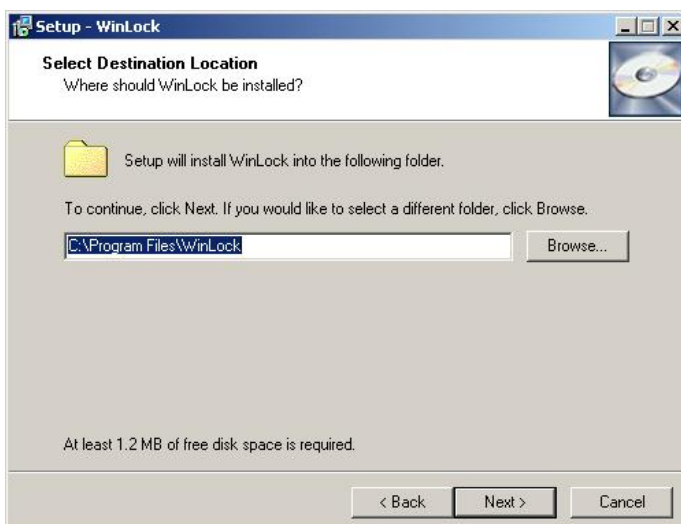
- Insert the 'IMAC L Engineering System Install CD' into the CD-ROM drive.
- Click on 'Start → Run'
- Enter 'D:\Winlock\Winlock.exe'  
(replace D with the drive letter of your CD-ROM drive).
- Click on 'OK'



Click 'Next' to continue :



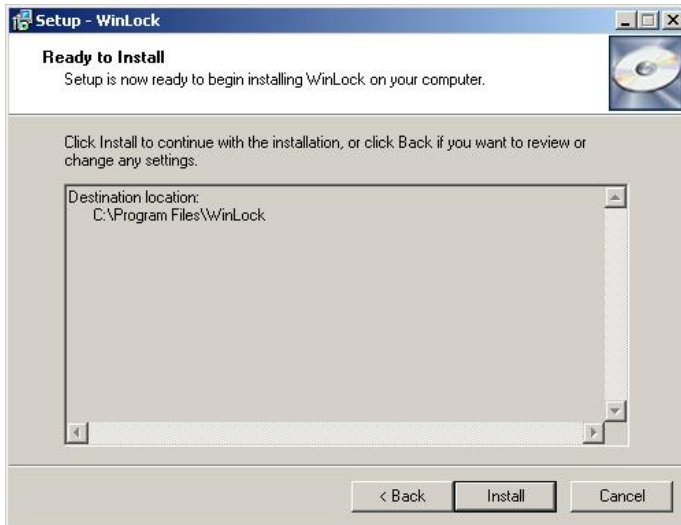
Click 'Next' to continue :



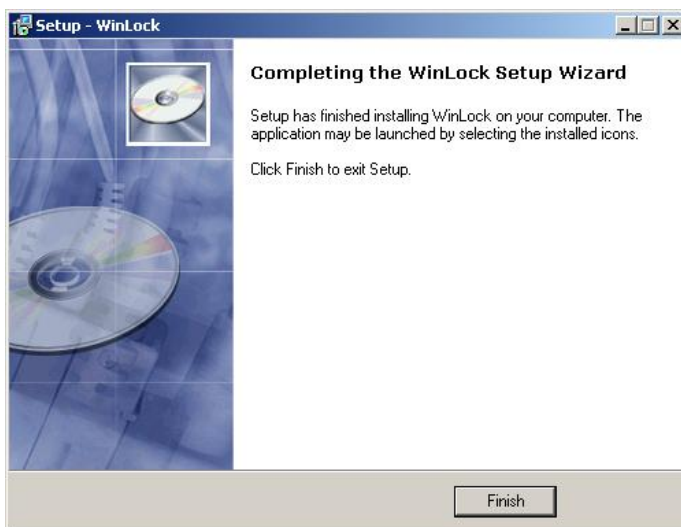
### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications

- 1 Click 'Install' to continue :




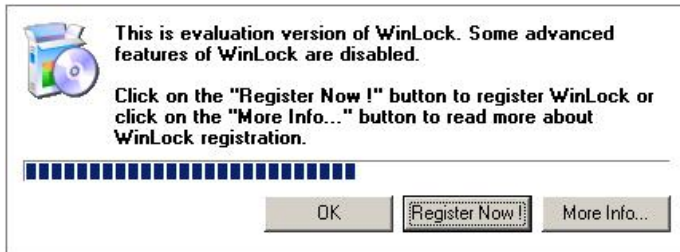
- 2
- 3 Click 'Finish' to finalize installation :



- 4
- 5

#### 7.4.2 Winlock Settings

To configure WinLock, double-Click on the WinLock Icon  in the right section of the Windows Task Bar. If you are using a unregistered Demo version, a splash screen will hint you to this fact :

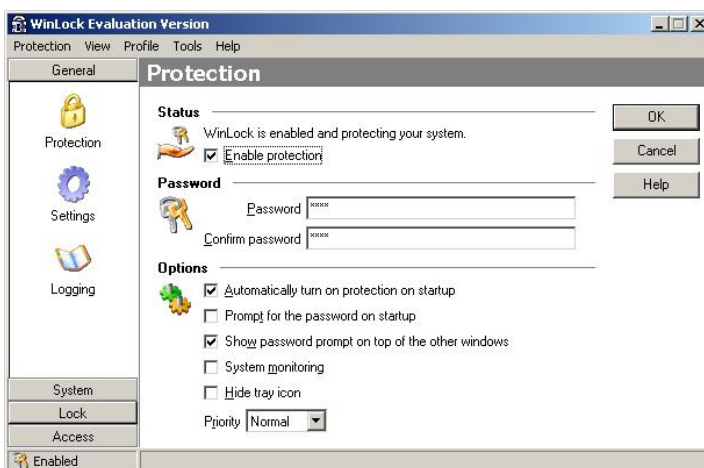


If Winlock has been installed and activated before on this PC, it will request the password, that has been set the last time (even if Winlock has been de-installed in the meantime):



WinLock has to be configured according to the following screens (navigate through the menus one by one by clicking on the tabs and icons on the left side of the window. Copy the settings as shown. If settings are modified, be sure to not lock out yourself.

Tab 'General' → Icon 'Protection' :

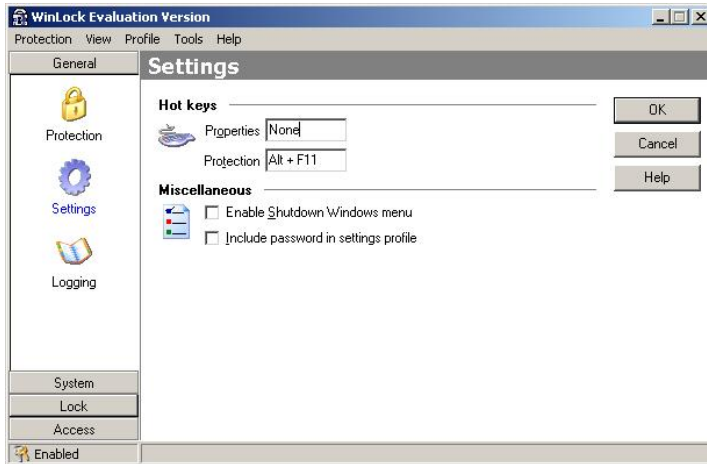


### IMAC L Engineering PC Installation Procedure

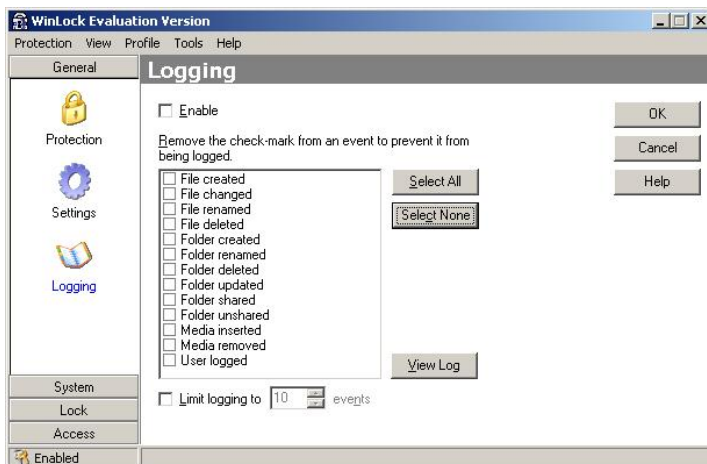
### IMAC L Automation Installation of Applications

Tab 'General' → Icon 'Settings' :

- For field 'Protection': Click into this field, hold down the 'ALT' key and press 'F11'
- Do not modify this setting 'ALT+F11', because most other keys are used by IMAC L !



Tab 'General' → Icon 'Logging' :



Tab 'System' → Icon 'Security' :

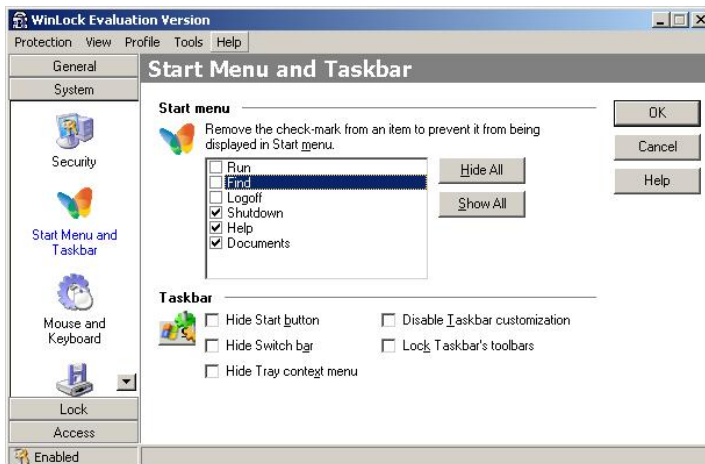




### IMAC L Engineering PC Installation Procedure

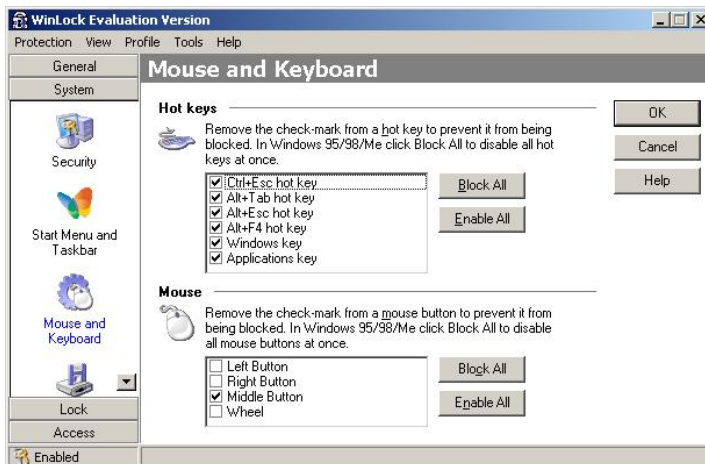
### IMAC L Automation Installation of Applications

- 1 Tab 'System' → Icon 'Start Menu and Taskbar' :



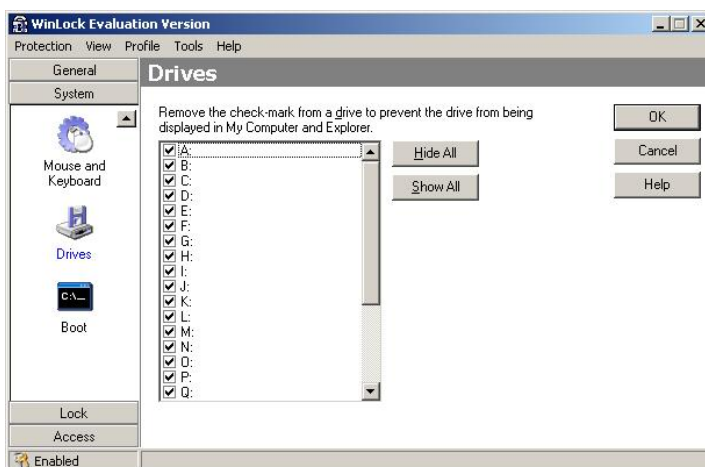
2

- 3 Tab 'System' → Icon 'Mouse and Keyboard' :



4

- 5 Tab 'System' → Icon 'Drives' :



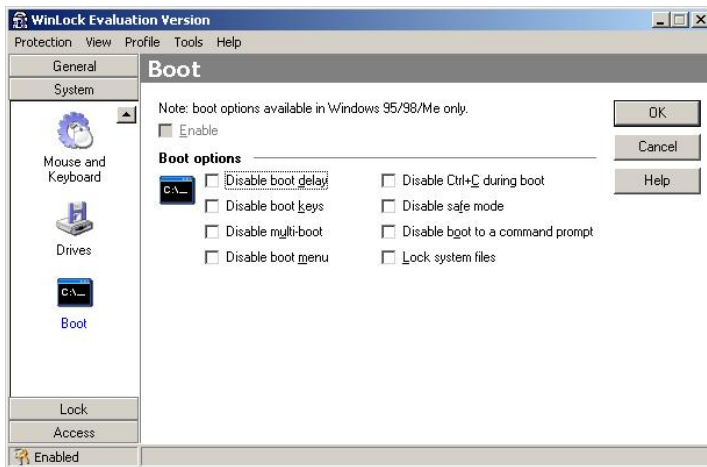
6



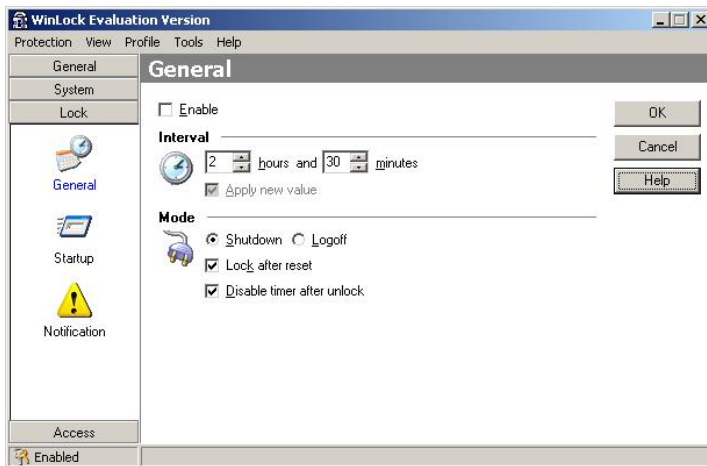
### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications

- 1 Tab 'System' → Icon 'Boot' :



- 2
- 3 Tab 'Lock' → Icon 'General' :



- 4
- 5 - Click on 'OK' to save your settings

- 6 Enabling / disabling Winlock will from now on be possible by pressing 'ALT+F11' (toggle).
- 7 Winlock will ask for the password you have set before performing this operation. The current
- 8 Winlock status is displayed with the WinLock icon appearance in the Windows Task Bar.

9

## 7.5 Simatic Manager Software

This software is required for Engineering PCs only.

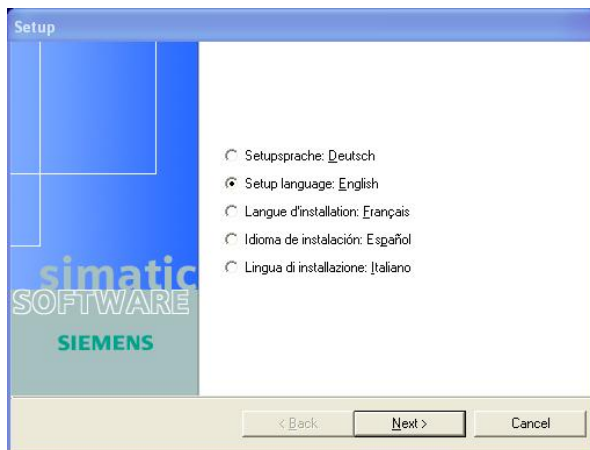
Simatic Manager software 'Step 7 V5.3' (SP 3) or higher is required on the IMAC L Engineering PCs. You will require the appropriate software package including at least one license (authorization disk / USB-stick). Your 'IMAC L Engineering System Install CD' does not include any Simatic software packages.

