user manual
chromatography software

UNICORN 5.0

Administration and Technical Manual

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Amersham Biosciences

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Table of Contents

1 Network setup

Introduction

With UNICORN™ installed in a network environment, chromatography systems can be controlled from any PC in the network which has the UNICORN software installed. This chapter describes how to set up the network environment of a UNICORN network.

In this chapter

This chapter contains these sections.

1.1 Network terms and concepts

Introduction

In this section, some important network terms and concepts are explained.

Administrator categories and duties

The administrator duties can be divided into two categories with different responsibilities:

- Network administrator: Responsible for network setup, software installation and software maintenance.
- UNICORN administrator (or system administrator): Responsible for the use of UNICORN to control chromatography systems.

The network administrator and the UNICORN administrator can be the same person, but the tasks can also be carried out by two different persons.

Administrator security responsibilities

The different security responsibilities of the network administrator and the UNICORN (system) administrator are listed below.

Area	Network administrator responsibilities	UNICORN administrator responsibilities
Data storage security (back-up routines)	Back-up routines for server and local disks.	Control user access to home and shared folders, for example to place all home folders on a shared disk to prevent data from being scattered through the network.
Network access security	Maintenance of user passwords and access rights to shared resources.	-
UNICORN security	-	Maintenance of user profiles.

Local and remote stations

In a UNICORN network, the workstations can be categorized as either local stations or remote stations.

Workstation type	Description
Local station	A PC to which a chromatography system is physically connected.

Workstation type	Description
Remote station	A PC to which no chromatography system is physically connected but which can control systems over a network link. On a remote station, the UNICORN software is installed with the option Remote Only.

Network terms

In the table below are explanations for some terms which are important to understand when working with UNICORN in a network.

Term	Explanation
Storage of data	Methods and log files are stored in a folder shared between the local and the remote UNICORN.
Communication	The local and the remote UNICORN use either named pipes or sockets to send commands and data between them.
Log files in a network setup	While running, the local UNICORN system writes logs on the local hard drive. When the run is over, it copies them to the network drive where log files are stored.
Named pipes communication	From the remote UNICORN, commands are sent, e.g. “run method foo.met”. From the local UNICORN, messages and trend data are sent to the remote UNICORN.
Network failure in the middle of a run	The local UNICORN will continue the run and store log file on the *local* hard drive when the run is over.
Access to the network drive while running	When a method is started it is copied from the network drive to a local directory. During the run the method is read from the local directory.

Term	Explanation
Server in a UNICORN network setup	UNICORN requires a directory for log files and method templates to be accessible by both the local and the remote UNICORN. It is generally a good idea to use a directory on a Windows® server for easy backup.

1.2 Network environment

Who can perform the network setup?

The network setup should be performed by someone with experience in Windows 2000/XP and network installations. Preferably, a competent network administrator should be involved in the network setup, the installation of the UNICORN software and the maintenance of the network.

Reference: Network recommendations are listed in **A.1 System recommendations.** on page 189

UNICORN versions

All computers in the UNICORN network must have the same version of the UNICORN software installed, both the computers directly connected to chromatography systems and the remote control computers.

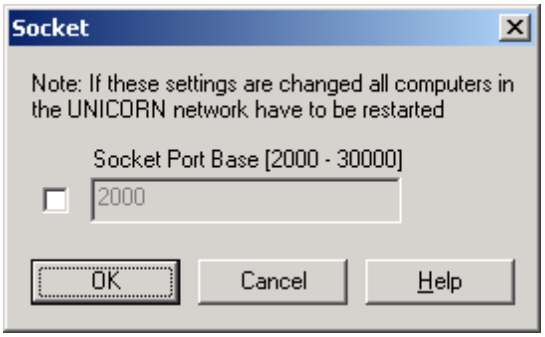
Windows user right

The user must have the Windows user right **Access this computer from network** to connect to the local station in remote control.

If named pipes cannot be used

In some networks, the policy is to not allow named pipes. In such a case TCP/IP communication via sockets must be used.

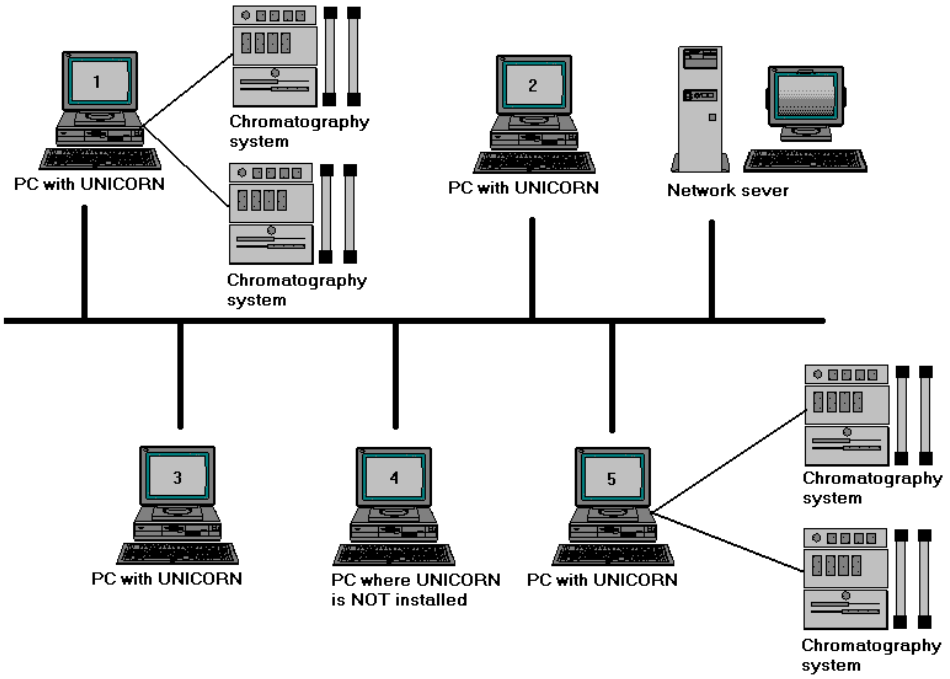
Follow the instructions in the table below to enable sockets and disable named pipes:

Step	Action
1	Choose **Administration:System Setup...** in the **UNICORN Manager**. *Result*: The **System Setup** dialog is displayed.
2	Click the **Socket** button in the **System Setup** dialog. *Result*: The **Socket** dialog is displayed.
3	• Check the check box in the **Socket** dialog.  • Click **OK**. • Click **Close**.

1.3 UNICORN network example

Network illustration

The figure below illustrates how a UNICORN network can be organized:



Comments to the illustration

Below are some comments to the network illustration shown in the figure above.

- PCs 1 and 5 are *local stations*: they have UNICORN installed and are directly connected to chromatography systems. To have a chromatography system accessible remotely, the local station must be switched on and logged on to the network.
- PCs 2 and 3 are *remote stations*: they have UNICORN installed but are not directly connected to chromatography systems. Via the network, the remote stations can control the chromatography systems that are connected to the local stations.
- PC 4 does not have UNICORN installed and therefore cannot control any chromatography systems although it is connected to the network.
- The network server does not have UNICORN installed and is not involved in the chromatography control process as such.

1.4 How to configure the network server

Introduction

This section describes how to configure the UNICORN network server.

In this section

This section contains this topic.

Topic	See
How to configure Windows 2000 Server	1.4.1

1.4.1 How to configure Windows 2000 Server

Introduction

This subsection describes how to set up a UNICORN network with Windows 2000 domain and TCP/IP network protocol.

How to create a user group and and add users

Follow the instructions below to create

- a global user group with a suitable name, for example “UNICORN Users”
- members of the user group.

Step	Action
1	Log on to the UNICORN file server with *domain* administrative rights.
2	Select **Start:Programs:Administrative Tools** to enter the **Active Directory Users and Computers** for the domain.
3	Create a group that all UNICORN users will be part of: Select the **Users folder** in the tree structure and then **Action:New:Group**.
4	Enter a suitable name for the group: Set **Group scope** to **Global** and **Group type** to **Security**. Click **OK**.
5	Create the users that will run UNICORN: Select the **Users** folder in the tree structure and then **Action:New:User**.
6	• Type **First name**, **Last name** and **User logon name**. • Click the **Next** button.
7	• Type a **Password**. • Make sure that the **Password Never Expires** option is selected. • Make sure that the **User Must Change Password at Next Logon** option is *not* selected.
8	Click the **Next** button and then the **Finish** button.
9	Double-click the newly created user and select the **Member of** tab.
10	• Select the newly created group of UNICORN users and click the **Add** button. • Click **OK**.
11	Click **OK** in the **<user> Properties** dialog box.
12	Repeat steps 5 - 11 to create more UNICORN users.

How to set up a shared folder and set the permissions

The table below describes

- how to create a shared folder on the UNICORN file server
- how to set the folder permissions so that access to the shared folder is only granted to users with full control, in this case UNICORN users.

Step	Action
1	Log on with administrative rights to the UNICORN file server.
2	Open **Windows Explorer**.
3	Select the folder to use as a shared folder and choose **File:Properties**.
4	• Select the **Sharing** tab. • Click the **Share this folder** radio button and enter a suitable name, e.g. UNICORN.
5	Click the **Permissions** button. If the group **Everyone** already has the permission named **Full Control** then go to step 9.
6	Click the **Add** button and make sure the correct domain is displayed in the top drop-down menu.
7	• Select **Everyone** in the list box and click the **Add** button. • Click **OK**.
8	Set the permission **Full Control** to the group **Everyone**.
9	• Select the **Security** tab and click the **Remove** button to remove non-authorized users and groups. • Click the **Add** button and make sure the correct domain is displayed in the top drop-down menu.
10	• Select the newly created user group in the list box and click the **Add** button. • Click **OK**.
11	Set the permission **Full Control** to the newly created user group.
12	Click **OK** to accept sharing a folder.

1.5 How to configure the workstations

Introduction

This section describes how to configure the workstations in the UNICORN network depending on the operating system installed on the workstations.

In this section

This section contains these topics.

1.5.1 How to configure Windows 2000 workstations

Introduction

This subsection describes how to set up Windows 2000 workstations in a UNICORN network with a Windows server and TCP/IP network protocol.

User rights

All users must have the Windows user right **Access this computer from the network**, which is also the default user right. If the user right is not correct the network administrator can change it.

How to set the correct user right

Follow the instructions in the table below to set the user right to **Access this computer from the network**.

Step	Action
1	Log on to the workstation with administrative rights.
2	Select **Start:Settings:Control Panel:Administrative Tools:Local Security Policy**.
3	Select **Security Settings:Local Policies:User Rights Assignment** in the tree structure.
4	Double-click the **Access this computer from the network** option.
5	Click the **Add** button and make sure the correct domain is displayed in the top drop-down menu.
6	Select the group or person(s) who will receive this right and click the **Add** button.
7	Click **OK**.

Network components to install

In order to connect a Windows 2000 workstation to the network, the following network components need to be installed on the workstation:

- Client for Microsoft® Networks
- File and Printer Sharing for Microsoft Networks
- TCP/IP Protocol
- A valid network card

How to install network components

Follow the instructions below to install the necessary network components.

Step	Action
1	• Start the computer with the appropriate network card inserted. • Log on to the Windows 2000 workstation with administrator rights. The adapter will be found and installed.
2	Choose **Start:Settings:Control Panel**.
3	Double-click the **Network and Dial-up Connections** icon.
4	Double-click the **Local Area Connection** icon.
5	Choose **Properties** and then **Install**.
6	If the component **Client for Microsoft Networks** is already installed, go to step 8. If not, select the component **Client** from the list and click the **Add** button.
7	Select **Client for Microsoft Networks** from the list and click **OK**.
8	Click the **Install** button.
9	If the component **File and Printer Sharing for Microsoft Networks** is already installed, go to step 11. Otherwise select the component **Server** from the list and click the **Add** button.
10	Select **File and Printer Sharing for Microsoft Networks** from the list and click the **Add** button.
11	Click the **Install** button.
12	If the component **Internet Protocol (TCP/IP)** is already installed, go to step 14. If not, select the component **Protocol** from the list and click the **Add** button.
13	Select **Internet Protocol (TCP/IP)** and click **OK**.
14	Select **Internet Protocol (TCP/IP)** and click **Properties**.
15	Configure the TCP/IP protocol with network-specific information.

How to connect the workstation to the domain

Follow the instructions in the table below to add the workstation to the Windows domain.

Step	Action
1	Log on to the Windows 2000 workstation with administrator rights.
2	Select **Start:Settings:Control Panel**.

Step	Action
3	Double-click the **System** icon.
4	Select the **Network Identification** tab and click the **Network ID** button. *Result*: The **Network Identification Wizard** starts. Click the **Next** button.
6	Select the **This computer is part of a business network and I use it to connect to other computers at work** radio button and click the **Next** button.
7	Select the **My company uses a network with a domain** radio button and click the **Next** button. *Result*: The **Network Information** dialog page is displayed. Read it and click the **Next** button.
8	Type a **User name**, **Password** and **Domain**. This user must be a domain administrator. Click the **Next** button.
9	Type a **Computer name** and **Computer domain**. Click the **Next** button.
10	Enter **User name**, **Password** and **Domain**. This user must be a domain administrator. Click **OK**.
11	Add the displayed user to the computer and click the **Next** button.
12	Click the **Finish** button.
13	Restart the computer.

To map a drive letter and install UNICORN

The last steps in the network setup are

- to map the shared folder to a drive letter
- to install the UNICORN software.

See the instructions below.

How to map the shared folder

Follow the instructions in the table below to map the shared folder to a suitable drive letter.

Step	Action
1	Log on to the Windows 2000 workstation with domain user rights. This user must also be a member of the user group created before.
2	Open **Windows Explorer**.
3	Select **Tools:Map Network Drive** to connect the shared folder on the UNICORN file server to the designated drive letter:

Step	Action
4	• Select the drive letter in the upper drop-down list box. • Make sure the **Reconnect at Logon** option is selected. • Click the **Browse** button.
5	• Locate and select the shared folder UNICORN will use and click **OK**. • Click the **Finish** button.

How to install UNICORN on a workstation

Follow the instructions in the table below to install UNICORN.

Step	Action
1	Install UNICORN. See **2.3.1 How to install UNICORN** on page 36 (select the **Network installation** option) or **2.3.2 How to install UNICORN for ÄKTAxpress™** on page 54.
2	Reboot the PC and log on as one of the domain users that will run UNICORN.
3	Connect the shared folder again. This is necessary since connected network drives are user-specific.
4	Open **Windows Explorer**.
5	Select **Tools:Map Network Drive** to connect the shared folder on the UNICORN file server to the designated drive letter:
6	• Select the drive letter in the upper drop-down list box. • Make sure the **Reconnect at Logon** option is selected. • Click the **Browse** button.
7	• Locate and select the shared folder UNICORN will use and click **OK**. • Click the **Finish** button.
8	Start UNICORN and set up • the system definitions, see **6.2.1 System definitions** on page 115. • the user profiles, see **6.3 User administration** on page 137.

1.5.2 How to configure Windows XP workstations

Introduction

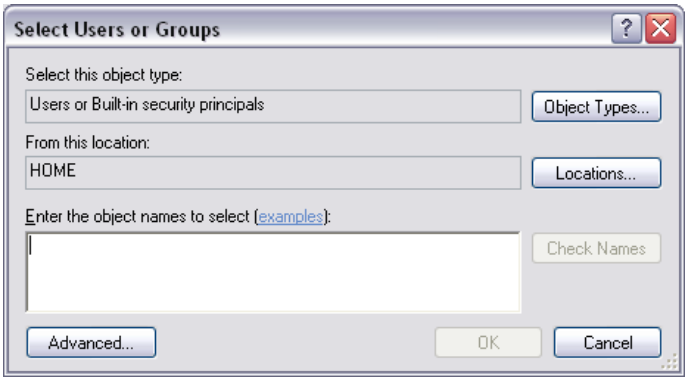
This subsection describes how to configure Windows XP workstations in a UNICORN network with a Windows server and TCP/IP network protocol.

User rights

All users must have the Windows user right **Access this computer from the network**, which is also the default user right. If the user right is not correct the network administrator can change it.

How to set the correct user right

Follow the instructions in the table below to set the user right to **Access this computer from the network**.

Step	Action
1	Log on to the workstation with administrative rights.
2	Choose **Start:Control Panel:Administrative Tools:Local Security Policy**. ***Note:*** *If you cannot see the individual items in the Control Panel you have to click the link* **Switch to Classic View** *in the left pane of the Control Panel.*
3	Choose **Security Settings:Local Policies:User Rights Assignment** in the tree structure.
4	Double-click the **Access this computer from the network** option.
5	Click the **Add User or Group** button. *Result:* The **Select Users or Groups** dialog box is opened.  Make sure the correct domain is displayed in the text field **From this location**. Click the button • **Object Types...** to change the type of objects to select • **Locations...** to change the root location (domain) from which to begin your search.

Step	Action
6	Choose one of the following options: **Option 1: Write the name** 1. Write the name of the group or user(s) in the text field **Enter the object names to select (examples)**. 2. Click the **Check Names** button to check if the name is valid. 3. If the name is accepted, click **OK** and then **OK** again. **Option 2: Choose the name from a list** 1. Click the **Advanced...** button. An expanded **Select Users or Groups** dialog box is opened. 2. Click the **Find Now** button to display a list of possible names. 3. Select one or more names and click **OK**. 4. Click **OK** and then **OK** again.

Network components to install

In order to connect a Windows XP workstation to the network, the following network components need to be installed on the workstation:

- Client for Microsoft Networks
- File and Printer Sharing for Microsoft Networks
- TCP/IP Protocol
- A valid network card

How to install network components

Follow the instructions below to install the necessary network components.

Step	Action
1	• Start the computer with the appropriate network card inserted. • Log on to the Windows XP workstation with administrator rights. The adapter will be found and installed.
2	Choose **Start:Control Panel:Network Connections**. *Result:* The **Network Connections** window is opened.
3	Right-click the **Local Area Connection** icon and choose **Properties**. *Result:* The **Local Area Connection Properties** dialog box is opened and the **General** tab is displayed.

Step	Action
4	If the component **Client for Microsoft Networks** is already installed, go to step 5. Otherwise, • Click the **Install** button, select the component **Client** from the list and click the **Add...** button. • Select **Client for Microsoft Networks** from the list and click **OK**.
5	If the component **File and Printer Sharing for Microsoft Networks** is already installed, go to step 6. Otherwise, • Click the **Install** button, select the component **Service** from the list and click the **Add...** button. • Select **File and Printer Sharing for Microsoft Networks** from the list and click **OK**.
6	If the component **Internet Protocol (TCP/IP)** is already installed, go to step 7. Otherwise, • Click the **Install** button, select the component **Protocol** from the list and click the **Add...** button. • Select **Internet Protocol (TCP/IP)** from the list and click **OK**.
7	• In the **Local Area Connection Properties** dialog box, select **Internet Protocol (TCP/IP)** and click **Properties**. • Configure the TCP/IP protocol with network-specific information.

How to connect the workstation to the domain

Follow the instructions in the table below to add the workstation to the Windows domain.

Step	Action
1	Log on to the Windows XP workstation with administrator rights.
2	Choose **Start:Control Panel:System**. *Result:* The System Properties dialog is displayed.
3	Choose the **Computer Name** tab and click the **Change...** button. *Result*: The **Computer Change Names** dialog is opened.
4	• Select the **Domain** radio button and write the domain name in the text field. • Click **OK**.

Step	Action
5	• Type **User name** and **Password** in the subsequent dialog and click **OK**. • Click **OK** in the **Domain Welcome** dialog
6	A dialog is displayed which informs that the computer should be restarted for the changes to take effect. Click **OK** in the dialog and restart the computer.

To map a drive letter and install UNICORN

The last steps in the network setup are

- to map the shared folder to a drive letter
- to install the UNICORN software.

See the instructions below.

How to map the shared folder

Follow the instructions in the table below to map the shared folder to a suitable drive letter.

Step	Action
1	Log on to the Windows XP workstation with domain user rights. This user must also be a member of the user group created before.
2	Open **Windows Explorer**.
3	Select **Tools:Map Network Drive** to connect the shared folder on the UNICORN file server to the designated drive letter:
4	• Select the drive letter in the upper drop-down list box. • Make sure the **Reconnect at Logon** option is selected. • Click the **Browse** button.
5	• Locate and select the shared folder UNICORN will use and click **OK**. • Click the **Finish** button.

How to install UNICORN on a workstation

Follow the instructions in the table below to install UNICORN.

Step	Action
1	Install UNICORN. See **2.3.1 How to install UNICORN** on page 36 (select the **Network installation** option) or **2.3.2 How to install UNICORN for ÄKTAxpress** on page 54.

Step	Action
2	Reboot the PC and log on as one of the domain users that will run UNICORN.
3	Connect the shared folder again. This is necessary since connected network drives are user-specific.
4	Open **Windows Explorer**.
5	Select **Tools:Map Network Drive** to connect the shared folder on the UNICORN file server to the designated drive letter:
6	• Select the drive letter in the upper drop-down list box. • Make sure the **Reconnect at Logon** option is selected. • Click the **Browse** button.
7	• Locate and select the shared folder UNICORN will use and click **OK**. • Click the **Finish** button.
8	Start UNICORN and set up • the system definitions, see **6.2.1 System definitions** on page 115. • the user profiles, see **6.3 User administration** on page 137.

2 Installation

Introduction

This chapter describes how to install

- hardware (external controller or expansion card)
- software (UNICORN software).

It also describes

- system connection management
- system monitor calibration.

In this chapter

This chapter contains these sections:

2.1 Installation overview

Installation summary

The table below is an overview of the *complete* UNICORN installation procedure.

Step	Action
1	Back up files if you migrate from an older version of UNICORN to a newer version.
2	Set up the network environment (for network installations only) and the workstations. *Reference*: See **1.4 How to configure the network server** on page 9 and **1.5 How to configure the workstations** on page 12.
3	Install UNICORN hardware and software. *Reference*: See **2.2 Hardware installation** on page 24 and **2.3 Software installation** on page 35.
4	Define access levels for the installation. *Reference*: See **6.3.1 User access groups** on page 138.
5	Define users with home folders and access profiles. *Reference*: See **6.3.3 How to create a new user** on page 145 and **6.3.4 How to assign user properties** on page 149.
6	Check the system settings for the attached systems. *Reference*: See chapter **7 System settings** on page 163.

System recommendations

The hardware, software and network recommendations are listed in **A.1 System recommendations** on page 189.

2.2 Hardware installation

Introduction

The hardware can be of two types:

- Internal PCI expansion card: CU-900 PCI
- External controller: CU-950

First of all, read **2.2.1 When to install hardware** on page 25 to check if any hardware installation is necessary.

Note: *Hardware installation for ÄKTAxpress is described in the ÄKTAxpress Installation Guide.*

In this section

This section contains these topics:

2.2.1 When to install hardware

Pre-installed systems

In most cases your system is pre-installed, that is it is installed by authorized personnel from Amersham Biosciences. If your system is pre-installed, no hardware installation is necessary.

When hardware installation is necessary

Hardware installation is only necessary for a PC which is directly connected to one or more systems. Whether this PC is connected to a network or not (stand-alone installation) does not matter.

In other words, if your system is not pre-installed and the computer is directly connected to a chromatography system, you must install hardware.

2.2.2 How to install CU-900 PCI

When to use CU-900 PCI

The CU-900 PCI expansion card is used to connect chromatography or synthesis instruments to a PC. CU-900 PCI can be used together with all the ÄKTA™ instruments *except* ÄKTAprime™ and ÄKTAxpress.

Note: *The instruments that can be used with CU-900 PCI can also be used with the CU-950. See* ***2.2.3 How to install CU-950*** *on page 30 for information on how to install CU-950.*

Instrument capacity

A maximum of four instruments (liquid handling modules) can be connected to one PC, as specified by the rules below:

- One instrument can be connected to each CU-900 PCI card.
- UNICORN supports up to four CU-900 PCI cards on one PC.

How to install the PCI card

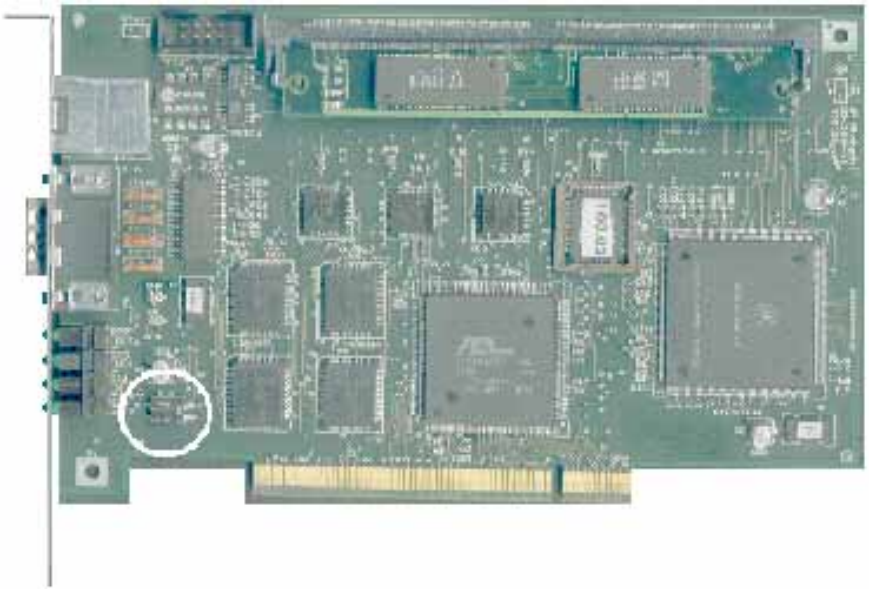
The table below describes the hardware installation, i.e. how to install the CU-900 PCI card in an empty PCI slot in a PC.

Step	Action
1	• Turn off the power to the PC. • Remove the power cable from the mains socket. • Open the PC cover. See the PC documentation if you are not sure how to do this.
3	Take the expansion card out of the anti-static bag. **Handle with care** Handle the card by its edges and avoid touching the electronic components as far as possible; discharges of static electricity can permanently damage electronic components on the card. If you are working in a room where static electricity tends to build up, discharge any electricity from your body by touching an earthed metal surface (for example a water tap or radiator) before handling the card.
4	• Locate the DIP switch on the expansion card. How to do this is described in **2.2.2 How to locate the DIP switch** on page 27. • Check the DIP switch setting to determine which CU is selected. Write down the number of the selected CU. How this is done is described in **2.2.2 How to determine which CU is selected** on page 28. ***Note:*** *The number of the selected CU must be entered in the UNICORN software installation so that UNICORN can find the system when started.*

Step	Action
5	Locate an empty PCI slot. • Install the expansion card in the empty PCI slot. • Close the cover of the PC.
6	Connect the card to the liquid handling module CU connector using the communication cable provided.

How to locate the DIP switch

The CU is set with a DIP switch. Look at your expansion card and compare it with the figure below. The circle in the figure indicates where the DIP switch is located on the expansion card:



How to determine which CU is selected

The figure below describes which DIP switch setting corresponds to which selected CU:

Dip switch setting on the expansion card	Selected Control unit
	1
	2
	3
	4

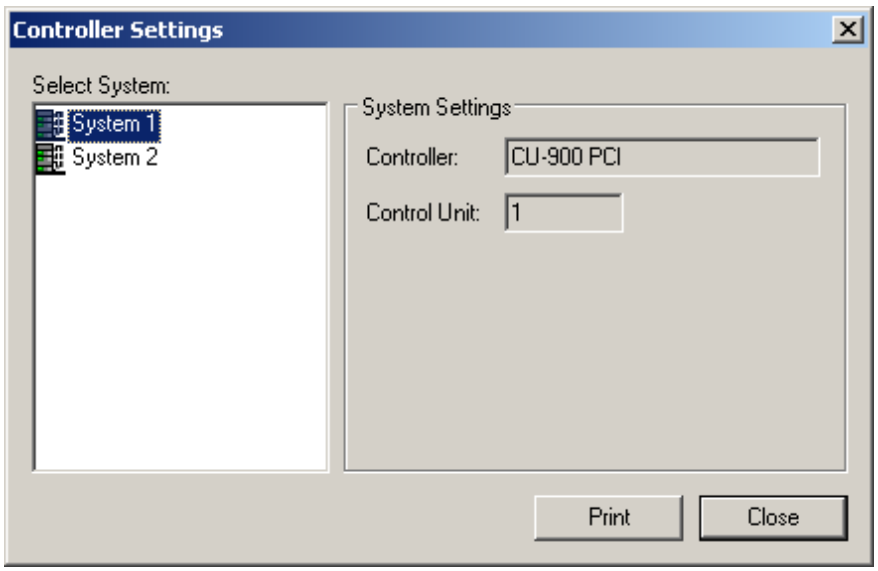
Make a note of which CU is selected on the expansion card and save the note for future use. When you install the UNICORN software and the setup program asks for the card settings, type the number of the selected CU. See also "How to verify the CU setting of the expansion card".

How to verify the CU setting of the expansion card

In the **Controller Settings** dialog box you can verify the CU (Control Unit) setting of an expansion card.

- Choose **Administration:Controller Settings** in the **UNICORN Manager**.

Result: The **Controller Settings** dialog box is displayed.



How to install the drivers

The table below describes how to install the CU-900 PCI drivers when the hardware (the PCI card) has been installed.

Step	Action
1	• Start and log on to the PC. *Result:* If this is the first time you start the PC after the hardware installation, the **Found New Hardware Wizard** should start. • Select the option **Install the software automatically**. • Click the **Next** button.
2	• Select **Search for the best driver in these locations**. • Select only **Include this location in the search**. • Insert the UNICORN CD into the CD-ROM drive of the PC. • Click the **Browse** button and locate the folder `\\Drivers\Cu900pci\`. • Click the **Next** button. *Result:* The necessary files are copied to the hard disk. ***Note:*** *In Windows XP, a warning may be displayed saying that the drivers are not signed. Just choose the option to install anyway.*
3	The **Completing the Found New Hardware Wizard** screen is displayed, • Click the **Finish** button to complete the installation.

2.2.3 How to install CU-950

When to use CU-950

The CU-950 controller is an interface to connect chromatography or synthesis instruments to a PC. CU-950 can be used together with all the ÄKTA instruments *except* ÄKTAprime and ÄKTAxpress.

Note: *The instruments that can be used with CU-950 can also be used with the CU-900 PCI expansion card. See* ***2.2.2 How to install CU-900 PCI*** *on page 26 for information on how to install CU-900 PCI.*

The LEDs on CU-950

There are three LEDs on the front of the CU-950 which can be in three different states:

- Off (no light)
- Flashing
- On (steady light)

The table below describes what the state of each LED means.

LED	Off	Flashing	On
Power	Power off	Power on, BIT running or BIT not OK	Power on, BIT OK
PC	Power off	Power on, no PC communication	Contact with PC established
System	Power off	Power on, no system (ÄKTA instrument) communication	Contact with system (ÄKTA instrument) established

BIT = Built-in test

CU-950 USB and CU-950 Advanced

There are two versions of the CU-950 controller, USB and Advanced. The table below describes how they connect and how many that can be connected to the PC.

Controller	Connector	Max. units connected
CU-950 USB	USB (Universal Serial Bus)	1
CU-950 Advanced	Ethernet	4

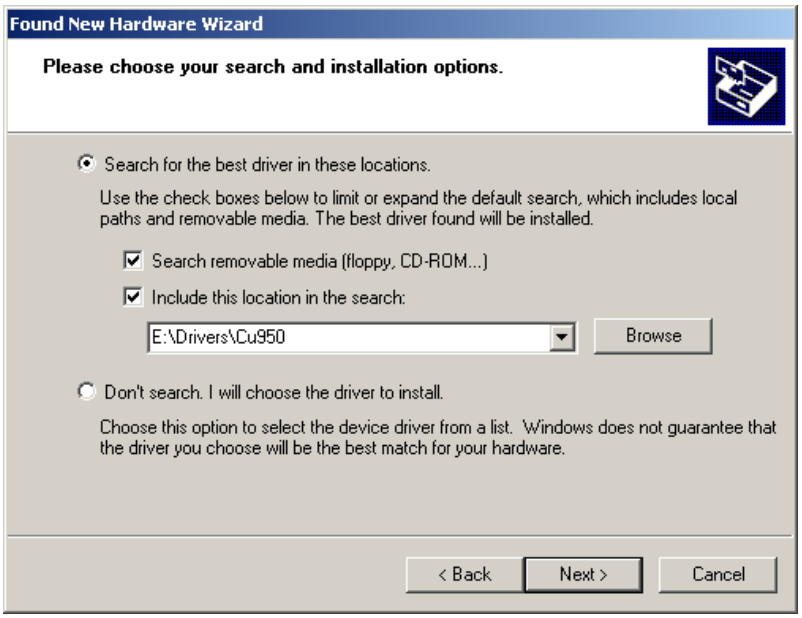
In order to use the CU-950 USB, certain drivers need to be installed. See instructions below.

How to install the USB drivers

The table below describes how to install the CU-950 USB drivers.

Note: *This installation is only necessary if you use the CU-950 USB.*

Step	Action
1	• Start and log on to the PC. • Connect the CU-950 power cable to the mains socket and wait until the LEDs show that it has started up: - Power LED: On (steady light) - PC LED: Flashing - System LED: Flashing • Connect the USB cable to the CU-950 and the PC.
2	Since this is the first time you connect the CU-950, the **Found New Hardware Wizard** is started.  • Select the option **Install the software automatically**. • Click the **Next** button.

