

MBX Driver Suite

Version 4.20 for Windows[®] NT/9x

MBX[™] Driver Suite for ModConnect[®] Series Host Interface Adapters

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Introduction

The MBX Driver Suite for Windows NT/9x is a collection of several well integrated products that provide connectivity for Modicon Modbus Plus and Ethernet® networks in distributed environments. These products provide complete device driver support for 32-bit Windows (Win32) as well as 16-bit DOS and Windows (Win16) applications.

The MBX Driver Suite includes the following software products:

- **MBX Driver:** Device driver for Modbus Plus host interface adapters.
- **Ethernet MBX Driver:** Driver for Modbus Plus emulation over TCP/IP (Windows NT only).
- **Remote MBX Driver:** Provides remote node access to Modbus Plus and Ethernet networks.
- **Virtual MBX Driver:** Enables 16-bit legacy software to run in 32-bit Windows operating systems.

In the past, the MBX Driver Suite components were distributed as separate products. Combining these products on a single CD provides the following benefits for end users:

- **All products are at the same revision level.** When upgrading an older version installation of just one product, the new integrated installer allows upgrading of all installed MBX family products as well. This ensures that all installed products will properly interoperate with each other.
- **Both Windows NT and Windows 9x platforms are supported by a single CD.** The MBX Driver Suite automatically detects the operating system and installs all selected components.
- **A single part number works for all driver products.** Users will not be required to order multiple components with multiple part numbers. Furthermore, users will now have all driver products available when needed. At first, your application may require only one driver product to operate. But if the job requirements change and other driver products need to be installed, they will be available on the CD.
- To provide **support for legacy installations**, floppy disk images from previous versions (v2.11 and v4.01) of all MBX driver products have been included on the MBX Driver Suite CD.
- Several **subscription programs** can now be purchased to ensure prompt software updates to the latest revision level as soon as it is released. With a subscription license, users will receive automatic updates to the MBX Driver Suite. This is especially important when a new version of an operating system is released. The subscription updates will also reflect all new enhancements, such as support for new host interface adapter cards. For details of subscription programs, contact your Schneider Automation, Inc. Modicon brand distributor or visit Schneider Automation's website at www.modicon.com.

What Should I Do Next?

The MBX Driver Suite consists of several discrete but well integrated driver products. Collectively, these components provide connectivity for Modicon Modbus Plus and Ethernet networks in distributed environments. For more information about these products, refer to the [MBX Architecture and Companion Products](#) section.

For product installation or upgrading instructions, refer to the [Installation](#) section. If you are not sure which component(s) to install, read the [Which Driver Product Should I Install?](#) subsection. If you prefer to use older versions of the driver products, read the [Legacy Installations](#) subsection.

In case of installation problems, read the [Troubleshooting](#) section for problem solving hints.

After a successful installation, refer to each MBX product help file for detailed information.

The content of this document is also provided in the PDF file format. PDF files can be viewed using the Adobe® Acrobat® Reader program. The printer-friendly PDF files can be used to print the complete document with good quality output. A copy of Adobe Acrobat Reader is included on the product CD and can be installed from there.

MBX Architecture and Companion Products

MBX Family Components

The MBX architecture is the foundation of the MBX Driver Suite. Designed for Windows NT/9x with support for legacy applications, the well integrated components of the suite provide connectivity for Modicon Modbus, Modbus Plus, and Ethernet networks in distributed environments.