**Warning !** If more than one programmer will work on one specific project, it is common practice to transfer single modules (e.g. function blocks or data blocks, zipped to an archive) from one computer to another and thus from one Step7-project to another. If you are planning to do this, it is absolutely necessary, that all computers used to handle such a 'shared' project will use precisely the SAME VERSION AND SERVICE PACK of the Simatic Manager Software ! Ignoring this can lead to data inconsistency or even data loss !

This description will show, how to install and configure Step 7 V5.3 as the 'Simatic Step 7 Prof. 2006' edition (including SP 3). If your version does not include SP3, you will have to install this service pack separately. For new hardware you may need a Hardware Support Pack (HSP) for your Simatic Manager Software. These HSPs can be downloaded from the Simatic Support Web-Pages. Please observe, that the HSP has to match the version of your Simatic Manager package !

### 7.5.1 Installation of Simatic Manager

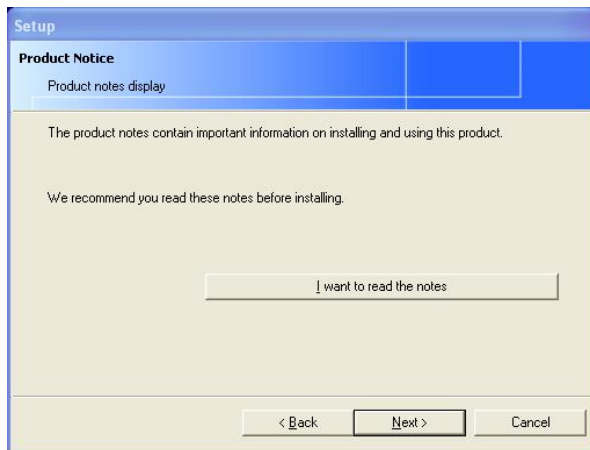
- Insert the 'Simatic Step 7 CD' into the CD-ROM drive. . The installation will start automatically.



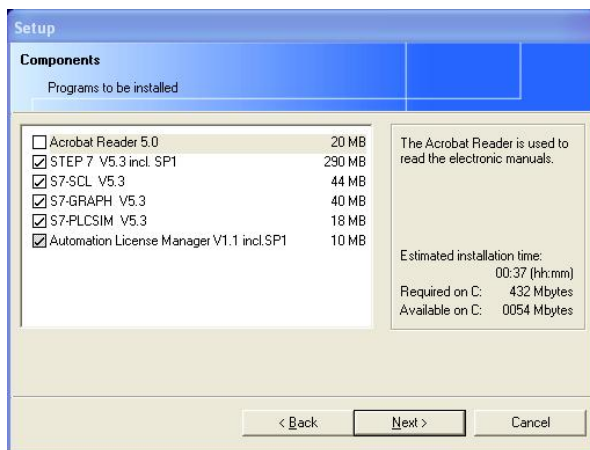
- Select your language (of the install program). Click 'NEXT' to continue : :

### IMAC L Engineering PC Installation Procedure

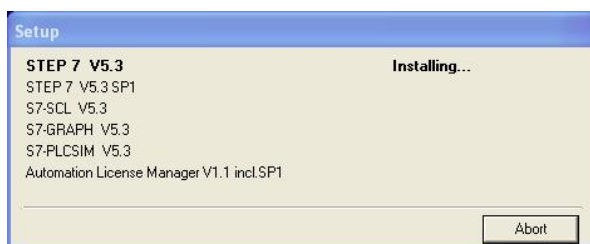
### IMAC L Automation Installation of Applications



- Click on Button 'Next' to continue

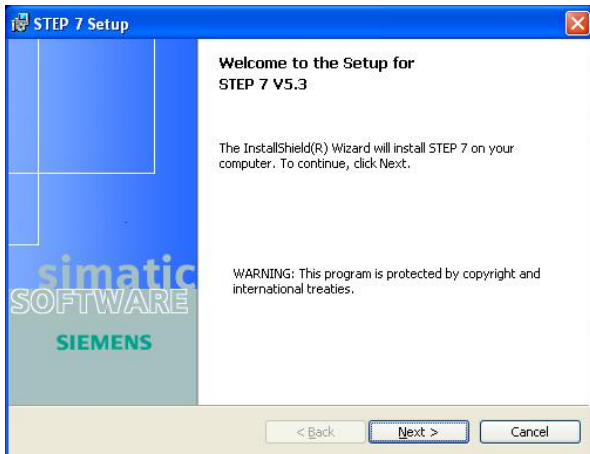


- Select components to install (at least 'Step7 V5.3' has to be selected)
- Click on Button 'Next' to continue

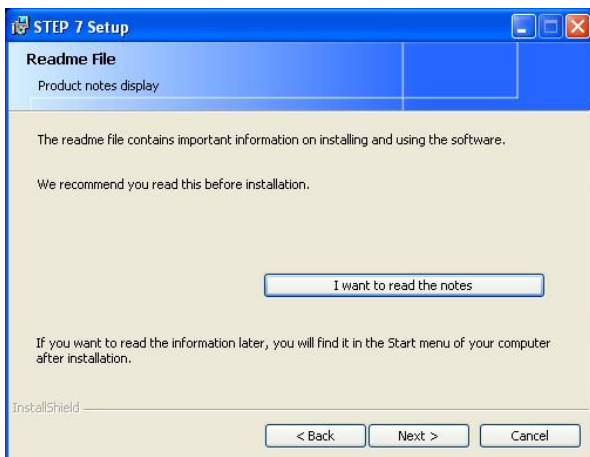


### IMAC L Engineering PC Installation Procedure

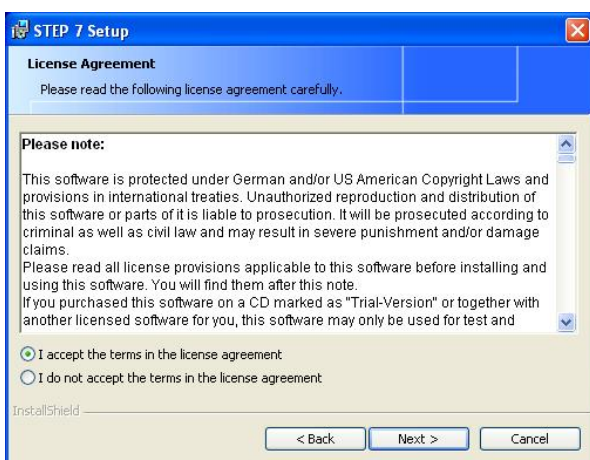
### IMAC L Automation Installation of Applications



- Click on Button 'Next' to continue



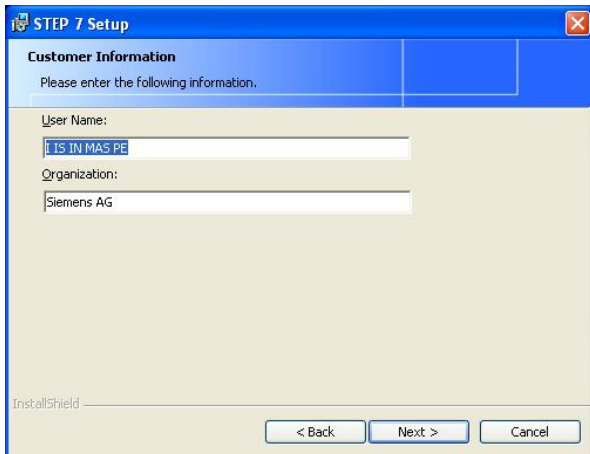
- Click on Button 'Next' to continue



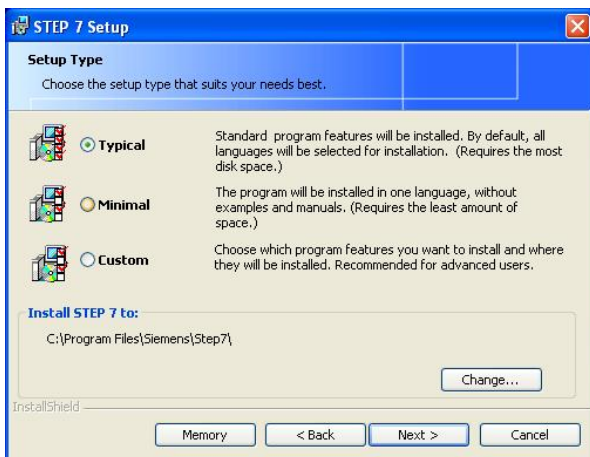
- Check the 'I accept ...' radio button
- Click on Button 'Next' to continue

### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications



- Enter your name and organisation
- Click on Button 'Next' to continue



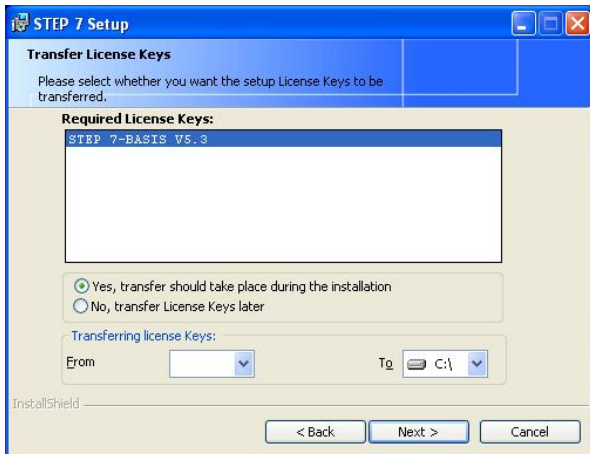
- Select 'Typical'
- Click on Button 'Next' to continue



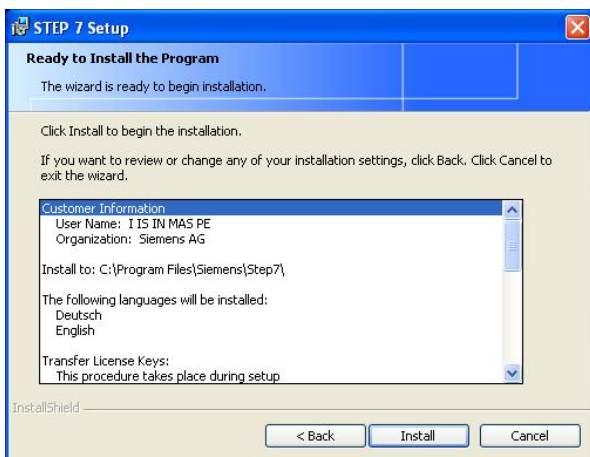
- Select the product languages (at least 'English' AND 'German' are required !)
- Click on Button 'Next' to continue

### IMAC L Engineering PC Installation Procedure

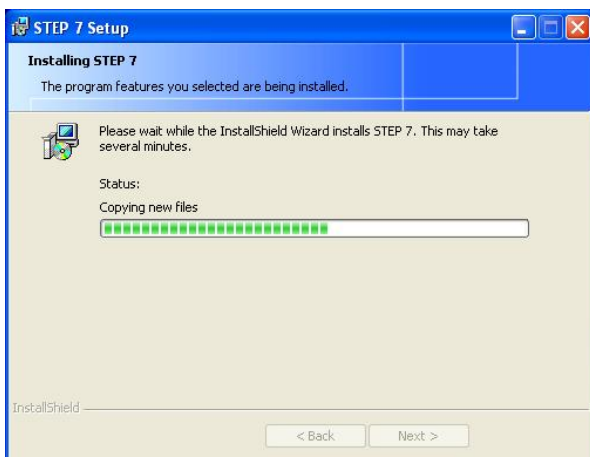
### IMAC L Automation Installation of Applications



- Select, if you want to transfer the required license key during the installation (an authorization disk with a valid license is required for this).
- Click on Button 'Next' to continue



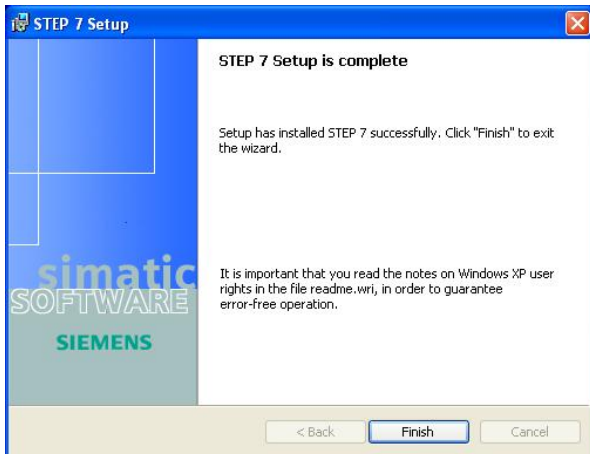
- Click on Button 'Install' to continue



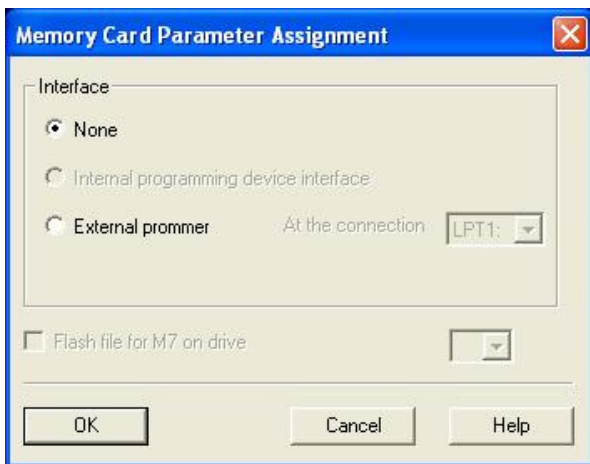
(the installation continues automatically. This part of the installation will take quite a time with various progress displays depending on the products you selected for installation).)