Step	Action
3	 • Select **Search for the best driver in these locations**. • Select only **Include this location in the search**. • Insert the UNICORN CD into the CD-ROM drive of the PC. • Click the **Browse** button and locate the folder `\\Drivers\Cu950`. • Click the **Next** button. *Result:* The necessary files are copied to the hard disk. ***Note:*** *In Windows XP, a warning may be displayed saying that the drivers are not signed. Choose the option to install anyway.*
4	The **Completing the Found New Hardware Wizard** screen is displayed. • Click the **Finish** button to complete the installation.

CU-950 system installation

To be able to control a system (an instrument) with the CU-950 controller the UNICORN software has to be set up accordingly. Usually this is done when the UNICORN software is installed for the first time, but it can also be done afterwards.

System installation during UNICORN software installation

The system installation part of the UNICORN software installation is described in **2.3.1 Step 11 - System Installation** on page 53.

System installation after UNICORN software installation

The table below describes how to perform a CU-950 system installation after the UNICORN software has been installed.

Step	Action
1	• Insert the UNICORN CD in the CD-ROM drive. *Result:* The Setup wizard starts and displays the **Welcome** screen. • Click the **Next** button.
2	The **Select Components** screen is displayed. • Make sure that the **System Installation** option is selected. You should deselect the other check boxes unless you want to install other components. • Click the **Next** button.
3	The **Program Options** screen is displayed. • Specify the number of **System Control Windows** you want to be available, normally the number of instruments that will be simultaneously connected to the PC. Maximum value is - 1 for CU-950 USB - 4 for CU-950 Advanced. • Click the **Next** button.
4	The **Start Copying Files** screen is displayed. • Click the **Next** button.
5	The **System installation** screen is displayed. • Go to **2.3.1 Step 11 - System Installation** on page 53 for further instructions.

CU-950 Advanced port numbers

The TCP ports used by UNICORN for the CU-950 Advanced are numbered 60X01-60X33, where X is the CU ID minus 1.

Example

- The CU ID = 1 (default)
- => X = 1 - 1 = 0

=> The TCP port numbers used on the PC and on the CU = **60001-60033**

2.3 Software Installation

Introduction

The UNICORN software is normally pre-installed by a Amersham Biosciences representative. Follow the instructions in this section to install the program yourself if your system is not pre-installed.

Note: *If the system is connected to the network and installed to support remote control, make sure that the same version of UNICORN is installed on all stations in the network.*

In this section

This section contains these topics:

Topic	See
How to install UNICORN	2.3.1
How to install UNICORN for ÄKTAxpress	2.3.2
How to install selected software components	2.3.3

2.3.1 How to install UNICORN

Different UNICORN versions

From UNICORN 5.01 on, different versions of the UNICORN software are available. Besides the Full version, a Remote and a Dry version are also available.

The table below describes the characteristics of the different versions.

UNICORN version	Characteristics
Full version	Complete functionality
Remote version	Only remote systems connected to an existing UNICORN server can be controlled. Local systems cannot be installed.
Dry version	The System Control module is not available. Therefore no systems can be controlled with this version of UNICORN.

In this chapter

In this chapter, the installation of the Full version of UNICORN is described. The installation procedure for the other versions is similar, though certain options are disabled.

Installation prerequisites

Before you start the installation procedure the following prerequisites have to be met:

- The operating system, Windows 2000/XP, must be correctly installed on your computer. See the operating system documentation for details.
- For network installations of UNICORN, the network must be correctly set up. See chapter **1 Network setup** on page 3.

Installation notes

Also notice the following:

- Perform the UNICORN installation procedure on each computer in the network for a network installation.
- A warning message is issued if you install UNICORN to an existing UNICORN server. It is not possible for the Setup program to check which UNICORN version is installed on the server, so the warning is general:

  "Warning! You are installing UNICORN to an existing UNICORN server on the network. All computers connected to the same UNICORN server on the network have to be of the same version for the software to work correctly. Please check that all computers connected to the UNICORN server you are connecting to is of the correct version. If another version is detected on one of the other computers connected to the UNICORN server, those computers have to be upgraded to the same version you are currently installing."
- You can exit the installation at any point by clicking on either the **Cancel** button or the **Exit** button. If you do this, however, the installation will be incomplete and the software cannot be used.
- After the installation, the installed files are compared with the original files on the installation CD to make sure that no files have been corrupted during installation. The criteria used for the file comparison are name, size, version and checksum.

Upgrading a UNICORN installation

Installing a new version of the UNICORN software over an existing UNICORN installation is no problem. You do not have to uninstall the previous version before installing the new version.

Note: *If you have made additions to the previous installation you will be asked if you want to keep these additions when UNICORN is started the first time after the new installation. This is described in* ***2.3.1 Step 4 - Select Components*** *on page 41.*

Do not copy the CD-ROM or decompress the files

UNICORN is supplied on a CD-ROM. Files on the CD-ROM are compressed and cannot simply be copied onto the hard disk. During the installation procedure, the required folder structure is created on the hard disk and the files are decompressed. Do *not* attempt to decompress the files using any other file decompression utility.

Step 1 - Insert the Setup CD

Follow the instructions in the table below to begin the installation:

Step	Action
1	For network installations, log on to the network and check that you have access to the server disk and folder where the UNICORN network components are to be installed.

Step	Action
2	• Insert the CD-ROM disk into the CD-ROM drive. The UNICORN Setup Program should start automatically. If not, • click the Windows **Start** button and select **Run** • type the command `d:setup`, where `d:` is the unit for your CD-ROM drive. • click **OK**.
3	The UNICORN Setup Program is launched. Continue the setup below.

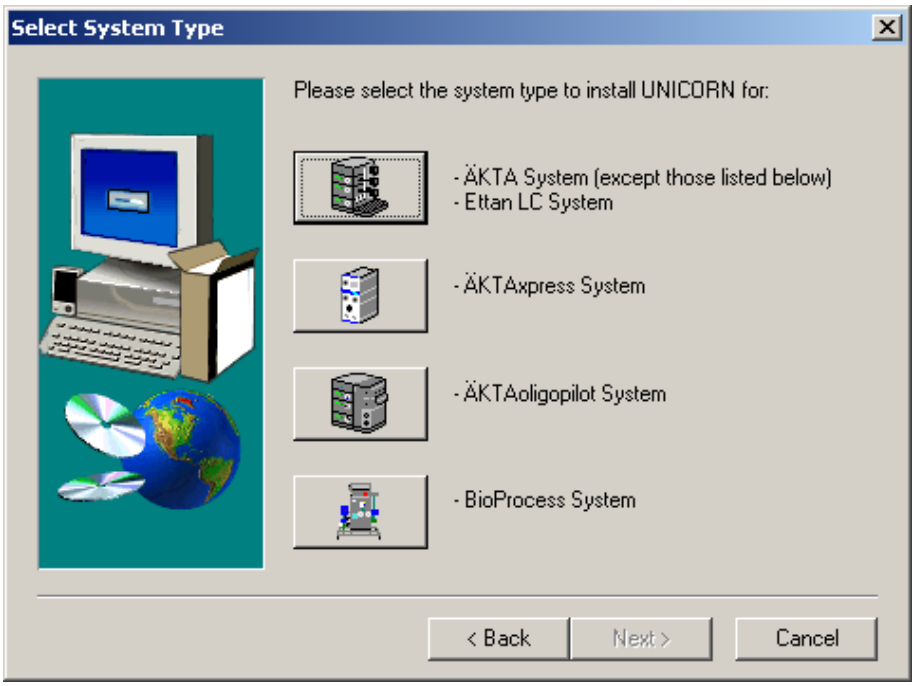
Step 2 - License agreement and user information

This table describes how to complete step 2 of the UNICORN Setup Program:

Step	Action
1	• The **Welcome** dialog box is displayed. • Click the **Next** button to continue.
2	• The **UNICORN Software License Agreement** dialog box is displayed. You must accept the license agreement to install UNICORN. • Click the **Yes button** to continue.
3	• The **User Information** dialog box is displayed. Type your name, company and the product serial number of the software. The serial number can be found on the UNICORN License Agreement that is shipped with the CD. • Click the **Next button** to continue.

Step 3 - Select System Type

In the **Select System Type** dialog box you choose the type of system (instrument) you will use.

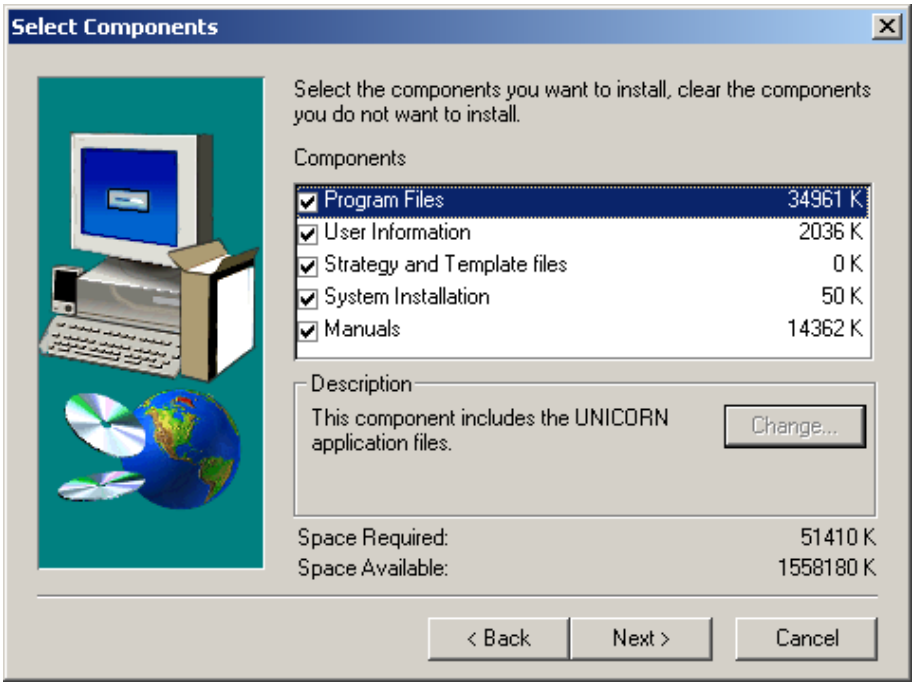


Note: *In UNICORN 5.0, a dialog box with fewer choices is used.*

- Click the button that corresponds to the system you wish to install UNICORN for.

Step 4 - Select Components

In the **Select Components** dialog box you choose the components to install by selecting the appropriate check boxes.



Note: *System Installation is not available in the Remote and Dry versions of UNICORN.*

The table below describes each component and possible sub-components.

Component	Description
Program Files	The **Program Files** check box *must* be selected, whether it is a local or remote station.
User Information	**Stand-alone installation** The **User Information** check box must be selected if you are installing UNICORN for the first time on a stand-alone computer. **Network installation** The **User Information** component only needs to be installed once in a network. For all following installations to the same network, the files will already be present on the server. **The Select Sub-components dialog box** Select **User Information** check box and click the **Change** button. *Result*: The **Select Sub-components** dialog box is displayed, showing the sub-components: • Global Procedures • Global Report Formats • Global BufferPrep Recipes • Global Columns • User File Select the components you wish to install. **If sub-components already exist** If any of the above components already exist from a previous installation, you will be asked if you want to replace them with the new default files. • Normally you should answer **No** and keep the existing files. ***Note:*** *See also **2.3.3 User Information** on page 69 where this dialog box is described in more detail.*

Component	Description
Strategy and Template files	• Select the **Strategy and Template files** check box for each new strategy that is installed, usually when a new system is installed on a local computer. Each strategy needs only to be installed once since they are stored on the server. • Click the **Change** button to display the **Select Subcomponents** dialog box. There you can select which components to install, **Strategy files** and/or **Template files**.
System installation	The **System** check box must be selected for workstations where systems are connected, but not on remote or demo stations.
Manuals	• Select the **Manuals** check box if you want to install the UNICORN manuals. • Click the **Change** button to display the **Select Subcomponents** dialog box. There you select additional system manuals to install. By default, the available manuals of interest to your system will be installed.

- Select the check boxes for the components you want to install.

Note: *For a stand-alone installation, all components must be selected.*

- Click the **Next** button to continue.

Step 5 - Select Drive

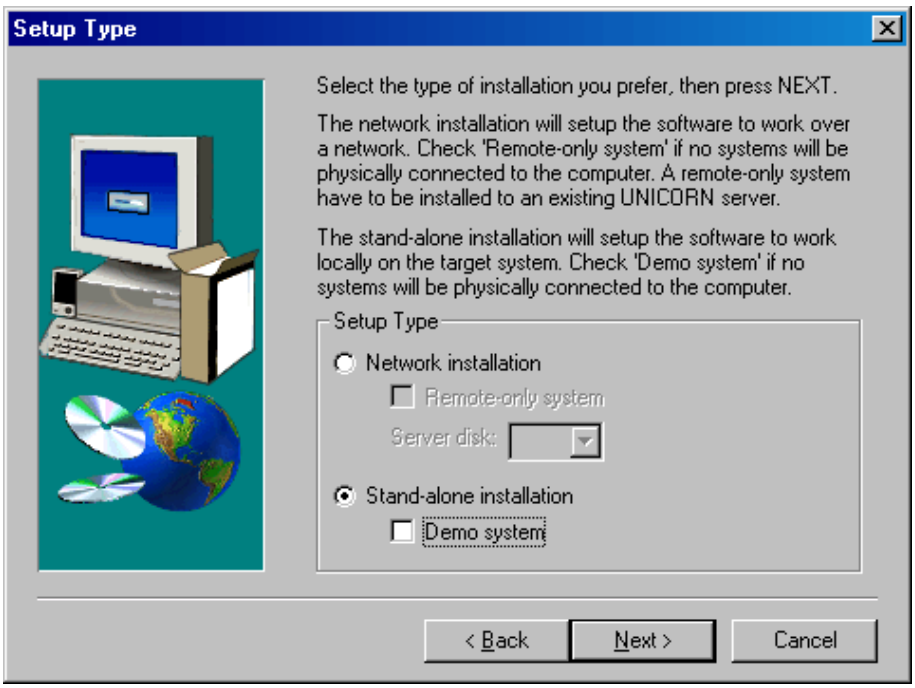
In the **Select Drive** dialog box you choose the installation folder for the UNICORN software.

Follow the instructions in the table to select a disk drive:

Step	Action
1	Select the disk drive where the program is to be installed. This should be a physical disk drive (usually `C:`) on the computer where you install UNICORN, not a network disk drive.
2	• Click the **Next** button to continue. • Click the **Yes** button if asked whether Setup should create the UNICORN program folder.

Step 6 - Setup Type

The **Setup Type** dialog box is displayed:



Note: *The Setup Type options are limited in the Remote and Dry versions of UNICORN as described in* ***2.3.1 Different UNICORN versions*** *on page 36.*

The table below describes how to select the setup type:

Step	Action
1	You can perform either a **Stand-alone installation** or a **Network installation**, see • **2.3.1 Step 6 - Stand-alone Installation** on page 43 • **2.3.1 Step 6 - Network Installation** on page 44
2	When you have made your selections, click the **Next** button to continue.

Step 6 - Stand-alone installation

A stand-alone installation can be either

- a local station
- a demo station.

Select the **Demo system** check box if you want to install a demo station.

The network options settings are ignored for a stand-alone installation.

Note: *If you perform a stand-alone installation and later want to connect the system to a network, you must remove the current installation and install the software with the appropriate settings.*

Step 6 - Network installation

A network installation can be either

- a local station
- a remote-only system.

You have to select these disk drives in a network installation:

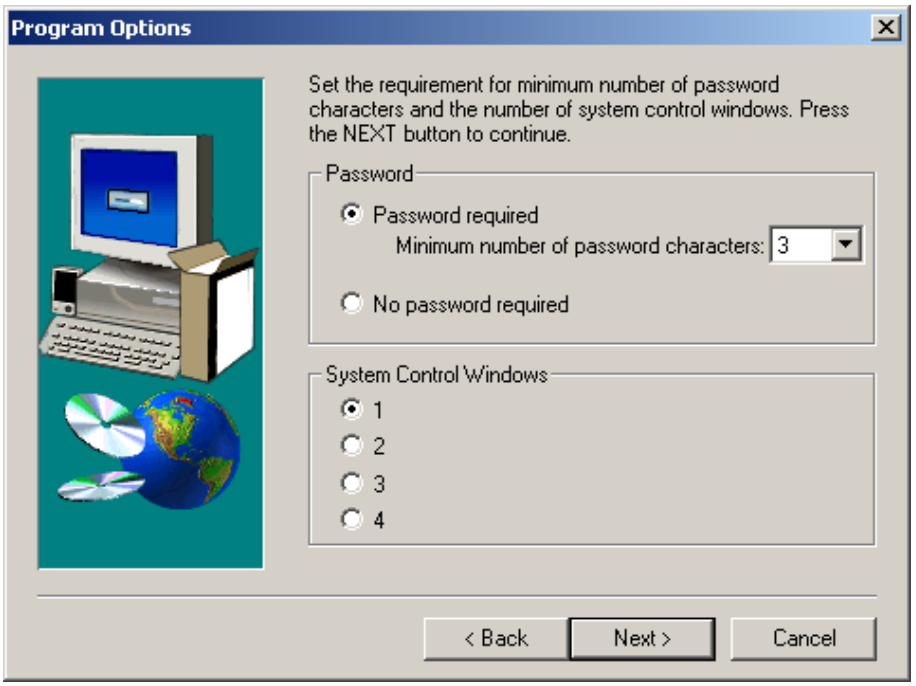
- A local disk for the program files
- A server disk for the server files

Select the **Remote-only system** check box to install a remote-only system, that being a computer to which no systems are physically connected.

Note: *When you perform a network installation, the necessary UNICORN software components will be copied automatically to the network server disk.*

Step 7 - Program Options

Follow the instructions in the table below to set the required parameters for password and system control windows:

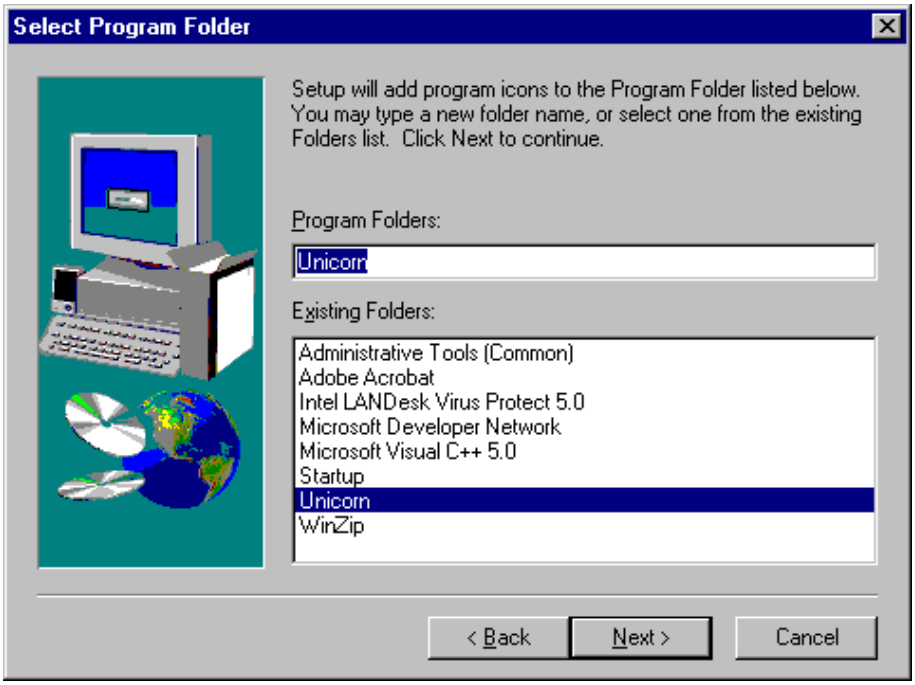


Step	Action
1	Select **Password required** and type the minimum number of characters required for passwords. Valid numbers of password characters are 3 -15. Select **No password required** if you do not require password protection. With this setting, users can be defined with or without passwords. ***Note:*** *Make sure that you enter the same password settings on each station in a network.*

Step	Action
2	Choose the number of **System Control windows** that should be available in the installation. Maximum value is 4.
3	Click the **Next** button to continue.

Step 8 - Select Program Folder

In the **Select Program Folder** dialog box you choose where to store the program icon.

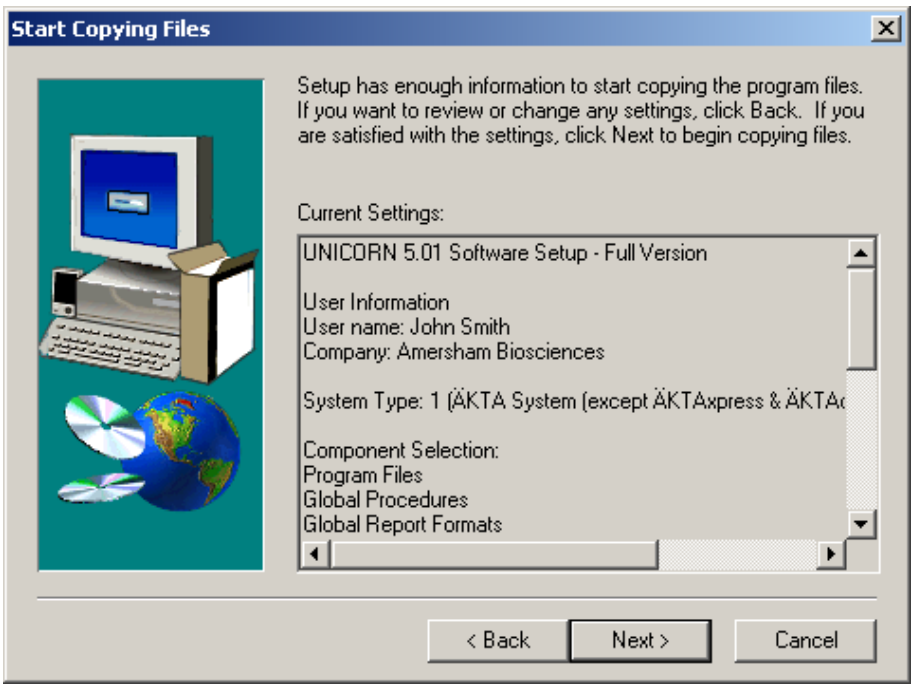


The table below describes how to select a program folder for the UNICORN icon:

Step	Action
1	In the **Select Program Folder** dialog box, you select the Start menu folder where you want the UNICORN icon to be placed. You can either • accept the suggested folder named **UNICORN** (recommended) *or* • create a new folder. Type the name of the new folder in the text field **Program Folders**. *or* • select a folder that already exists by clicking its name on the list.
2	Click the **Next** button to continue.

Step 9 - Start Copying Files

The **Start Copying Files** dialog box displays the installation choices made.



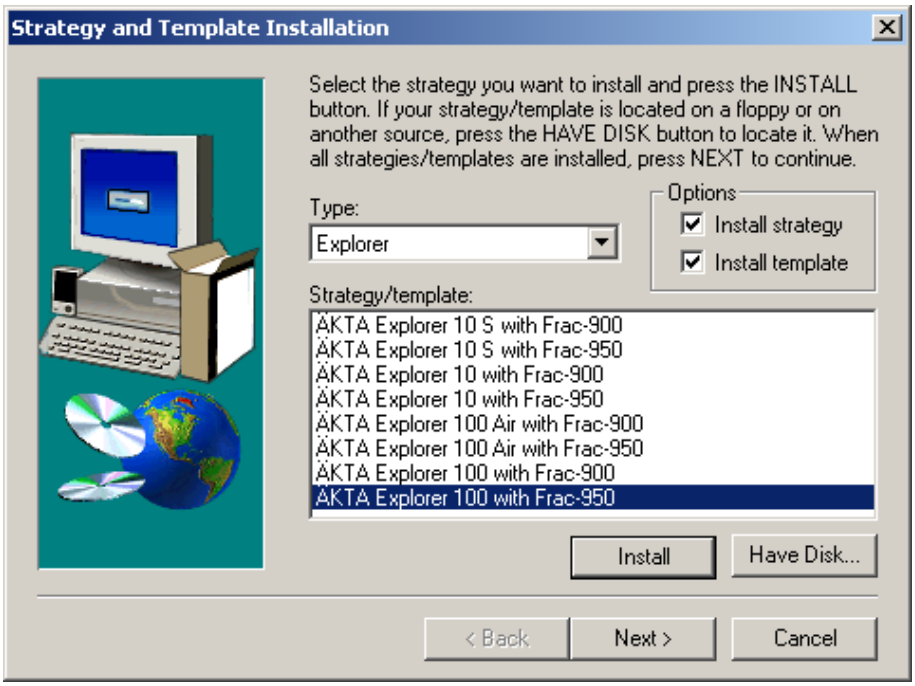
The table describes how to start copying the program files from the CD:

Step	Action
1	The setup program is ready to copy the files. The **Start Copying Files** dialog box displays all the selections that have been made and the components to be installed. ***Note:*** *If you want to make any changes you can click the* **Back** *button one or more times.*
2	If the settings are correct, click the **Next** button to copy the files.

Step 10 - Strategy and Template Installation

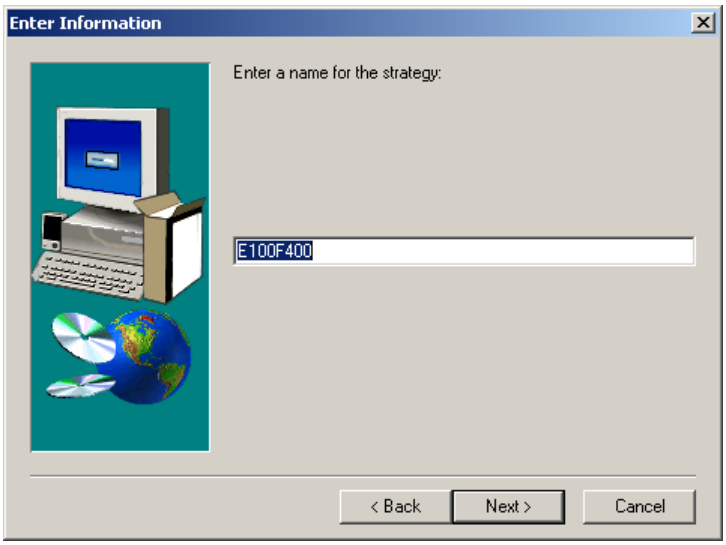
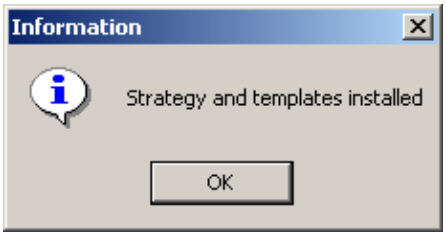
The **Strategy and Template Installation** dialog box is displayed if you chose to install strategy and/or template files in step 4.

If you did *not* choose to install strategy and template files, go to "Step 12 - System Table settings" below.



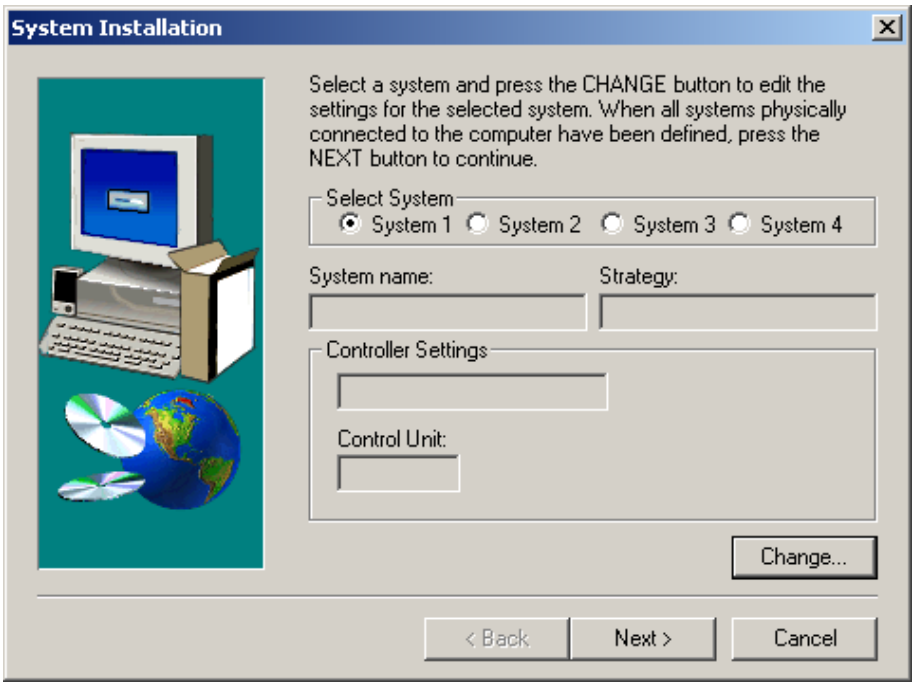
Follow the instructions in the table below to install strategy and template files:

Step	Action
1	Select the items you wish to install in the **Options** field. ***Note:*** *If the options for both strategy and template are checked, the template files are installed automatically together with the strategy.*
2	Select your system type in the **Type** drop-down box.
3	Select the strategy/template that corresponds to your system in the **Strategy/template** list box.
4	• Click the **Install** button *or* • click the **Have Disk** button to locate the strategy/template files if they are stored on a CD or diskette. ***Note:*** *If the strategy and template files are located on different diskettes, the setup program will ask for the template diskette when it is needed.* *Result*: The **Enter Information** dialog box is displayed.

Step	Action
5	 • Either keep the suggested default name for the strategy to be installed or type another name. • Click the **Next** button.
6	An **Information** dialog box is displayed.  • Click **OK**. *Result*: The **Strategy and Template Installation** dialog box is displayed again.
8	• Repeat steps 1 to 6 in this table if you have more than one system configuration and want to install additional strategies. ***Note:*** *Strategies are installed independently of systems. A strategy is assigned to a system when the system is defined.* *or* • Click the **Next** button to continue to the next installation step.

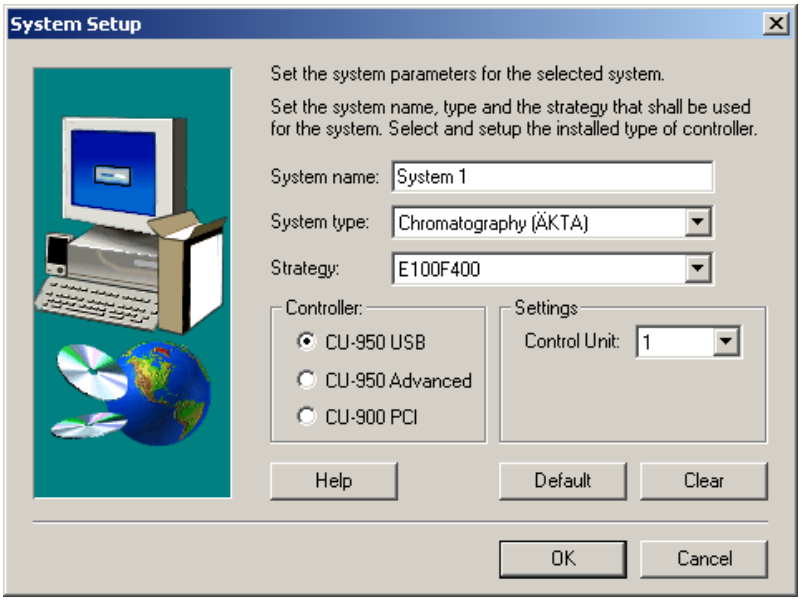
Step 11 - System Installation

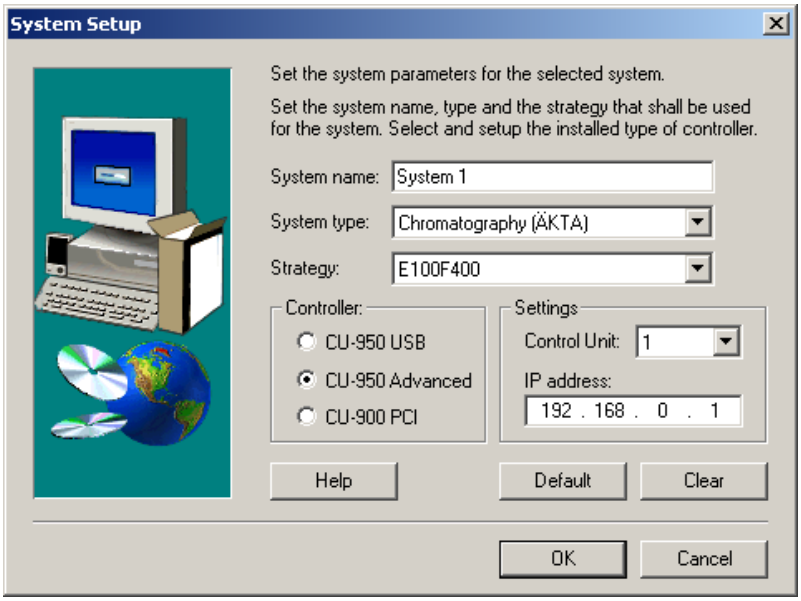
The **System Installation** dialog box is displayed if you chose system installation in **Step 4 - Select Components**.