MBX Family Components

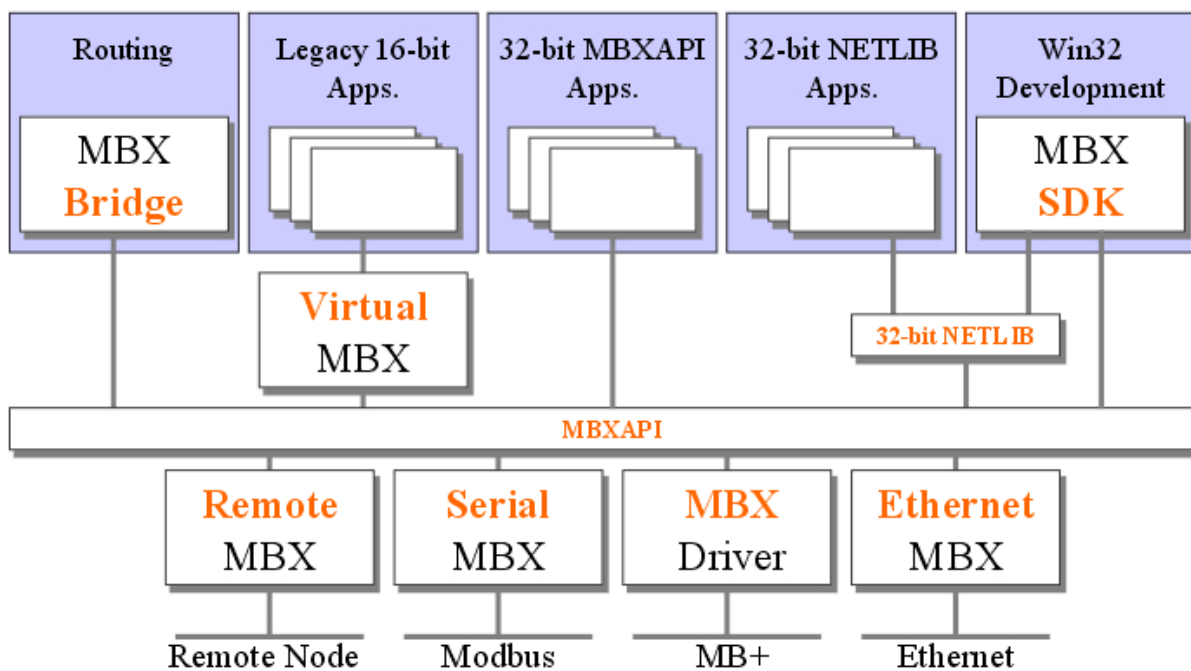


Figure 1 – The MBX architecture presents a consistent framework to address different connectivity needs.

Software products available in the MBX family are:

- **MBX Driver:** Device driver for Modbus Plus host interface adapters (Windows NT version includes the *MBX Remote Server* for remote connectivity).
- **Ethernet MBX Driver:** Driver for Modbus Plus emulation over TCP/IP (Windows NT version includes the *MBX Remote Server* for remote connectivity).
- **Remote MBX Driver:** Provides remote node access to Modicon Modbus, Modbus Plus, and Ethernet networks.
- **Virtual MBX Driver:** Enables 16-bit legacy software to run in 32-bit Windows operating systems.

- **MBX Bridge:** Bridges Modicon networks by routing messages between MBX devices.
- **MBX SDK:** Software development kit for MBXAPI and NETLIB compliant development (Schneider Automation part number SW-LNET-SDK).

MBX Driver

The 32-bit MBX Driver provides connectivity between Modicon ModConnect host interface adapters and 32-bit applications running under Windows NT/9x.

The kernel mode device driver of the MBX Driver is the highest performance Modbus Plus driver in the industry. The driver can operate in either *interrupt* or *polled* mode and supports all current Modicon ModConnect host interface adapters for ISA, EISA, MCA, and PC Card (PCMCIA) buses. Multiple interface cards can be installed at the same time, limited only by the number of available slots. Full implementation of all Modbus Plus features provides support for *Data Master/Slave*, *Program Master/Slave*, *Global Data*, and *Peer Cop*. The high-performance native API (MBXAPI) of the MBX Driver takes advantage of the event-driven, multitasking, multithreaded features of 32-bit operating systems. The driver also includes the MBX Remote Server for remote access by the Remote MBX Driver.

The MBX Driver is compatible with all other MBX family products.

Ethernet MBX Driver

The 32-bit Ethernet MBX Driver provides connectivity between Modicon Ethernet compatible processors and Windows NT/9x based 32-bit applications using either Modicon NETLIB or Cyberlogic's high-performance MBXAPI interface specification. It is compatible with all Ethernet network adapters supported by the operating system and provides *Data Master/Slave* and *Program Master/Slave* features of Modbus Plus on Ethernet networks. The driver also includes the MBX Remote Server for remote access by the Remote MBX Driver.

The Ethernet MBX Driver is compatible with all other MBX family products.

Remote MBX Driver

The Remote MBX Driver provides remote connectivity for applications running on client nodes requiring access to Modbus Plus networks from remote locations via standard LANs.

The remote client running the Remote MBX Driver must be a Windows NT/9x node. By accessing the Modbus Plus and Ethernet networks connected to server nodes on a network, the Remote MBX Driver provides complete MBX Driver functionality to the client node, including support for *Data Master/Slave*, *Program Master/Slave*, *Global Data*, and *Peer Cop*. A host interface adapter (such as Modicon SA85 card) is not required on the client node. Remote MBX Driver nodes can communicate with multiple remote servers and all Windows NT-compatible computer networks are supported.

The Remote MBX Driver is compatible with all other MBX family products.