### IMAC L Engineering PC Installation Procedure

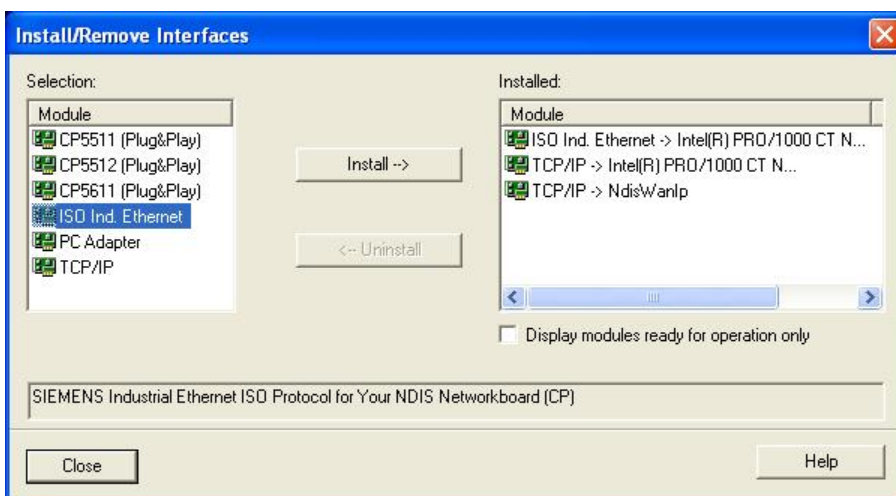
### IMAC L Automation Installation of Applications



- Click on Button 'Finish' to complete Step 7 setup



- Select a programming device (if you have one) or leave setting at 'none'
- Click on Button 'OK'

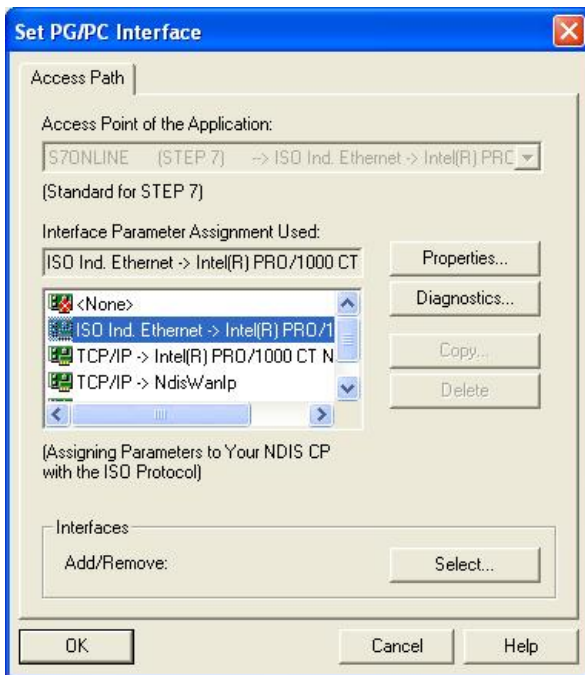


- Check, if the installation of interfaces is correct. Install missing devices, if applicable
- Click on Button 'Close'

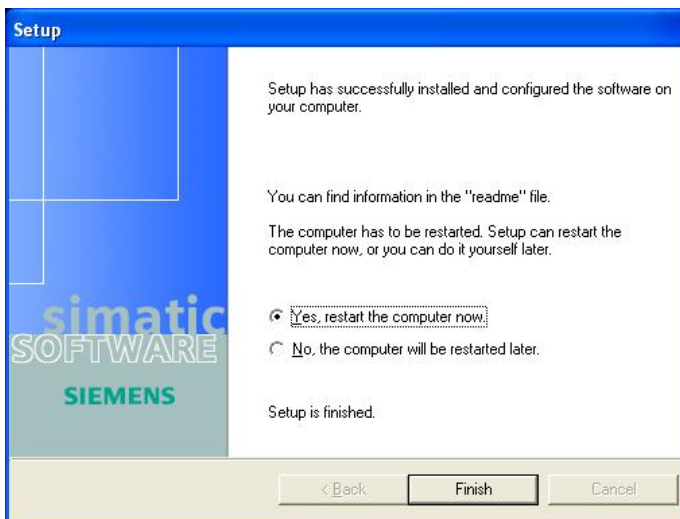


### IMAC L Engineering PC Installation Procedure

### IMAC L Automation Installation of Applications



- Select Interface to be used (Add, if it is missing)
- Check, if the installation of the selected PG/PC interface is correct (buttons properties / diagnostics). Then Click on Button 'OK'



- Click on Button 'Finish' to close the installation and reboot your computer

#### 7.5.2 Language Setting of 'Simatic Manager'

- Double-click on the 'Simatic Manager' icon on your desktop:



- The Simatic Manager window will open :



- Click on 'Options → Customize'
- Select the 'Language' tab
- Change the **'Mnemonics' language to 'German !** (Required for import of S7-Code)



#### **Hint :**

If you usually will use English mnemonics, it is possible to change this setting temporarily (the 'German' setting is required for compiling the IMAC L S7 Source files only).

## 8 IMAC L Software

IMAC L basically consists of AlphaVision software plus additional software parts and settings. A full installation of AlphaVision from AlphaVision install files is not recommended. The integration of IMAC L specific files, folders and settings is complex and prone to fail for non-experts. This type of installation is reserved for the IMAC L development team and not suitable for IMAC L users. Usually this is only required, if a new version of AlphaVision software is to be used for IMAC L.

Therefore the preferred method for Installing IMAC L is to simply unpack one of the Template project files delivered on the 'IMAC L Engineering System Install CD'. These Zip file contain a complete set of AlphaVision software with all required IMAC L add-ons and configurations and some example measuring points.

The following IMAC L Template files are available:

- ☐ IMAC\_L\_Eng\_PC.zip (All files for IMAC L Engineering and OS operation)
- ☐ IMAC\_L\_OS\_PC.zip (All files for IMAC L OS operation only)

To use AlphaVision, two small additional software packages have to be installed on each OS or Engineering PC:

- ☐ Microsoft 'Visual C++ 2008 Redistributable' (for AlphaVision V10.x and higher)
- ☐ WibuKey Software (to enable WibuKey USB License Keys)

The following three subsections describe the unpacking of the IMAC L Template project and the installation of these two additional software packages.

The last subsection describes the Installation of the WibuKey USB hardware license key.

**Attention :** if you have an existing version of the AlphaVision package on your PC, it is highly recommended to save any existing data in the '**C:\vision**' path before starting this installation. This installation procedure will generously replace / remove any existing files without further questioning ! It is generally required to remove older versions of AlphaVision completely (e.g. by renaming the directory C:\vision\ ) before installing a newer package !

## 8.1 Unpacking the 'IMAC L Template project'

The template files delivered for IMAC L will be packed in a zip-file, that is located in the sub-folder 'IMAC\_Templates' of the IMAC L Engineering System Install CD.

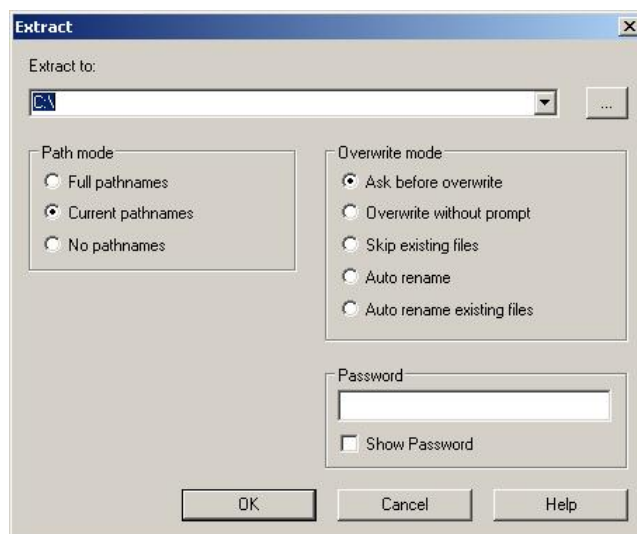
### Necessary Preconditions:

If you have already installed AlphaVision in path 'C:\vision', create a backup copy and rename or delete this directory. The directory 'C:\vision' may not exist, before you continue to install IMAC L. If you cannot rename or delete the 'C:\vision' directory because Windows refuses to allow, please reboot the PC to unload any IMAC L software (e.g. DLL) from the PC memory and then retry.

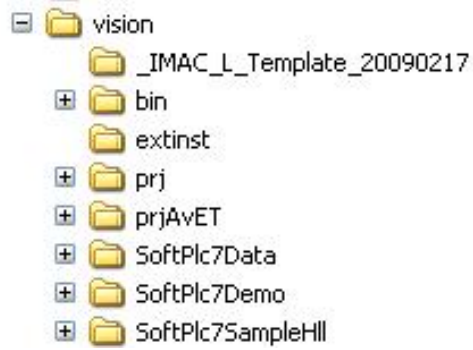
To install the template project :

- Insert the 'IMAC L Engineering System Install CD' into the CD-ROM drive
- Click on 'Start → Programs → Accessories → Windows Explorer'
- Navigate to your CD-Rom drive
- Right-Click on: D:\IMAC\_Templates\ IMAC\_L\_Eng\_PC.zip (Engineering PC)
- or: D:\IMAC\_Templates\ IMAC\_L\_OS\_PC.zip (OS PC)
- (replace 'D' with the drive letter of your CD-ROM drive).
- Click on '7-Zip → Extract Files' in the context menu that has appeared

The 7-Zip 'extract' window will open :



- Select the 'extract options' as shown above.
- Specify your drive 'C:\' as the target directory (Zip file contains folder information)
- Click on 'OK' to start unpacking
- If 7-Zip should ask, if some already existing files are to be replaced, terminate the extract procedure (close window). Go back to square 1 (see above, 'Preconditions').
- Close the 7-Zip window after completion of the extrat procedure.
- Check, if a directory 'C:\vision' has been created and contains subdirectories as depicted below (the name of the second directory '\_IMAC\_L\_Temlate\_...' may vary depending on the version being used; if you have unpacked the 'OS' version of the template files, some directories will be missing).



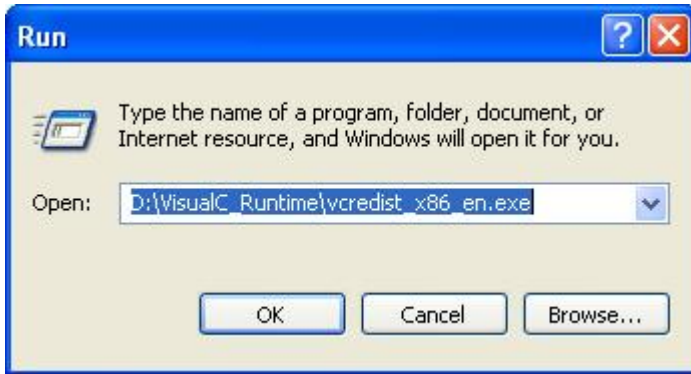
1

2

## 8.2 Installing Microsoft 'Visual C++ 2008 Redistributable' Software

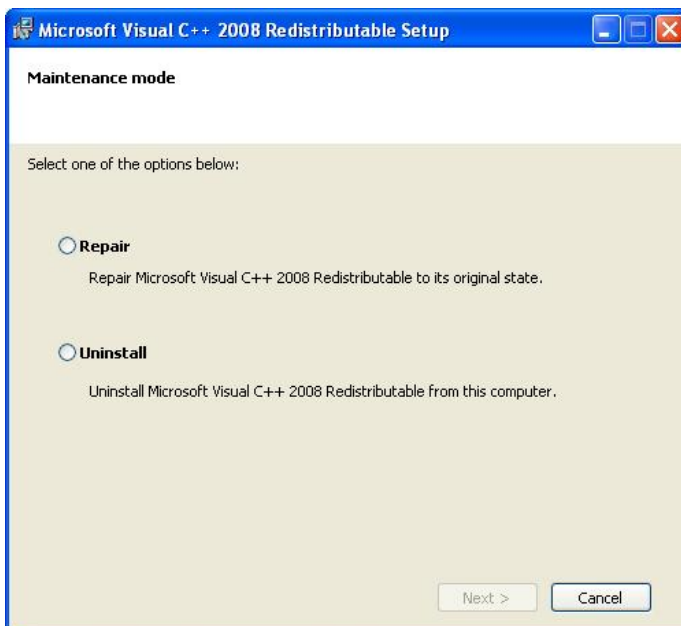
- Click on 'Start → Run'

The following dialogue will appear :

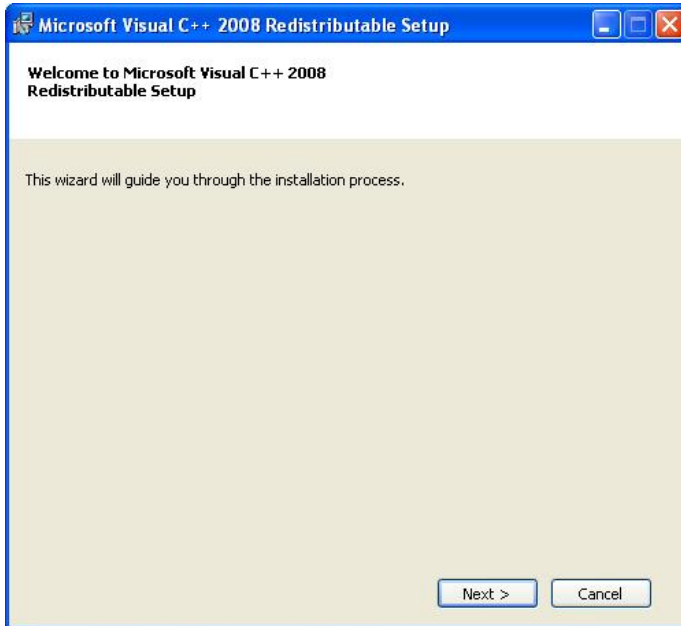


- Enter 'D:\VisualC\_Runtime\vc redistrib\_ x86\_en.exe' (replace 'D' with the drive letter of your CD-ROM drive)
- Click on 'OK'

If the following dialogue should appear, the required package is already installed (from a previous installation). In this case click on 'Cancel' and skip the installation of this software package.

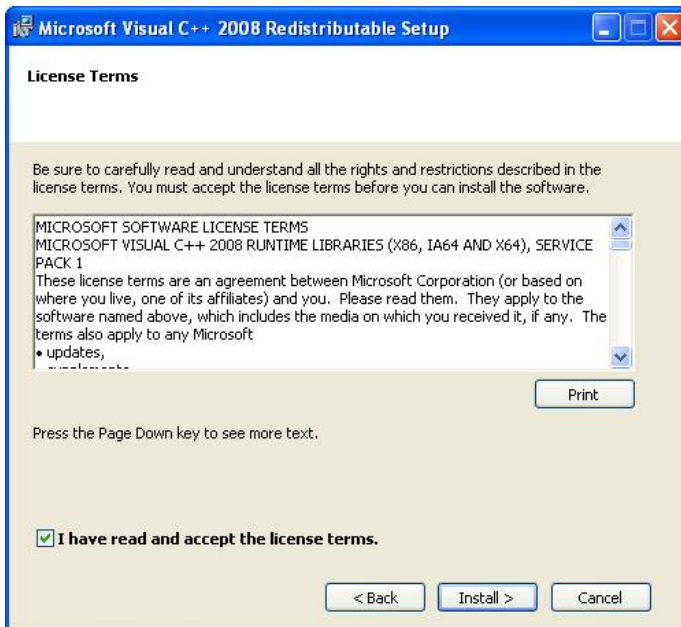


If the required software package is not yet installed, the following dialogue will appear:



- Click on 'Next'

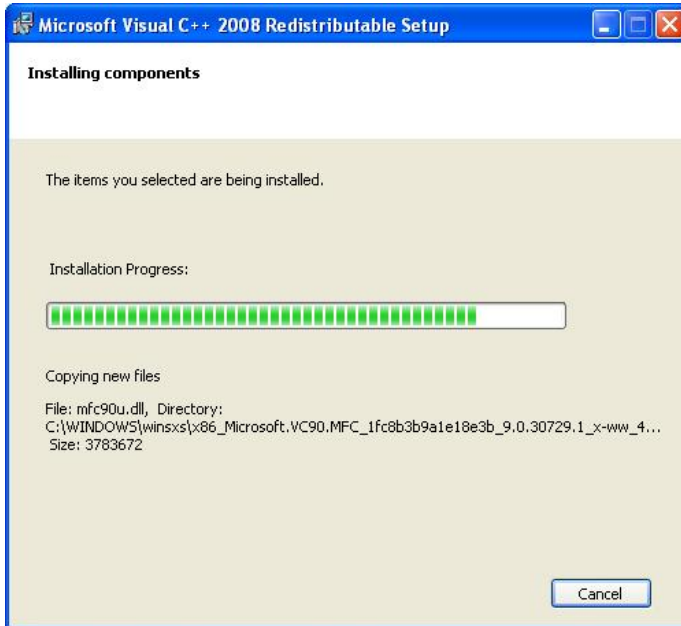
The following dialogue will appear :



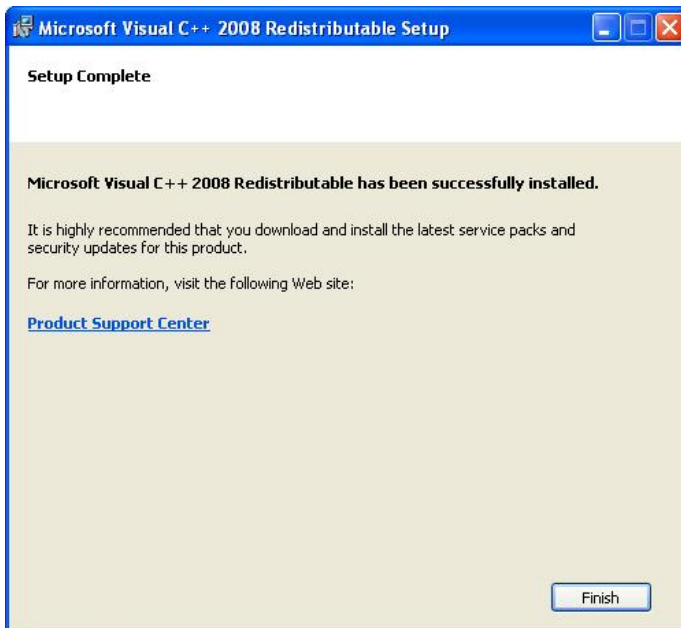
- Tick (check) the checkmark 'I have read and accepted ...'
- Click on 'Install'.