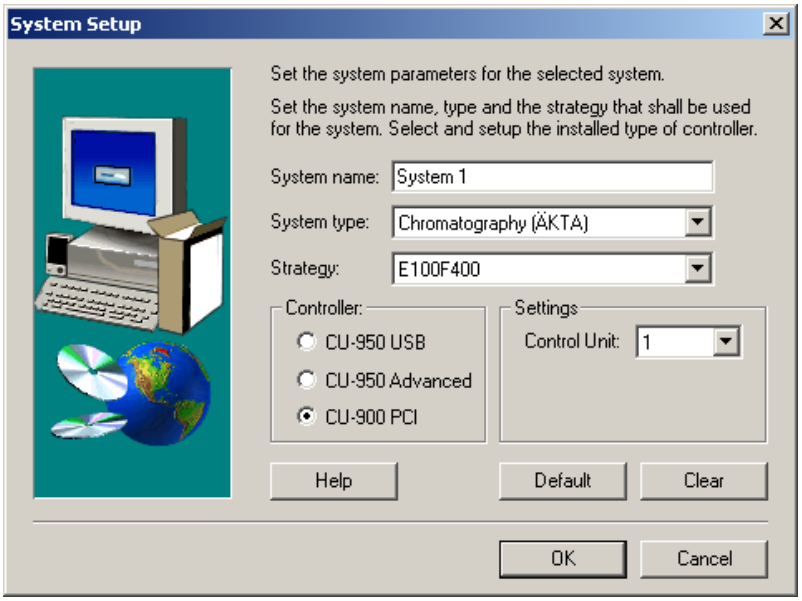


The table below describes how to define each system that is directly connected to the PC.

Step	Action
1	• Click one of the radio buttons to select a system. • Click the **Change** button to set up the system. *Result:* The **System Setup** dialog box is displayed.
2	In the **System Setup** dialog box you set the system parameters for each system connected to the PC, one system at a time. Continue with the step that correspond to the controller(s) you will use: • CU-950 USB (with USB connection), see step 3 a below. • CU-950 Advanced (with Ethernet connection), see step 3 b below. • CU-900 PCI expansion card, see step 3 c below. ***Note:*** *It is only possible to have systems with the same type of controller on one physical computer, either CU-900 PCI or CU-950.*

Step	Action
3 a	**System Setup for CU-950 USB**  • In the **Controller** field, select the **CU-950 USB** option. • Type a new **System name** if you want to change the suggested name. • Choose the **System type** and **Strategy**. • Choose the **Control Unit** number **1**. *Note: The number must be set to* **1** *when you use CU-950 USB since only one such unit can be connected and it must have ID = 1.* • The **Default** button sets the default resource settings for the selected system type. • The **Clear** button clears all fields if you want to remove a system. • When you are finished, click **OK**.

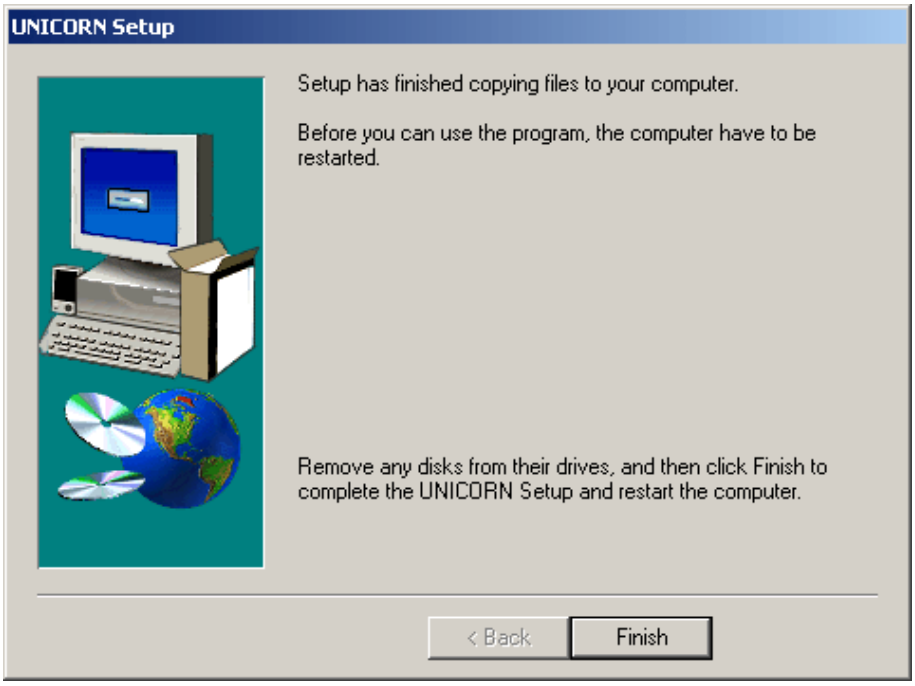
Step	Action
3 b	**System Setup for CU-950 Advanced**  • In the **Controller** field, select the **CU-950 Advanced** option. • Type a new **System name** if you want to change the suggested name. • Choose the **System type** and **Strategy**. • Choose the **Control Unit** number, 1-4. • Type the **IP address** of the CU-950 controller. ***Note:*** *IP Address, IP Address Mask and IP Gateway Address must be set manually for the CU-950 controller when the CU-950 Advanced option is chosen. Contact your local Amersham Biosciences representative for more information.* • The **Default** button sets the default resource settings for the selected system type. • The **Clear** button clears all fields if you want to remove a system. • When you are finished, click **OK**.

Step	Action
3 c	**System Setup for CU-900 PCI expansion card**  • In the **Controller** field, select the **CU-900 PCI** option. • Type a new **System name** if you want to change the suggested name. • Choose the **System type** and **Strategy**. • Set the **Control Unit** number, 1-4. • The **Default** button sets the default resource settings for the selected system type. • The **Clear** button clears all fields if you want to remove a system. • When you are finished, click **OK**.
4	The **System Installation** screen is displayed again showing the options you have chosen. ***Note:*** *If you installed more than one system, make a note of which system is connected to which control unit. This information will be useful when you set up the system table or if you must reinstall UNICORN in the future.* • Click the **Next** button to copy the necessary files.
5	If there is more than one system to define, repeat steps 1 to 4 in this table for each system.
6	When all systems that are connected to the station have been defined, click the **Next** button in the **System Installation** dialog box to continue.

Note: *If you want to define systems later or change the settings for a previously defined system, run the setup program once again with only the* **System Installation** *option selected in the* **Select Components** *dialog box.*

Step 12 - Setup Complete

The installation is complete and the computer must be restarted:



- Click the **Finish** button to exit the setup program and automatically restart the computer.

2.3.2 How to install UNICORN for ÄKTAxpress

Before you start

Before you start the installation procedure the following prerequisite has to be met:

- The operating system, Windows 2000/XP, must be correctly installed on your computer. See the operating system documentation for details.

Also notice the following:

- You can exit the installation at any point by clicking on either the **Cancel** button or the **Exit** button. If you do this, however, the installation will be incomplete and the software cannot be used.
- After the installation, the installed files are compared with the original files on the installation CD to make sure that no files have been corrupted during installation. The criteria used for the file comparison are name, size, version and checksum.

Upgrading a UNICORN installation

Installing a new version of the UNICORN software over an existing UNICORN installation is no problem. You do not have to uninstall the previous version before installing the new version.

Note: *If you have made additions to the previous installation you will be asked if you want to keep these additions when UNICORN is started the first time after the new installation. This is described in* ***2.3.1 Step 4 - Select Components*** *on page 41.*

Do not copy the CD-ROM or decompress the files

UNICORN is supplied on a CD-ROM. Files on the CD-ROM are compressed and cannot simply be copied onto the hard disk. During the installation procedure, the required folder structure is created on the hard disk and the files are decompressed. Do *not* attempt to decompress the files using any other file decompression utility.

Step 1 - Insert the Setup CD

Follow the instructions in the table below to begin the installation:

Step	Action
1	• Insert the CD-ROM disk into the CD-ROM drive. The UNICORN Setup Program should start automatically. If not, • click the Windows **Start** button and select **Run** • type the command `d:setup`, where `d:` is the unit for your CD-ROM drive. • click **OK**.
2	The UNICORN Setup program is launched. Continue the setup below.

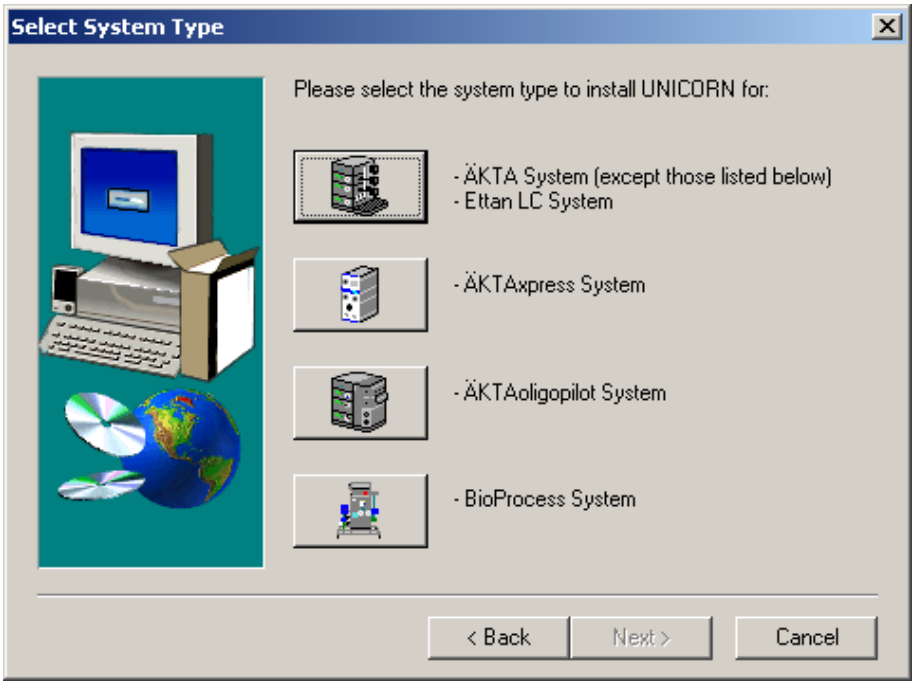
Step 2 - License agreement and user information

The table below describes how to complete step 2 of the UNICORN Setup program.

Step	Action
1	• The **Welcome** dialog box is displayed. • Click the **Next** button to continue.
2	• The **UNICORN Software License Agreement** dialog box is displayed. You must accept the license agreement to install UNICORN. • Click the **Yes** button to continue.
3	• The **User Information** dialog box is displayed. Type your name, company and the product serial number of the software. The serial number can be found on the UNICORN License Agreement that is shipped with the CD. • Click the **Next** button.

Step 3 - Select System Type

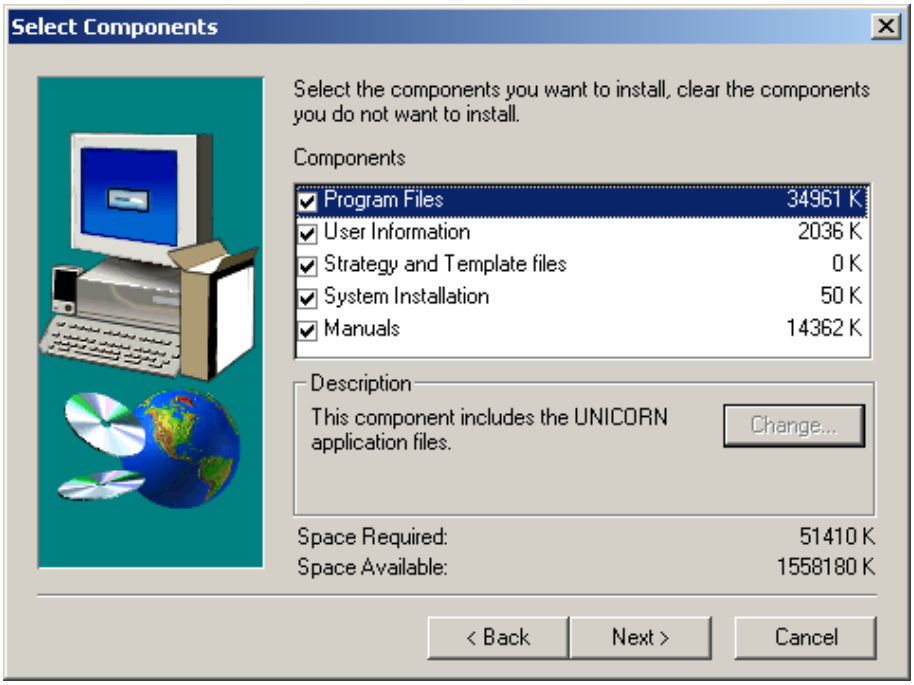
In the **Select System Type** dialog box you choose the type of system you will use, an ÄKTAxpress system or a UNICORN system other than ÄKTAxpress.



- Click the **ÄKTAxpress System** button to continue.

Step 4 - Select Components

In the **Select Components** dialog box you choose the components to install by selecting the appropriate check boxes. Normally, all the check boxes should be selected.



Select the components to install according to the table below.

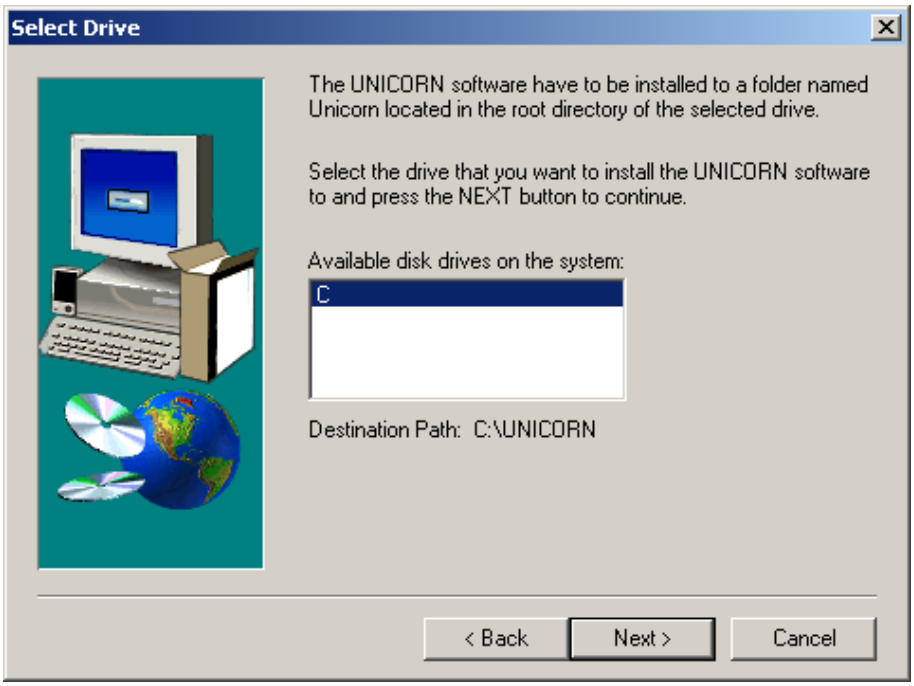
Component	Description
Program Files	The **Program Files** check box *must* be selected.

Component	Description
User Information	The **User Information** check box *must* be selected if you are installing UNICORN for the first time on the computer. **The Select Sub-components dialog box** Select **User Information** check box and click the **Change** button. *Result*: The **Select Sub-components** dialog box is displayed, showing the sub-components: • Global Procedures • Global Report Formats • Global BufferPrep Recipes • Global Columns • User File Select the components you wish to install. **If sub-components already exist** If any of the above components already exist from a previous installation, you will be asked if you want to replace them with the new default files. • Normally you should answer **No** and keep the existing files. ***Note:*** *See also **2.3.3 User Information** on page 69 where this dialog box is described in more detail.*
Strategy and Template files	• Select the **Strategy and Template files** check box to install strategies and templates. • Click the **Change** button to display the **Select Sub-components** dialog box. There you can select which components to install, **Strategy files** and/or **Template files**.
System installation	The **System** check box must be selected for workstations where systems are connected, but not on demo stations.
Manuals	• Select the **Manuals** check box if you want to install the UNICORN manuals. • Click the **Change** button to display the **Select Sub-components** dialog box. There you select additional system manuals to install.

- When you have selected the components, click the **Next** button to continue.

Step 5 - Select Drive

In the **Select Drive** dialog box you choose the installation folder for the UNICORN software.

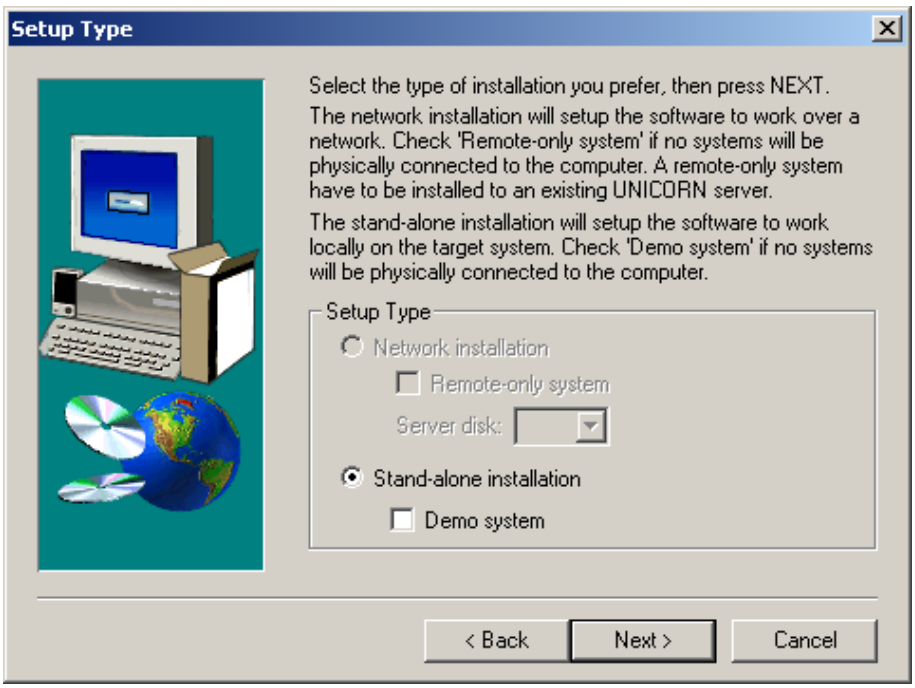


Follow the instructions in the table to select a disk drive:

Step	Action
1	Select the disk drive where the program is to be installed. This should be a physical disk drive (usually `C:`) on the computer where you install UNICORN, not a network disk drive.
2	• Click the **Next** button to continue. • Click the **Yes** button if asked whether Setup should create the UNICORN program folder.

Step 6 - Setup Type

The **Setup Type** dialog box is displayed:



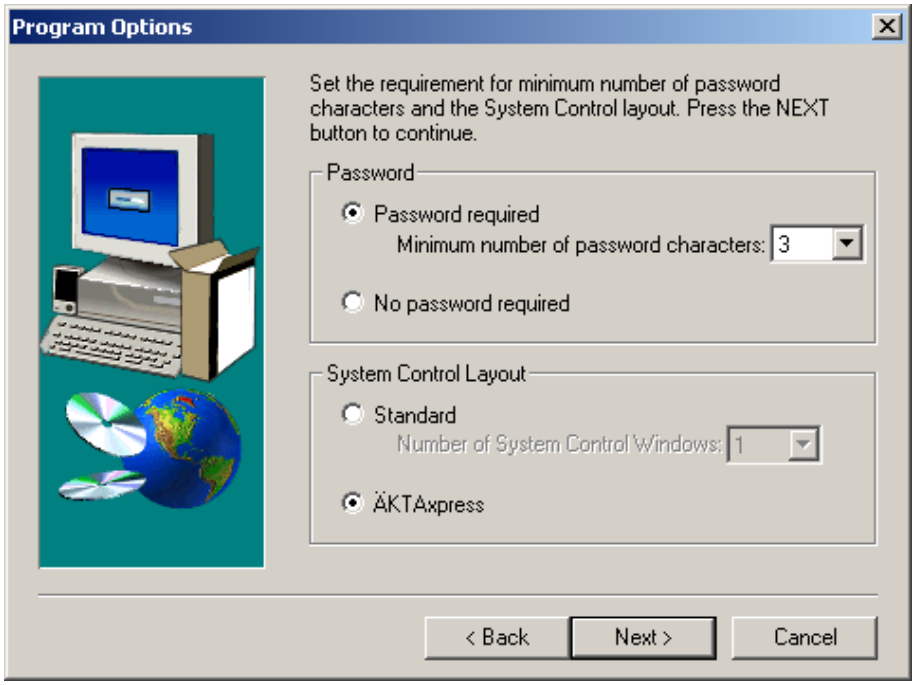
The table below describes the choices in the **Setup Type** dialog box.

Step	Action
1	Select either of the options • **Network installation** described in step 1 a below *or* • **Stand-alone installation** described in step 1 b below.
1 a	**Network installation** A network installation can be either • a local station • a remote-only system. You have to select these disk drives in a network installation: • A local disk for the program files • A server disk for the server files Select the **Remote-only system** check box to install a remote-only system, a computer to which no systems are physically connected. ***Note:*** *When you perform a network installation, the necessary UNICORN software components will be copied automatically to the network server disk.*

Step	Action
1 b	**Stand-alone installation** A stand-alone installation can be either • a local station • a demo station. Select the **Demo system** check box if you want to install a demo station. The network options settings are ignored for a stand-alone installation. ***Note:*** *If you perform a stand-alone installation and later want to connect the system to a network, you must remove the current installation and install the software with the appropriate settings.*
2	• Select the **Demo system** check box if you want to install a demo station. • Click the **Next** button.

Step 7 - Program Options

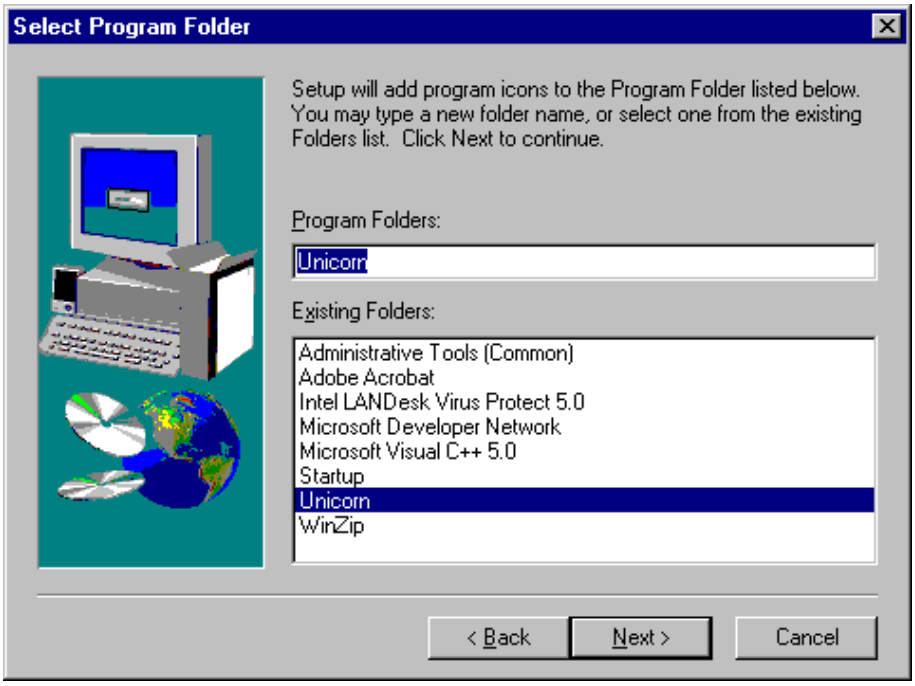
Follow the instructions in the table below to set the required parameters for password and system control layout:



Step	Action
1	Select **Password required** and type the minimum number of characters required for passwords. Valid numbers of password characters are 3 -15. Select **No password required** if you do not require password protection. With this setting, users can be defined with or without passwords.
2	Choose either of the **System Control Layout** options. • **Standard** The standard layout for the System Control module. Must be chosen if Scouting or Methodqueues are going to be used. - Select the number of system control windows, 1-4. • **ÄKTAxpress** The new layout for the System Control module. It has only one System Control window which can connect to all the systems installed. Quick-switching is possible with the new system navigator.
3	Click the **Next** button to continue.

Step 8 - Select Program Folder

In the **Select Program Folder** dialog box you choose where to store the program icon.

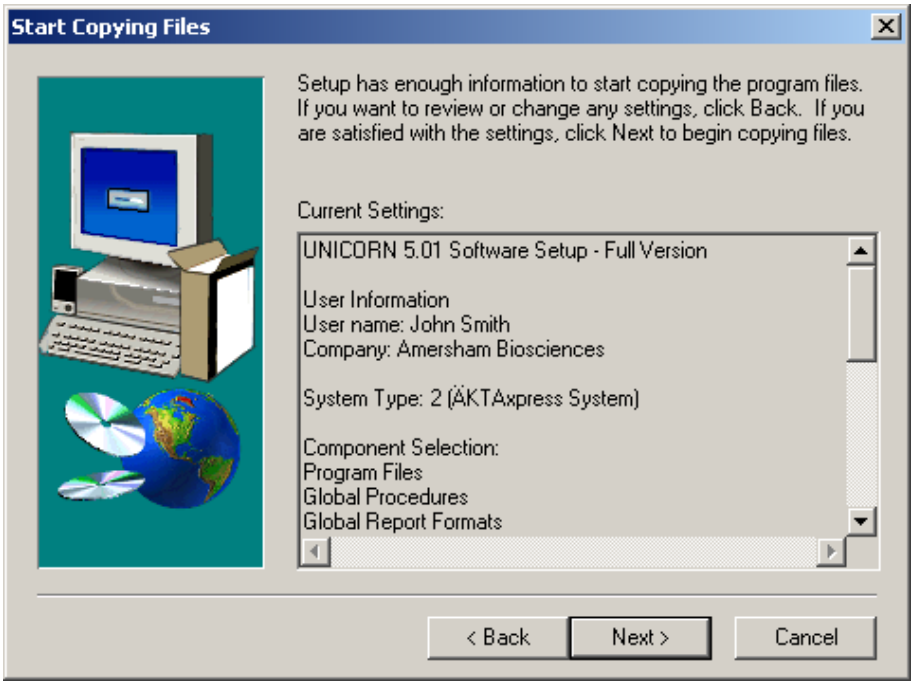


The table below describes how to select a program folder for the UNICORN icon:

Step	Action
1	In the **Select Program Folder** dialog box, you select the Start menu folder where you want the UNICORN icon to be placed. You can either • accept the suggested folder named "UNICORN" (recommended) *or* • create a new folder. Type the name of the new folder in the text field **Program Folders**. *or* • select a folder that already exists by clicking its name on the list.
2	Click the **Next** button to continue.

Step 9- Start Copying Files

The **Start Copying Files** dialog box displays the installation choices made.



The table describes how to start copying the program files from the CD:

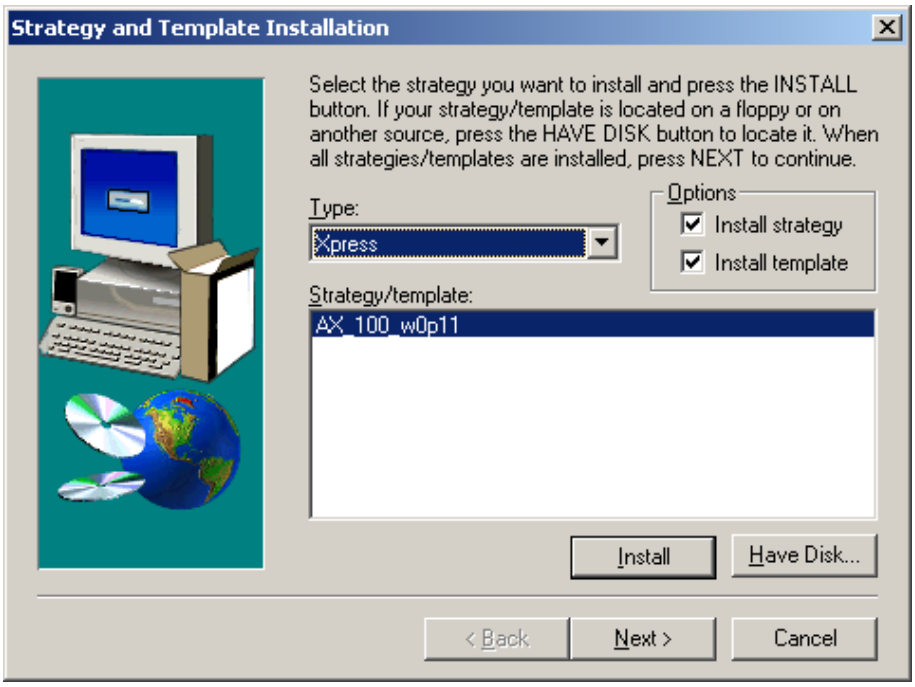
Step	Action
1	The setup program is ready to copy the files. The **Start Copying Files** dialog box displays all the selections that have been made and the components to be installed. ***Note:*** *If you want to make any changes you can click the* **Back** *button one or more times.*

Step	Action
2	If the settings are correct, click the **Next** button to copy the files.

Step 10- Strategy and Template Installation

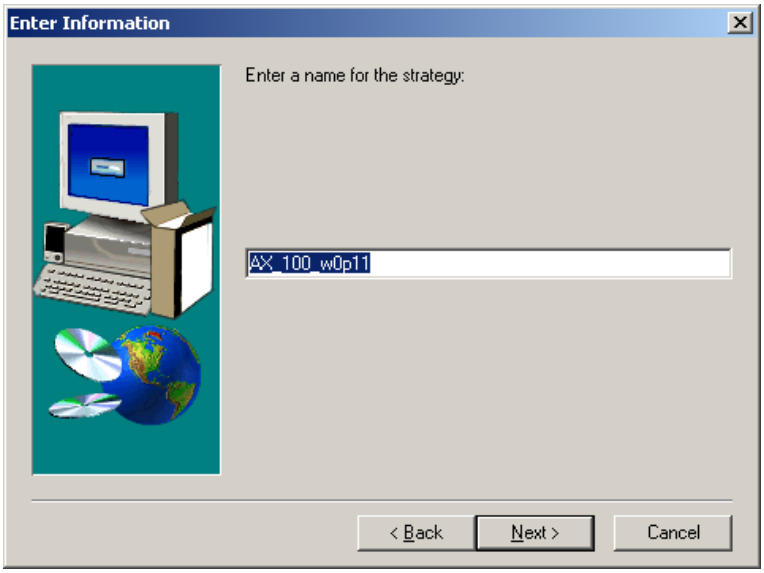
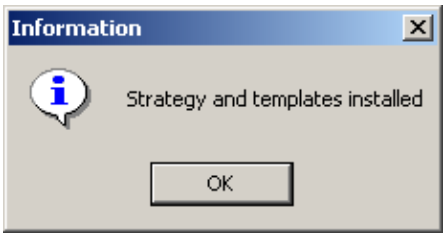
The **Strategy and Template Installation** dialog box is displayed if you chose to install strategy and/or template files in **Step 4 - Select Components**.

- If you did *not* choose to install strategy and template files, go to **2.3.2 Step 11 - System Installation** on page 65.



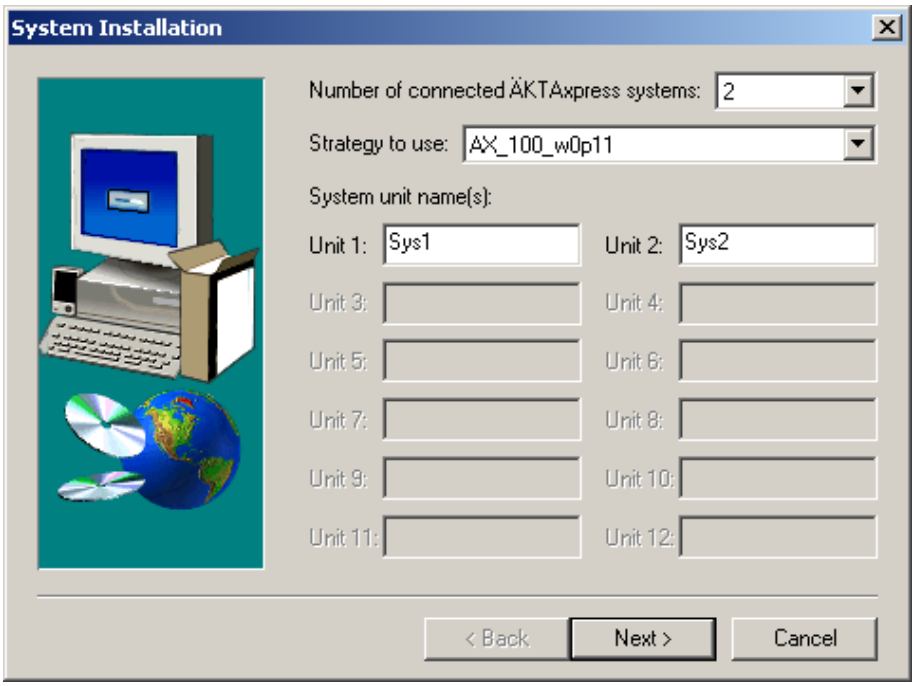
Follow the instructions in the table below to install strategy and template files:

Step	Action
1	In the **Options** field, select only **Install strategy**.
2	In the **Type** drop-down box, select • **Xpress** to install strategies from the installation CD *or* • **Floppy (A:)** to install strategies from a diskette. You can also use the **Have Disk** button for this, see step 4 below.
3	Select the strategy that corresponds to your system in the **Strategy/template** list box.