Installation progress is being displayed ...



Installation is completed.



- Click on 'Finish'

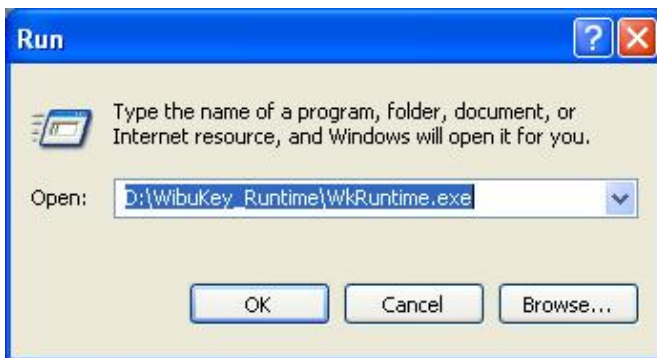
## 8.3 Installing 'WibuKey' Software

Although this software is only required to run WibuKey encrypted hardlock dongles, it should be installed even if in case that the use of software licenses is planned. This will ease later upgrades and service.

To install the driver software package:

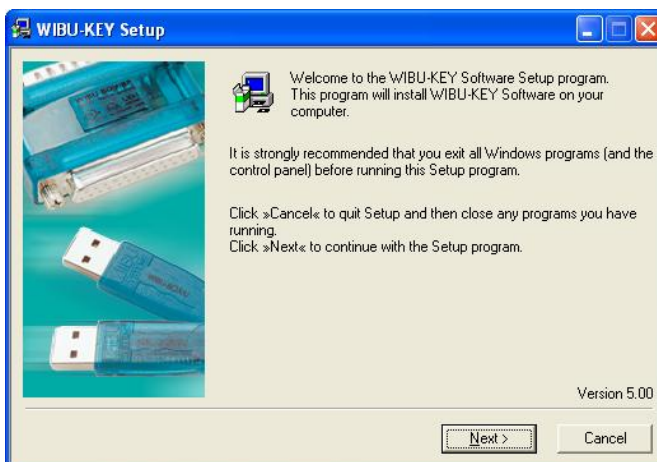
- Click on 'Start → Run'

The following dialogue will appear :



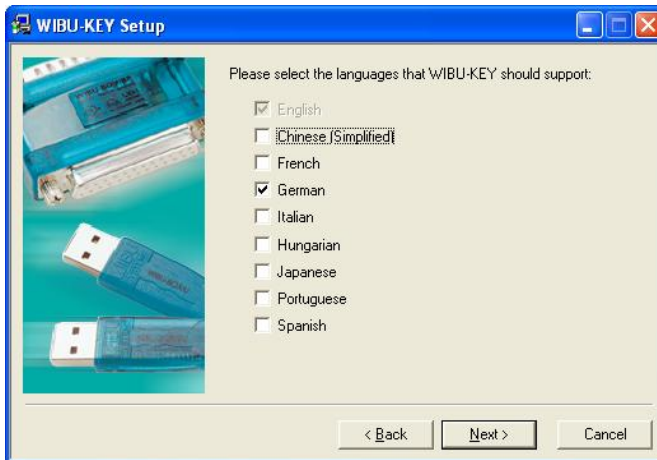
- Enter 'D:\WibuKey\WkRuntime.exe' (replace 'D' with the drive letter of your CD-ROM drive)
- Click on 'OK'

The following dialogue will appear :



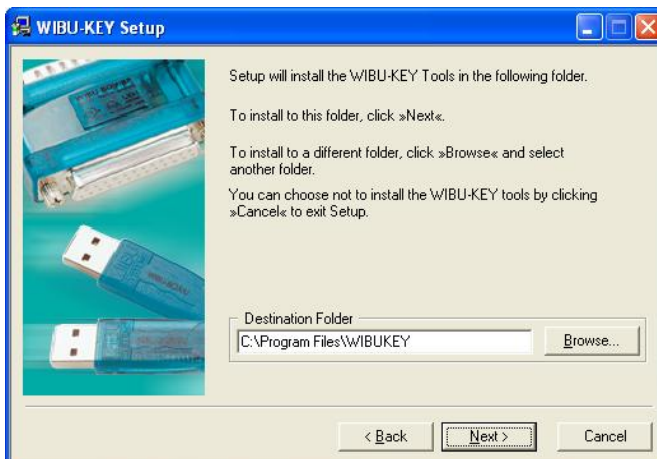
- Click on 'Next'

The following dialogue will appear :



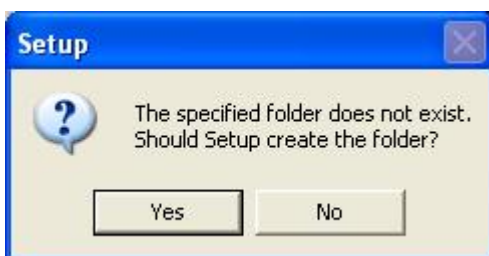
- Tick (check) the Language 'German'
- Click on 'Next'

The following dialogue will appear :



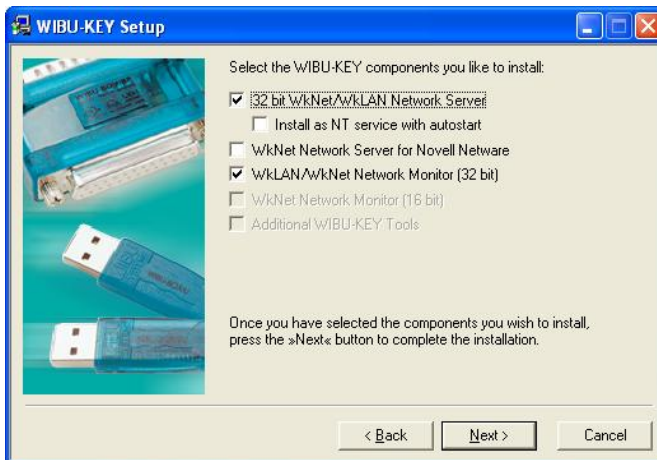
- Click on 'Next'

The following dialogue will appear :



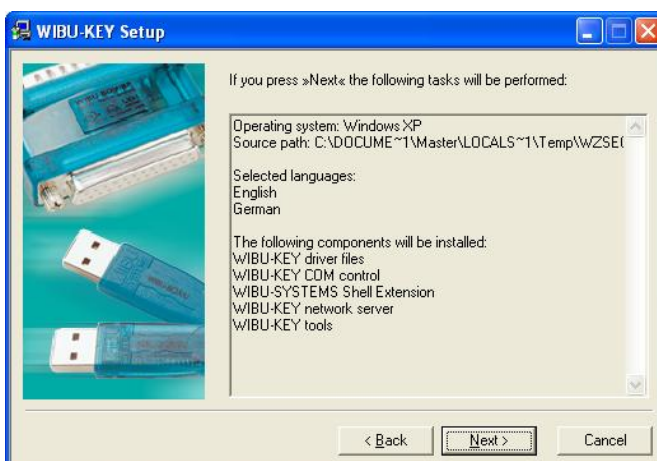
- Click on 'Yes'

1 The following dialogue will appear :



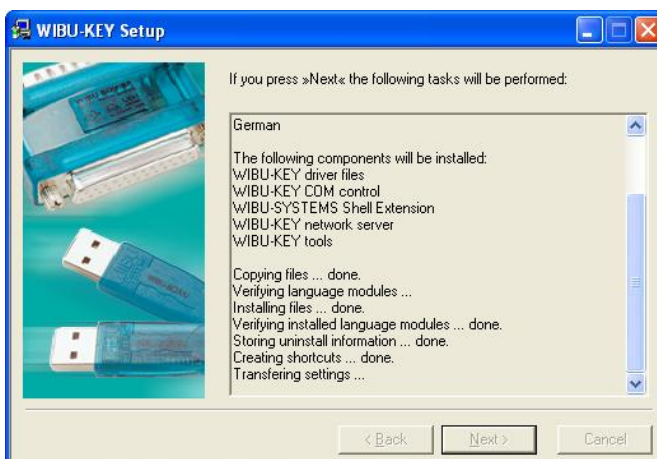
- 2
- 3
- 4 - Tick (check) choices as depicted above
- 5 - Click on 'Next'
- 6

7 The following dialogue will appear :



- 8
- 9
- 10 - Click on 'Next'
- 11

12 The following dialogue will appear :



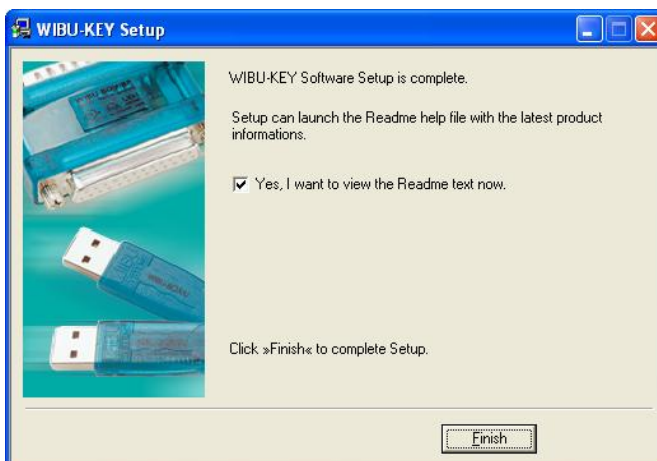
13

The following dialogue will appear :



- Click on 'Next'

The following dialogue will appear :



- Click on 'Finish'

## 8.4 Installing AlphaVision 'Engineering' / 'Runtime' Licenses

For running IMAC L, an AlphaVision license key is required. The 'IMAC L Engineering System Install CD' does not contain license keys for AlphaVision. You will have to buy one AlphaVision runtime license for every OS of a Project.

There are two basic versions of this license key:

- ☐ Runtime License (required for Operator Stations)
- ☐ Engineering & Runtime License (required for Engineering PCs)

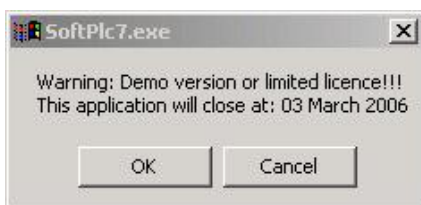
For internal use in Siemens Marine Engineering a master license key 'Engineering & Runtime' is available on request. This master license may be used within Siemens Marine Engineering and must not be delivered to customers. For use in other departments or companies or for sale to customers (separate or as part of your project) you will not be allowed to use this master engineering license. In this case you will have to buy your own license(s) as required.

There are basically two ways to install such a AlphaVision License key:

- ☐ WibuKey Hardware USB Dongle (PC-HW-independent, recommended)
- ☐ Software Key (PC-HW-dependent, not recommended)

Both methods of license key installation are described below. The WibuKey USB Dongle licenses do not depend on the PC Hardware they are used on (are interchangeable between PCs). The Software Keys are specific for one PC hardware and will become invalid e.g. in case of PC hardware replacement. In such a case a new key would have to be created. Therefore the Software-Key option should only be used as a backup in case there are difficulties with USB or mechanical installation of the hardware dongle.

If no or a temporary license is installed, a warning window will pop up during the start of AlphaVision applications, that will indicate, when the application in question will terminate itself automatically :



**Important :** Please do not leave any ship in this condition ! Later on, the respective application will terminate itself without any further warning after reaching the indicated time !



#### 8.4.1 Installing the AlphaVision License File 'VISION.LIC'

AlphaVision always requires a license file: '**C:\vision\bin\VISION.LIC**'

The templates installed above do not contain this file, as it is a part of the license you buy.

The following special rules apply to this very special file:

- ☐ There are different versions of the VISION.LIC file, which can only be distinguished by their file date and time.
- ☐ The license key used (HW- or SW-key) and this VISION.LIC file have to match. If they do not match, the license will not be recognized.
- ☐ Changing the VISION.LIC file's contents or it's date or time will render it useless. Therefore the VISION.LIC file can only be E-Mailed, if packed in a ZIP file. Burning it directly to a CD or E-Mailing it directly (not in a ZIP file) will render it useless, as the file attributes will change..

You will receive the required VISION.LIC file in a ZIP file with your license purchase. If you should have received an 'Engineering Master License' key for your engineering work, please ask your IMAC L support partner in the Siemens Marine Engineering department for the required file.

To install it, simply open the ZIP file and unpack this file to it's required location in the '**C:\vision\bin\**' directory.

#### 8.4.2 Installing 'WibuKey' Hardware USB License Key for AlphaVision

The IMAC L license keys are preferably stored in encrypted WibuKey hardlocks.

If you should use an IMAC L software key instead, this section has to be skipped. In this case continue with the next section.

To install such a WibuKey hardlock, the WibuKey driver software has to be installed first (see above: → Installing 'WibuKey' Software, Page 63). Then connect the USB key to a free USB port of the PC.

The following dialogue will appear :

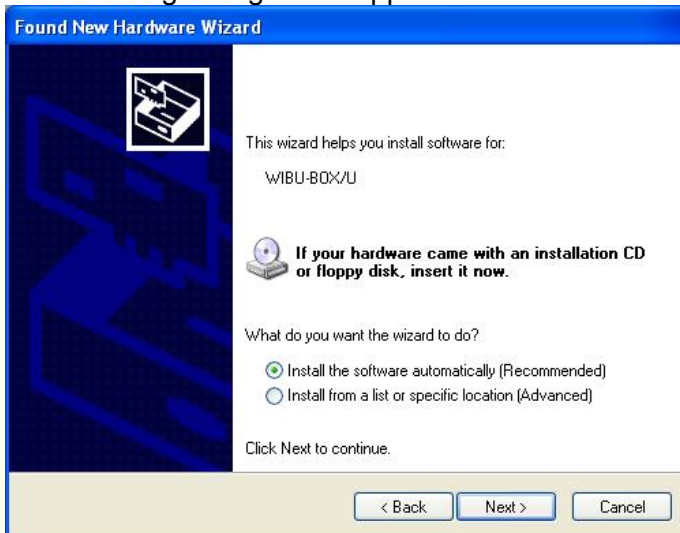


- Select the radio button 'No, not this time'



- Click on 'Next'

The following dialogue will appear :



- Select the radio button 'Install ... automatically ...'
- Click on 'Next'

The following dialogue will appear :



- Click on 'Finish'

#### **Recommendation :**

For onboard installation of such a Hardware 'WibuKey' USB License Key it is recommended to use a short (~1m) USB extension cord to connect the USB key. Use a cable strap to mechanically attach the key to a console rack or similar. This has several advantages:

- The PC and key are protected against damage. If the key is directly connected, it will stick out from the PC case and will be vulnerable to mechanical mistreatment.
- The key will be protected against loosening / loss (e.g. due to vibration).
- The key will not get lost, if the PC is being replaced (sparepart) or sent for repair
- The location where the key is attached may hold a label indicating its purpose / data.
- Possible theft can be avoided (danger of mixing up with a stylish USB memory stick)

#### 8.4.3 Installing a Software License Key for AlphaVision

Installing a software license is not the preferred method for IMAC L AlphaVision licensing. If you should have decided to install the recommended WibuKey encrypted USB hardware dongles, this section has to be skipped. As this section is quite lengthy, you may in this case be happy about your choice ☺.