Step	Action
4	• Click the **Install** button *or* • click the **Have Disk** button to locate the strategy files if they are stored on a separate CD or diskette. *Result*: The **Enter Information** dialog box is displayed.
5	 • Either keep the suggested default name for the strategy to be installed or type another name. • Click the **Next** button.
6	A confirmation dialog box is displayed:  • Click **OK**. *Result*: The **Strategy and Template Installation** dialog box is displayed again.
7	Click the **Next** button to continue to the next installation step.

Step 11 - System Installation

The **System Installation** dialog box is displayed if you chose system installation in **Step 4 - Select Components.**



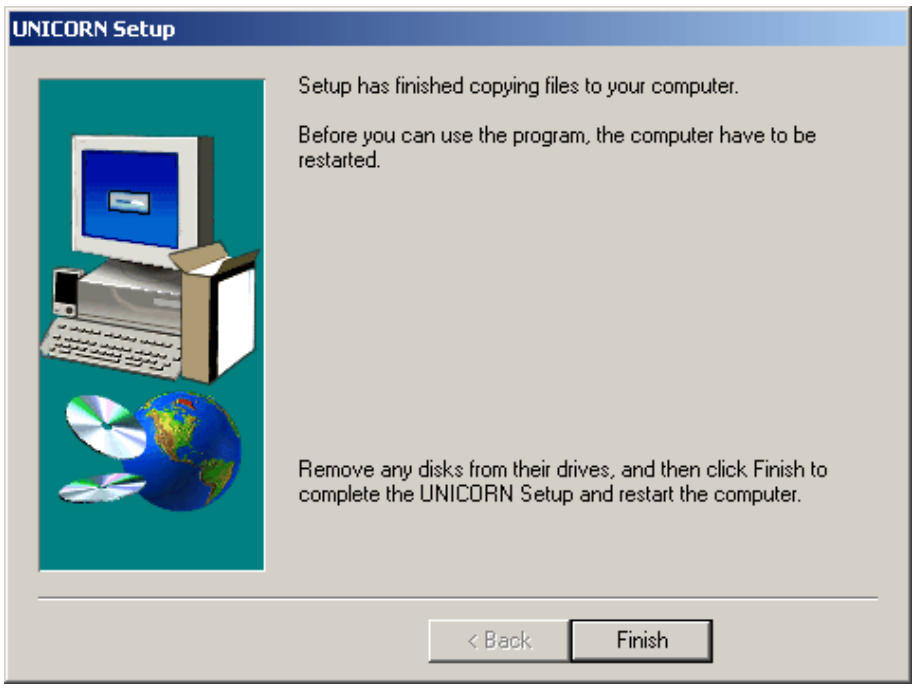
The table below describes how to define ÄKTAxpress systems.

Step	Action
1	Specify the **Number of connected ÄKTAxpress systems**, 1-12. This is the maximum number of systems that you plan to connect simultaneously to the computer. ***Note:*** *The number you choose here determines how many systems you can name in step 3 in this table.*
2	Choose the **Strategy to use** for the systems. ***Note:*** *The strategy you choose will apply to all systems, you cannot define different strategies for different systems. To change strategies after the UNICORN installation, choose* **Administration:System Setup** *in the* **UNICORN Manager**.
3	Type the names for the systems in the **Unit 1-12** edit fields.
4	Click the **Next** button.

Note: *If you want to define systems later or change the settings for a previously defined system, run the Setup program once again with only the* **System Installation** *option selected in the* **Component Selection** *dialog box.*

Step 12 - Setup Complete

The installation is complete and the computer must be restarted:



- Click the **Finish** button to exit the setup program and automatically restart the computer.

2.3.3 How to install selected software components

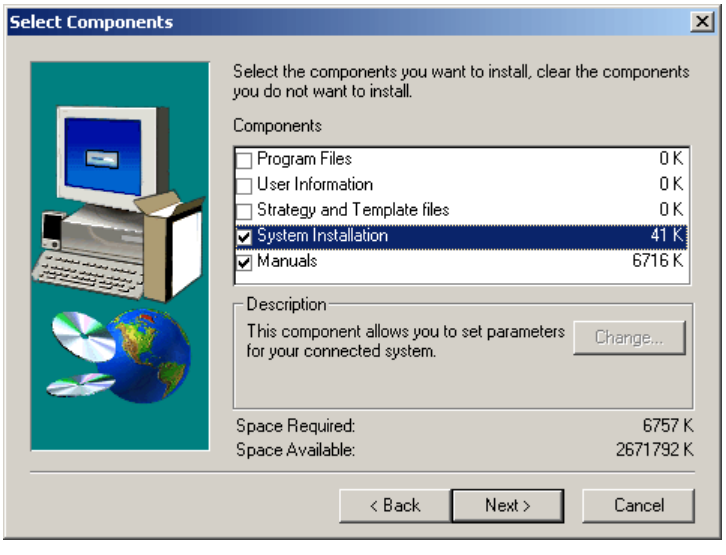
When to install selected components

The installation program can be used to re-install selected components of the software. It can be useful

- if your UNICORN installation is damaged, for example due to accidental file deletion or hard disk failure
- if you want to install additional systems, strategies, templates or manuals.

How to install selected components

The table below describes how to install selected software components. The specific installation options related to each component are described separately further on in this section.

Step	Action
1	• Close all programs on your computer. • Log on to the network if you have a network installation.
2	• Insert the UNICORN installation CD. • Click the **Next** button when the **Welcome** dialog box is displayed. *Result*: The **Select Components** dialog box is displayed.
3	The illustration below is an example of the **Select Components** dialog box. The installation program has detected the previously installed UNICORN files on the computer and suggests the components to install by selecting the appropriate check boxes. 

Step	Action
4	• If you select a component in the list and click the **Change** button, more detailed installation options are displayed. Each component is described below this table. • Click the **Next** button when you have selected the components to install.
5	• Depending on which components you selected to install there are additional steps to complete. ***Note:*** *These additional steps are described in* ***2.3.1 How to install UNICORN*** *on page 36 and* ***2.3.2 How to install UNICORN for ÄKTAxpress*** *on page 54.*

Program Files

To re-install the UNICORN program files,

- select the component **Program Files** in the **Select Components** dialog box.

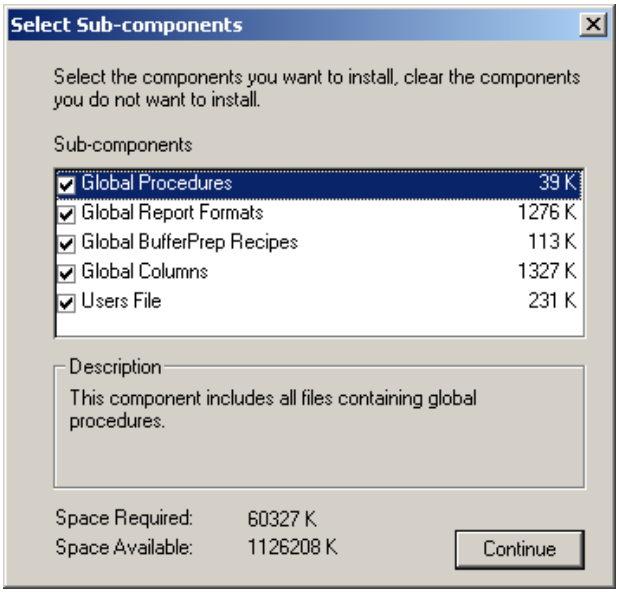
Note: *This will not affect any existing method or result files in the system. The program is always installed locally, even in network installations.*

User Information

The Select Sub-components dialog box

- Select the **User Information** check box in the **Select Components** dialog box.
- Click the **Change** button.

Result: The **Select Sub-components** dialog box is displayed.



- Select the check boxes for the components you want to install. The components are described below.

Global information files

- Global Procedures
- Global Report Formats
- Global BufferPrep Recipes
- Global Columns

If you select the above items, you will be asked if you want replace the existing global information files. If you click **Yes**, any additions made to these items in the existing installation will be backed up. When you start UNICORN the first time after the new installation you will be asked if you want to restore these additions.

Users file

- Users File:
  - User definitions: passwords and access rights for existing users
  - Methods
  - Results

If you select the above item, you will be asked if you want replace the existing users file. If you click **Yes**,

- the default user will be re-installed. All the users defined in the system, including users installed from other stations in a network installation, will be deleted and cannot be restored afterwards.
- any new methods and results created in the existing installation will not be erased. You can regain access to these files by re-defining users with appropriate folder access.

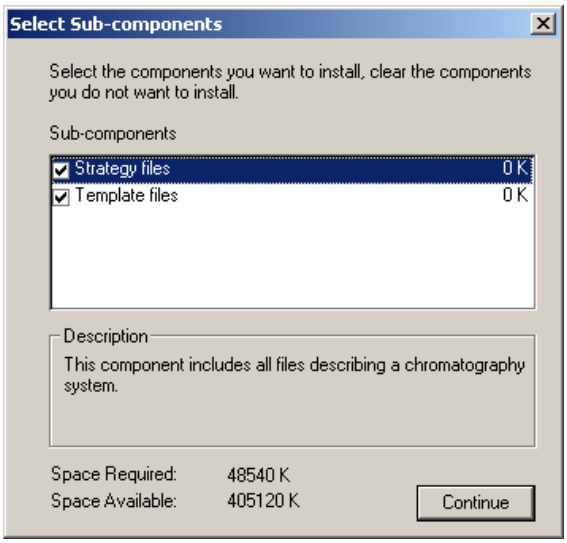
Note: *All the components in the dialog box are installed on the network server in a network installation.*

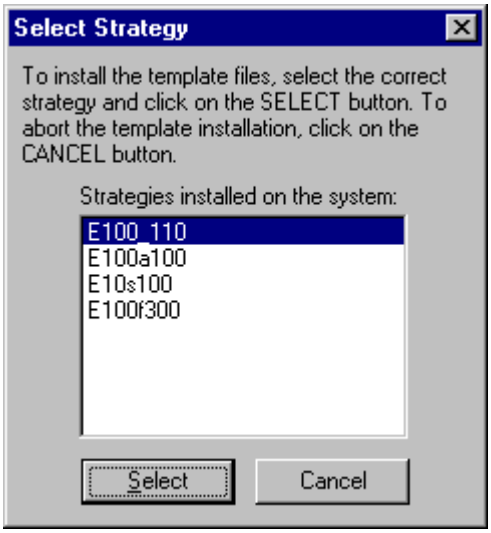
Strategy and Template files

The table below describes how to install **Strategy and Template files**.

Note: *The instructions below are more detailed than the other instructions in this section. This is because the* **Select Strategy** *dialog box is not described anywhere else in this manual.*

Step	Action
1	• Select the **Strategy and Template files** check box in the **Select Components** dialog box. • Click the **Change** button. *Result*: The **Select Sub-components** dialog box is displayed.

Step	Action
2	 Select the **Strategy files** check box if you want • to re-install system strategies and wizard • to install additional strategies Select the **Template files** check box if you want • to re-install template files • to install template files for a new strategy. Then you must also select the **Strategy Files** check box. ***Note:*** *Normally both strategy and template installation is selected.* • Click the **Continue** button.
3	The **Start Copying Files** dialog box is displayed. • Click the **Next** button.
4	The **Strategy and Template Installation** dialog box is displayed. • Select the instrument type in the **Type** list. • Select the exact instrument in the **Strategy/template** list. • The **Options** field will reflect the choices made in step 2 above, **Install strategy** and/or **Install template**. • Click the **Install** button. *Result:* Which dialog is displayed depends on whether strategy installation was selected or not.

Step	Action
5	**Strategy installation was selected (typical)** The **Enter Information** dialog box is displayed. • Accept the suggested name or type a new name for the strategy. This will not affect any existing method or result files in the system. • Click the **Next** button. **Strategy installation was not selected (rare)** The **Select Strategy** dialog box is displayed.  The dialog box shows all the strategies that are installed on the system. • Select the strategy to which the method template files correspond. • Click the **Select** button. ***Note:*** *Templates are installed on the network server in a network installation.*
6	An **Information** dialog box is displayed. • Click **OK**. • Click the **Next** button. • Click the **Finish** button.

System Installation

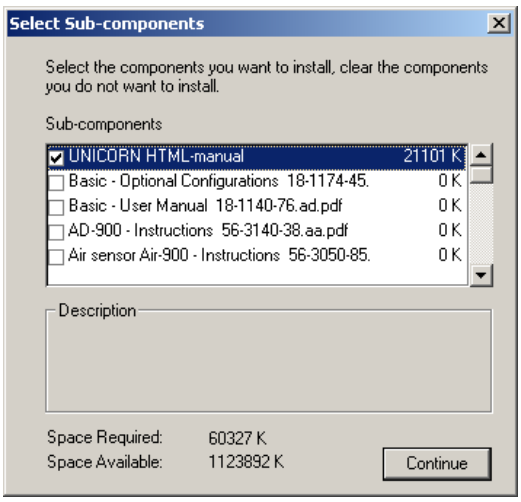
In the **Select Components** dialog box, select the **System Installation** check box

- if you want to install a new or an additional system on a stand-alone computer or a local station in a network
- if you want to change the settings for an existing system.

Note: *Systems are not installed on demo or remote-only systems.*

Manuals

The table below describes how to install the **Manuals**:

Step	Action
1	• Select the **Manuals** check box if you want to install additional manuals or re-install the manuals. ***Note:*** *This will not affect any existing method or result files in the system. The manuals are installed locally even in network installations.* • Click the **Change** button. *Result*: The **Select Sub-components** dialog box is displayed.
2	 • Select the manuals you wish to install. • Click the **Continue** button to return to the **Select Components** dialog box

3 System connections

Introduction

This chapter describes how to manage system connections between a computer and chromatography systems.

Note: *This section does not describe how to manage ÄKTAxpress system connections. For information on ÄKTAxpress system connections, see the* ***ÄKTAxpress User Reference Manual****.*

In this chapter

This chapter contains these topics:

3.1 System connection facts

System control windows

UNICORN installed on a given computer may have up to four **System Control** windows. The actual number of windows is determined when the software is installed

Each window may be connected to *one* chromatography system at a time.

Note: *A network installation may have more than four systems in total, but each computer in the network can establish a maximum of four connections.*

Connection management

Connections are managed with these menu commands from the **System Control**:

- **System:Connect** or the **System Connect** toolbar icon.
- **System:Disconnect** or the **System Disconnect** toolbar icon.

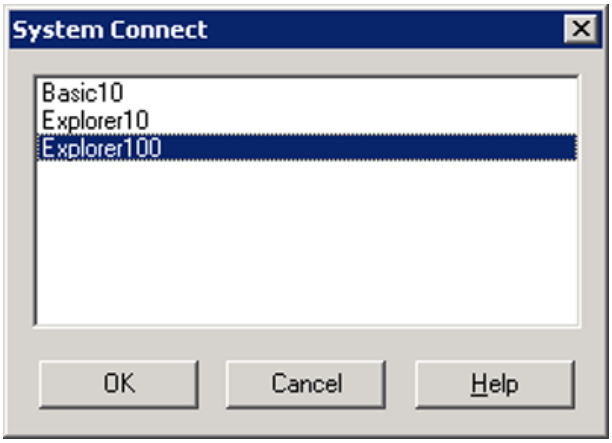
Note: *Connection management is the same for stand-alone and network installations.*

3.2 How to connect a system

Instruction

The table below describes how to connect the **System Control** module to a chromatography system.

Note: *This instruction does not apply to ÄKTAxpress systems. For information on how to connect an ÄKTAxpress system, see the* ***ÄKTAxpress User Reference Manual****.*

Step	Action
1	Open a **System Control** window that is not currently in use. It is identified by the **Not connected** text in the status bar.
2	Select **System:Connect** or click the **System Connect** toolbar icon.  *Result*: The System Connect dialog box is displayed.
3	The **System Connect** dialog box lists the systems to which you have access. Select a system to which you want to connect and click **OK**.  ***Note:*** *See additional information about remote and local stations below.*

If you connect from a remote station

If you connect from a remote station to a chromatography system you should be aware of the following:

- The local station (the computer physically connected to the system) must be logged on to the network.
- The UNICORN drivers must be running on the local station.
- The UNICORN program does *not* have to be running on the local station.

If you connect from a local station

If you connect from a local station to a chromatography system physically connected to the local station, you do not have to log on to the network. Be aware though, that there are some drawbacks if you do not log on:

- Files stored on network drives will not be accessible.
- UNICORN is placed in an "error" state which is not ideal. Global files such as the user settings file (`musers30.mpm`) etc. are stored on the network. Any changes made to these files while you are not logged on will apply only locally and will be lost the next time you log on to the network to use UNICORN.
- For runs performed in this stand-alone mode, the result file cannot be saved on a network drive. If the file is directed to a network drive it will instead be saved in the **Failed** folder on the local station.

3.3 Connection modes

Types of connections

The user can establish two different types of connections to a chromatography system:

- Control mode connection: The user is able to actively control the system.
- View mode connection: The user can monitor the system activity but cannot control the system.

Several simultaneous connections can be established to one system, but only one may be in control mode. The other connections are in view mode.

Status bar information and possible actions

The **System Control** module displays information in the status bar regarding the connection mode. The table below explains the status bar text and the possible actions the user can take:

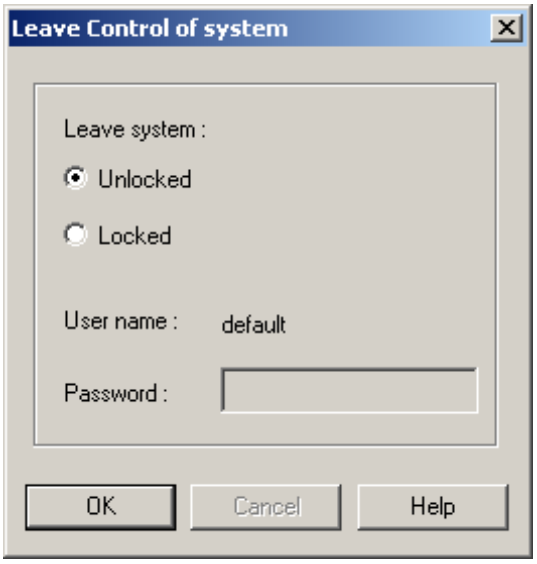
Status bar text	Connection mode	Possible actions
(nothing)	Not connected	To establish a connection, either • click the **System Connection** icon *or* • select **System:Connect**.
Controlled by: <user>	Control mode	To leave the system but retain the connection with the **System Control** module, either • click **Disconnect** from the **System** icon *or* • select **System:Disconnect**. ***Note:*** *You may leave the system locked or unlocked.*
Controlled by: <other user>	View mode The indicated user has a control mode connection.	None. Even if you click the **System Connection** icon it has no effect.

Status bar text	Connection mode	Possible actions
Locked by: <other user>	View mode The indicated user has left the system in a locked state.	Click the **System Connection** icon to establish a control mode connection. You must supply a password, either • the locking password *or* • your logon password (if you have **Unlock locked systems** access). ***Note:*** *The password is case sensitive.*
System is available	View mode A user has left the system in an unlocked state.	Click the **System Connection** icon to establish a control mode connection.

3.4 How to leave and lock a system

Instruction

Follow the steps in the table below to leave and lock a running system or an End state system, which is connected with a control mode connection:

Step	Action
1	• Click the **Leave control of system** icon  - *or* - • Select **System:Leave Control**. *Result*: The **Leave control of system** dialog box is displayed.
2	 • Select how you want to leave the system: - The **Unlocked** option leaves the system unlocked. Any other user may establish a control mode connection to the system. Use this option if you do not intend to use the system in the near future. - The **Locked** option locks the system with the password specified in the dialog box. A control mode connection can only be established by providing the correct password. This password is independent of the user's logon password. A locked system can also be unlocked with the logon password for a user with **Unlock locked systems** access. This access item should be restricted to a small number of users to prevent indiscriminate unlocking of locked systems. • Click **OK**.

Leave and lock a Scouting run or MethodQueue run

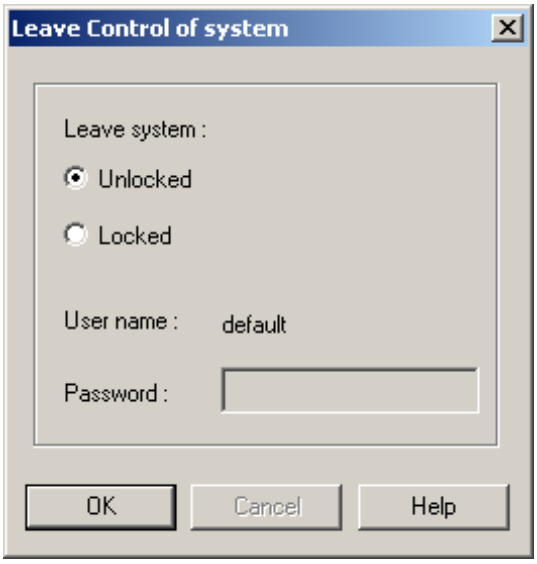
If you leave and lock a **Scouting** run or a **MethodQueue** run it is not possible to establish a control mode connection from another computer.

3.5 How to disconnect a system

Instruction

Follow the steps in the table to disconnect a chromatography system from a **System Control** module:

Step	Action
1	• Click the **Disconnect from system** icon  *or* • select **System:Disconnect**. *Result*: • If you disconnected from a *view* mode connection, you are now disconnected. • If you disconnected from a *control* mode connection, the **Leave control of system** dialog box is displayed. Proceed to step 2 below. ***Note:*** *You can disconnect a system during a run and the run will still continue. It is not recommended to do this without locking the system since this can leave a run on the system with no responsible user. You cannot however disconnect from* **Scouting** *or* **MethodQueue** *runs.*

Step	Action
2	This step is only relevant if you disconnect from a *control* mode connection.  • Select how you want to leave the system: - The **Unlocked** option leaves the system unlocked. Any other user may establish a control mode connection to the system. Use this option if you do not intend to use the system in the near future. - The **Locked** option locks the system with the password specified in the dialog box. A control mode connection can only be established by providing the correct password. This password is independent of the user's logon password. A locked system can also be unlocked with the logon password for a user with **Unlock locked systems** access. This access item should be restricted to a small number of users to prevent indiscriminate unlocking of locked systems. • Click **OK**.

If you log off or quit a system

If you log off or quit UNICORN, it will automatically disconnect all connected systems and the **Leave control** dialog box will be displayed for each system. Systems that are disconnected in this way will be re-connected automatically when you log on to UNICORN again.

4 Calibration

Introduction

This chapter introduces some calibration concepts and describes how to calibrate monitors for ÄKTAdesign systems.

Calibration of monitors is important for the monitors to display correct results.

In this chapter

This chapter contains these topics:

4.1 Calibration facts

Introduction

Certain system monitors, mainly pH monitors, need to be calibrated regularly for correct results.

To calibrate monitors from different manufacturers from UNICORN

Most monitors can be calibrated from UNICORN to convert monitor signals to appropriate units for display. For monitors supplied by manufacturers other than Amersham Biosciences, and for some Amersham Biosciences monitors, calibration in UNICORN should be performed each time the monitor itself is calibrated.

For most monitors supplied by Amersham Biosciences, calibration from UNICORN also performs a true calibration of the monitor, adjusting the signal-response level in the monitor.

Calibration access

Monitors can only be calibrated by users with **Calibrate/Tune** access.

Calibrate system modules in the System Control

Calibrations made directly on system modules are logged only in the **System Control** logbook and *not* in the **Calibration** page of **Documentation** dialog box (**Evaluation** module) or in the **Audit trail**.

Problem: This means that the **Calibration** page and **Audit trail** information might not be up to date.

Solution: Therefore, always calibrate modules using the UNICORN calibration functions in the **System Control** module when possible.

Calibration methods

Different calibration methods are used depending on the type of monitor and system:

- one-point measurement
- two-point measurement
- continuous measurement.

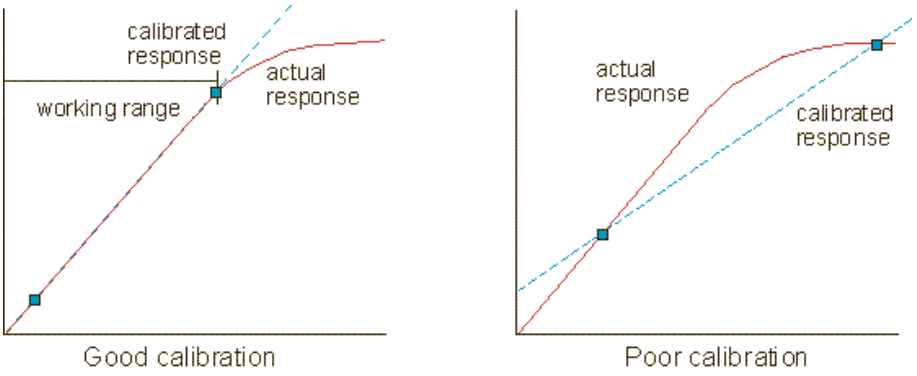
Note: *The calibration method depends on the routines established in the laboratory or process department.*

One-point calibration

One-point calibration is based on measurements taken at one reference point. The monitor will be calibrated based on an assumed linear response between the reference point and zero.

Two-point calibration

Two-point calibration is based on measurements at two reference points. The monitor will be calibrated assuming a linear response between the two reference values. It is important that monitors are calibrated in the measuring range for which they will be used, particularly when the response is not linear over the whole operating range of the monitor (see the figures below).



Note: *For a monitor with a non-linear response, make sure the reference points are within a linear working range.*

Continuous calibration

Continuous calibration is based on a value accumulated during a given time. This kind of calibration applies to the sample pump in ÄKTAdesign systems.

4.2 How to calibrate monitors for ÄKTAdesign systems

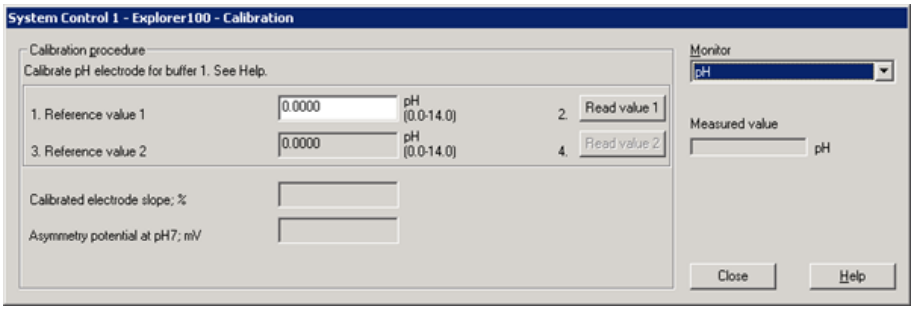
How to calibrate monitors

The table below describes how to calibrate the monitors for ÄKTAdesign systems:

Step	Action
1	Select **System:Calibrate** in the **System Control** module. *Result*: The **Calibration** dialog box is opened.
2	Select a monitor in the **Monitor** drop-down box and perform the procedures as described in the dialog box.
3	Repeat step 2 for each monitor type.
4	Click the **Close** button when the calibrations have been made.

How to calibrate a pH monitor

Some ÄKTAdesign systems have a pH monitor to allow online pH measurements. Below is an illustration of the dialog box for pH calibration:



Note: *Calibration can be performed with the electrode either within or outside the flow cell.*

Instruction

The table below describes how to calibrate a pH monitor with the electrode mounted in the flow cell:

Step	Action
1	• Attach the first pH reference solution, for example pH 7.0, to **Inlet A11** on the system. • Attach the second reference solution, for example pH 4.0, to **Inlet B1**.
2	In the **System Control** module, select **Manual:Pump**. *Result*: The **Instructions** dialog box is opened.

Step	Action
3	• Select **Pump:PumpWash Explorer** in the **Instructions** field. • In the parameters field, select **Inlet A11**. • Click the **Execute** button. *Result*: The pump and inlet tubing will now be filled with the first reference solution. Wait until the **PumpWash** is finished before you continue to the next step.
4	• In the **Instructions** field, Select **Pump:Flow**. • In the **FlowRate** box, insert the flow rate that you will use later during your run. • Click the **Execute** button. Allow at least 35 ml of reference buffer to pass through the cell, during which time the pH should stabilize.
5	• Select **System:Calibrate** from the **System Control** menu. • In the **Monitor** drop-down box, select **pH**. ***Note:*** *The* **Measured value** *field shows the actual reading according to the previous calibration. This value may be incorrect and does not affect the current calibration.*
6	When the pH is stable, do the following: • Enter the known pH of the reference solution in the field **Reference value 1** • Click the **Read Value 1** button.
7	Switch to the second reference solution this way: • Select **Manual:Pump**. • Select the instruction **Pump:Gradient** • In the **Parameters** field, set target to **100%** B after **0** minutes. • Click the **Execute** button. • Select the instruction **Pump:PumpWashExplorer**. • In the **Parameters** field, set **Inlet B1** to **ON**. • Click the **Execute** button. *Result*: Do not continue to the next step until the **PumpWash** is finished.

Step	Action
8	When the pH is stable, do the following: • In the **Calibration** dialog box, enter the known pH of the reference solution in the field **Reference value 2** • Click the **Read Value 2** button. • Click the **Close** button. • Click the **End** button to stop the flow rate.
9	After the calibration, the values are automatically entered into the **Calibrated electrode slope** and **Asymmetry potential at pH 7** fields. ***Note:*** *If you calibrate with the electrode outside the flow cell, do not remove the electrode from* **Solution 1** *until the* **Read Value 2** *button has become available (when the button text has turned from grey to black).*

5 Security

Introduction

This chapter presents the security concepts and features of a UNICORN installation. The concepts and features are good to know since they are also used in other parts of this manual.

In this chapter

The table below describes the contents of this chapter:

5.1 Access security

Purpose

The purpose of access security is to avoid unauthorized user access to the UNICORN system.

Passwords to restrict access

User access is often restricted by means of a password. There are some password rules that are important keep in mind:

- The password must have a minimum number of characters. The minimum length is defined when UNICORN is installed, see **2.3.1 How to install UNICORN** on page 36 and **2.3.2 How to install UNICORN for ÄKTAxpress** on page 54.
- The password should be changed regularly if access security is very important. See **6.3.5 How to change user passwords and user attributes** on page 158.

Access groups

Each user is assigned to an access group that defines

- the operations that the user can perform
- the folders the user is allowed to access.

Access groups are described in **6.3.4 How to assign user properties** on page 149.

Delete default user

When you install UNICORN, a default user with full access rights is automatically created. For system security reasons the default user must be deleted when you have created the site-specific users.

Maintain system security

To maintain system security, only the system administrator should be allowed to carry out administrative routines such as user definition and system definition.

5.2 Connection security

Purpose

The purpose of connection security is to avoid conflicts regarding system control, so that only one user at a time controls the chromatography system.

Control mode and View mode connections

Two kinds of connection modes can be established with the UNICORN system:

- Control mode connection: The user has full system control, that is control of the chromatography system.
- View mode connection: The user can view the process but not control it.

To prevent conflicts, the system can have only one control mode connection at a time, that is only one user at a time can control the process.

How to lock a system

To prevent other users from establishing a control mode connection to the system, a user should

- establish a view mode connection to the system
- lock the system with a password. This password can be different from the user's logon password.

Note: *If a user leaves the system unlocked in a view mode connection, any other user may establish a control mode connection to the system.*

When to lock a system

It is recommended that systems are always locked when a user leaves the system. When the system is controlled and locked, the responsible user is identified in the **System Control** window for view mode connections. A system which is left unlocked with no control mode connection has no identified responsible user.

Systems may be locked even when they are idle, to allow users to reserve a system for later use.

5.3 Data security

Introduction

Data security prevents that results of a run are lost due to failure in the network communication or the local station.

In this section

The table below describes the contents of this section:

Topic	See
Network communication failure	5.3.1
Local station failure	5.3.2

5.3.1 Network communication failure - remote station

If the network communication fails

If the network communication fails while a method is running, the remote station will lose control of the system. Then the following will happen:

- The run continues under the control of the local station.
- Results that were destined for network drives cannot be saved in their correct folders. Instead, the results are saved in the **Failed** folder on the local station.

Failed folder and result file

Failed folder path

If `C:` is the UNICORN installation drive, the path to the **Failed** folder is `C:\Unicorn\Local\Fil\Failed`. There the results can be retrieved when the run is completed.

Result file name

The name of the result file will be the same as the original result file name. Files with the same name base are distinguished by an incremental serial number, in the same way as result files in any other folder.

How to retrieve the results from the Failed folder

Follow the instructions in the table below to retrieve the results from the **Failed** folder:

Step	Action
1	Start UNICORN (unless already started) on the local station connected to the system that was run.
2	Log on as an authorized user with access to the **Failed** folder.
3	• Reestablish the network communication. • Move the result file from the **Failed** folder to a suitable location on the network server where it is accessible from remote stations.