For AlphaVision there are two different methods used for installing software licenses. The 'old' method is used for versions originating from November 2005 and before. The 'new' method is used for AlphaVision versions originating from December 2005 or later. These are not alternative methods. The right method for the respective version has to be applied.

#### Old Licenses for AlphaVision Versions (until November 2005, only Windows 2000)

The old method is done by just copying a valid license file 'Vision.lic' to the 'C:\vision\bin' directory of each OS. Please observe, that the license file may not be modified in any whatsoever way - or it will not work. This rule applies to the file's date & time stamp as well. Therefore the 'Vision.lic' file has to be packed (e.g. using WinZip) in order to be e-Mailed or archived to a CD.

#### New Licenses for AlphaVision Versions (from December 2005)

The general procedure for this new style of licenses is as follows:

1. Install the necessary Installation Applications (first time only).
2. Install the 'Vision.lic' file that has been bought from Alpha-Bit.
3. Generate a 'Hardware Key' using the AbLicInstaller application.
4. Request the 'Software Key' for this OS from Alpha-Bit (either by e-Mail or via the Alpha-Bit Web interface: <http://www.alpha-bit.de/download/HWKey/index.php> ).
5. Install the 'Software Key' using the AbSWKeyInstaller application.
6. Check the successful installation of the key.

These procedure steps for installation of licenses in detail are as follows:

1. Install the necessary installation applications (first time only) :

- Insert the 'IMAC L Engineering System Install CD' into the CD-ROM drive.
- Click on 'Start → Run'
- Enter 'D:\Vision\Licence\Installer.zip' (replace D with the drive letter of your CD-ROM drive).
- Click on 'OK'
- In WinZip click on the 'Extract' button and unpack all three files to the 'C:\Vision\bin' directory of the OS that is to receive the license.
- Close WinZip.

2. Install the 'Vision.lic' file that has been bought from Alpha-Bit :

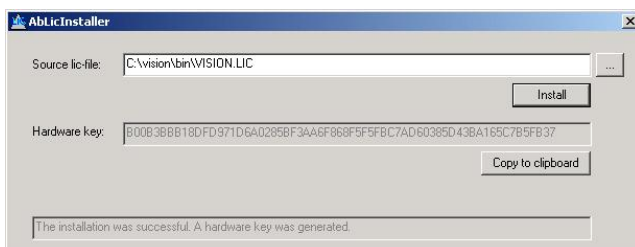
- Open the ZIP-file that contains the require license
- In WinZip click on the 'Extract' button and unpack the 'Vision.lic' file to the 'C:\Vision\bin' directory of the OS that is to receive the license.
- Close WinZip.

3. Generate a 'Hardware Key' using the AbLicInstaller application :

- Click on 'Start → Run'
- Enter 'C:\vision\bin\AbLicInstaller.exe'.
- Click on 'OK'
- The AbLicInstaller Application opens:



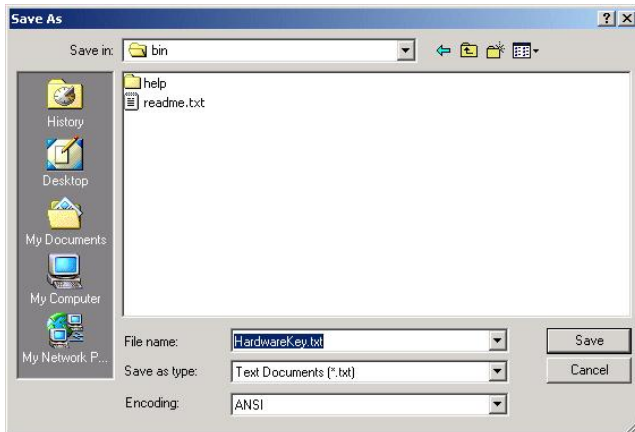
- Take care, that the first input line in this application points to 'C:\vision\bin\VISION.LIC'. If not, use the browse button right of this line to point to the correct file.
- Then click on the 'Install' button. The 'Hardware Key' line will show the 'Hardware Key' generated by the AbLicInstaller. Observe, that the lower text field in the application reports successful generating of the 'Hardware Key'.



- Click on the 'Copy to Clipboard' button.
- Close the AbLicInstaller Window.
- Click on 'Start → Programs → Accessories → Notepad'
- In the Notepad application click on 'Edit → Paste':



- In the Notepad application click on 'File → Save As' :



- Enter a name for the key file (e.g. 'HardwareKeyOS1.txt') and point to a convenient location to transfer this key to Alpha-Bit (e.g. USB Stick or floppy disk).
- Click on 'OK'
- Close the Notepad application.
- Transfer the text file containing the 'Hardware Key' to a computer where you have access to e-Mail or the internet.

#### 4. Request the 'Software Key' for this OS from Alpha-Bit :

- Transfer the Generated 'Hardware Key' to Alpha-Bit. This can be done either via the Alpha-Bit Web-Interface or e-Mail (or even by telephone). Use 'Copy / Paste' while transferring the key to an e-Mail or to the web interface in order to avoid typing errors. For requesting this key from Alpha-Bit you are required to present your License number, which is to be found on the delivery note you have received together with your license delivery from Alpha-Bit.
- Wait to receive the required 'Software Key'. In the Web-Interface you will immediately receive this key, if your 'License Number' and your 'Hardware Key' are OK.
- Store the received 'Software Key' in a text file (e.g. 'SoftwareKeyOS1.txt') using the Notepad application again.
- Copy this text file containing the 'Software Key' to a USB stick or floppy disk
- Transfer the text file containing the 'Software Key' to the OS where it is required

#### 5. Install the 'Software Key' using the AbSWKeyInstaller application :

- Click on 'Start → Run'
- Enter 'C:\vision\bin\AbSWKeyInstaller.exe'.
- Click on 'OK'
- The AbSWKeyInstaller Application opens:



- 1 - Click on 'Start → Programs → Accessories → Notepad'
- 2 - In the Notepad application click on 'File → Open'.
- 3 - Point to the location of the text file containing the 'Software Key'.
- 4 - Click on 'Open'
- 5 - Click on 'Edit Select All'
- 6 - Click on 'Edit Copy'
- 7 - Close the Notepad application.
- 8 - Click into the 'Software key' input field of the 'AbSWKeyInstaller' application, so that
- 9 the input cursor shows up in this field.
- 10 - Press 'Ctrl-V' to paste the key into this field.
- 11 - Then click on the 'Install' button of the AbSWKeyInstaller application. Observe, that
- 12 the lower text field in the application reports successful installation of the key.
- 13 - Close the AbSWKeyInstaller Window.

#### 6. Check the successful installation of the key :

- 16 - Run the IMAC L application on the OS as usual (e.g. Double-Click on the Run\_IMAC
- 17 icon on the desktop of the OS or better reboot the OS, if the start of IMAC L is
- 18 automatic as it should be for an OS).
- 19 - Observe, that the 'Demo Version or limited licence' popup window (indicating, that a
- 20 license is missing) does not show up any more for any application.

**Hint :** Usually the time delay for the application to terminate is 30 minutes if no license at all has been installed. This time will be extended to 30 days, if the 'Hardware Key' has been generated successfully (see step 3 of the above procedure). If you leave a ship with such a 30 days license, you have to return to this ship within this time to install the valid unlimited license, or the respective application will terminate (fail to function) after the time has expired! After the 30 days have expired once, the applications will only work for 30 minutes before they terminate ! Please check the validity of installed licenses (see Checking the validity of AlphaVision License Keys→, page 74) before leaving a ship.

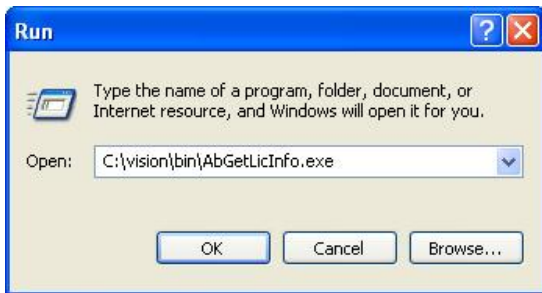
#### 8.4.4 Checking the validity of AlphaVision License Keys

It is important to check, if an OS on board of a ship has a valid AlphaVision license key, that does not expire after 30 minutes or 30 days (see previous sections). Leaving a ship with a time-limited license will inevitably cause a service engineer to be called to fix this.

To check the validity of licenses without waiting for 30 days, AlphaVision has a built-in tool to retrieve information about the installed licenses:

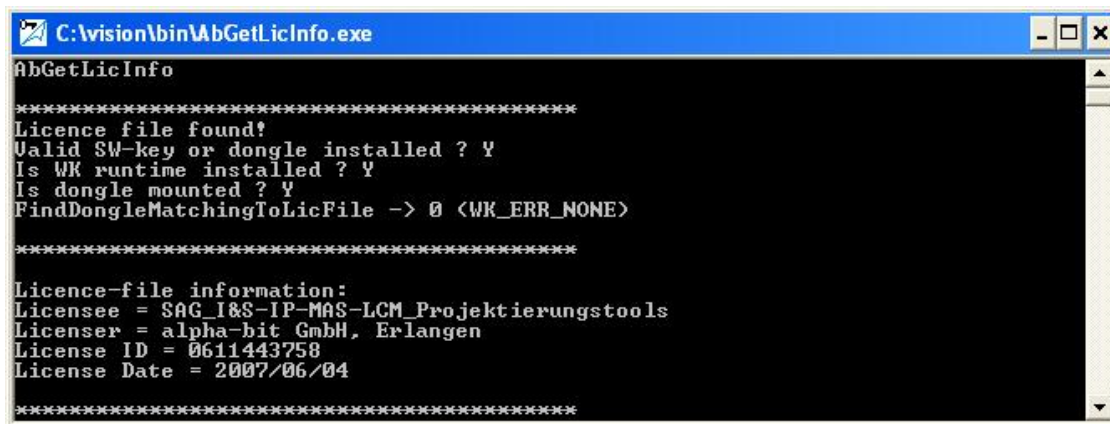
- Click on 'Start → Run'

The following dialogue will appear :



- Enter 'C:\vision\bin\AbGetLicInfo.exe'
- Click on 'OK'

A DOS Text window will appear. The first block of the displayed information will show, if a valid key is installed. If a valid USB WibuKey dongle is installed, the top of the display will look like this (license file information may be different):



This is the only acceptable output here. Especially the line:

**“Valid SW-key or dongle installed ? Y”**

is important! If this line is missing, you have to assume, that no valid license is installed.

If you are in doubt of the validity of a AlphaVision license, you may copy and paste the contents of the AbGetLicInfo.exe window to a text file and mail it to your IMAC L support partner in the Siemens Marine Engineering department for verification. To copy this text:

- Point your mouse at the header (caption bar) of the Window
- Right-Click on 'Edit → Select All'
- Right-Click on 'Edit → Copy'.
- Paste to Notepad / Editor and save as a text file



#### Output examples for a missing or temporary license:

If **no license** or only a **thirty days temporary license** is installed, the top of the display will look like this (no WibuKey dongle & driver installed, License File 'C:\vision\bin\VISION.LIC' is present) :

```

c:\vision\bin\AbGetLicInfo.exe
AbGetLicInfo

*****
Licence file found!
"Valid SW-key or dongle installed" ? WIBU-Runtime NOT found!
N
*****
  
```

If only a **thirty days license** is installed, the output will contain a section like this (scroll down to middle of output):

```

c:\vision\bin\AbGetLicInfo.exe

*****
HW-SW-key information
"30-day key installed" ? Y
"SW-key installed" ? N
Value 1 = 001742B5E7CB
Value 2 = 005056C00008
30-day countdown = 20090616115221905
30-day key valid ? Y
HW-key = B00B31E1184BD9F0235728F3D6F26786DD175FBCFAF62784D039A963D1ADB377
*****
  
```

Observe the following two lines

**"30-day key installed ? Y"**

**"SW-key installed ? N"**

These two entries clearly show, that this license is temporary for 30 days and will expire at any time within the next 30 days.

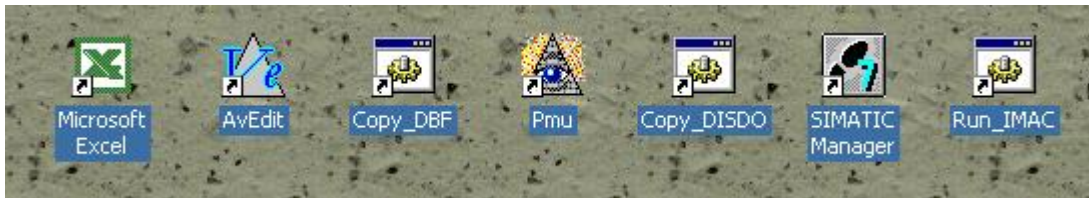
If a license expires, while the IMAC L software is running, the applications will terminate without a pre-warning. Any further start will then be temporary for 30 minutes (the 30 days cannot be re-activated again) !



## 8.5 Creating Desktop Shortcuts

### 8.5.1 Desktop Shortcuts for IMAC L Engineering PC

For an Engineering PC it is useful to have a row of desktop shortcuts for IMAC L, that basically represents the sequence of engineering in order to create an IMAC L project :



- Microsoft Excel (Icon has been created during MS Office setup).
- AvET (point to C:\vision\bin\AvET.exe)
- Copy\_DBF (point to C:\vision\PrjAvEt\Copy\_DBF.cmd)
- Pmu (point to C:\vision\bin\Pmu.exe)
- Copy\_DISDO (point to C:\vision\PrjAvEt\Copy\_DISDO.cmd)
- Simatic Manager (Icon has been created during Simatic Manager setup).
- Run\_IMAC (point to C:\vision\PrjAvEt\Run\_IMAC.cmd)
- Run\_IMAC\_EAS (point to C:\vision\PrjAvEt\ Run\_IMAC \_EAS.cmd)

### 8.5.2 Desktop Shortcuts for IMAC L OSs

An IMAC L OS requires only one of the two last Icons:

- Run\_IMAC (point to C:\vision\PrjAvEt\Run\_IMAC.cmd)
- Run\_IMAC\_EAS (point to C:\vision\PrjAvEt\ Run\_IMAC\_EAS.cmd)

The default choice is 'Run\_IMAC'. Only if the system has an Extended Alarm System (EAS) attached to it, OS1 will require 'Run\_IMAC\_EAS' instead of 'Run\_IMAC'.

## 8.6 OS specific IMAC L Settings

For an IMAC L Engineering PC that will never run the AlphaVision runtime (engineering only), this 'OS specific IMAC L Settings' section may be completely skipped.