Policies for access to the Failed folder

The system administrator may choose one of the following policies regarding access to the **Failed** folder:

- To grant access to the **Failed** folder to all users
- To grant access to the **Failed** folder only to one or a few users

In either case, it is sufficient to grant access to `C:\Unicorn\Local\Fil\Failed` since this is the path to the **Failed** folder on all local stations.

Access to all users

If the system administrator grants access to the **Failed** folder to all users, it will have the following implications:

- The individual user gets the responsibility to retrieve his or her own result files and to delete old files from the **Failed** folder.
- Any user will be able to examine, copy, move and delete the other users' results in the **Failed** folder.
- The **Failed** folder can be used to temporarily store methods and results from runs performed from the local station when the network is not running.

Access to a few users

If the system administrator grants access to the **Failed** folder to only one or a few users, it will have the following implications:

- One or a few users will have the responsibility for retrieving the result files and deleting the old files from the **Failed** folder.
- The user(s) with access to the **Failed** folder should also have access to other users' home folders to be able to copy or move result files to suitable destinations.

Note: *This policy should be used if the installation requires restricted access to users' result files.*

5.3.2 Network communication failure - local station

In this section

This section describes what happens when the network communication fails between a local station and a CU-950 Advanced control unit during a method run.

If the network communication fails

The table below describes what happens when these conditions are fulfilled:

- A CU-950 Advanced controller (with a memory card) is used
- Data recovery = **ON**
- Method behaviour = **CONTINUE**

  Note: *Data recovery and Method behaviour is described in* ***7.6 CU-950 settings*** *on page 172.*
- The network communication is lost between the local station and the CU-950.

Step	Action
1	• The run continues under the control of CU-950 during the communication loss. • The run data is saved in the CU-950 memory card.
2	When communication is reestablished, • UNICORN requests the missing data from the CU-950 • the missing data is uploaded to the local station • during the upload the message **Uploading** is displayed under **Instruments** in the **Run Data** pane of the **System Control** module.
3	The run continues as normal

5.3.3 Local station failure

In this section

This section describes what happens if a local station fails during a method run. The run may continue but the results generated after the failure cannot be saved unless a CU-950 Advanced controller is used.

Systems with CU-950 Advanced controller

The table below describes what happens when these conditions are fulfilled:

- A CU-950 Advanced controller (with a memory card) is used
- Data recovery = **ON**
- Method behaviour = **CONTINUE**

  Note: *Data recovery and Method behaviour is described in* ***7.6 CU-950 settings*** *on page 172.*
- The communication is lost between the local station and the CU-950 due to a computer crash.

Step	Action
1	• The run continues under the control of CU-950 during the communication loss. • The run data is saved in the CU-950 memory card.
2	When the local station is up and running and the connection between the local station and the CU-950 has been reestablished, • UNICORN uploads backup files from the hard drive of the local station • UNICORN requests the missing data from the CU-950 • the missing data is uploaded to the local station • during the upload the message **Uploading** is displayed under **Instruments** in the **Run Data** pane of the **System Control** module.
3	The run continues as normal

Systems without CU-950 Advanced controller

When the local station is restarted after the failure, the temporary result file will be transferred to either of the following locations:

- the original result file destination, usually on a network drive

or

- the **Failed** folder, if the original destination is on a network drive which is not available. If `C:` is the UNICORN installation drive, the path to the **Failed** folder is `C:\Unicorn\Local\Fil\Failed`.

The result file will contain the results of the run up to and including the last auto save time (see explanation below) before the failure. Results after this time will be lost.

Auto save feature

An auto save feature saves a temporary result file on the local station every five minutes during runs, see **6.2.1 System definitions** on page 115.

If the local station is not logged on

If a run is performed on a local station which is not logged on to the network, the result file cannot be saved on a network drive. Instead the results will be saved in the **Failed** folder on the local station.

5.4 How to prevent accidental shut-down

How an accidental shut-down could occur

Chromatography systems may be controlled without running the user interface modules. This is possible in the following cases:

- Network installation: If a system is controlled from a remote station without starting UNICORN on the local station.
- Stand-alone installation: If a user quits UNICORN after starting a run.

In both these cases, it is *not* apparent from the desktop that the UNICORN control software is actually running. Therefore there is a risk that someone shuts down the computer in the belief that it is not in use.

How to prevent a shut-down

Make sure you follow the recommendations below to prevent an accidental shut-down of a control station (which controls a UNICORN run):

- Do not quit UNICORN if you are controlling a system.
- Do not turn off local station computers in a network installation.
- Start the UNICORN program on all local stations in a network installation, if possible, and establish a view mode connection as an indication that a connected system might be running.

5.5 Single application mode

Introduction

To restrict access in Windows

How to restrict unauthorized access to certain files and folders in the UNICORN application was described in **5.1 Access security** on page 90. Still, users can access these files and folders through the Windows Explorer unless Windows is configured to prevent this.

- This is the reason for using single application mode, which restricts access in Windows.

Definition

Single application mode means that UNICORN is the only application available when it is running. The user cannot open or switch to other programs.

Single application mode on computer level

Single application mode is normally set through the **Options** dialog box in the **UNICORN Manager** module, see **5.6 The Options dialog box** on page 109. The setting is then valid for the *computer* and will apply to everyone who starts UNICORN on the specific computer.

Single application mode on user level

Single application mode can also be applied to individual *users* instead of computers.

This section describes how to configure Windows to start in single application mode for individual users. This means that instructions will have to repeated for each user the mode should apply to.

The instructions in this section

You need to carry out several of the instructions in this section to configure single application mode on the user level. Which instructions to use depends on the operating system of the workstation.

Windows 2000 workstations

You must carry out the following instructions on a Windows 2000 workstation:

- Install the System Policy Editor
- Windows 2000: Folder administration
- Edit the system policy
- Windows 2000: Restrict access in Windows Explorer
- Windows 2000: Exclude administrator from policy changes

Windows XP workstations

You must carry out the following instructions on a Windows XP workstation:

- Install the System Policy Editor
- Windows XP: Folder administration
- Edit the system policy

Install the System Policy Editor

The table below describes how install the Windows System Policy Editor on a Windows workstation.

Step	Action
1	Insert the installation CD supplied with Windows 2000 Server containing the Policy Editor files.
2	• Open Windows Explorer. • Create a folder in the root directory of the installation drive (directly under `C:\` if `C:` is the installation drive). The name of the folder is not important. • Copy the files `Poledit.exe` and `Poledit.chm` from the CD to the folder you created.
3	Open the folder and double-click `Poledit.exe`. *Result*: A message is probably displayed saying that files are missing. Write down the names of these files. ***Note:*** *The missing files are usually `winnt.adm` and `common.adm`.*
4	Copy the missing files from the CD to the folder where `Poledit.exe` is located. *Result*: Now the System Policy Editor should start when you double-click `Poledit.exe`.

Windows 2000: Folder administration

The table below describes some necessary folder and file administration on a Windows 2000 workstation.

Step	Action
1	Log on to the workstation as a user that will run UNICORN and whose access you want to restrict. ***Note:*** *This user must have Windows administrator rights.*
2	• Open Windows Explorer. • Create a folder called `Programs` in the `UNICORN` folder. The path will be `C:\UNICORN\Programs`, if `C:` is the directory where the UNICORN application is installed

Step	Action
3	Place shortcuts to the files listed below in the `\UNICORN\Programs` folder: • `\UNICORN\Bin\UNICORN.exe` • The manuals that will be used, located in `\UNICORN\Manuals\` and `\UNICORN\HtmlManual\`. • `Poledit.exe` and `Poledit.chm` located in the folder that was created in **Install the System Policy Editor** above. ***Note:*** *The `Poledit.exe` and `Poledit.chm` shortcuts should be removed when all the instructions in this section have been performed.*
4	• Place a shortcut to `\UNICORN\Bin\UNICORN.exe` in the folder `\Documents and Settings\<user>\Start Menu\Programs\Startup`. ***Note:*** *`<user>` is the identity you used to log on in step 1.* • Remove the contents in the folder `\Documents and Settings\<user>\Recent`. • Log off and log on as the same user as in step 1. • Delete the folder `\Documents and Settings\<user>\My Documents`. ***Note:*** *`<user>` is the identity you used to log on in step 1.* • Remove the shortcut to Windows Explorer located in the folder `\Documents and Settings\<user>\Start Menu\Programs\Accessories`. • Log off.

Windows XP: Folder administration

The table below describes some necessary folder and file administration on a Windows XP workstation.

Step	Action
1	Log on to the workstation as a user that will run UNICORN and whose access you want to restrict. ***Note:*** *This user must have Windows administrator rights.*
2	• Open Windows Explorer. • Create a folder called `Programs` in the `UNICORN` folder. The path will be `C:\UNICORN\Programs`, if `C:` is the directory where the UNICORN application is installed.

Step	Action
3	Place shortcuts to the files listed below in the `\UNICORN\Programs` folder: • `\UNICORN\Bin\UNICORN.exe` • The manuals that will be used, located in `\UNICORN\Manuals\` and `\UNICORN\HtmlManual\`. • `Poledit.exe` and `Poledit.chm` located in the folder that was created in **Install the System Policy Editor** above. ***Note:*** *The `Poledit.exe` and `Poledit.chm` shortcuts should be removed when all the instructions in this section have been performed.*
4	• Place a shortcut to `\UNICORN\Bin\UNICORN.exe` in the folder `\Documents and Settings\<user>\Start Menu\Programs\Startup`. ***Note:*** *`<user>` is the identity you used to log on in step 1.* • Right-click the Windows **Start**-button and select **Properties**. • Click the **Start Menu** tab, select the **Start Menu** radio button and click the **Customize...** button. • Click the **Advanced** tab in the **Customize Start Menu** dialog box. • In the **Start menu items** field, select the option **Don't display this item** for the following items: - Control Panel - My Computer - My Documents - My Music - My Pictures • In the same field, uncheck the following items: - Run command - Search • In the **Recent documents** field, uncheck the box **List my most recently opened documents**. • Log off and log on as the same user as in step 1.

Step	Action
5	• Delete the folder `\Documents and Settings\<user>\<user>'s Documents`. ***Note:*** *`<user>` is the identity you used to log on in step 1.* • Remove the shortcuts to - Windows Explorer - Command Prompt - Tour Windows XP usually located in the folder `\Documents and Settings\<user>\Start Menu\Programs\Accessories`. • Click **OK** and then **OK** again. • Click **Start:Control Panel** and double-click **Network Connections**. • Right-click **Local Area Connection** and select **Properties**. • Click the **General** tab and uncheck **Show icon in notification area when connected**. • Click **OK** and close the **Network Connections** window. • Log off.

Edit the system policy

The table below describes how to edit the system policy with the System Policy Editor:

Step	Action
1	• Log on to the workstation as the user that will run UNICORN and whose access you want to restrict (the same user as in the instructions above). ***Note:*** *The user must have Windows administrator rights, otherwise the System Policy Editor will not be able to save the settings.* • Double-click the shortcut `\UNICORN\Programs\Poledit`. *Result*: The System Policy Editor is started.
2	• Choose **File:Open Registry**. • Double-click the **Local User** icon.

Step	Action
3	Expand the **Shell:Restrictions** item by clicking the plus signs. Select these options: • **Remove Run command from Start menu** • **Remove folders from Settings on Start menu** • **Remove Taskbar from Settings on Start menu** • **Remove Find command from Start menu** • **Hide all items on desktop** Make sure all the other options are *deselected*.
4	Expand the **Windows NT™ Shell:Custom folders** item by clicking the plus signs. Select these options: • **Custom Programs folder** • **Hide Start menu subfolders** • **Custom Startup folder** Make sure all the other options are *deselected*.
5	Expand the **Restrictions** item by clicking the plus sign. Select these options: • **Remove View->Options menu from Explorer** • **Remove Tools->GoTo menu from Explorer** • **Remove File menu from Explorer** • **Remove common programs groups from Start menu** • **Disable context menus for the taskbar** • **Disable Explorer's default context menu** Make sure all the other options are *deselected*.
6	Expand the **Windows NT System** item by clicking the plus sign. Select these options: • **Parse Autoexec.bat** • **Disable Task Manager** Make sure all the other options are *deselected*.
7	• Click **OK**. • Choose **File:Save**. • Close the System Policy Editor
8	Log off.

Windows 2000: Restrict access in Windows Explorer

When you have edited the system policy as described above, the user can still access Windows Explorer in Windows 2000 workstations. This can be achieved by clicking the Windows **Start** button and right-clicking on **Programs**.

- Therefore you must restrict access to the drives in Windows Explorer.

Note: *You do not have to perform this in Windows XP.*

The table below describes how to do this.

Step	Action
1	Log on to the computer as an administrator. ***Note:*** *This can be any user with Windows administrator rights.*
2	Open your local security policy: • Click **Start:Run** and then type `gpedit.msc`. *Result:* The **Group Policy** window in displayed.
3	• In the tree view, select the folder **User Configuration** > **Administrative Templates** > **Windows Components** > **Windows Explorer**. • In the right window pane, double-click the setting **Prevent access to drives in My Computer**. • Click the **Policy** tab. • Click the **Enable** radio button. • Click the **Apply** button and then **OK**.
4	Close the **Group Policy** window and log off from the computer.
5	• Log on to the computer as an administrator • Verify that access to all the drives is restricted. ***Note:*** *The procedure above for group policy changes by default apply to all users, including administrators. See* ***5.5 Windows 2000: Exclude administrator from policy changes*** *on page 107 on how to exclude real administrators from being affected by the group policy changes.*
6	• Log off from the computer • Log on to the computer as a user whose policies you want to restrict. • Verify that the restrictions are in place, for example that the user is unable to access to any drives.

Windows 2000: Exclude administrator from policy changes

When you have restricted the access in Windows Explorer as described above, these restrictions will apply even to the real administrator of the computer. Therefore you must exclude the real administrator from those policy changes.

Note: *You do not have to perform this in Windows XP.*

The table below describes how to do this.

Step	Action
1	Log on to the computer as a real administrator who you want to exclude from being affected by the policy changes performed above.
2	Copy the file `C:\WINNT\System32\GroupPolicy\<user>\Registry.pol` to a backup location. Since access restrictions are in place, you can do it like this: • Open the Windows **Command Prompt**. • In the Command Prompt window, type `copy c:\winnt\system32\grouppolicy\user\registry.pol a:` to copy the file to a floppy disk. ***Note:*** *`<user>` is the identity you used to log on in step 1.*
3	Open the local security policy: • Click **Start:Run** and then type `gpedit.msc`. *Result:* The **Group Policy** window in displayed.
4	• In the tree view, select the folder **User Configuration** > **Administrative Templates** > **Windows Components** > **Windows Explorer**. • In the right window pane, double-click the setting **Prevent access to drives in My Computer**. • Click the **Policy** tab. • Click the **Disable** radio button. • Click the **Apply** button and then **OK**.
5	• Close the **Group Policy** window • Copy the backup `Registry.pol` file, created in step 2, back to the folder `C:\WINNT\System32\GroupPolicy\<user>\`. Since access restrictions are in place, you can do it like this: - Open the Windows **Command Prompt** window. - Type `copy a:registry.pol c:winnt\system32\grouppolicy\user` to copy the file from a floppy disk. • When prompted to replace the existing file, click **Yes**.

Step	Action
6	• Log off from the computer • Log on to the computer again as the same administrator. • Verify that the restrictions no longer apply to the administrator.
7	• Log off from the computer • Log on to the computer as another user whose access should be restricted. • Verify that the restrictions apply to the user.

How to restore the local policies

The table below describes how to undo the local policy changes previously described.

Step	Action
1	Log on to the computer as a real administrator.
2	• Delete the file `Registry.pol` from the folder - `C:\WINNT\System32\GroupPolicy\<user>` in Windows 2000 *or* - `C:\WINDOWS\System32\GroupPolicy\<user>` in Windows XP ***Note:*** *`<user>` is the identity you used to log on in step 1.* • Log off from or restart the computer. *Result:* Another default `Registry.pol` file is created by the Windows File Protection system. • Log on to the computer again with the same identity.
3	Open your local security policy: • Click **Start:Run** and then type `gpedit.msc`. *Result:* The **Group Policy** window in displayed.
4	• In the tree view, select the folder **User Configuration** > **Administrative Templates** > **Windows Components** > **Windows Explorer**. • In the right window pane, double-click the setting **Prevent access to drives in My Computer**. • Click the **Policy** tab. • Click the **Not configured** radio button. • Click the **Apply** button and then **OK**.

Step	Action
5	• Close the **Group Policy** window • Log off from the computer.
6	• Log on to the computer as the same administrator. • Log off from the computer
7	Repeat steps 1 to 5 for each of the users of the local computer, one at a time, in order to restore the local policies on their accounts as well. ***Note:*** *Make sure to log on as a user in step 1 and 2.*

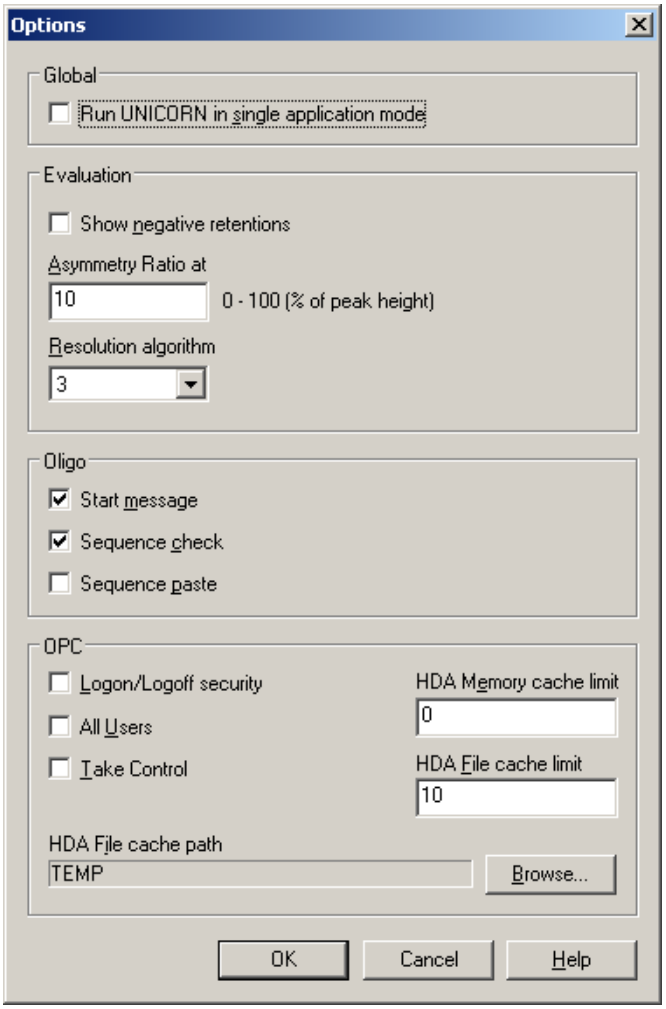
5.6 The Options dialog box

Introduction

This section describes the Options dialog box in the UNICORN Manager.

How to open the dialog box

In the UNICORN Manager, choose **Administration:Options...** to open the Options dialog box.



There are four fields in the dialog box which are described individually below.

The Global field

Select the **Run UNICORN in single application mode** check box to activate UNICORN single application mode on the computer.

Explanation

Single application mode means that UNICORN will be the only application available when it is running. The setting is done on a per computer basis and will apply to everyone who starts UNICORN on the specific computer.

To achieve single application mode, UNICORN is started in a separate desktop. When UNICORN is terminated, Windows switches back to the original desktop.

The Evaluation field

The table below describes the commands of the Evaluation field.

Command name	Function
Show negative retentions	Select the check box to show negative retentions in the Evaluation module. This means that curve data before the injection point will be displayed, that is before time or volume is zero. Deselect it to hide curve data before the injection point.
Asymmetry ratio at	The value specifies the height, in percent of peak height, where the asymmetry calculation is performed. See **Appendix B3** of the **UNICORN User Reference Manual** for more information.
Resolution algorithm	Select the resolution algorithm to be used. See **Appendix B3** of the **UNICORN User Reference Manual** for more information.

The Oligo field

The table below describes the function of each checkbox when it is selected.

Note: *These functions are only valid for oligosynthesis systems.*

Checkbox name	Function
Start message	Inserts a start message in the method
Sequence check	Checks a sequence for errors
Sequence paste	Allows paste of sequence characters from another program

The OPC field

The table below describes the commands of the OPC field:

Command name	Function
Logon/Logoff security	Enables the OPC security interface
All Users	Displays all users in Data Access and Historical Data Access
Take Control	Automatically tries to gain control of the system when OPC starts

Command name	Function
HDA Memory cache limit	Limits Historical Data Access in-memory cache to the specified number of bytes. Range: 0 - 1 000 000 000 [bytes] 1 - 100 => 100 [bytes], minimum cache size 0 = unlimited cache size
HDA File cache limit	Indicates maximum number of result files in cache. Range: 0 - 100 0 = cache not used
HDA File cache path	The folder where cached result files are stored

6 Administration

Introduction

This chapter describes the administration aspects of a UNICORN installation, for example how to create system definitions and how to assign different access levels to the users.

In this chapter

This chapter contains these sections:

6.1 Administration overview

Administration areas

The table below describes the three main areas of UNICORN administration:

Area	Concerns
System administration	• maintenance of software aspects of UNICORN, including - definition of connected systems, see **6.2.1 System definitions** on page 115. - monitoring of system usage (audit trails), see **6.2.2 Audit trails** on page 125. • routine monitor calibration, see **4 Calibration** on page 83.
User administration	authorization of access to the system, see **6.3 User administration** on page 137. ***Note:*** *The responsible should be one person or a small group, at least in larger installations.*
Network administration	maintenance of the network functions relevant to UNICORN, see **1 Network setup** on page 3. ***Note:*** *In a network installation, this is normally carried out by the computer staff responsible for the company's network.*

Actions before the UNICORN program can be used

When UNICORN has been installed, the administrator must perform the actions in this table before other users can use the program:

Step	Action
1	Set up system definitions for the chromatography systems, see **6.2.1 System definitions** on page 115.
2	Define new users with home folders, access groups and access profiles, see **6.3 User administration** on page 137.

Note: *The above actions can be performed from any station in a network installation. The administrator must be logged on to the network from the workstation so that the changes apply globally throughout the network.*

6.2 System administration

Introduction

This section describes mainly

- how to create and edit system definitions
- how to view, edit and save log files of the UNICORN system activity.
- how to back up and restore the system definitions.

In this section

This table describes the contents of this section:

6.2.1 System definitions

General guidelines

- System definitions are used to set up the systems in a UNICORN installation. The definitions must be made for each new system that is installed.
- In a network installation, the definitions must be performed for each local computer in the network.

Note: *Access rights to a system are controlled at the user administration level, see* ***6.3 User administration*** *on page 137.*

Important!

The UNICORN computer name

- The computer name in the UNICORN software *must* be the same as the Windows computer name. The Windows computer name is therefore automatically filled in as the UNICORN computer name when you create a new system definition.
- Subsequently, if the Windows computer name for some reason is changed after the UNICORN installation, you manually have to change the computer name in UNICORN.

How to change the computer name

The table below describes how to determine the Windows computer name and change the UNICORN computer name accordingly:

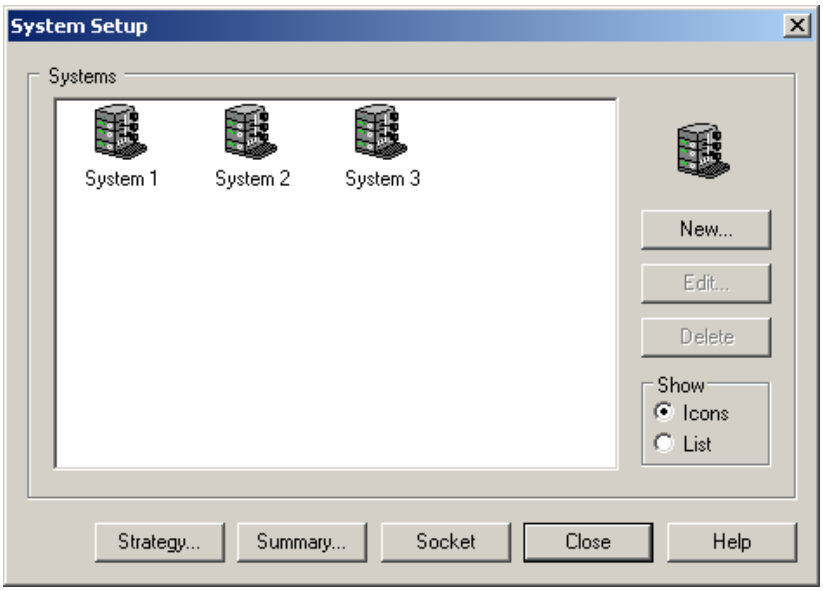
Step	Action
1	• Open Windows **Control Panel** and double-click the **System** icon. • Look for an item called **Computer Name**. ***Note:*** *Depending on your Windows version, you might have to click a tab to find the computer name.* • Take a note of the computer name and click the **Cancel** button.
2	Start UNICORN and choose **Administration:System Setup** in the **UNICORN Manager**. *Result*: The **System Setup** dialog box is displayed.
3	• Select the system and click the **Edit** button. • Check that **Computer name** is the same as the Windows computer name. If not, change the UNICORN computer name.
4	Click **OK** and then the **Close** button.

Possible actions in the System Setup dialog box

Systems are edited in the **System Setup** dialog box in the **UNICORN Manager**.

- Choose **Administration:System setup** in the **UNICORN Manager** to open the **System Setup** dialog box, see illustration below.

  Note: To use this menu command, you must have **Audit trail/System setup** *access, see* ***6.3.2 Access items*** *on page 142.*



Possible actions

The table below describes the actions you can perform in the **System Setup** dialog box. Each action is described further on in this section.

Note: You need the UNICORN installation CD to perform the actions **New** *and* **Delete**.

If you want to...	then click the button
create a new system definition	**New**
edit a system definition	**Edit**
delete a system definition	**Delete**
delete a strategy	**Strategy**
view or print a system summary	**Summary**
use socket communication	**Socket**
view installed systems as icons	**Icons**
view installed systems in a list	**List**

Note: The **Socket** *button is described in* ***1.2 If named pipes cannot be used*** *on page 7.*

How to create a new system definition

The table below describes how to create a new system definition:

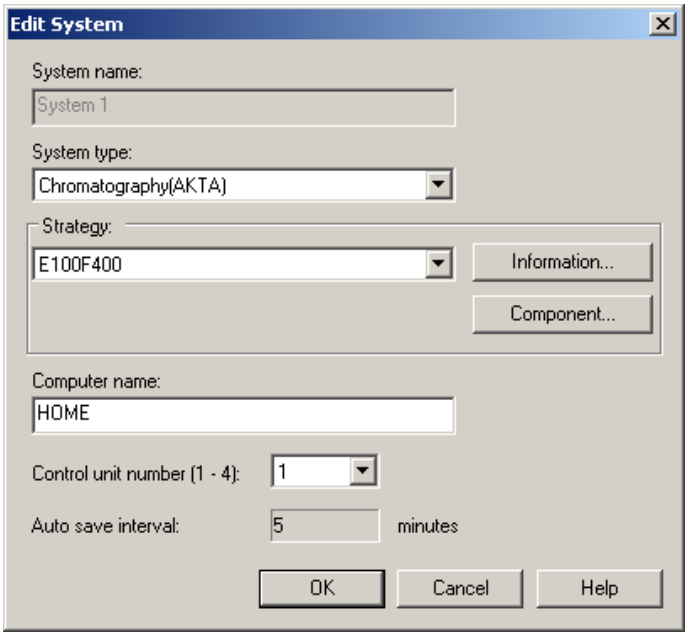
Note: *When the system definition has been created, remember to grant access to the system to the appropriate users.*

Step	Action
1	• Insert the UNICORN CD in the CD-ROM drive. *Result:* The Setup wizard starts and displays the **Welcome** screen. • Click the **Next** button.
2	The **Select Components** screen is displayed. • Make sure that the **System Installation** option is selected. You should deselect the other check boxes unless you want to install other components. • Click the **Next** button.
3	The **Program Options** screen is displayed. • Specify the number of **System Control Windows** you want to be available, normally the number of instruments that will be simultaneously connected to the PC. Maximum value is - 1 for CU-950 USB - 4 for CU-950 Advanced. - 4 for CU-900 PCI • Click the **Next** button.
4	The **Start Copying Files** screen is displayed. • Click the **Next** button.
5	The **System installation** screen is displayed. • Go to **2.3.1 Step 11 - System Installation** on page 53 for further instructions.

How to edit a system definition

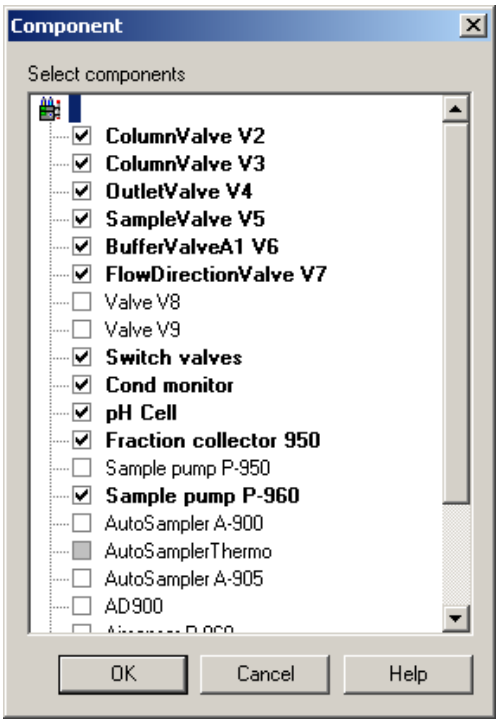
The table below describes how to edit the parameters of an existing system definition:

Step	Action
1	Select **Administration:System setup** in the **UNICORN Manager**. *Result*: The **System Setup** dialog box is displayed.

Step	Action
2	Select the system in the **System Setup** dialog box and click the **Edit** button. *Result*: The **Edit System** dialog box is displayed. 

Step	Action
3	The fields of the dialog box are described below. ***Note:*** *Any other changes than* **Strategy**, **Computer name** *and* **Component...** *require that you run the UNICORN Setup CD. See* ***2.3.3 How to install selected software components*** *on page 67.* • **System name** Type the system name. Names can be up to 30 characters long. ***Note:*** *The system name can be set only when a new connection is defined. It cannot be edited later since user access rights are linked directly to the system name.* • **System type** Select a system type, either **Chromatography**, **Oligo** or **Xpress**. • **Strategy** - Select a strategy for the system from the drop-down list. - Click the **Information** button to display information about the selected strategy. - The **Component** button is described in step 4 below. ***Note:*** *Available strategies are determined when UNICORN is installed (see* ***2.3 Software installation*** *on page 35). If there are several strategies installed, make sure that the selected strategy is appropriate for the system.* *Step continued below.*

Step	Action
3, *cont.*	• **Computer name** The Computer name should be the same as the Windows name of the computer that the system is connected to. Normally this is the local computer. • **Control unit number** Select the control unit number (1-4). This is the connection number for the system on the local computer. - **CU-900 PCI**: The control unit number is set with the DIP switch, see **2.2.2 How to install CU-900 PCI** on page 26. - **CU-950 USB**: Must be installed with the control unit number **1**. - **CU-950 Advanced**: Please contact your local Amersham representative. • **Auto save interval** UNICORN saves a copy of the result file every five minutes during a run. This minimizes loss of data in the event of a computer failure. The interval cannot be changed. • **Component...** See step 4 below.

Step	Action
4	Some system strategies allow you to define the specific system components included in the system. • Click the **Component** button to specify the system components. • If the **Component** button cannot be clicked, go to step 5. *Result*: The **Component** dialog box is displayed.  ***Note:*** *The strategy contains instructions for all possible components, but only instructions for the selected system components will be shown.* • Select the check boxes for the components you want to add to the system and click **OK**. **Caution!** If you make changes to a system, you may also have to change the arrangement of tubing, pumps, columns etc. on the system. An attempt to control a system using the wrong strategy may cause malfunction and ultimately damage the system.
5	Click **OK** and then **Close**.

How to delete a system definition

The table below describes how to delete a system definition:

Note: *A system definition can only be deleted if the system is idle and no users are connected to the system.*

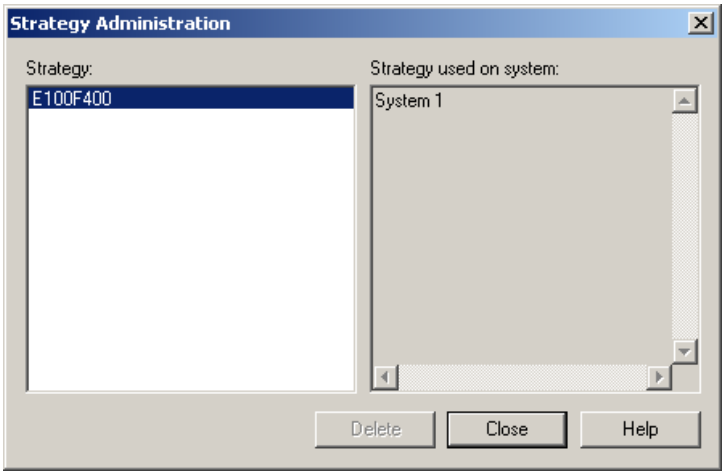
Step	Action
1	• Insert the UNICORN CD in the CD-ROM drive. *Result:* The Setup wizard starts and displays the **Welcome** screen. • Click the **Next** button.
2	The **Select Components** screen is displayed. • Make sure that the **System Installation** option is selected. You should deselect the other check boxes unless you want to install other components. • Click the **Next** button.
3	The **Program Options** screen is displayed. • Specify the number of **System Control Windows** you want to be available, normally the number of instruments that will be simultaneously connected to the PC. • Click the **Next** button.
4	The **Start Copying Files** screen is displayed. • Click the **Next** button.
5	The **System installation** screen is displayed. • Select the radio button corresponding to the system you want to delete. • Click the **Change** button to display the **System Setup** screen. • Click the **Clear** button to clear all the fields. • Click **OK** to go back to the **System Installation** screen. • Click the **Next** button. • Click the **Finish** button. ***Note:*** *You can see the screen images in* ***2.3.1 Step 11 - System Installation*** *on page 53.*

How to delete a strategy

The table below describes how to delete a strategy.