PC-specific settings (in order to distinguish one PC from the others) include the already completed settings in the Windows XP operating system:

- ☐ IP-address (see above in this document → 'IP Address' Setting, page 22)
- ☐ Network Name (see above in this document → 'Computer Name' and 'Workgroup Name' Settings, page 30)

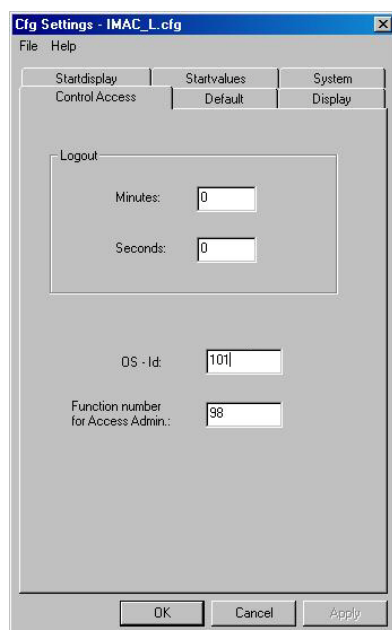
If a PC is to be used as an IMAC L OS (i.e. AlphaVision Runtime will be started), additional settings are required for each possible OS. The following rules for IMAC L OS numbering apply:

- IMAC L OS numbering starts with '1'. The permitted range is '1'...'8'.
- Gaps in OS numbering should be avoided (are irritating)
- OS1 has some special functions (e.g. drives the EAS system, if required)
- More than 8 OSs are not possible.

### 8.6.1 Setting the OS-Number for Alpha-Vision

IMAC L OSs require the setting of the logical OS-number for Alpha-Vision. This is required to be an individual setting for each OS. Please repeat for each individual OS:

- |                                   |                          |
|-----------------------------------|--------------------------|
| - Click on                        | 'Start → Run'            |
| - Enter                           | 'C:\vision\bin\cfg.exe'  |
| - Click on                        | 'OK'                     |
| - In the 'Cfg' editor click on    | File → Open              |
| - Point to the configuration file | C:\vision\bin\IMAC_L.cfg |
| - Click on                        | 'OK'                     |



- Modify the 'OS-Id' field to '10x' (where x is the OS-number, see above) (do not modify any of the other setting)
- In the 'Cfg' editor click on File → Save

#### 8.6.2 Modifying the ,OS Watchdog Settings'

IMAC L OSs require some OS-specific OS Watchdog Settings. The file to be modified on each OS is:

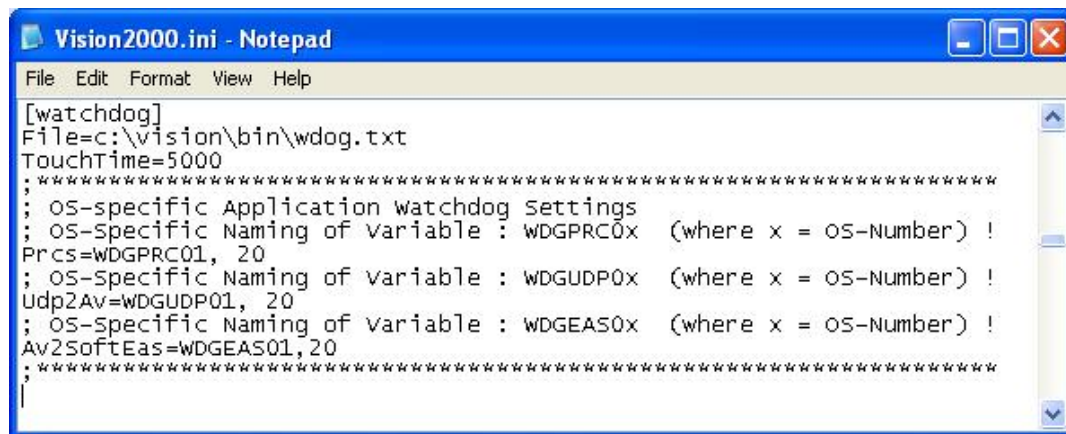
**'C:\vision\bin\Vision200.ini'**

These OS Watchdog settings are different for each OS. Please repeat all of the following settings for each individual OS:

- Click on 'Start → Programs → Accessories → Windows Explorer'
- Navigate to the 'C:\vision\bin\' directory
- Double-Click on 'C:\vision\bin\Vision200.ini'

An editor window will open.

Scroll down and find the [watchdog] section:



- Adjust the 'Prcs=WDGPRC0x' parameter: → x = OS-number !
- Adjust the 'Udp2Av=WDGUDP0x' parameter: → x = OS-number !
- Adjust the 'Av2SoftEas=WDGEAS0x' parameter: → x = OS-number !
- Click on File → Save
- Close the Editor Window

The example depicted above shows the default settings (for OS1). For OS2 the three parameter values would be: 'WDGPRC02' / 'WDGUDP02' / 'WDGEAS02'.

The parameters modified here adjust the IMAC L 'Watchdog' feature. All individual IMAC L tasks on an OS are monitored by PCU1. In case of a failing task, PCU1 will initiate an IMAC L alarm. The settings modified here determine for each OS, which watchdog variables are served by which task. The IMAC L 'Watchdog' feature will only work with a correct assignment as shown above.

#### **Important Warning :**

Do not modify / add / remove any other entries in this file. Wrong settings in this file may render an OS inoperative.

#### 8.6.3 Modifying the ,UDP Communication Settings'

IMAC L OSs require global UDP Communication Settings in each OS. The file to be modified on each OS is:

**'C:\vision\bin\Vision200.ini'**

The IMAC L UDP communication has to be adjusted to meet the number of OSs / PCUs in a project. The 'Vision2000.ini' parameter ...

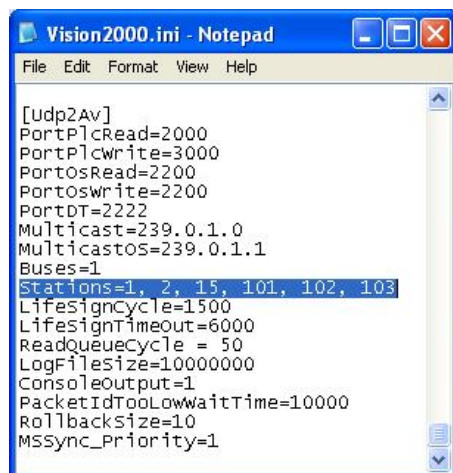
**'Stations='** in section **'[Udp2Av]'**

... determines, which communication links will be established and monitored in IMAC L. The parameter 'Stations' has to contain the logical bus numbers of all OSs and PCUs in a project. This setting has to fit the project configuration and it has to be **identical in all IMAC L OSs connected to a project configuration.** Wrong settings will cause the Ethernet communication to partly or completely not work.

To check / modify, please repeat all of the following settings for each individual OS:

- Click on 'Start → Programs → Accessories → Windows Explorer'
- Navigate to the 'C:\vision\bin\' directory
- Double-Click on 'C:\vision\bin\Vision200.ini'
- Modify parameter 'Stations=' as explained below
- Click on File → Save
- Close the Editor Window

A typical [Udp2Av] section might look like this (entry highlighted in screenshot only):



The 'Stations=' parameter has to be adjusted. The following rules apply for this parameter:

- ❑ Entries for PCUs are equal to the IMAC L PCU number ('1' ... '8').
- ❑ 'Entries for OSs have an fixed offset of 100: (OS1 → '101' ... OS8 → '108')

The example depicted above is set for the use with two PCUs (logical bus numbers 1, 2) and three OSs (logical bus numbers 101, 102, 103). Add or remove logical bus numbers as required to meet your current configuration. Leave a space between each entry. Leave entry '15' untouched (IMAC L internal use).

#### **Important Warning :**

Do not modify / add / remove any other entries in this file. Wrong settings in this file may render an OS inoperative.

#### 8.6.4 Setting up 'OS Automatic Start' for IMAC L Software

Section 6.14 ('Automatic Start' ) describes how to make programs automatically start during Windows start.

For an IMAC L OS it is necessary to configure one of the IMAC L start batches for this type of automatic start.

One of the two following start batches is used to start the IMAC L OS software:

- **C:\vision\PrjAvEt\Run\_IMAC.cmd** → Simple OS
- **C:\vision\PrjAvEt\ Run\_IMAC \_EAS.cmd** → only for OS1, if it has to control the Extended Alarm System (EAS)

For each OS proceed as follows:

- Create the required shortcut according to the a.m. description.
- Reboot the OS to make sure, that automatic start works

## 9 Unpacking the IMAC L Simatic S7 Project

IMAC L comes with a Simatic S7 project, that has to be used as a starting point for every new IMAC L project. This package contains essential components of IMAC L. This section describes how to unpack this archive.

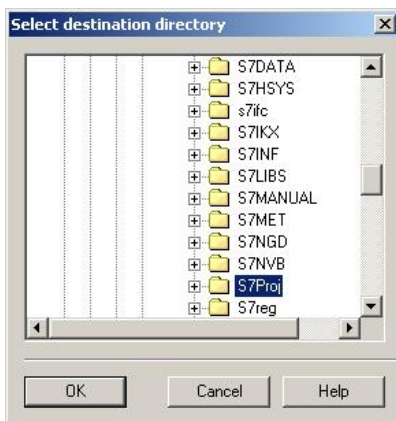
### **Attention!**

Starting a PLC project from scratch is not intended with IMAC L and there will be no support for such efforts neither are there any descriptions on how to do this. Always use the a.m. template project!

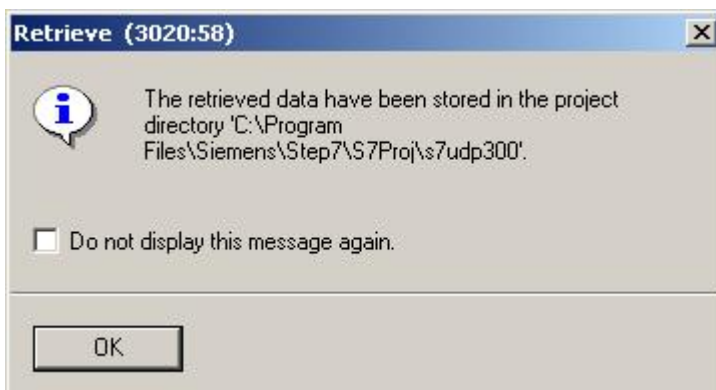
The Simatic template project for IMAC L is located in the '**IMAC\_L\_S7\_Project**' directory of your 'IMAC L Engineering System Install CD'. The File name is '**IMAC\_L\_S7\_Project.zip**'.

Use the Simatic Managers 'retrieve' function to open this project :

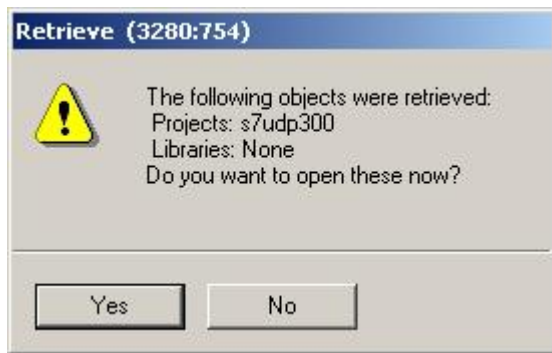
- Open your Simatic Manager
- Click on File → Retrieve
- Point to the a.m. IMAC L S7 Project file
- Click on 'Open'
- Click on 'OK' :



- Click on 'OK' :



- Click on 'OK' :



1

2 You will have to modify this project including it's hardware configuration and IMAC L related  
3 PLC engineering in order meet your project requirements.

4 For any further IMAC L related engineering of PLCs please refer to the 'IMAC L Engineering  
5 Guideline' (Document No. E10231-Y1009-U304-x).

6



## 10 Backups of IMAC L Software

As with any other software, creating backups of IMAC L software is important to avoid data loss due to hardware damages, theft or mistakes in the handling of engineering.

Backups should be created regularly (e.g. once a day), while engineering is under way. Any relevant version of the project (e.g. after an acceptance test, after delivery to the customer, after a service / update, that has caused a change of software) deserve a backup copy, that is taken to permanent storage.

Create the updates as described below and store them in a safe place.

Observe standard criteria for long term data archiving like:

- Unambiguous marking of stored software versions (project, version, date, type of data, instructions for recovery, tools / software required to handle)
- Physical long term durability of storage media
- Safe physical location for storage media (e.g. protection against theft / fire)
- Accessibility - Protection against inadvertent deletion / disposal
- Have at least two copies of the same backup - stored in different safe locations.

### 10.1 Backups of Simatic Software

For creating Backups of Simatic Manager projects simply use the Simatic Manager built-in archive function:

- In Simatic Manager open the project to archive
- Click on File → Archive
- Select the project to backup (should already be highlighted)
- Click on 'OK'
- Select a location and name of the archive
- Click on 'Save'
- Click on 'OK'

If the archiving is completed, locate the resulting ZIP file (path & file name you just entered). Copy and archive as appropriate.

## 10.2 Backups of AlphaVision PC Software

On a PC AlphaVision will only install files in the '**C:\vision**' directory. All project related data being engineered according to the 'IMAC L Engineering Guideline' will reside in this directory as well. Therefore, if you stick to the engineering rules, a full backup of this directory and all it's subdirectories is sufficient to have a full backup of any IMAC PC (OS or Engineering PC).

A file packing tool (e.g. 7-Zip) has to be used to create IMAC L backup archives. The Zip files as created in this section can be put on a CD/DVD without damage.

### **Important Hint:**

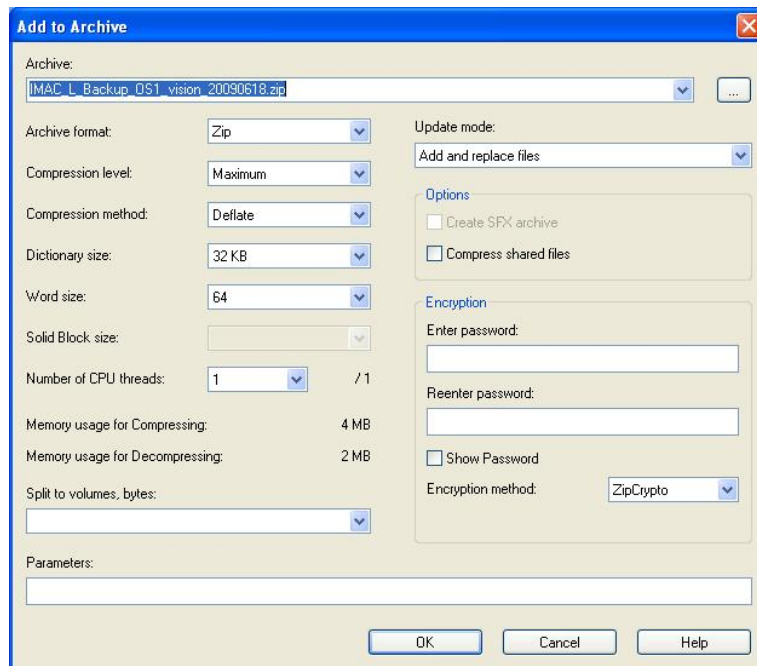
Simple recovery of IMAC L files directly from a CD/DVD (not in a Zip file) will not work! Files directly copied back from a CD/DVD will have their 'Read Only' attribute set. AlphaVision cannot handle 'Read Only' files (this will create error messages, IMAC L will not work, the IMAC L license files will be permanently damaged after a direct CD/DVD backup).

### 10.2.1 Create Backups of IMAC L on PCs using '7-Zip'

To create a backup archive of IMAC L PC software, please proceed as follows:

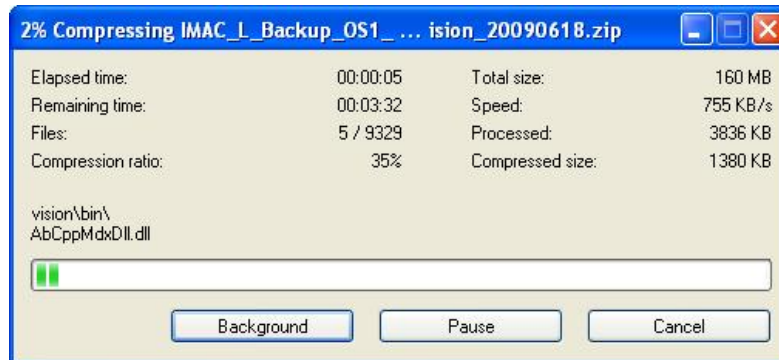
- Stop all AlphaVision applications (if there should be any running)
- Reboot the PC to unload all software modules (e.g. DLLs) from PC memory.
- Click on 'Start → Programs → Accessories → Windows Explorer'
- Navigate to the 'C:\vision\bin\' directory
- Right-Click on the 'C:\vision\bin\' directory. A context menu will open.
- Click on '7-Zip → 'Add to Archive...' in this context menu.