Note: *You can only delete strategies that are not currently in use.*

Step	Action
1	Select **Administration:System setup** in the **UNICORN Manager**. *Result*: The **System Setup** dialog box is displayed.

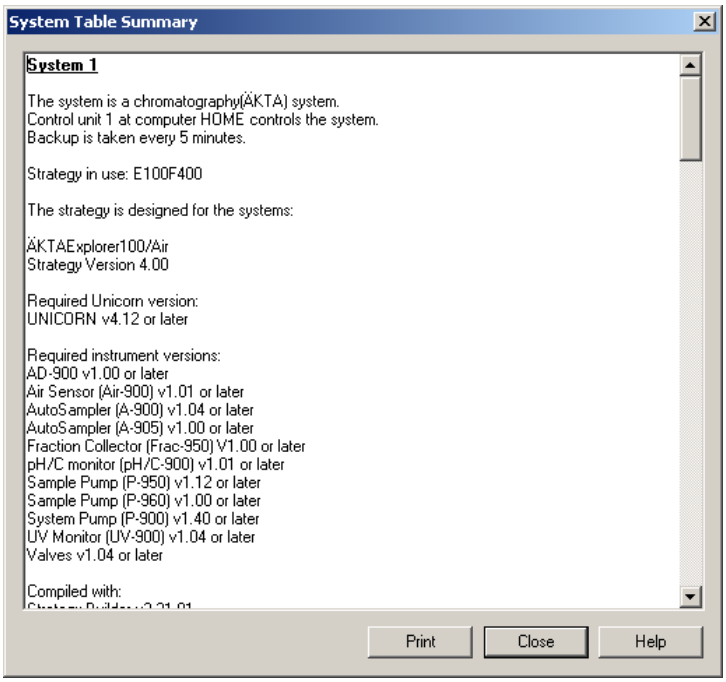
Step	Action
2	Click the **Strategy** button. *Result*: The **Strategy Administration** dialog box is displayed. 
3	Select a strategy and click the **Delete** button.

How to view or print a system summary

You can view and print a total summary of a selected system from the **System Table Summary** dialog box.

The table below describes how to view and print an information summary of a selected system:

Step	Action
1	Choose **Administration:System Setup** in the **UNICORN Manager**. *Result*: The **System Setup** dialog box is displayed.

Step	Action
2	• Select (click the icon of) the system you want a summary of. • Click the **Summary** button. *Result*: **System Table Summary** dialog box is displayed: 
3	• Click the **Print** button to print out the information. • Click the **Close** button to exit the dialog box.

6.2.2 Audit trails

Purpose

The audit trail provides the system administrator with a full record of UNICORN usage and system activity.

The different types of audit trail files

There are two types of audit trail files, global files and system-specific files:

The *global* audit trail files

- are saved on the server disk in a network installation
- are examined via a network connection.

The *system* audit trail files

- are saved on the local station to which the chromatography system is physically connected
- can be examined from the local station without logging on to the network
- can be examined from any computer in a network installation.

Tabs of the Audit trail dialog box

The **Audit trail** dialog box has two or more tabs, one **Global** tab and a **System** tab for each installed system.

- The global tab displays usage information for the complete UNICORN installation.
- The system tab(s) displays usage information for a chosen system.

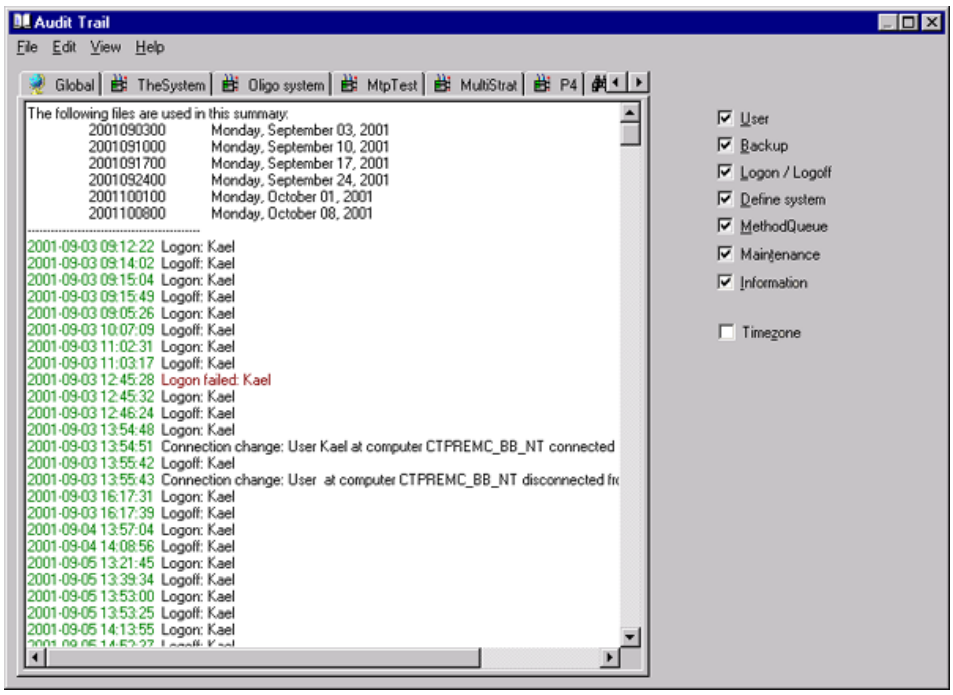
How to view the audit trail files

The table below describes how to examine the global and system audit trail files:

Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box is opened, see the illustration in **6.2.2 The Global tab** on page 127.
2	By default the **Global** tab is displayed which shows the information of the global audit trail file. If you want to examine the audit trail file for a system, click a **System** tab. There is one tab for each installed system. See illustration in **6.2.2 The System tab** on page 128.
3	Select the check boxes for the items you want to display. ***Note:*** *All items are recorded in the audit trail. The check boxes only control which items are displayed in the dialog box.*

The Global tab

The illustration below shows the **Global** tab of the **Audit Trail** dialog box:



The items of the Global tab

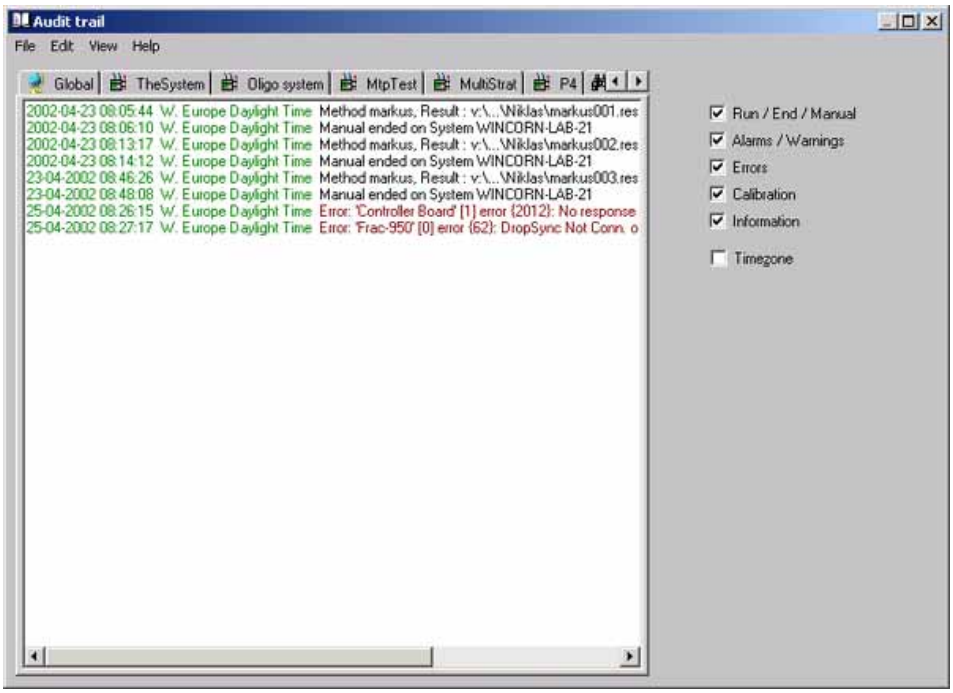
The table below describes the items which can be displayed on the **Global** tab:

Item	Displays
User	• user creation, deletion and redefinition. • creation of rescue file for system definitions • restoration of system definitions with rescue file • changes of global and personal lists: - column list - report format - templates - evaluation procedures • column protection mode enable/disable
Backup	backup operations for global audit trail files.
Logon/Logoff	• all logon and logoff attempts • the name of the user logging on or off • failed logon attempts.
Define system	system definition, deletion and definition.
MethodQueue	MethodQueue start operations.

Item	Displays
Maintenance	• maintenance activities that are scheduled in the **System Control** module (menu command **System:Maintenance**). • settings made in maintenance module
Information	• system lock/unlock • socket on/off • global log started/stopped
Timezone	the time zone where the activity was logged.

The System tab

The illustration below shows a **System** tab of the **Audit Trail** dialog box:



The table below describes the items which can be displayed on a **System** tab:

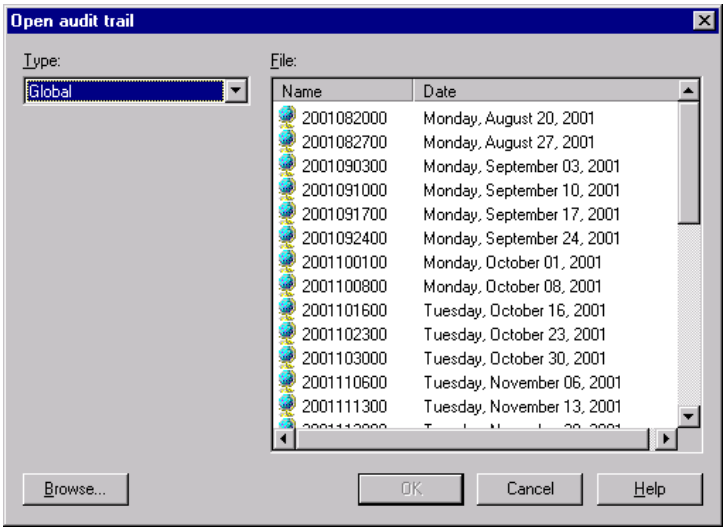
Item	Displays
Run/End/Manual	• the times for start and completion of a run • the times for manual operation.
Alarms/Warnings	alarms and warnings defined in the strategy for the system.
Errors	system errors.
Calibration	monitor calibration operations.

Item	Displays
Information	system log started/stopped
Timezone	the time zone where the activity was logged.

How to view previous audit trail files

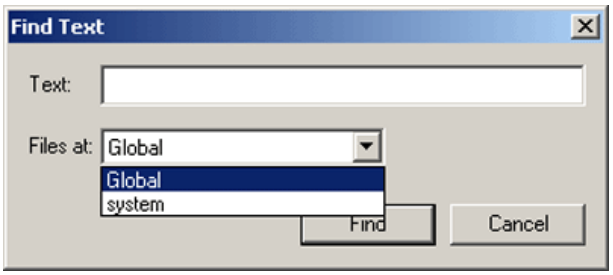
A new audit trail file is created at regular intervals and the old audit trail file is automatically saved. See **6.2.2 How to renew audit trail files** on page 131 for more information.

The table below describes how to view previous audit trail files:

Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box displays the *current* audit trail.
2	• Choose **File:Open** to display the **Open audit trail** dialog box: 
3	• Choose **Global** or a **System** in the **Type** drop-down box. • Select the file(s) to open from the **File** list: - Use the **CTRL** key if you want to open several audit trail files at the same time. - Click the **Browse** button if you want to open a file which is not listed. ***Note:*** *Files are named by date and serial number.* • Click **OK**. *Result*: The audit trail file(s) is now displayed on a new, temporary tab.

How to search for text in audit trail files

The table below describes how to search for text in audit trail files:

Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box is displayed.
2	If you want search the *currently open* audit trail file • press the **CTRL** + **F** keys or choose **Edit:Find in current log**. ***Note:*** *The currently open audit trail is the one displayed in the* **Audit trail** *dialog box and depends on the selected tab (***Global** *or a* **System***).* • type the text string you want to find in the **Find Text** dialog box and click the **Find** button. • press the **F3** key (or choose **Edit:Find next**) to find the next occurrence of the search string.
3	If you want to search *all the existing* audit trail files, either **Global** or **System**, • choose **Edit:Find in log files**. • type the search string, choose whether to search **Global** or **System** audit trail files in the **Files at** drop-down box, and click the **Find** button.  *Result*: The search results are displayed on a new, temporary tab named **Find result**.

How to print audit trails

The table below describes how to print an audit trail file:

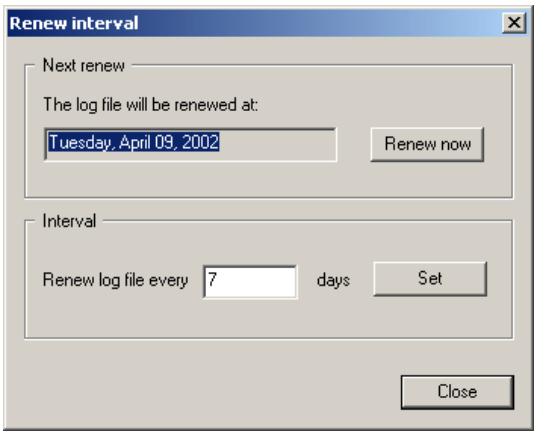
Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box is displayed.

Step	Action
2	• Select the **Global** tab or a **System** tab. • If you want to print other audit trail files than the currently open, then open the file(s) as described in "How to view older audit trail files" above. • Choose **File:Print** to print the file(s) displayed in the dialog box.

How to renew audit trail files

The audit trail file is renewed at regular intervals between 1 to 30 days. The old audit trail file is then saved automatically together with all the previous audit trail files.

The table below describes how to set the renewal interval and how to renew the audit trail immediately:

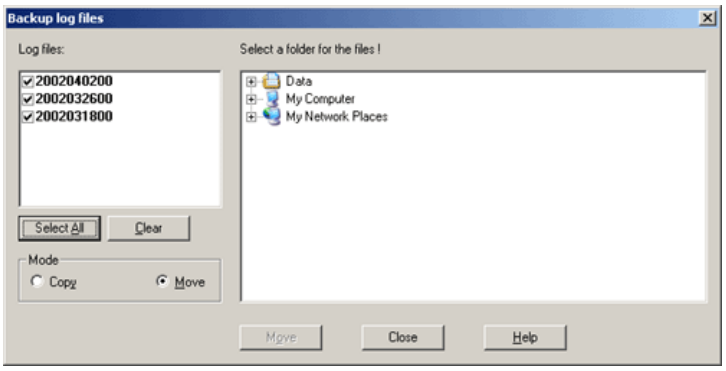
Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. Result: The **Audit Trail** dialog box is displayed.
2	Choose **View:Renew interval**. *Result*: The **Renew interval** dialog box is displayed. 

Step	Action
3	**Set renewal interval** • Type the desired interval in the **Interval** field. The standard value is 7 days. • Click the **Set** button. *Result*: The new **Interval** setting will take effect after the next scheduled renewal, or immediately if the **Renew now** button is clicked. **Renew now** • Click the **Renew now** button to start a new audit trail file. The old file is saved automatically. *Example*: If the audit trail is set to renew every 7 days and you click **Renew now** on a Friday, a new file will be started immediately and another file will be started the following Friday.
4	Click the **Close** button.

How to back up audit trail files

The table below describes how to back up audit trail files.

Note: *Old audit trail file are automatically saved each time a new one is created. This backup function is only necessary if you want to copy or move the audit trail files to a specific location.*

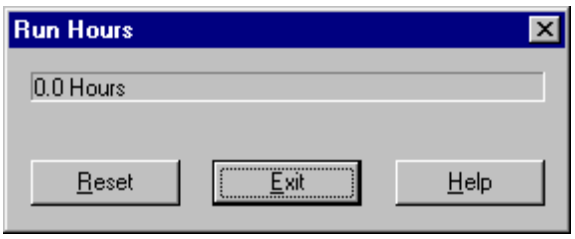
Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box is displayed.
2	Choose **File:Backup**. *Result*: The **Backup log files** dialog box is displayed. 

Step	Action
3	You can choose either to copy or move the log files. • Select the files you want to back up in the **Log files** field. • Select a destination folder in the structure tree. • Select to **Copy** or **Move** the file(s) in the **Mode** field. The **Move** alternative is recommended to save disk space. • Click the **Copy** or **Move** button, depending on the previous choice. • Click the **Close** button. ***Note:*** *Backup operations are recorded in the audit trail.*

How to display the system run hours

Run hour values show the number of hours that the system has been used for manual or method-controlled runs. The **Run hours** record is useful if you want follow up the expected and actual lifetimes for liquid handling components.

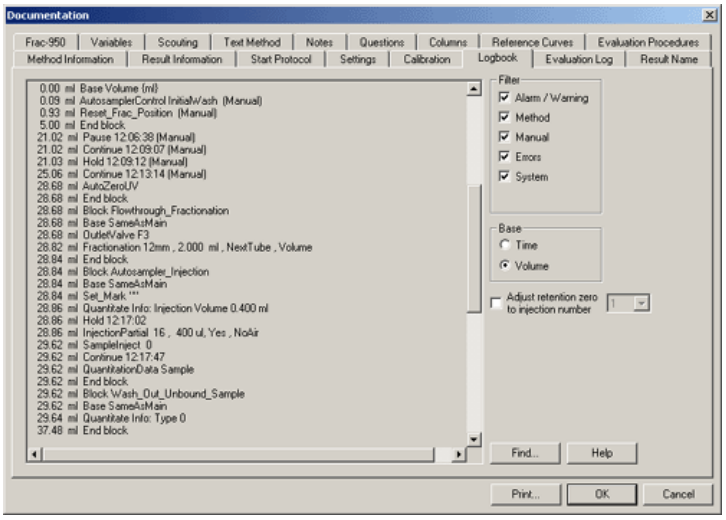
The table below describes how to display (and reset) the system run hours:

Step	Action
1	Choose **Administration:Audit Trail** in the **UNICORN Manager**. *Result*: The **Audit Trail** dialog box is displayed.
2	• Choose a **System** tab. • Choose **View:Run hours**. *Result*: The **Run Hours** dialog box with the accumulated run time for the system is displayed. 
3	• If you want to reset the accumulated run hours to zero (0), click the **Reset** button. • Click the **Exit** button. ***Note:*** *The reset time is recorded in the audit trail.*

Other sources of information

Parts of the audit trail information can also be found in the **Documentation** dialog box, available in the **Evaluation** and **System Control** modules.

The table below describes how to open the **Documentation** dialog box:

Step	Action
1	• Open the **Evaluation** module or the **System Control** module. • Click the **View Documentation** icon.  *Result*: The **Documentation** dialog box is opened.
2	Select the **Event Log** or the **Logbook** tab to view some of the audit trail information. See the example below. 

6.2.3 How to back up and restore system definitions

Introduction

You can create a backup file with system information and store it on a diskette or another drive. The backup file will contain information about

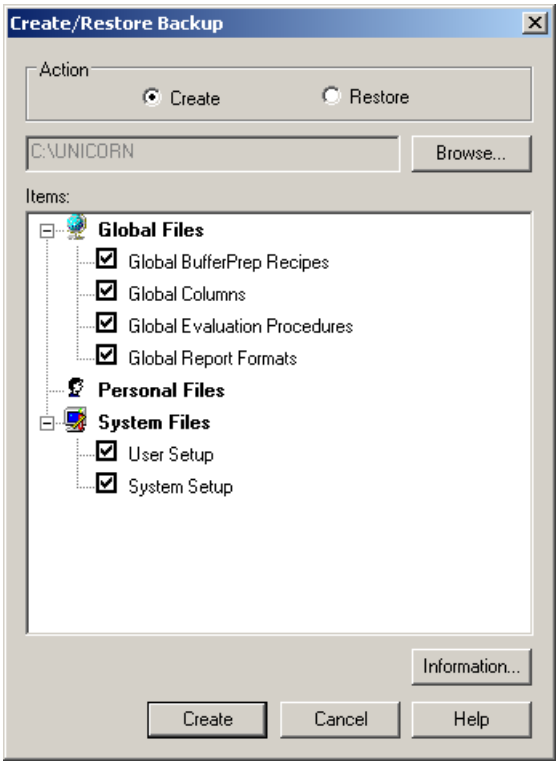
- Global files
  - global BufferPrep recipes
  - global columns
  - global evaluation procedures
  - global report formats
- Personal files
  - personal BufferPrep recipes
  - personal columns
  - personal evaluation procedures
  - personal report formats
- System files
  - user setup
  - system setup

Afterwards you can use the backup file to restore the system definitions if they are corrupted.

How to back up the system definitions

The table below describes how to create a backup file and store it for example on a rescue diskette:

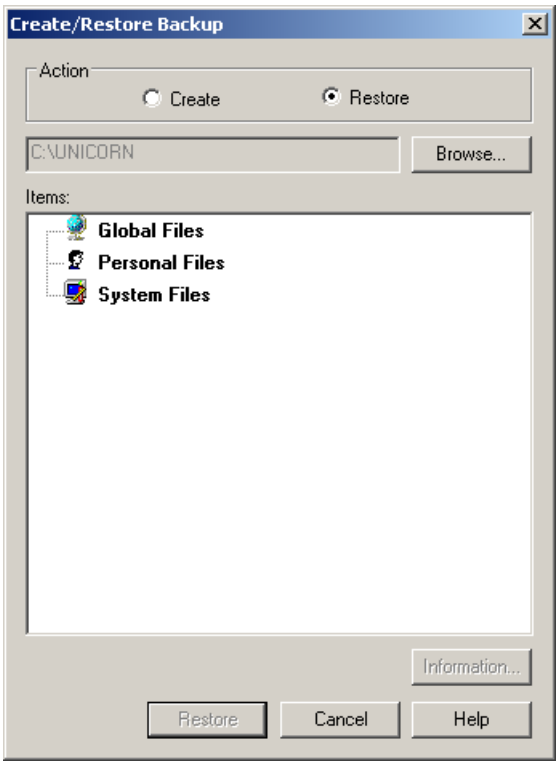
Step	Action
1	Insert a diskette into the computer if you want to store the backup file on a diskette.

Step	Action
2	Choose **Administration:Create/Restore Backup** in the **UNICORN Manager** to display the **Create/Restore Backup** dialog box: 
3	• In the **Action** field, make sure that the **Create** option is selected. • Click the **Browse** button to select where to store the backup file. ***Note:*** *Select* `A:\` *to store the file on a diskette.* • In the **Items** field, select which information to include on the backup file. • Click the **Create** button to create the backup file and store it in the selected location. The created backup file has the ending `.bck`. ***Note:*** *You can click the* **Information** *button to see which information files will be included in the backup file.*

How to restore the system definitions

The table below describes how to restore the system definitions from a backup file, located for example on a rescue diskette.

Note: *Any user can restore their personal files. To restore global and system files the user needs the access item* **Edit global list(s)**, *see* ***6.3.2 Access items*** *on page 142.*

Step	Action
1	If the backup file is located on a diskette, insert the diskette into the computer.
2	Choose **Administration:Create/Restore Backup** in the **UNICORN Manager** to display the **Create/Restore Backup** dialog box: 
3	• If the backup file is located in a different place than the path indicates, click the **Browse** button to select the correct folder. ***Note:*** *Select* `A:\` *if the file is located on the diskette.* • In the **Items** field, select which information to include from the backup file. • Click the **Restore** button to restore the system definitions. ***Note:*** *You can click the* **Information** *button to see which information files are included in the backup file.*

6.3 User Administration

Introduction

Access to the UNICORN software is controlled by username and password authorization. This is done from within the UNICORN program, where each authorized user is assigned to an access group that determines which functions the user can perform.

In this section

The table below describes the contents of this section:

6.3.1 User access groups

Introduction

This section describes

- the purpose of access groups and access items
- how to view and edit the access groups
- suggested responsibilities for some typical access groups.

Kinds of access groups

A UNICORN installation has 10 different access groups with different rights to perform actions in the UNICORN system. Some access groups are predefined while others are undefined. The table below describes the different kinds of access groups:

Kind of access group	Description
Predefined	The following applies to the predefined groups: • Each group has a name that reflects the status of its members, such as **Administrator** and **Process operator**. • Each group has different rights to perform actions in the UNICORN system. • The names and rights of the groups can be changed to the requirements of each individual group.
Undefined	If the system administrator wants to create access groups in addition to the predefined groups, he or she can use the undefined access groups. The following applies to the undefined groups: • They have generic numbered names, like "Group 7", "Group 8" and so on. • They do not have any rights defined. • It is up to the system administrator to define names and rights to the undefined groups.

The access items

The access items are used to assign rights to the access groups. How to assign rights to the access groups is described in "How to edit the access groups" below.

Each access item is described in **6.3.2 Access items** on page 142.

The User Setup dialog box

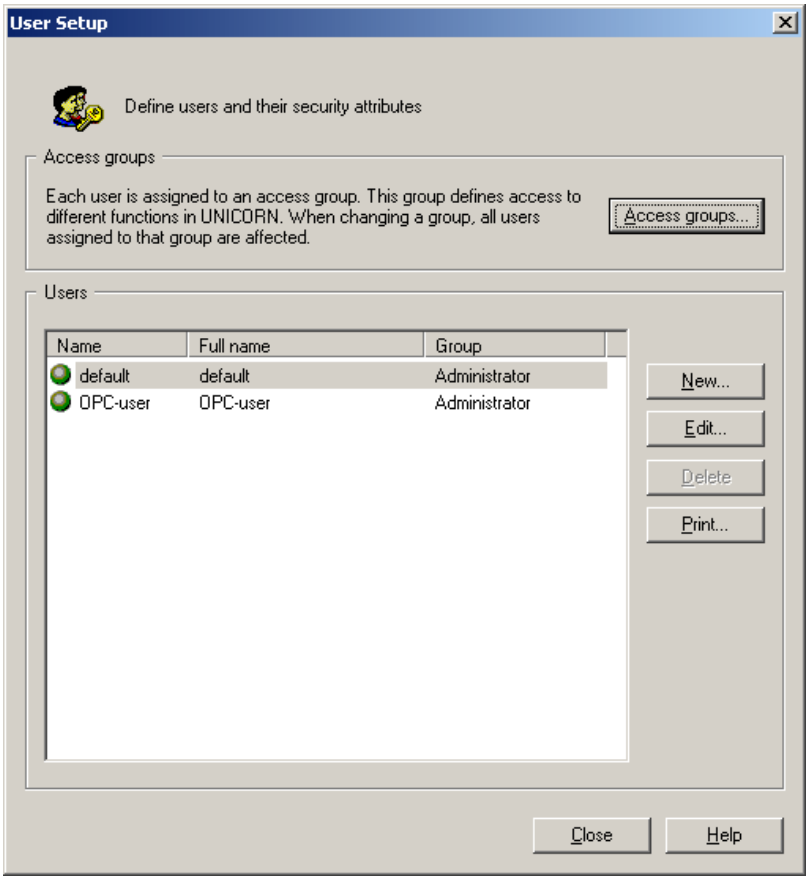
From the **User Setup** dialog box you can

- see which access group each user belongs to
- view the access level of each access group
- change user access groups.

Note: Other actions which can be performed from the **User Setup** *dialog box are described in subsequent sections of this chapter.*

How to open the dialog box

Choose **Administration:User Setup** in the **UNICORN Manager** when you want to display the **User Setup** dialog box. See illustration below:

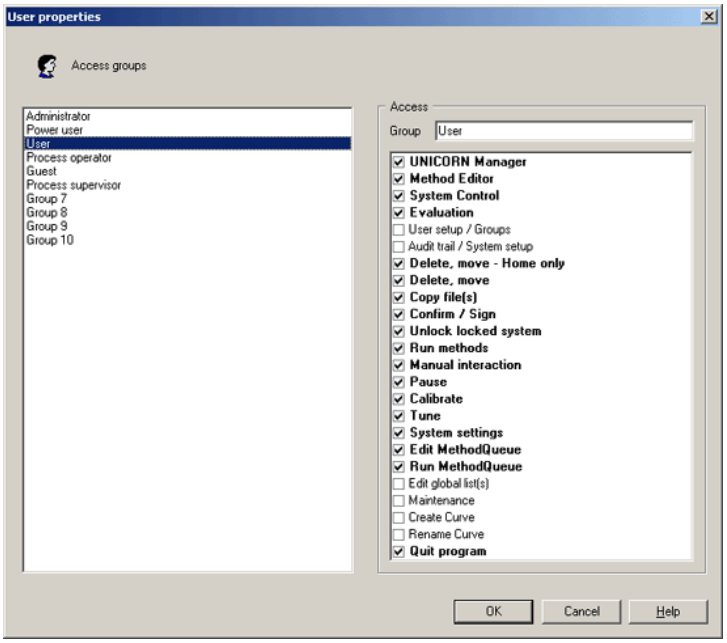


How to view the access groups

To view the access groups, you must have **User setup/Groups** access. See **6.3.2 Access items** on page 142 for an explanation of the access items.

The table below describes how to view the access groups and their properties:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.

Step	Action
2	Click the **Access groups** button. *Result*: The **User properties** dialog box is displayed: 
3	Select a group in the left field to view its access items in the right field (**Access**). ***Note:*** *The authorization items that are valid for the group are written in bold style and have selected check boxes.*

How to edit the access groups

UNICORN has 10 different access groups that can be named and assigned to different levels of access to UNICORN.

The table below describes how to edit the access groups:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	Click the **Access groups** button. *Result*: The **User properties** dialog box is displayed.
2	**Change the name of a group** • Select the group in the left field of the dialog box. • Type a new name in the **Group** text box. • Click **OK**.

Step	Action
3	**Choose access items for a group** • Select the group in the left field of the dialog box. • Select the check boxes in the right field (**Access**) to choose access items. • Click **OK**. ***Note:*** *If you edit the definition of an access group to which users are already assigned, the changes will apply to all users in the group.*

Special conditions

Certain access items cannot be completely removed:

- **User setup/Groups**

  At least one access group must have this access item. UNICORN will not allow you to remove this access item from all access groups.

- **UNICORN Manager**

  If access to the UNICORN Manager is restricted for an access group, the access group will still be able to

  - Log off
  - Quit program
  - Change user attributes
  - Change password

6.3.2 Access items

What is an access item?

An access item specifies a specific action that the user is allowed to perform in the UNICORN system. The access items are assigned to one or more user access group(s) in the **User properties** dialog box, see **6.3.1 User access groups** on page 138.

To view the access items,

- choose **Administration:User Setup** in the **UNICORN Manager** and click the **Access groups** button.

  Result: The access items are listed in the **Access** field (when the access group is selected).

Description of the access items

The table below describes each access item:

Access item	Allows the user
UNICORN Manager	to create and edit methods with the **UNICORN Manager**.
Method Editor	to create and edit methods for pre-programmed control of systems with the **Method Editor** module.
System Control	to control and monitor processes online with the **System Control** module.
Evaluation	to process result data with the **Evaluation** module.
User setup/Groups	to define and change access levels and users. *Caution!* It is recommended that only one user in an installation or network is assigned this access item.
Audit trail/System setup	to examine the audit trail and define connected systems. *Caution!* It is recommended that only one user in an installation or network is assigned this access item.
Delete, move - Home only	to delete and move files and folders within the user's home folder. It does not authorize these operations on other folders.
Delete, move	to delete and move files and folders both outside and within the user's home folder.
Copy file(s)	to copy files. The user must have access to both the source and target folders in order to move or copy between folders.

Access item	Allows the user
Confirm/Sign	• to confirm answers to start protocol questions • to sign methods and result files.
Unlock locked system	to unlock locked systems with the user's own logon passwords. Locked systems can normally only be unlocked with the locking password. ***Note:*** *We recommend that this access item is restricted to a few users in an installation. The user who locks a system does not require this access item to unlock the same system.*
Run methods	to start methods.
Manual interaction	to issue manual commands in **System Control**.
Pause	to pause a running process with the **Pause** button in **System Control**. ***Note:*** *The* **Pause** *instruction in methods does not require explicit authorization.*
Calibrate	to use the **Calibrate** commands in **System Control**.
Tune	to use the **Tune** commands in **System Control**.
System settings	to change system settings with the **Settings** command in **System Control**. ***Note:*** *Any user can view the system settings, but this access item is required to make changes to the settings.*
Edit MethodQueue	to use the **MethodQueue** editor.
Run MethodQueue	to run MethodQueues.