The '7-Zip' window will open:



- In the 'Archive' field enter a descriptive Name of the Backup to create. Include the PC (OSx, ES) and Date of backup in this name (see example above).
- Click on 'OK'

'7-Zip' will create a new archive:



If the archiving is completed, the resulting ZIP file (with the name you have entered) will be in the root directory 'C:\'. Copy and archive this file as appropriate.

#### 10.2.2 Restore Backups of IMAC L on PCs using '7-Zip'

##### **Preconditions for restoring a backup:**

The PC to which the project is restored has to be setup as an AlphaVision PC (OS or Engineering PC) before you restore a backup copy. This includes all settings and installations in sections → 6 (Adjustment of Windows Settings) and → 7 (Installation of Applications) of this document. If this rule is not observed, IMAC L is very likely to fail partially or completely.

If a backup copy of an IMAC L '**C:\vision\**' directory is to be restored, please proceed in the same way as described in Section → 8.1 'Unpacking the 'IMAC L Template project' on page 58). The only difference here is, that you point to the archive file from your backup storage medium instead of to an IMAC L template file from the 'IMAC L Engineering System Install CD'.

Urgently observe, that no '**C:\vision\**' may exist, before you start a recovery. You have to stick to the 'Rename or Delete' instruction as given in the a.m. description.

Reboot you PC and start your IMAC L applications.

If failure messages occur during start of an IMAC L that was created from an recovery (e.g. 'not correctly installed' or 'missing license'), there are some common causes you might like to check:

- ☐ IMAC L applications are not correctly installed – the a.m. preconditions are not met (e.g. software packages 'Microsoft 'Visual C++ 2008 Redistributable' or 'WibuKey' Software are missing).
- ☐ The installed AlphaVision License key is missing (software key or USB WibuKey).
- ☐ The installed AlphaVision License key (software key or USB WibuKey) does not match the version of the '**C:\vision\bin\VISION.LIC**' file contained in the recovered project.
- ☐ If you are using a software key, changes in PC hardware will render your old SW key useless. You have to request a new key in this case (see section → 8.4.3).

#### 10.2.3 Multiple IMAC L Versions / Projects on one PC

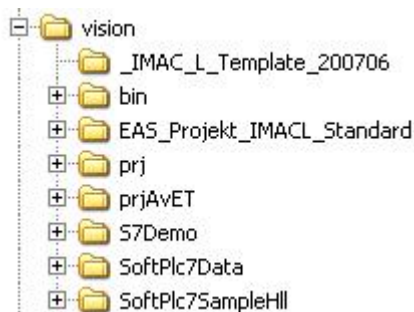
One of the essential restrictions in IMAC L PC software is, that an IMAC L project you are working with always has to be stored in the 'C:\vision\l' directory.

This looks as if it is a big restriction, as you seemingly can have only one IMAC L project installed at a time. This would be bad news for engineers working on more than one IMAC L project at a time. But there is an easy way out:

#### **Use simple renaming of directories to switch between projects !**

The directory of that project you want to work with has to be renamed to be 'C:\vision\l'. All other IMAC L project directories may exist at the same time on drive 'C:' – just with a different name. There are just a few simple hints you should observe while using this strategy to switch projects:

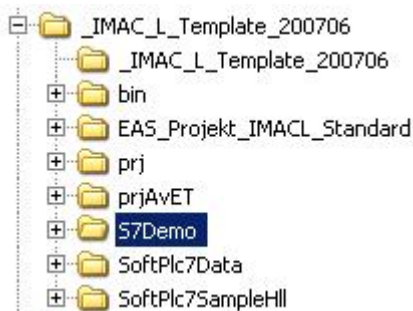
- ❑ Terminate all running AlphaVision applications in Windows before renaming.
- ❑ If switching between projects using different versions of AlphaVision you have to reboot the PC to unload all software modules (DLLs) from Windows memory after such a project switch.
- ❑ Each project tree should contain a possibility to uniquely indentify the project it contains. After some renaming you otherwise will not be able to identify your projects any more and will start mixing them up. A good possibility is an empty directory in the project tree, whose name starts with an underscore ( ' ' ) character. The name of this directory identifies your project / version. Due to the underscore, this directory will always be the first one being displayed in Windows Explorer. This might look like this:



The name of this 'underscore-named' directory is as well ideal, if a project was in use and has to be renamed (to switch to another project): Simply 'Copy and Paste' the name of this 'underscore-named' directory to rename (in the above example):

'C:\vision\l'                      →                      'C:\\_IMAC\_L\_Template\_200706'

The result in this example above will look like this:



## 11 Updating IMAC L to a newer AlphaVision

If a new version of the AlphaVision software is released for the use with IMAC L, the following basic procedure shows, how to update a project to the new version. This procedure cannot take into account all future versions and modifications of the AlphaVision software, but it gives an good overview of what has to be done in principle for a full new version (not a hot fix or patch, that will only require to replace single files).

### **ATTENTION:**

The following procedure is only suitable for IMAC L system engineers or very advanced IMAC L users (i.e. having very detailed knowledge of IMAC L engineering and functions). It is strongly recommended to have such an update performed by your IMAC L support partner in Siemens Marine Engineering, if this requirement should not be fulfilled!

Please observe the following basic instructions:

- ❑ Before beginning your update, it is necessary **to create a full backup** of all your working results (e.g. on a CD / DVD) ! This backup should include all files in the C:\vision directory of the computer to be updated (use 7-Zip!) and all your Simatic S7 project files (use archive function of the Simatic Manager). Store this backup in a safe space.
- ❑ Always update all PLCs and all PC's (all OS's + Engineering PC's) of one IMAC L project at the same time. Using a mix of old an new versions of AlphaVision within one project is not allowed and will usually cause serious malfunction !
- ❑ Do a full 'build' procedure of all IMAC L software including all compilations and data updates according to the 'IMAC L Engineering Guideline'. Carefully watch out for any warnings or failures being reported during this procedure. Investigate any unexpected result.
- ❑ Do not try to perform this update procedure to a ships plant, if the ship is in operation or even travelling. Make sure, that the IMAC L monitoring and control system is not used and can be switched off for the required period of time.
- ❑ There shall be no error messages in the whole update procedure. Closely observe every step and investigate every encountered error before you continue.
- ❑ Thoroughly test all basic functions after installing the new version (to make sure, that things that worked before are still working after the update).

This instruction assumes, that you have left the project names & directories of the IMAC L template project as they are. If you have either renamed projects / directories or have created new ones of your own, you will have to adapt this instructions to cover your own individual configuration.

This instruction will first show, how to update the IMAC L 'Engineering PC'. In a second step this description will then shown, how to strip this installation down to get an 'OS' installation.

### 11.1 Installation of AlphaVision Software Packages

Use the following procedure to install the new AlphaVision software packages on your Engineering PC:

- Close all IMAC L AlphaVision applications which are currently running (including all IMAC L drivers and SoftPLC7 instances).
  - Rename the directory '**C:\Vision**' (e.g. to C:\Vision\_Old\_yyyymmdd).
  - Reboot your PC. This is necessary to unload DLL libraries from memory, that are expected to be replaced by newer ones with the same name.
- If you have a start command for AlphaVision in one of the 'Autostart' folders of your PC, you will encounter errors from these commands. Ignore these error messages.

AlphaVision usually consists of five packages to be installed. The names of these packages will vary from version to version, but the naming should make them identifiable. Use the Windows Explorer to locate the required five packages in their new version:

Name	Größe
Av-10.04.01.00-Basis.exe	30.274 KB
Av-10.04.01.00-DCS.exe	1.339 KB
Av-10.04.01.00-Goodies.exe	599 KB
Av-10.04.01.00-Siemens.exe	1.503 KB
Av-10.04.01.00-SoftPLC7.exe	20.252 KB

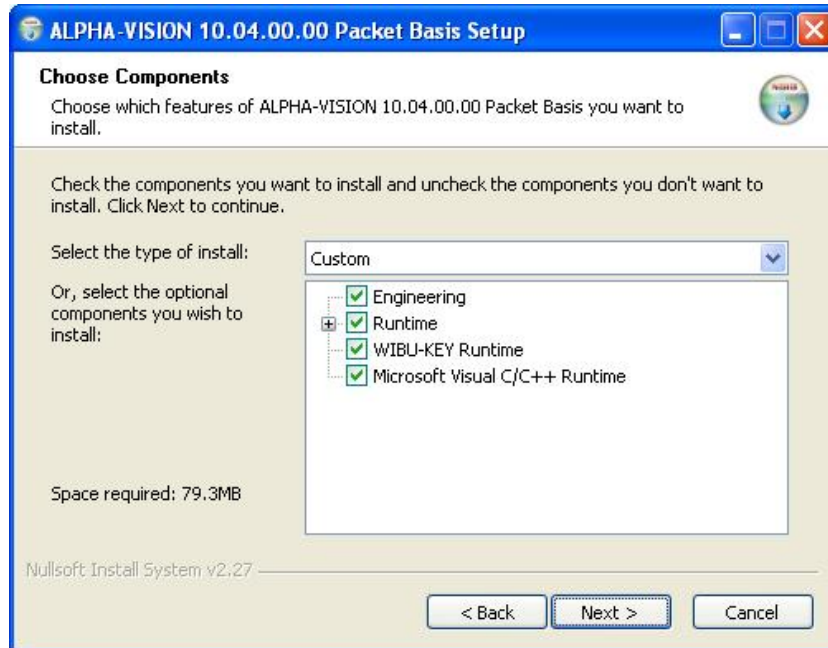
Install these five new AlphaVision software packages according to the following rules:

- Use the sequence of installation as shown in the screenshot above.
- Execute each of the packages by double-clicking on it in Windows Explorer.
- If prompted for the directory to which the package is to be installed, always leave the default setting : '**C:\vision**'
- Use the installation option settings as shown in the next sections. Leave all other settings in their default as suggested by the package installer.



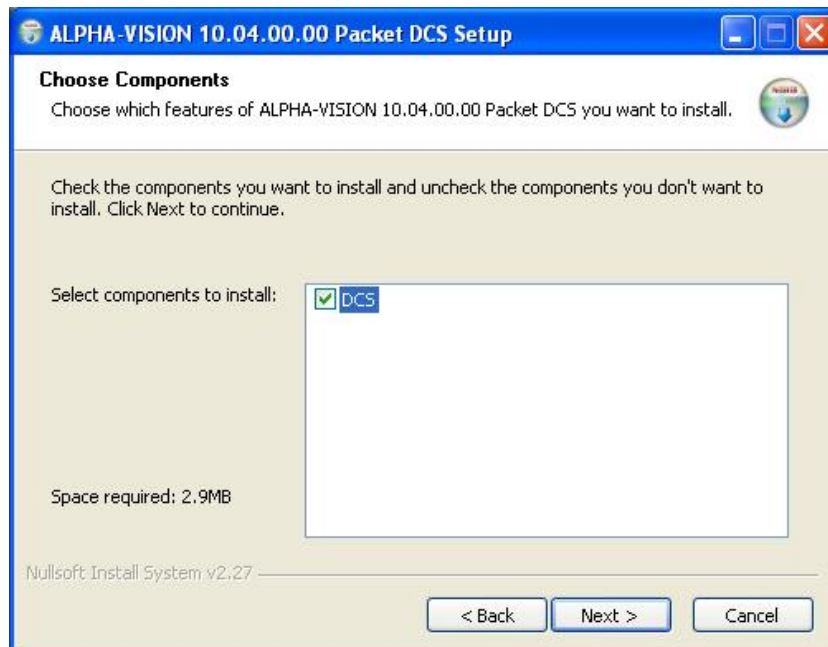
#### 11.1.1 AlphaVision Package ,Basis'

Use the following installation options for AlphaVision Package ,Basis':



#### 11.1.2 AlphaVision Package ,DCS'

Use the following installation options for AlphaVision Package ,DCS':



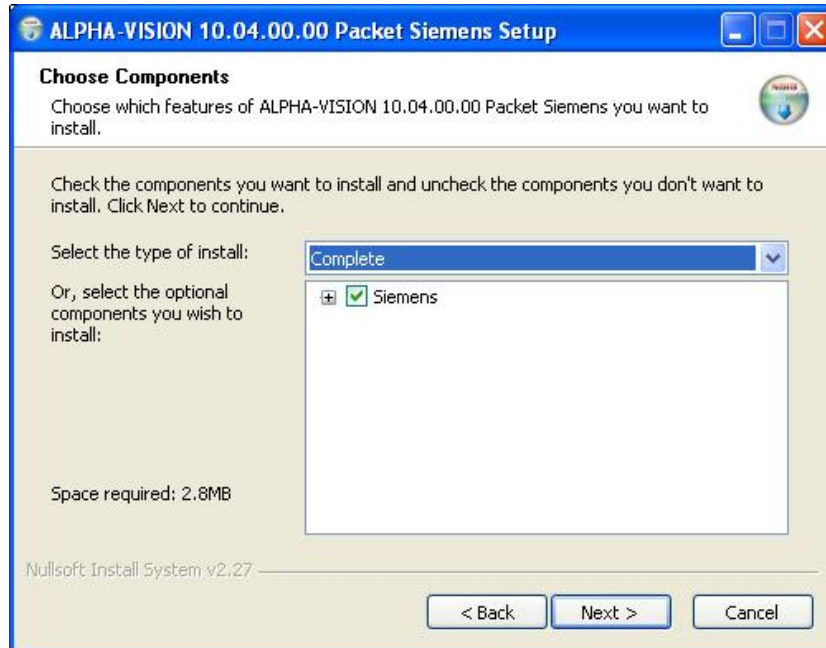
#### 11.1.3 AlphaVision Package ,Goodies'

The package 'Goodies' has no installation options:



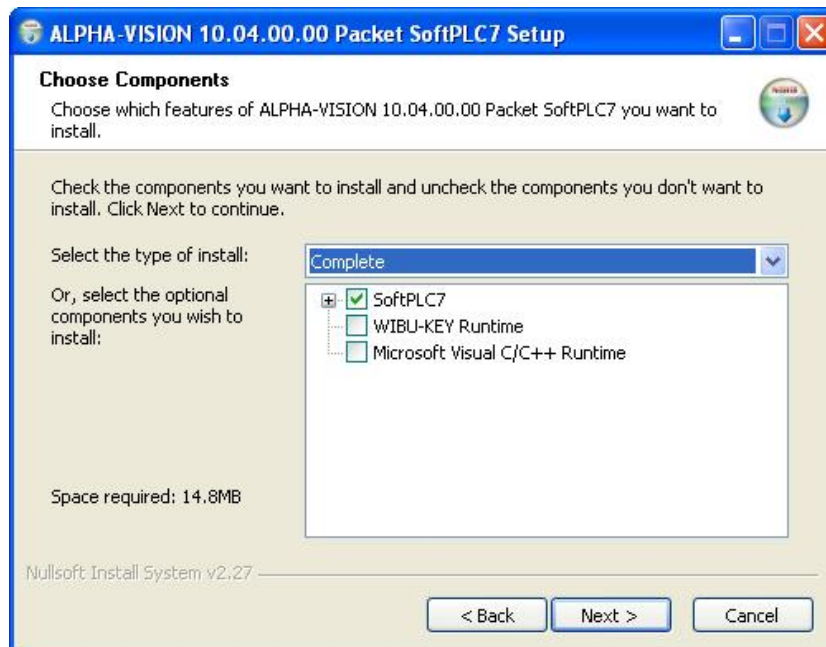
## 11.1.4 AlphaVision Package ,Siemens'

Use the following installation options for AlphaVision Package ,Siemens':



## 11.1.5 AlphaVision Package ,SoftPLC7'

Use the following installation options for AlphaVision Package , SoftPLC7':

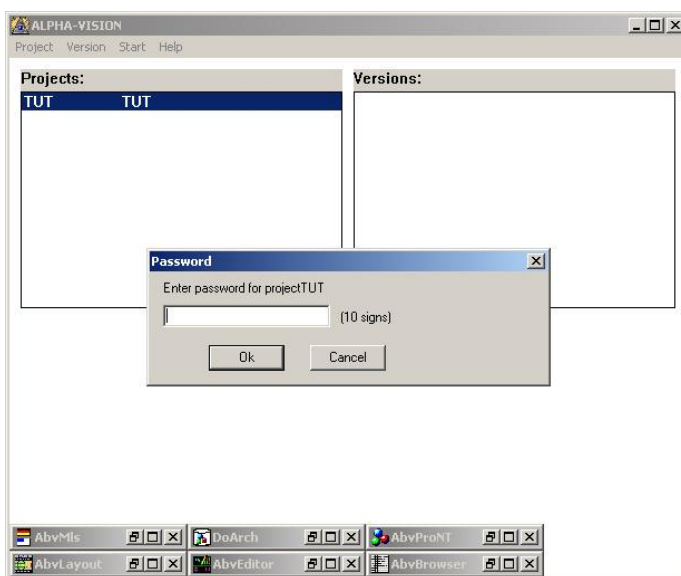


**Remark:** Duplicate installation of options 'WibuKey Runtime' and 'Microsoft Visual C/C++ Runtime' is not required (although it would do no damage). These options were already installed with the 'Basis' package. Deselect them here.