Access item	Allows the user
Edit global list(s)	• to save - a method as a method template - an evaluation procedure as globally available - a report format as globally available - a column in the **Column** list or **BufferPrep** recipe (also **Quantitation** tables and **MoI Size** tables if the **Analysis** module is installed) as globally available. • to delete - method templates - global procedures - global report formats - global columns - global **BufferPrep** recipes (also global **Quantitation** tables and global **MoI Size** tables). • to restore global user information files, user setup and system setup. ***Note:*** *We recommend that this access item is restricted to only one user in an installation.*
Maintenance	to gain access to the **System:Maintenance** command in **System Control**.
Create Curve	to create curves in the **Evaluation** module.
Rename Curve	to rename curves in the **Evaluation** module.
Quit program	to end a UNICORN session with the **File:Quit Program** command in the **UNICORN Manager**.

6.3.3 How to create a new user

Introduction

This section describes how to create a new user and assign a home folder for a user's methods and results.

The default user

A default user is created when the system is installed. The default user has unrestricted access to all UNICORN functions. You log on with this profile when you access a newly installed system for the first time.

Note: *The default user should be deleted when regular user profiles have been created.*

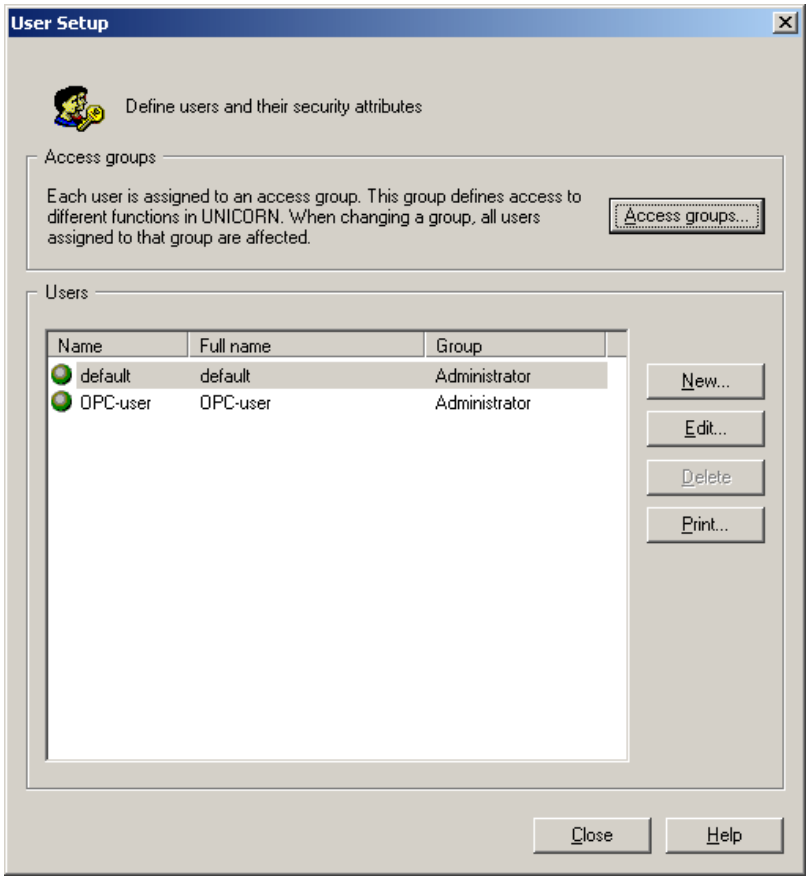
The table below describes how to log on as the default user:

Step	Action
1	Start UNICORN.
2	• Select user **default** from the **User name** drop-down list. • Type the password `default`. • Click **OK**. ***Note:*** *The* **default** *user is the only user where the user name and the password can be identical.* 

The User Setup dialog box

All user administration is performed in the **User Setup** dialog box in the **UNICORN Manager** module. It is accessible only to authorized users (and the default user).

- Choose **Administration:User Setup** when you want to display the **User Setup** dialog box. See the illustration below.



Instruction

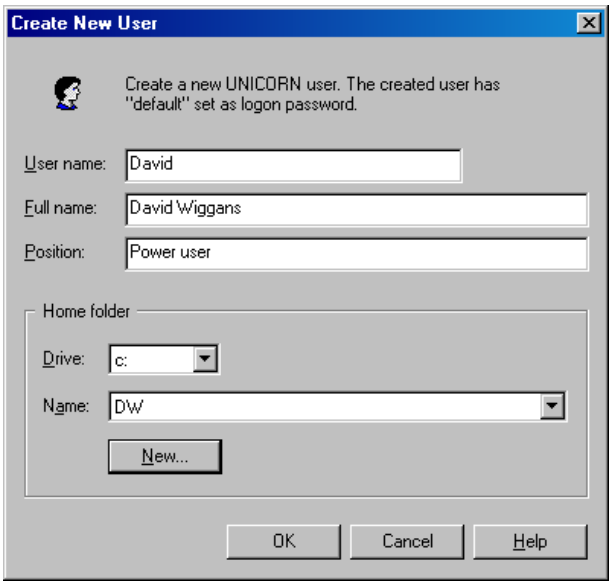
The table below describes how to create a new user:

Step	Action
1	Click the **New** button in the **User Setup** dialog box. *Result*: The **Create New User** dialog box opens. See illustration below this table.
2	• Type a user name in the **User name** text box. • Type the full name of the user in the **Full name** text box. • Type the position of the user in the **Position** text box.

Step	Action
3	**Select a Home folder** • Select a drive from the **Drive** drop-down list and a folder from the **Name** drop-down list. • Go to step 6. **Create a Home folder** • If you need to create a new home folder, go to step 4. See "Home folders" below this table for more information.
4	Click the **New** button. *Result*: The **Create New Folder** dialog box opens.
5	• Select a drive and type a folder name. • Click **OK** *Result*: The folder is created and you return to the **Create New User** dialog box.
6	Click **OK**. *Result*: The new user is created and added to the **Users** list of the **User Setup** dialog box.
7	Repeat step 1 - 6 if you want to create more users.
8	Click the **Close** button.

The Create New User dialog box

The illustration below displays the **Create New User** dialog box:



Home folders

General

Each user should be assigned to a home folder, preferably created on a network drive. If the home folders are created on the local drive (C:) they will not be accessible from other computers.

Network installations

Always create home folders on a network drive which is accessible from all computers. Make sure that the drive is addressed by the same drive letter from all computers in the network.

Non-network installations

A home folder can always be created on a network drive even if UNICORN is not installed for network control. The computer only needs to be connected and logged on to the local network.

How to create subfolders to the home folder

The table below describes how to create new folders in the home folder:

Step	Action
1	In the **UNICORN Manager**, choose **File:New:Folder**. *Result*: The **Create New Folder** dialog box is displayed.
2	• Type the new folder name in the dialog box. • Click **OK**.

Note: *This operation can be performed by each user in their own home folders.*

6.3.4 How to assign user properties

Introduction

In the **User properties** dialog box in the **UNICORN Manager** module, users are assigned different properties that define for example

- folders and chromatography systems that the user can access
- password rules.

How to open the User properties dialog box

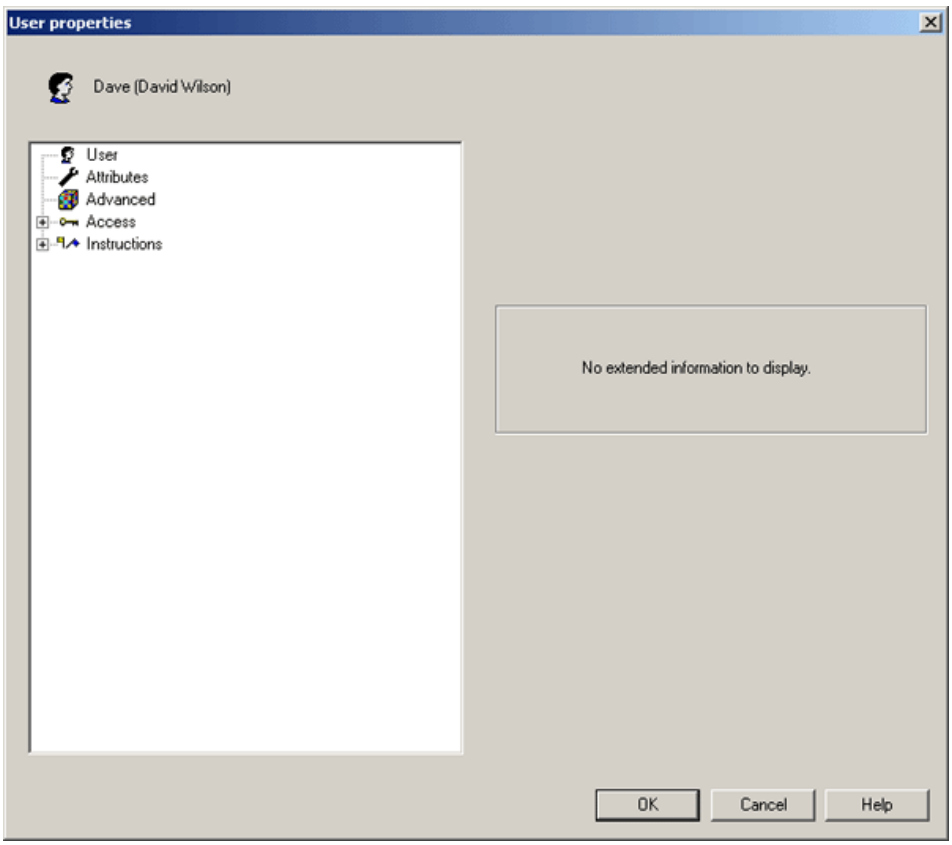
The table below describes how to open the **User properties** dialog box.

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager** module. *Result*: The **User Setup** dialog box is displayed.
2	• Select a user in the **Users** list. • Click the **Edit** button. *Result*: The **User Properties** dialog box is displayed. ***Note:*** *By default the* **User** *item is displayed when the dialog box opens. Select another item (* **Attributes**, **Advanced**, **Access** *or* **Instructions** *) to view their respective properties.*

Note: *The dialog box is illustrated in* ***Items of the User properties dialog box*** *below.*

Items of the User properties dialog box

The illustration below displays the **User properties** dialog box with no item selected:



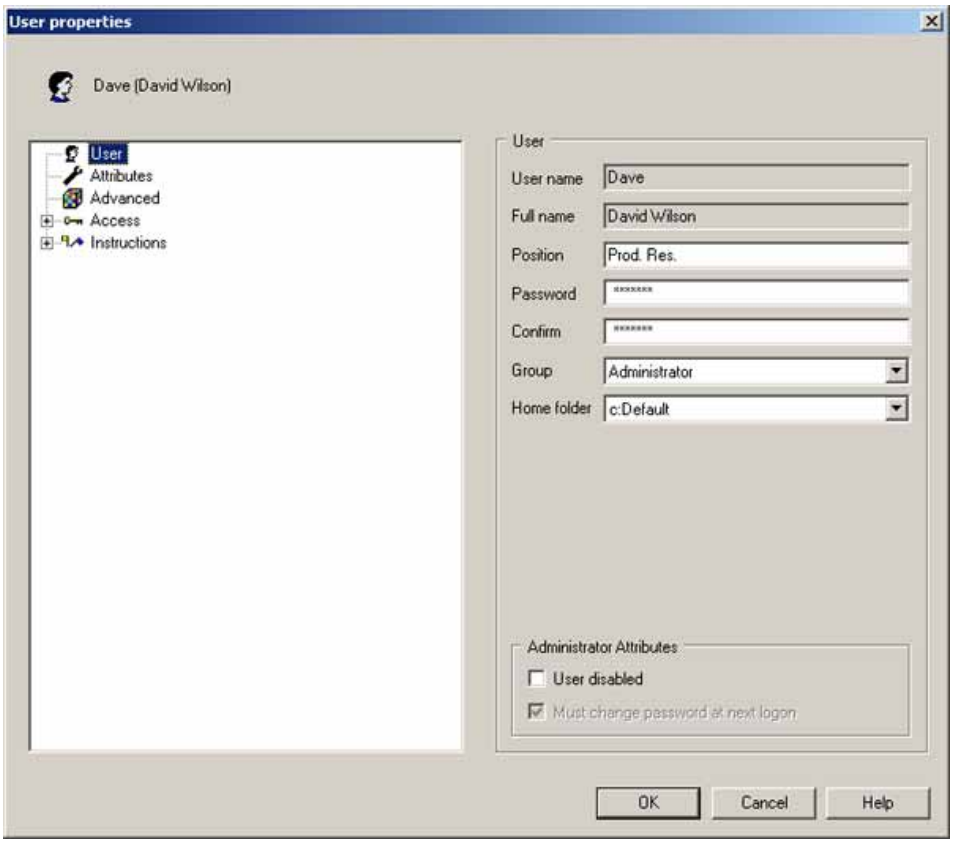
Items

The table below lists the items of the **User properties** dialog box and some of their properties that can be edited:

Items	Property examples
User	User name, password, access group
Attributes	User interface and program options
Advanced	Password age, account lock
Access	Access to folders and systems
Instructions	Available manual instructions, sounds

The User item

The illustration below displays the **User properties** dialog box with the **User** item selected:

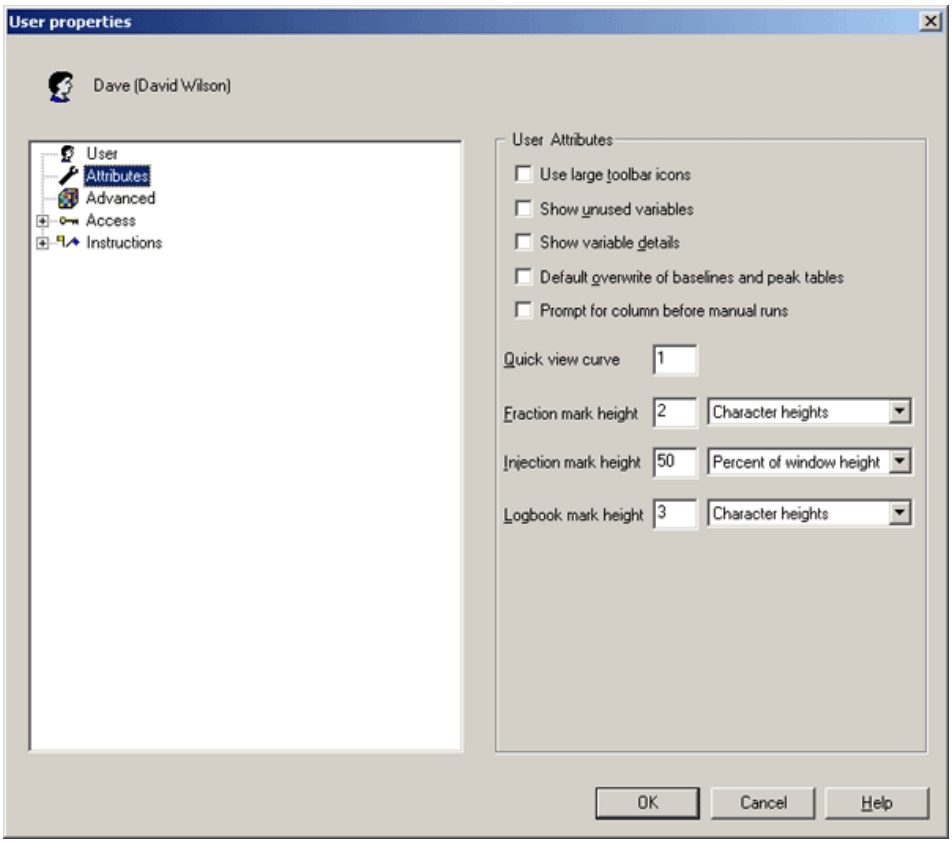


The table below describes how to edit the **User** item of the **User properties** dialog box.

Step	Action
1	Open the **User properties** dialog box (see the table in beginning of this section) and select the **User** item.
2	• Type a new password in the **Password** text box. • Type the password again in the **Confirm** text box. ***Note:*** *The password entries must be identical to be accepted. Passwords are case sensitive in UNICORN.*
3	• Select an access group from the **Group** drop-down list. ***Note:*** *A pre-defined access group is assigned a certain level of access to UNICORN.* • Select a folder from the **Home folder** drop-down list.
4	• Click **OK**. • Select another item to edit if desired. See further information below.

The Attributes item

The illustration below displays the **User properties** dialog box with the **Attributes** item selected:



Attributes

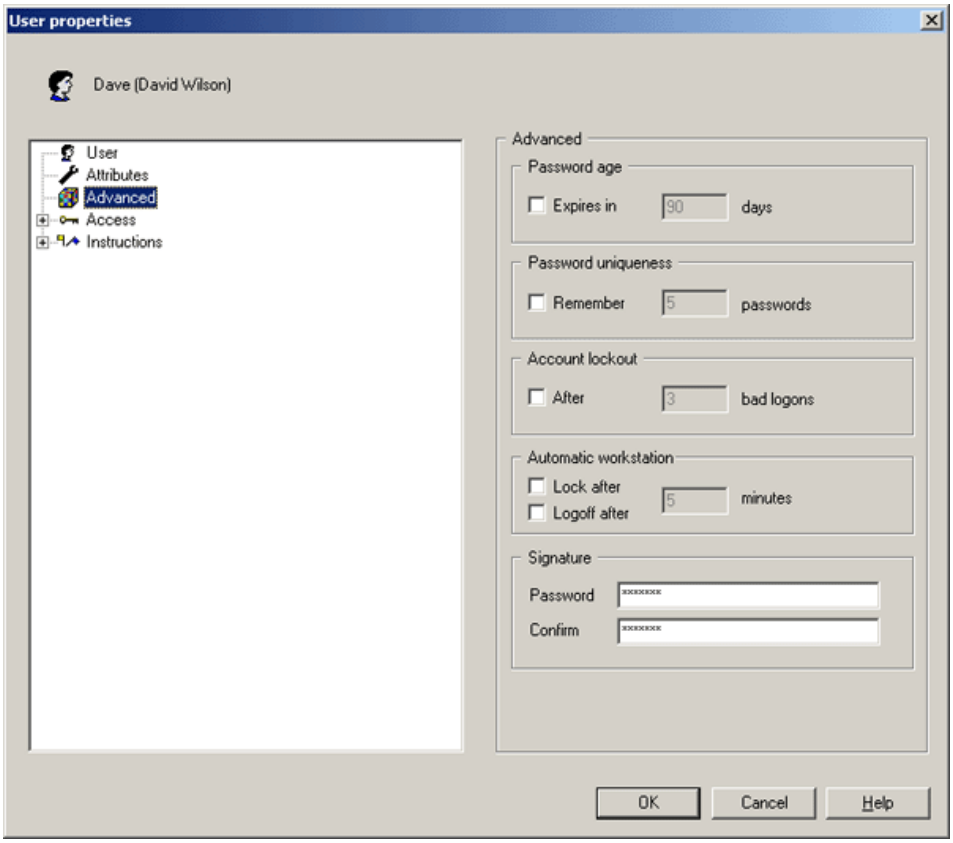
The table below describes the **User Attributes**:

User Attribute	Description
Use large toolbar icon	Display large toolbar icons in all modules.
Show unused variables	Show variables that are not used in the method on the **Variable** page of the **Start Protocol**.
Show variable details	Show detailed method variables on the **Variable** page of the **Start Protocol**.
Default overwrite of baselines and peak tables	When new baselines and peak tables are created, the old ones are overwritten.
Prompt for column before manual runs	A manual run must have an **Alarm_Pressure** text instruction inserted before the first instructions are executed.

User Attribute	Description
Quick view curve	Select which of the chromatogram curves (1-46) to display in Quick view. *Example*: The value `"1"` displays the first chromatogram curve which is usually the UV curve.
Fraction mark height	Indicates the height of each fraction mark in a chromatogram.
Injection mark height	Indicates the height of each injection mark in a chromatogram.
Logbook mark height	Indicates the height of each logbook mark in a chromatogram.

The Advanced item

Open the **User properties** dialog box (see the table in the beginning of this section) and select the **Advanced** item:



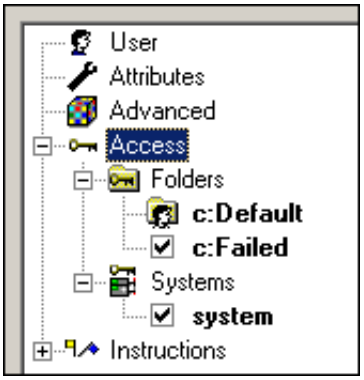
Advances properties

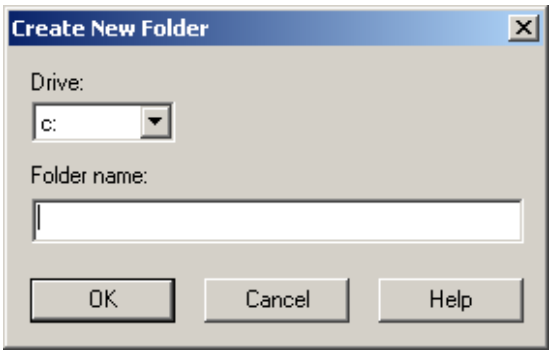
The table below describes the **Advanced** properties:

Property	Description
Password age	The number of days a password is valid (14-182).
Password uniqueness	How many times a password must be changed before the same password can be used again (1-1024).
Account lockout	How many bad logins that are allowed before the account is locked (1-20).
Automatic workstation lock/logoff	How many minutes of inactivity before the workstation is locked or the user is logged off (1-480).
Signature	An additional password ***Note:*** *This cannot be the same as the logon password.*

The Access item

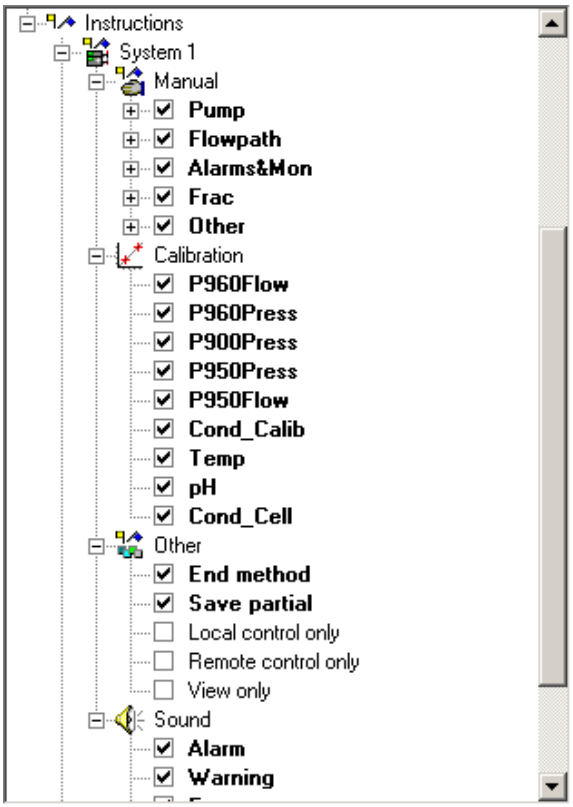
The **Access** item is used to define which folders and systems that the user has access to.

Step	Action
1	• Open the **User properties** dialog box (see the table in the beginning of this section) and select the **Access** item. *Result*: The **Folders** and **Systems** subitems are displayed. • Click the plus signs to expand the subitems, see the illustration below: 

Step	Action
2	**The Folders subitem** The user has access to all files and sub-folders in the selected folders. Up to 20 folders can be set up. Only folders that are selected will be visible in the **Methods** and **Results** windows of the **UNICORN Manager** module. ***Note:*** *All users should have access to the* **Failed** *folder on each local station in a network installation. This will ensure that users can access results that were saved in the* **Failed** *folder in case of a network communication error.* **The Systems subitem** The selected systems are available for the user.
3	This step describes how to create a new folder and give the user has access to it: To create a new folder • select the **Folders** item • click the **New** button to display the **Create New Folder** dialog box:  • select the **Drive**, type the name of the folder and click **OK** ***Note:*** *The folder is created in the default location on the selected drive, for example* `C:\UNICORN\Local\Fil`*, and not in the root directory.* • select the **Folders** item • select the check box for the new folder. • Click **OK**

The Instructions item

Open the **User properties** dialog box (see the table in the beginning of this section) and select the **Instructions** item:



The table below describes the subitems of the **Instructions** item:

Subitem	Determines
Manual	which manual instructions should be available to the user.
Calibration	which monitors the user should be allowed to calibrate.
Other	• if the user should be allowed to end a method (**End method**) or save a partial run (**Save partial**). • how the system should be available to the user (**Local control only**, **Remote control only** or **View only**).
Sound	which events that should render a sound. Different sounds can be assigned to each event.

How to print user setup information

The table below describes how to print the properties for selected users:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	Select a user and click the **Print** button. *Result*: The **Print** dialog box is displayed.
3	• If desired, click the **Select All** button to print information for *all* users. • Select the check boxes for the **Print Items** that you want to include. • Click **OK**.

6.3.5 How to change user passwords and user attributes

Introduction

This section describes

- how to change the password for a selected user
- how users change their own passwords
- how users change their user attributes.

Changes to user passwords and user attributes are made in the **UNICORN Manager** module.

Rules and recommendations for UNICORN passwords

The list below summarizes rules and recommendations for UNICORN passwords:

- The system can be set up to operate without required passwords.
- The minimum number of password characters is set up at the installation.
- Passwords can be any combination of letters and numbers.
- Passwords are case sensitive.
- Avoid using obvious passwords.
- You cannot use the user name as password (except for the **default** user).
- The **Advanced** settings in the **User properties** dialog box determine the expiration time for passwords. Passwords should be changed regularly by the users even if the user profile is set up without a password expiration time.

How to change the password for a selected user

A user which has **User setup/Groups** access (usually a system administrator) can change the password for any user.

The table below describes how to change the password for a selected user:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	Select the user in the list and click the **Edit** button. *Result*: The **User properties** dialog box is displayed.
3	• Select the **User** item in the dialog box. See **6.3.4 The User item** on page 151 for an explanation of the User item. • Type the new password in the **Password** and **Confirm** fields.
4	Click **OK** and then the **Close** button.

How to change the attributes for a selected user

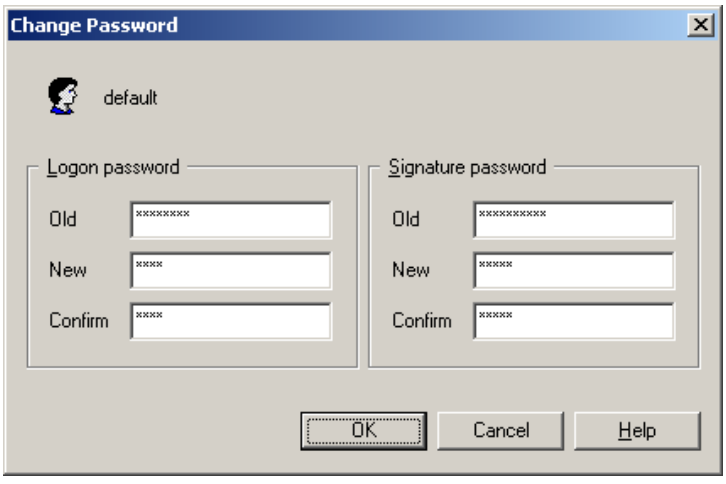
A user which has **User setup/Groups** access (usually a system administrator) can change the attributes for any user.

The table below describes how to change the attributes for a selected user:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	Select the user in the list and click the **Edit** button. *Result*: The **User properties** dialog box is displayed.
3	• Select the **Attributes** item in the dialog box. See **6.3.4 The Attributes item** on page 153 for an explanation of the Attributes item. • Make the desired changes.
4	Click **OK** and then the **Close** button.

How users change their own passwords

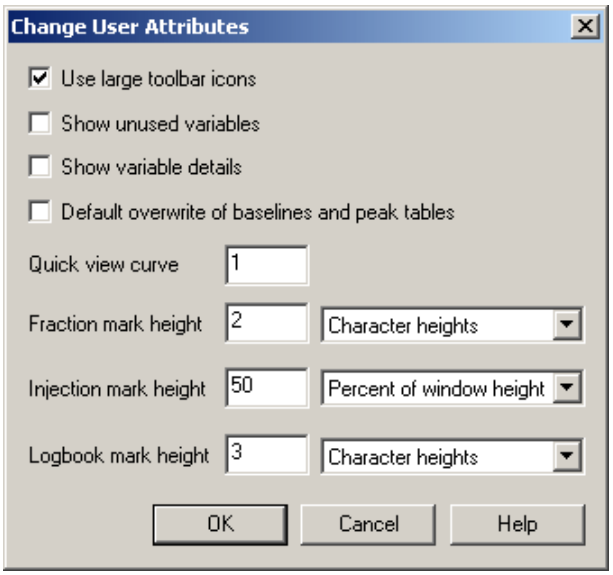
The table below describes how users change their own logon and signature passwords:

Step	Action
1	Choose **Administration:Change Password** in the **UNICORN Manager**. *Result*: The **Change Password** dialog box opens. 
2	• Type the logon password in the **Old** text box of the **Logon password** field. ***Note:*** *The passwords will only be shown as asterisks.* • Type a new password in the **New** text box. • Repeat the new password exactly in the **Confirm** text box.

Step	Action
3	To define a Signature password repeat step 2 in the **Signature password** field. ***Note:*** *The signature password cannot be the same as the logon password.*
4	Click **OK**.

How users change their own user attributes

The table below describes how users can change their own user attributes:

Step	Action
1	Choose **Administration:Change User Attributes**. *Result*: The **Change user attributes** dialog box opens. 
2	• Make the desired changes. • Click **OK**.

6.3.6 How to delete users and folders

Introduction

This section describes

- how to delete users and folders
- how to delete special folders:
  - home folders with assigned users
  - folders with shared access.

How to delete a user

The table below describes how to delete a user:

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	• Select the user from the **Users** list and click the **Delete** button. • Click **OK** to confirm. ***Note:*** *You can delete all users except the last user with* **User setup/Levels** *access. This ensures that at least one user has the right to perform administration functions.*
3	Click the **Close** button.

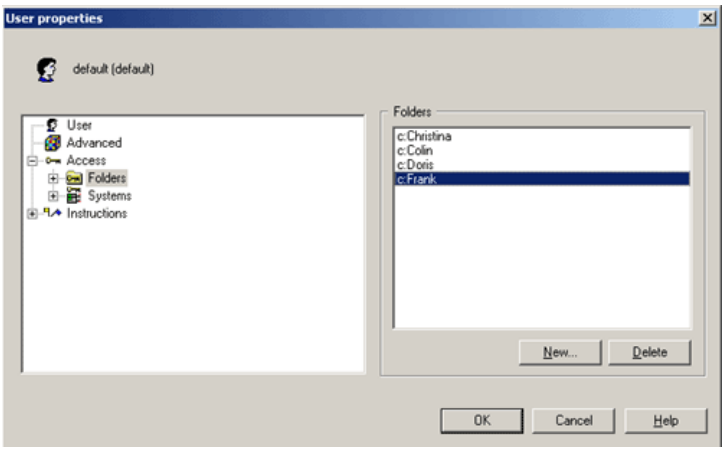
Note: *When you delete a user, the user's home folder or method and result files are not deleted.*

How to delete a folder

Caution! A deleted file/folder cannot be recovered.

The table below describes how to delete a folder.

Step	Action
1	Choose **Administration:User Setup** in the **UNICORN Manager**. *Result*: The **User Setup** dialog box is displayed.
2	Select the user from the **Users** list and click the **Edit** button. *Result*: The **User properties** dialog box is displayed.

Step	Action
3	Select **Access:Folders** in the left field of the **User properties** dialog box. Select the user's folder in the **Folders** field, if it is not automatically selected. 
4	Click the **Delete** button and then the **Yes** button to confirm. ***Note:*** *All methods, result files and folders within a selected folder will be deleted when the selected folder is deleted.*
5	Click **OK** to close the dialog box and then the **Close** button.

How to delete special folders

The folders described below must be deleted in a different way than described above.

A home folder to which a user is assigned

To delete a home folder to which a user is assigned

- delete the user, then the home folder. See instructions above.

- or -

- change the home folder assignment for the user: Select the **User** item in the **User Properties** dialog box and assign a different home folder.

A folder to which several users share access.

To delete a folder to which several users share access

- first remove the access rights from each user (deselect the folder for each user under **Access:Folders** in the **User properties** dialog box), then delete the folder as described above.

7 System settings

Introduction

Each installed system has a set of default system settings which can be changed. This chapter gives an overview of the system settings and describes how to change them.

In this chapter

This chapter contains these sections:

7.1 The Instructions dialog box

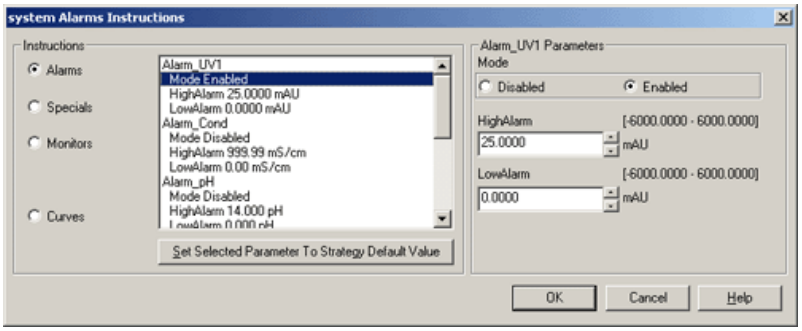
Default system settings

The system settings have default values which depend on the strategy used and which are valid for all of the runs. If you assign a new value to a system setting, the new value remains until you change the value again or return the setting to its strategy default value.

Instruction

The table below describes the **Instructions** dialog box and how it is used to change the system settings.

Note: To change the system settings, you need to have **System settings** *access, see* ***6.3 User administration*** *on page 137.*

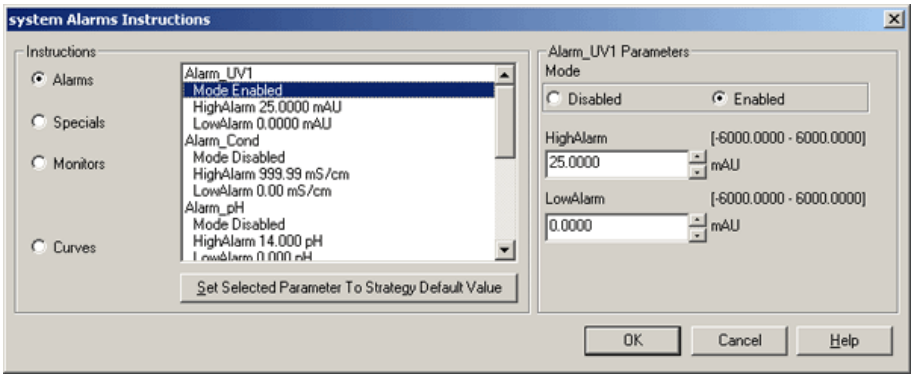
Step	Action
1	Choose **System:Settings** in the **System Control** module. *Result*: The **Instructions** dialog box for the connected system is displayed. 
2	Click a radio button to select one of the **Instructions** groups: • **Alarms**: See **7.2 Alarms settings** on page 166 for more information. • **Specials**: See **7.3 Specials settings** on page 169 for more information. • **Monitors**: See **7.4 Monitors settings** on page 170 for more information. • **Curves**: See **7.5 Curves settings** on page 171 for more information. *Result*: The instructions and parameters for the selected **Instructions** group is displayed.
3	**Instructions and parameters** In the list, • the “heading” items are *instructions* • the indented items are *parameters*.

Step	Action
4	**How to change a parameter setting** • Select an instruction or a parameter in the list box. • Use the controls to the right in the dialog box to change the associated parameter setting. *Result*: The parameter is updated in the list.
5	**How to restore a parameter to its default setting as defined in the system strategy** • Select a parameter in the list. • Click the **Set Selected Parameter to Strategy Default Value** button. *Result*: Only the currently selected parameter is returned to its default value.
6	**How to save the settings** • Click **OK** to save the settings when all the changes have been made. *- or -* • Click the **Cancel** button to discard all the changes made since the dialog box was last opened.

7.2 Alarms settings

Introduction

This section describes the **Alarms** settings which are available in the **Instructions** dialog box in the **System Control** module.



Note: How to open and use the **Instructions** *dialog box is described in* ***7.1 The Instructions dialog box*** *on page 164.*

Alarm and Warning limits

The **Alarms** settings define

- upper and lower warning limits
- upper and lower alarm limits

for process monitor signals.

Alarm limits

If the signal exceeds the **Alarm** limits

- an alarm sounds
- an alarm message is displayed
- the process is paused, that is the method execution is suspended and all pumps are stopped.

Warning limits

If the signal exceeds the **Warning** limits a warning message is issued without interrupting the process.

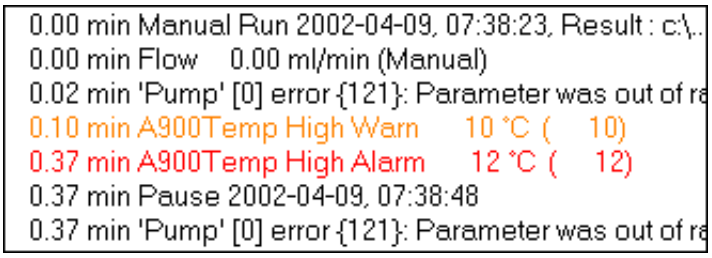
Messages are displayed on all stations

Alarm and warning messages are displayed on *all* stations with a connection to the system concerned, regardless of the identity and access rights of the current user.

Alarms and warnings can only be acknowledged from the control mode connection.

Messages are color coded

Alarms and warnings are displayed in the **Logbook** pane of the **System Control** module with different colors, see the illustration below.



- Warning messages are displayed in orange text.
- Alarm messages are displayed in red text.

Method instructions and manual instructions override system settings

Limits for certain monitor signals can also be set locally in a method, if allowed by the system strategy. In such case, the method setting (method instruction) overrides the system setting as long as the method is running.

Example: This feature allows for instance the pH warning limit to be set to one value during process operation and another during system cleaning.

Note: *Manual instructions also override the system settings.*

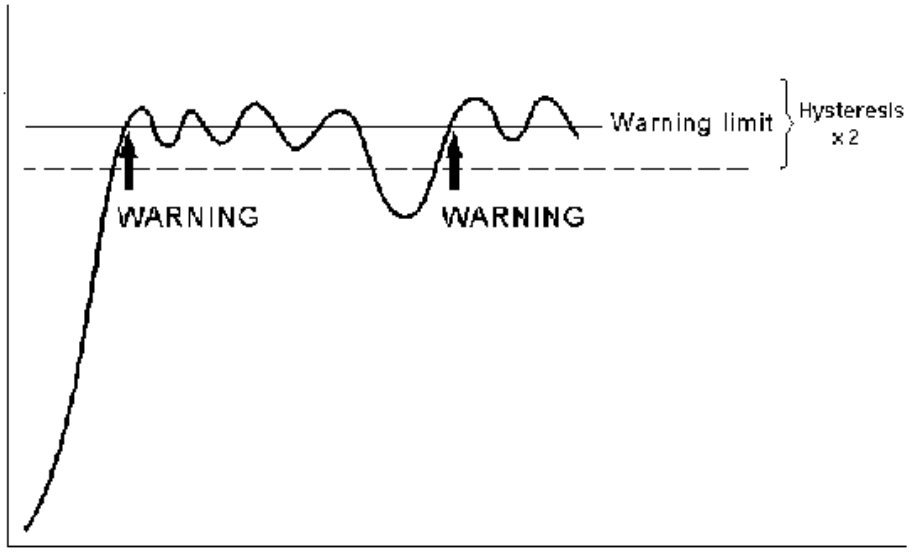
Settings must be enabled

Alarms are not active unless the mode is set to **Enabled**. Verify the alarm mode for each instruction line in the list.

Hysteresis

The hysteresis setting (not available for ÄKTAdesign systems) for a warning determines the extent to which the signal can oscillate around the warning limits without re-activating the warning.

After the signal has activated a warning, the warning will not be repeated as long as the signal remains within a window defined by the hysteresis setting above and below the warning limit. This prevents repeated warnings from noisy or oscillating signals close to the warning boundary. See the illustration below.

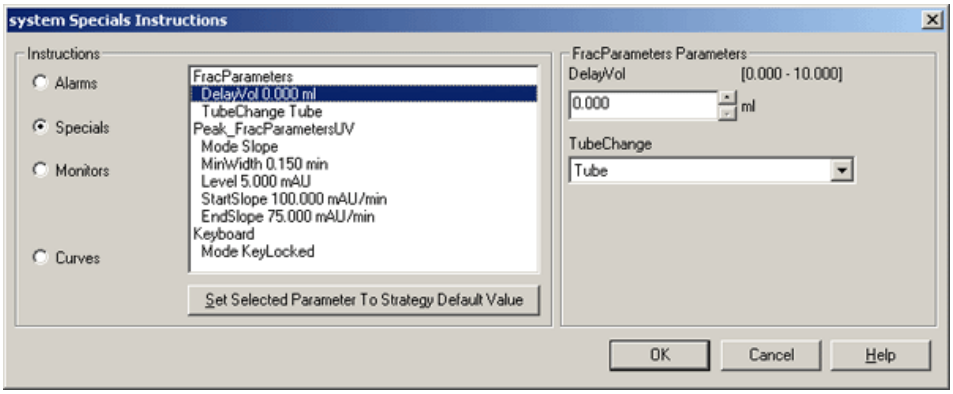


Note: *Hysteresis is only relevant for warnings, since an alarm puts the system in* **Pause** *at the first alarm.*

7.3 Specials settings

The Specials settings

The figure below shows the **Specials** settings which are available in the **Instructions** dialog box in the **System Control** module.



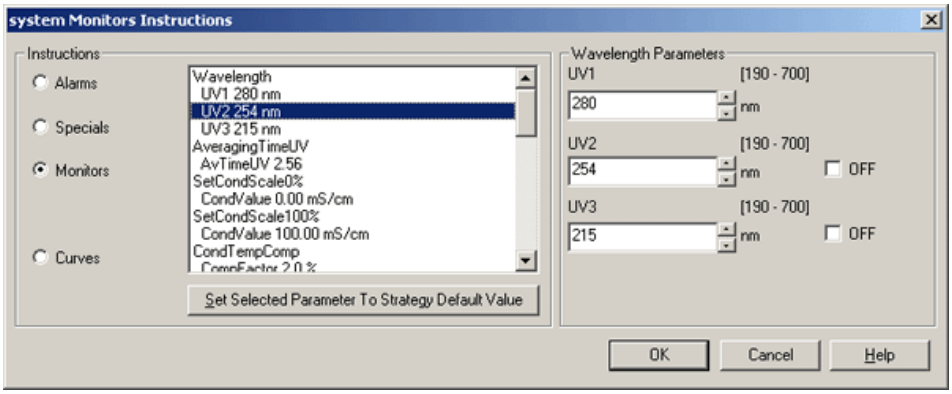
The **Specials** settings include for example instructions for fraction collectors.

Note: *How to open and use the* **Instructions** *dialog box is described in* ***7.1 The Instructions dialog box*** *on page 164.*

7.4 Monitors settings

The Monitors settings

The figure below shows the **Monitors** settings which are available in the **Instructions** dialog box in the **System Control** module.



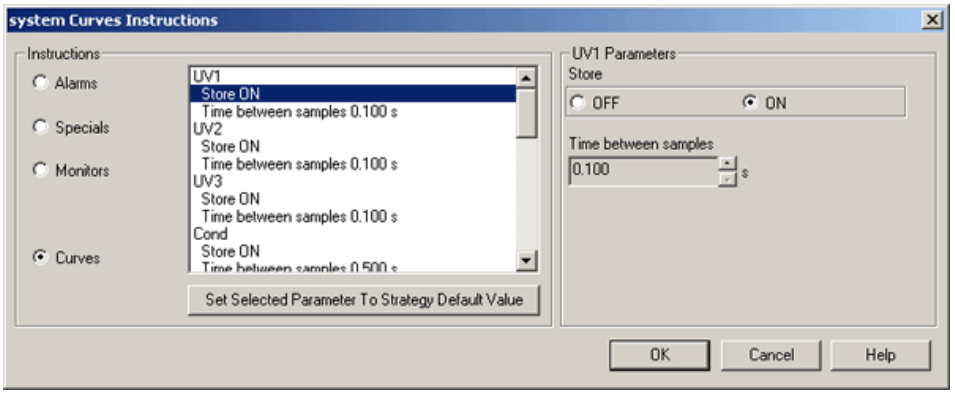
The instructions and parameters depend on the selected monitors.

Note: How to open and use the **Instructions** *dialog box is described in* ***7.1 The Instructions dialog box*** *on page 164.*

7.5 Curves settings

Introduction

This section describes the **Curves** settings which are available in the **Instructions** dialog box in the **System Control** module.



Note: How to open and use the **Instructions** *dialog box is described in* ***7.1 The Instructions dialog box*** *on page 164.*

The Curves parameters

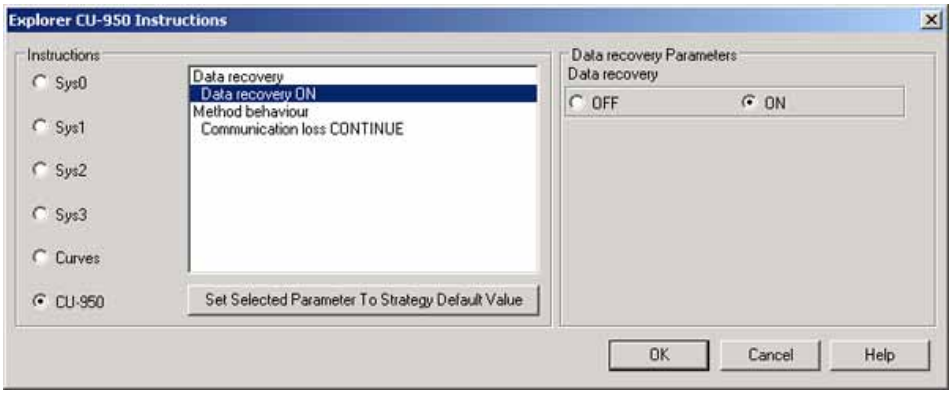
The table below describes two parameters in the **Curves** settings:

Parameter	Description
Store	Determines whether or not the curve data is stored in a result file in UNICORN. *Caution!* Check that **Store** is set to **ON** for all signals that are to be stored. If a curve is set to **OFF**, data from the monitor concerned cannot be displayed in the curves window during a process run and will not be recorded in any way.
Time between samples	Determines the frequency with which curve data is recorded in UNICORN (this does not affect the reading frequency of the monitor itself). The default setting is for the shortest possible time between samples.

7.6 CU-950 settings

Introduction

This section describes the **CU-950** settings which are available in the **Instructions** dialog box in the **System Control** module.



Note: How to open and use the **Instructions** *dialog box is described in* ***7.1 The Instructions dialog box*** *on page 164.*

Only CU-950 Advanced settings can be changed

CU-950 Advanced

The CU-950 settings are only visible in the **Instructions** dialog box if the CU-950 Advanced controller is installed. The CU-950 Advanced is connected to the Ethernet connection of the computer.

CU-950 USB

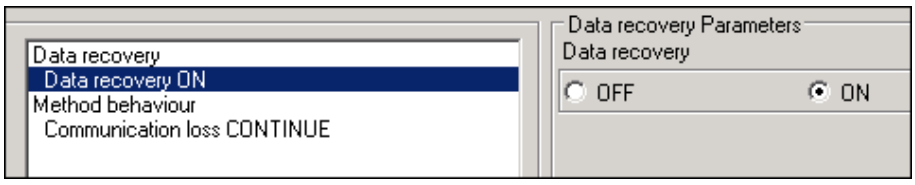
If a CU-950 USB controller is installed, the settings cannot be changed and always have the following values:

- Data recovery = **OFF**
- Method behaviour = **PAUSE**

Data recovery instruction

The illustration below shows the parameter of the **Data recovery** instruction.

Note: In this case there is only one parameter and it has the same name as the instruction.



Data recovery parameter

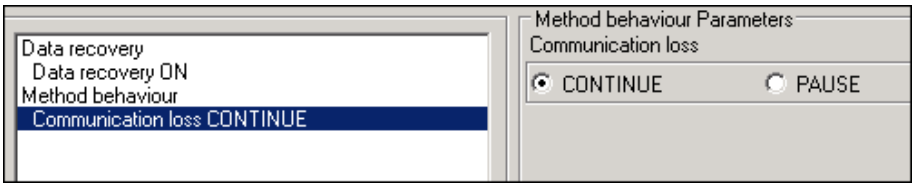
If the connection between the PC and the CU-950 is lost during a method run and **Data recovery** is set to

- **ON**, the run data is saved in the CU.
- **OFF**, the run data is lost.

Note: *You cannot set the parameter to* **ON** *unless there is a memory card installed in the CU.*

Method behaviour instruction

The illustration below shows the parameter of the **Method behaviour** instruction.



Communication loss parameter

If the connection to the instrument is lost during a method run and **Communication loss** is set to

- **CONTINUE**, the method run will continue to execute until end is reached.
- **PAUSE**, the method run will pause. When the connection is reestablished you have to click **Continue** to resume the run.

---

8 Troubleshooting

Introduction

This chapter describes different operational scenarios which may arise in UNICORN and their solutions or consequences.

In this chapter

This chapter contains these sections:

8.1 Advice on operation: Logon

In this section

This section describes

- how to log on to UNICORN
- the following logon scenarios
  - Unable to log on to UNICORN
  - Error message "Strategy file error".

How to log on

The table below describes how to log on to a system.

Step	Action
1	Start UNICORN.
2	• Choose your user name from the Username drop-down list in the **Logon** dialog box: • Type your password in the **Password** field. • Click **OK**.  ***Note:*** *If you have forgotten your password, ask the system administrator for a new one.*

Unable to log on to UNICORN

Scenario	Solution
Username and password not accepted You cannot log on although you use your correct username and password. *Possible reason*: The file `USERS30.MPM` in the folder `\UNICORN\SERVER\FIL` could be corrupt.	• Restore the file USERS30.MPM from the latest back-up copy *- or -* • reinstall the default user.
No user names: Remote station Both these conditions must apply: • The **User name** drop-down box in the **Logon** dialog box is empty. • You are trying to log on from a remote station in a network installation.	Make sure that the computer is logged on to the network before you start UNICORN. ***Note:*** *A remote station accesses the user list directly from the network server.*
No user names: Local station The user list on a local station in a network installation is not up to date.	Make sure that the computer is logged on to the network before starting UNICORN. ***Note:*** *The user list is stored locally on a local station, and is updated automatically from the network server if the computer is logged on to the network.*

Error message "Strategy file error"

Scenario	Solution
Stand-alone installation If you receive the error message **Strategy file error** in a stand-alone installation, the strategy file is probably corrupt.	Reinstall the strategy as described in **2.3.3 How to install selected software components** on page 67.
Network installation In a network installation, the error message **Strategy file error** may appear if you try to create a method for a system not physically connected to the computer.	Make sure that the computer is logged on to the network before UNICORN is started, so that the strategy file on the server disk is accessible.

8.2 Advice on operation: UNICORN access

In this section

This section describes the following UNICORN access scenarios:

- Unable to access certain UNICORN functions
- Connection scenarios
  - Connections are not available
  - System is not available
  - Error message in a network installation
  - You cannot control the system
- Run data Connection in System Control displays a “NO [1]”, “NO [2]” or “NO [3]”.

Unable to access certain UNICORN functions

Scenario	Solution
UNICORN functions to which you do not have access appear grey in the menu and cannot be used.	Choose **Administration:User Setup** in the **UNICORN Manager** to change the user profile.
The **Manual** menu commands in the **System Control** are grey, that is you can establish a connection but cannot control the system.	• Check that no other user has a control mode connection. • Check that you have access rights to control the system manually.

Connection scenarios

Scenario	Solution
The connections are not available.	• Check the connection between the PC and the chromatography system. • Check that the power to the chromatography system is turned on.
The connections are not available even though • the connection between the PC and chromatography system appears to be correct • the power is turned on.	• Switch off the chromatography system. • Quit UNICORN. • Shut down and restart the computer.
A system is not available when you attempt to establish a connection.	Check that you have access rights to the system. Access rights are not automatically assigned for a newly defined system.

Scenario	Solution
You receive the error message "Cannot connect to system..." in a network installation.	• Check that the local computer to which the system is connected is turned on and logged on to the network. • Check that the computer from which you try to establish a connection is logged on to the network. • Check that the limit of 8 connections to the system has not been exceeded.
No contact between the **System Control** and the system. *Possible reason*: Sometimes this can be due to the fact that named pipes cannot be used. Then you have to enable sockets instead of named pipes.	• In the **UNICORN Manager**, choose **Administration:System Setup...** to open the **System Setup** dialog. • Click the **Socket** button and check the check box in the **Socket** dialog. • Click **OK** then the **Close** button. • Restart all the UNICORN computers in the system table.
Socket communication fails and the OCI crashes at start-up. *Possible reason:* The port number assigned in the **Socket** dialog box is used by another application.	• Change the port number in the **Socket** dialog box. • Restart all the UNICORN PCs in the network. ***Note:*** *To check which port numbers are busy you can type the command* `netstat` *in the Windows* **Command Prompt** *window.*

Note: *If you cannot establish a connection to the network server you can still continue to work from the local station and use the* **Method Wizard** *to create methods. See the* **User Reference Manual** *for more information.*

The Connection field in System Control displays a "NO [1]", "NO [2]" or "NO [3]".

Scenario	Solution
The **Connection** field in the **Run data** pane in **System Control** says "NO [1]" or "NO [2]".	**If you use CU-900 PCI** Check that the CU-900 PCI is configured according to settings made during the UNICORN installation.The same Control unit number must be set on the card as in the UNICORN software. See **2.2.2 How to install CU-900 PCI** on page 26. **If you use CU-950** • Choose **Administration:System Setup** in the **UNICORN Manager**. • Select the system with problems in the dialog box and click the **Edit** button. • Check that the strategy, computer name and the control unit number are correct according to the installation at the local station which is physically connected to the system. See **6.2.1 System definitions** on page 115.
The **Connection** field in the **Run data** pane in **System Control** says "NO [3]".	• Choose **Administration:System Setup** in the **UNICORN Manager**. - Select the system with problems in the dialog box and click the **Edit** button. - Check that the strategy, computer name and the control unit number are correct according to the installation at the local station which is physically connected to the system. See **6.2.1 System definitions** on page 115. • If you connect remotely to a system - check that the local station which is physically connected to the system is turned on - check that the network is functioning at both the remote and the local station. • Check that the limit of eight connections to the system has not been exceeded.

8.3 Advice on operation: Methods

In this section

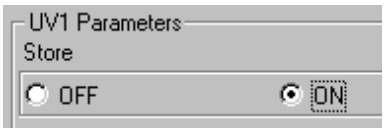
This section describes the following method scenarios:

- Cannot perform **Quit** or **Logoff**
- Monitor signals do not appear in the Curves pane in **System Control**.
- Error message "Couldn't create result file... Destination path could not be found"
- The **Method-System Connection** dialog box keeps appearing.
- The **Method Editor** window does not fit on the screen.
- There are red instructions in a method.
- After Windows logout and login you cannot get a system connection.
- The **Print screen** command does not send a copy of the screen to the printer.

Cannot perform Quit or Logoff

Scenario	Solution
You are unable to perform **Quit** or **Logoff** from UNICORN for a connection.	You might be running a **Scouting** method or a **MethodQueue**. These functions require a control mode connection in order to start subsequent cycles correctly. *Action*: Stop the **Scouting** method or **MethodQueue** before you quit or log off.

Monitor signals do not appear in the Curves pane in System Control

Scenario	Solution
Monitor signals do not appear in the **Curves** pane in **System Control**.	• Choose **System:Settings:Curves** in **System Control** • Set the **Store** option to **ON**.  Signals for which **Store** is set to **ON** can be selected from the **View:Properties:Curves** dialog box in **System Control**.

Error message "Couldn't create result file... Destination path could not be found"

Scenario	Consequence
If you receive the error message **Couldn't create result file... Destination path could not be found** at the end of a method, the local computer was unable to access the folder specified in the result file path.	This may happen if the specified folder is on the network server and network communication has been lost. The result file is instead saved in the **Failed** folder on the local station.

The Method-System Connection dialog box keeps appearing

Scenario	Solution
If the **Method-System Connection** dialog box keeps appearing you have one or more methods that are not connected to a system. *Reason*: Most likely you have imported one or more methods with the command **File:Copy from External** in the **UNICORN Manager**.	Connect the method(s) to the appropriate system.

The Method Editor window does not fit on the screen

Scenario	Solution
The **Method Editor** window does not fit the screen and has scroll bars. *Reason*: The incorrect font size might be installed.	• You need to install **Small fonts** instead of **Large fonts**. This requires that you have the Windows CD-ROM that was shipped with your Compaq computer. • Insert the CD-ROM and follow the directions on the screen.

There are red instructions in a method

Scenario	Solution
Red instructions (instructions with a red dot) in a method are syntax errors and may be due to the following: • The method was connected to the wrong system, that is the strategy of the system is incompatible with the method. • The **Copy** function was used instead of **Copy from external** when a method was imported from a disk. • The wrong system may have been selected in the **Save As** dialog box in the **Method Editor**. • You may also have templates not intended for your system, which might be the case for custom designed systems. • The systems strategy has been updated with a new strategy that differs in the instruction set.	There are several actions that you can take: • Check that the method has been connected to the correct system in either of these ways: - in the **System Method Connection** dialog box when you use the **Copy from external** dialog box - in the **Save As** dialog box in **Method Editor**. • If the system is custom designed, go to the **Method Editor**, select the red instruction and either delete it or replace it with a corresponding instruction (if available) from the **Instruction box**. Repeat this for all red instructions before saving the method.
The method instructions do not correspond to the components you have chosen for your system.	Check your system components under **Administration:System Setup** in the **UNICORN Manager**.

After Windows logout and login you cannot get a system connection

The scenario below applies to local systems only, not remote systems.

Scenario	Solution
You have logged out of Windows and then logged in again, but you cannot get a system connection in UNICORN. *Reason*: If you shut down Windows with the command **Start:Shut-down:Close all programs and log in as a different user**, you will not be able to obtain a System Control connection in UNICORN the next time you or another user logs on. This is because this shutdown procedure automatically shuts down a number of processes, including those needed for system connection. The services are only started when the computer is booted up.	Restart the computer in order to obtain a system connection in UNICORN.

Print screen does not send a copy of the screen to the printer

Scenario	Solution
The **Print screen** command only makes a copy of the screen to the clipboard and not to the default printer.	If you want to print the view on the screen, press the **<Print Screen>** key and paste the image from the clipboard into an appropriate program, such as Microsoft Paint, and then print out the image.

8.4 Advice on operation: Evaluation

In this section

This section describes the following evaluation scenarios:

- Incorrect date and time in the result file
- Evaluation procedure aborts

Incorrect date and time in the result file

Scenario	Solution
The result file shows incorrect date and time.	The date and time recorded in the result file are taken from the PC system clock settings. *Action*: Check the system clock settings.

Evaluation procedure aborts

Scenario	Solution
The evaluation procedure aborts.	Instructions in an evaluation procedure refer to curves by identification number irrespective of the curve names. Make sure that the curves processed when the procedure is executed are compatible with those processed when it was recorded. An evaluation procedure aborts if you try to store resulting curves at the position of an original raw data curve.

8.5 Advice on operation: ÄKTAdesign systems

In this section

This section describes the following ÄKTAdesign system scenarios:

- Connected to a system but no system contact
- Flow scheme does not display properly

Connected to a system but no system contact

Scenario	Solution
You are connected to a system but have no system contact. *Indications*: In the **System Control**, • the option **Connection** in the **Run data** pane says "Yes" • the option **Instruments** says "Scanning" • there is no contact with the system after a period of waiting.	• Check that the chromatography system is turned on. • Check that all cable connections are intact. • If the above actions do not help, try to restart both the computer and the system.

Flow scheme does not display properly

Scenario	Solution
The flow scheme is not displayed properly	Choose **Settings:Control Panel: Display:Settings** in the Windows Start menu to check that you have selected 65536 colors.

8.6 Advice on operation: CU-950

In this section

This section describes the following CU-950 scenarios:

- Data recovery **OFF** at connection loss
- End is reached during connection loss
- CU-950 USB cable is unplugged
- The PC hard drive crashes during a run

Data Recovery OFF at connection loss

Scenario	Solution
The connection between the PC and CU-950 is temporarily lost during a method run. When the connection is reestablished, incorrect time and volume is shown. ***Note:*** *Either CU-950 USB is used or CU-950 Advanced with Data Recovery set to* **OFF**.	To be able to maintain correct time and volume after connection loss the CU-950 Advanced must be used with Data Recovery set to **ON**

End is reached during connection loss

Scenario	Consequence
End of run is reached either • during connection loss *or* • during data upload after connection loss.	The time stamp indicating the time of day (not the method time) will indicate the time when the message reached the PC.

CU-950 USB cable is unplugged

The table below describes a CU-950 USB scenario.

Scenario	Solution
A CU-950 USB is connected to the PC and the USB cable gets unplugged for some reason	• Replug the cable into the PC. • Restart the PC.

The PC hard drive crashes during a run

The table below describes a CU-950 Advanced scenario.

Scenario	Solution
• The unlikely event that the hard drive crashes unrecoverably during a run. • The CU-950 Advanced is used which stores the run data on its memory card.	In order to retrieve the data from the CU-950 Advanced you need to • recover the backup files from the damaged hard drive if it is possible and move them to another PC • move the CU-950 to the other PC and restart the PC.

A Technical specifications

Introduction

This appendix describes

- the UNICORN system recommendations
- UNICORN's capability to control chromatography systems
- how UNICORN samples data from the chromatography systems.

In this appendix

The table below describes the contents of this appendix:

A.1 System recommendations

Introduction

This section describes the following in the UNICORN system:

- Hardware recommendations
- Software recommendations
- Network recommendations

Hardware recommendations

The table below describes the recommended hardware for a UNICORN system:

Component	Recommendations
PC	Compaq PC, Pentium 4, 2,5 GHz or higher
Memory	• 256 MB RAM for one system • 512 MB RAM for two or more systems
Hard disk	500 MB available hard disk space
Monitor	Color monitor: 1024x768 pixels, small fonts, 64K colors
Controller	• CU-900 PCI requires 1/2 length PCI slot • CU-950 USB requires USB 1.1 port • CU-950 Advanced requires a 10Mbps network interface card ***Note:*** *ÄKTAprime and ÄKTAxpress instruments do not connect to the PC through a controller. ÄKTAprime is connected directly to the serial port on the PC and ÄKTAxpress is connected to the PC via USBcan II.*
Drives	CD-ROM drive
Peripherals	Mouse
Printer	The printer which is delivered together with the system from Amersham Biosciences. ***Note:*** *New printer models are added on a regular basis and therefore cannot be specified beforehand.*

Software recommendations

The table below describes the recommended operating systems for workstations running the UNICORN software.

Item	Recommendations
Operating system for the workstations	• Microsoft Windows 2000 SP4 or higher *or* • Microsoft Windows XP Professional SP1 or higher

Network recommendations

The table below describes the network recommendations for UNICORN in a network installation:

Item	Recommendations
Network server	Microsoft Windows 2000 Server
Network protocol	TCP/IP
Services	Server and Workstation

Note: *The last two points ensure that named pipes are usable over the network and that folders can be connected to a drive unit.*

A.2 UNICORN control capacity

Introduction

This section describes UNICORN's capability to control systems in stand-alone installations and network installations.

Stand-alone installations

In a stand-alone installation the computer can be connected to a maximum of

- 12 ÄKTAxpress systems
- 4 systems of other type than ÄKTAxpress.

Network installations

The list below describes some basic facts about network installations:

- Systems must be locally linked to a workstation which is linked to the network. In other words, the systems are not *directly* linked to the network.
- Each local workstation can be connected to a maximum of
  - 12 ÄKTAxpress systems
  - 4 systems of other type than ÄKTAxpress.
- A network can support up to 99 chromatography systems which are connected locally to the workstations in the network.
- A workstation can locally or remotely control up to four chromatography systems. This is achieved using the four possible **System Control** windows in UNICORN which are available on each workstation.
- Each chromatography system in UNICORN
  - can be *controlled* by only one active **System Control** window
  - can be *viewed* by up to eight **System Control** windows.

A.3 Data sampling

Data storage

Data from chromatography system monitors is stored temporarily in data buffers in the local system controller. Data is transferred from the buffers to disk storage by UNICORN whenever a chromatogram is closed, that is when the **New_Chromatogram** instruction is issued or the result file is closed.

Data is also saved to disk at pre-set intervals during a run, thus minimizing data loss in the event of power or communication failure.

Data buffer capacity

The capacity of the data buffer is 16000 points for up to sixteen monitors.

Note: *The data buffer capacity is listed in the* **Curves** *group of* **System:Settings** *in* **System Control** *module.*

Effective sampling frequency

If a buffer is filled during a run, i.e. 16000 points have been recorded, the number of points is halved by deleting every second point, leaving 8000 points on the chromatogram. For subsequent sample points, every second point is dropped, thus halving the effective sampling frequency. When the chromatogram again reaches 16000 points the process is repeated and the effective sampling frequency is halved once again. Now every fourth sampling point will be recorded.

Note: *The real sampling frequency, the sampling frequency of the card, never changes.*

Initial effective sampling frequency

The initial effective sampling frequency for each monitor is set in the system strategy. It can be viewed and changed in the **Curves** group of **System:Settings** in **System Control**.

Note: *For ÄKTAxpress systems, the sampling frequency cannot be viewed or changed.*

Resolution at 10 Hz sampling frequency

The table below describes the resolutions that apply for the curves at an initial effective sampling frequency of 10 samples per second (10 Hz):

Duration [minutes]	Card sampling frequency [Hz]	Effective sampling frequency [Hz]	Number of points	Resolution [seconds/point]
0-27	10	10	0-16000	0,1
27-53	10	5	8000-16000	0,2
53-107	10	2,5	8000-16000	0,4
107-203	10	1,25	8000-16000	0,8

How to ensure maximum resolution

To ensure maximum resolution for a part of a run, issue a **New_Chromatogram** instruction at the beginning of the part. This empties the data buffers and resets the sampling frequency to the value specified in the system settings.

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