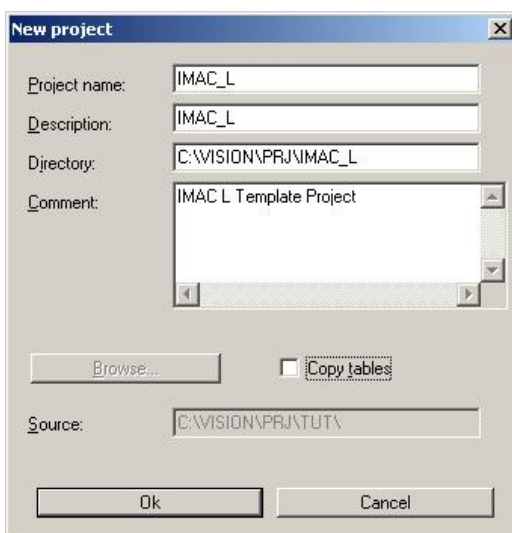
## 11.2 Create AlphaVision 'PMU' Project for IMAC L

In order to copy the AlphaVision 'PMU' Project from the prior version of AlphaVision, it is first necessary to create an empty project with the required name, using the PMU project administration tool. This 'empty' project can then later be replaced by the required (existing) IMAC L project. This procedure is required in order to make the sample project 'known' to the PMU database.

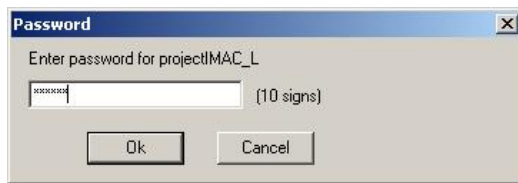
- Double-Click on the 'PMU' Icon on the desktop. PMU will open with the default sample project 'DEMO' as the single project available. Click 'Cancel' in order to not open the 'DEMO' project (if you should want to 'investigate' the DEMO project, you may enter the password, which is 'DEMO')



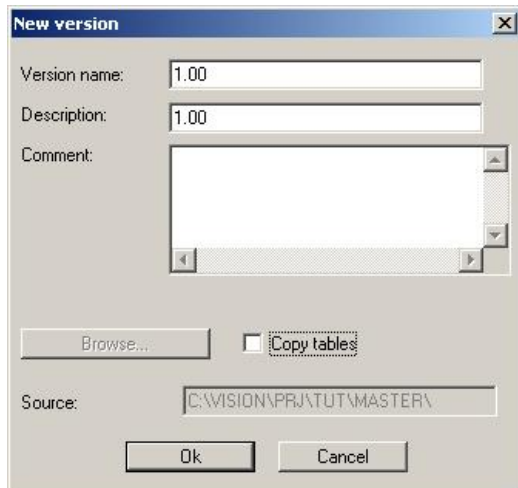
- Click on 'Project → New'
- Enter the Project Name, Description and Directory precisely as shown below (including the 'underscores') :



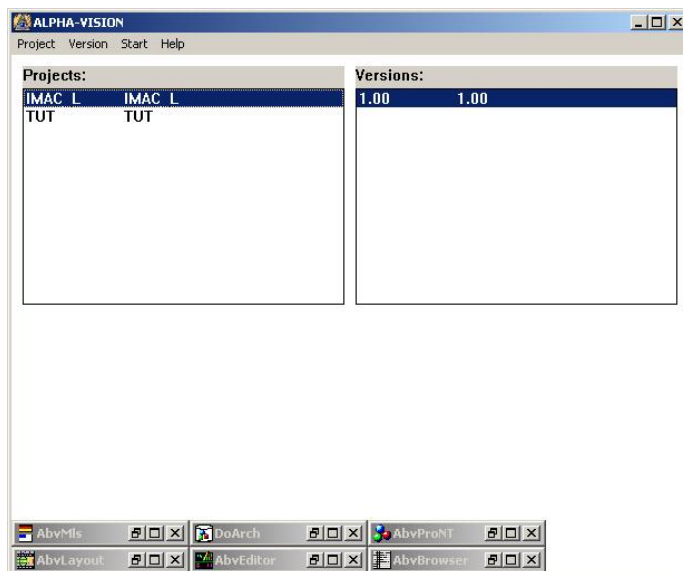
- (The PMU will show a new project 'IMAC\_L' in it's projects window.
- Click on this new Project 'IMAC\_L'
- The program will ask for a password. Enter 'IMAC\_L' and click on 'OK':



- Click on 'Version → New'
- Enter the Version Name and Description precisely as shown below :



- The PMU will display the new Project 'IMAC\_L' with its version '1.00'
- Close the PMU window



- Open the Windows Explorer and delete the directory 'C:\Vision\prj\IMAC\_L' , its sub-folder '1.00' and all files contained in these two directories.
- The following installation of the already existing IMAC L project files from the project to be updated will replace the now empty project directory with a valid project, that can be opened and edited by the PMU program.

## 11.3 Copy files from existing IMAC L Project

As this section describes, how to update an existing IMAC L project to a newer version, it is now time to copy the project specific files & folders from the existing (old version) of the IMAC L project to the newly created '**C:\vision**'. directory.

Please Copy the following files & folders from your old project (which should be named '**C:\Vision\Old\_yyymmdd**' according to this description) back to the new '**C:\vision**' directory :

- Directory \prjAvET (with all files and subfolders)
- Directory \prj\IMAC\_L (with all files and subfolders)
- Directory \SoftPlc7Data (with all files and subfolders)
- Directory \Win\_EAS\ (with all files and subfolders)
- File \bin\IMAC\_L.cfg
- File \bin\vision.ini
- File \bin\VISION.LIC
- File \bin\VISION\_SIC.INI
- File \bin\Vision2000.ini

This procedure should have copied all required files and folders for your IMAC L project (if you stored them in the location as suggested by the 'IMAC L Engineering Guideline'). Just to be careful, please check your old project directory for any project specific files or folders which were not covered by the copy procedure as depicted above. Copy such files / folders manually as required for your project.

## 11.4 Create an 'OS' Project from 'Engineering PC'

The 'OS' version of IMAC L is a stripped down version of the Installation of the Engineering PC (as described above). To update an 'OS' version of AlphaVision, please proceed as follows:

- Complete the update procedure for your Engineering PC (as described above in this section) and make sure that your project it is working (compiling) properly on it.
- On the OS to be updated close all IMAC L AlphaVision applications which are currently running (including all IMAC L drivers and SoftPLC7 instances).
- On the OS to be updated rename the existing IMAC L project directory '**C:\Vision**' (e.g. to '**C:\Vision\_OS\_Old\_yyyymmdd**').
- Reboot the OS PC to be updated. This is necessary to unload DLL libraries from memory. If you have a start command for AlphaVision in the 'Autostart' folder of your OS, you will encounter errors from these commands during booting. Ignore these error messages.
- copy the whole '**C:\vision**' from your Engineering PC to your OS.
- Delete the following files & folders from the OS's '**C:\vision**' directory:
  - Directory                \prjAvET\IMAC\_L\                (with all files and subfolders)
  - Directory                \prj\                                (with all files and subfolders)
  - Directory                \Win\_EAS\                        (with all files and subfolders)
- Copy the following files and folders from your old OS project (which should be named '**C:\Vision\_OS\_Old\_yyyymmdd**' according to this description) back to the new '**C:\vision**' directory of the OS :
  - File                        \bin\IMAC\_L.cfg
  - File                        \bin\vision.ini
  - File                        \bin\VISION.LIC
  - File                        \bin\VISION\_SIC.INI
  - File                        \bin\Vision2000.ini

## 11.5 Updating the AbvSPU Signal Processing Unit

In most cases new versions of AlphaVision require the installation of a new AbvSPU Signal processing unit for the IMAC L PCUs as well. If your new AlphaVision version contains such a new Version of the AbvSpu you will have to install this for every PCU of your project.

After the installation of the AlphaVision packages, the files required for an AbvSPU update are located in a Zip file that can be found in the 'C:\vision\extinst\l' directory.

A new version of the AbvSPU is delivered as two files in this Zip file, which are named:

- 'SpuOpt\_Udp\_1.AWL' (Simatic source file)
- 'ABVSPU.SDF' (System Data File)

There are some other files in this ZIP file, which are not required for IMAC L. Unpack these two files to a local directory of your choice to have them ready for the next step.

### 11.5.1 Compiling the AbvSPU Signal Processing Unit

You will first have to compile these AbvSPU before copying it to your PCUs. IMAC L contains a special project file, which was set up to hold and compile a new Version of the AbvSPU. This IMAC L project for compiling the AbvSPU is located on your 'IMAC L Engineering System Install CD':

**'\IMAC\_L\_S7\_Project\S7\_AbvSPU\_Compile.zip'**

To unpack this IMAC L 'AbvSPU\_Compile'-project please proceed in the same way as described in Section →9 'Unpacking the IMAC L Simatic S7 Project' on page 58). The only difference here is, that you point to the '**S7\_AbvSPU\_Compile.zip**' archive file from your 'IMAC L Engineering System Install CD'.

If you have retrieved this special project in your Simatic Manager, please use the following procedure:

#### Retrieve the required AbvSPU Symbols:

- Open the **S7\_AbvSPU** Simatic Project
- In Simatic Manager click on the '**S7\_AbvSPU → CPU → S7 Program**' folder
- Double-Click on the '**Symbole**' or '**Symbols**' icon. The Symbol Editor will open.
- Mark all Symbols in this list and delete them all.
- Save the Symbols List
- Click on 'Symbol Table → Import'
- In the dialogue window select 'Files of Type' as 'System Data Format (\*.SDF)'.
- Point to the file '**ABVSPU.SDF**' (see above).
- Click on Open
- Confirm in the next dialogue with 'YES' to continue. A dialogue will indicate, that no errors occurred (warnings can be ignored).
- In the Symbol Editor click on 'Symbol Table → Save'
- Close the Symbol Editor

## Retrieve & Compile AbvSPU:

- Click on the '**S7\_AbvSPU → CPU → S7 Program → Sources**' folder
- In the right window : **Right-click → Insert new Object → External Source**
- In the dialogue box point to the new '**SpuOpt\_Udp\_1.AWL**' file
- Click on Open
- Answer 'Yes' to the 'Overwrite ?' dialogue (the Source File will be opened automatically)
- Click on File → Compile
- The source file will be compiled. No errors will occur, but lots of warnings are to be expected (> 900). This is normal and can be ignored.

## Modify AbvSPU for IMAC L:

- Click on the '**S7\_AbvSPU → CPU → S7 Program → Blocks**' folder
- Double-Click on block **DB190 ('abvspu\_DB\_UDP')**
- Edit the following cells to contain the correct values for IMAC L:
  - **DB190.DBW34 = W#16#1FEC** (HW-address from CP343 HW-config)
  - **DB190.DBW36 = W#16#1FED**
- In the DB-Editor click on View -> Data View
- In the DB-Editor click on Edit -> Initialize Data Block.
- Click 'Yes' in Dialogue.
- In the DB-Editor click on File -> Save
- Close the DB

If these steps were successful, the compiling of the new AbvSPU was successful.

## **11.5.2 Distributing the AbvSPU Signal Processing Unit to PCUs**

The last step in the update of the AbvSpu Update is to copy the resulting files to all PCUs of the IMAC L project to be updated. Most (but not all) of the files in the '**PCUx->S7 Program → Blocks**' are to be copied. To select the right files, proceed as follows:

### Select & Copy AbvSPU blocks:

- Click on the '**PCUx->S7 Program → Blocks**' folder
- Click twice on the text caption of the 'Last Modified' column. The blocks will now be sorted according to the 'last modified' date (newest on top).
- Select all files, which were created during the compiling in the previous step.
- From the selected files, unselect 'OB1', 'OB100' and 'OB101' (hold down 'Ctrl' and click on them'. Now you have selected the required files, which are to be copied to each PCU of your project.
- Click on Edit → Copy

### Paste AbvSPU blocks to all PCUs:

- Open your **IMAC L S7** project with the Simatic Manager
- Click on the '**IMAC\_L\_xxx → PCU1 → CPU → S7 Program → Bausteine**' folder
- Click on Edit → Paste
- You are prompted, if you want to replace existing blocks. Answer: YES to All !
- Repeat this last step for all PCUs in your project.
- Don't forget the AbvSPU instance, which is contained in the 'OS 99' project for Station in Control (SIC). See IMAC L Engineering Guideline, section 'ReCompile the SoftPLC Program for 'OS 99''



## 11.6 Compiling & Building the IMAC L Project

Now everything is in place to completely build your IMAC L project according to the procedures as described in the 'IMAC L Engineering Guideline':

- Compile and build your complete project once again (beginning from the Excel file). Do not omit any possible step (carefully watch for error messages or warnings)
- Distribute the new DIS / DO files to all OSs.
- Stop all PLCs.
- Erase \*\*\*completely\*\*\* and then reload each PCU (do not transmit only the modified blocks).
- Start all PLCs.
- Start all OSs

## 11.7 Special Hints for Updates

- If you had an old version of AlphaVision and you experienced problems with time setting or time synchronization between stations, you should after upgrading to a new Alpha-Vision upgrade the old project to use the new TimeMaster function of IMAC L. The IMAC L 'Engineering Guideline' document contains a very detailed description on this new function and the necessary upgrade steps from older versions (before February 2006).
- New AlphaVision versions may have changed settings (e.g. default directory names in the PrjAvET directory for Excel importing did change frequently in the past). Carefully watch for such changes and react appropriately.
- If you are an IMAC L system engineer working on a new release for IMAC L, please carefully check, if adjustments in the IMAC L documentation are required. Users will otherwise not know how to handle things. This might fill your eMail inbox a little ;-)