Virtual MBX Driver

The Virtual MBX Driver enables 16-bit NETLIB/NetBIOS-compatible applications (e.g. ModSoft or Concept) to run concurrently with 32-bit applications in the same computer. It allows multiple 16-bit applications (as well as multiple instances of a single 16-bit application) to run under the 32-bit Windows

operating systems.

The Virtual MBX Driver requires the MBX Driver, the Remote MBX Driver, or the Ethernet MBX Driver to operate.

MBX Bridge

Note: Schneider Automation, Inc. does not distribute the MBX Bridge. It is only available from and supported by Cyberlogic Technologies, Inc. as a third party product. You can find more information about this product from the *Schneider Alliances* website at www.modicon.com or Cyberlogic's website at www.cyberlogictech.com.

The MBX Bridge seamlessly routes messages between MBX compatible devices. Specifically, the MBX Bridge can route messages in Ethernet-to-Modbus Plus or Modbus Plus-to-Ethernet networks. Depending on the user's needs, it may require one or more of the following products to operate:

- MBX Driver
- Remote MBX Driver
- Ethernet MBX Driver

Blending MBX Supported Networks: Ethernet MBX and Legacy Installations

Providing support for all Modicon networks under the MBX architecture exposes consistent, identical programming interfaces (the MBXAPI and the industry-standard Modicon NETLIB) for applications. This ensures that practically all of the existing Modbus Plus compatible software programs can operate over all Modicon supported networks with no code modifications. A product operating with one of the MBX driver products (e.g. MBX Driver) is ensured to operate with the rest of the MBX driver products as well.

Migration of existing installations to new hardware products does not require the user to discard working, proven software solutions. As depicted in the following diagram, a user can now mix Ethernet based and Modbus Plus based hardware products in existing installations *without* losing existing software, network, and integration investment.

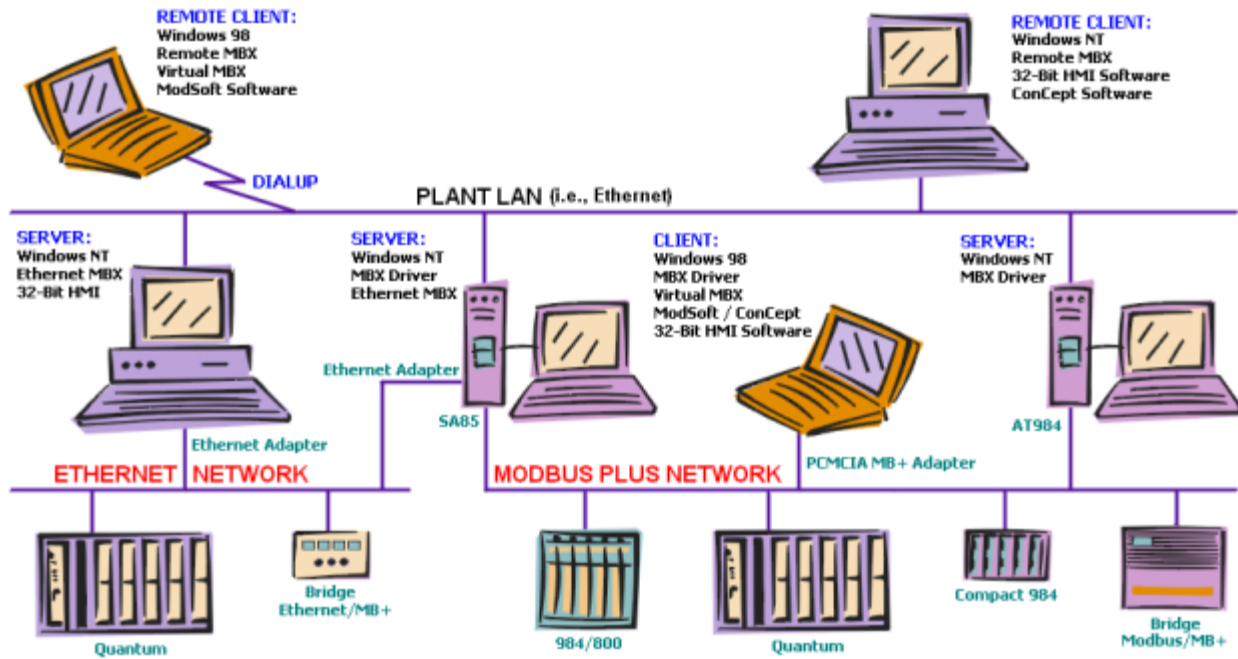


Figure 2 - MBX enabled system deployment: New hardware solutions will blend into existing installations without software or network modifications.

Installation

Which Driver Product Should I Install?

The MBX Driver Suite provides complete device driver support for 32-bit Windows (Win32) as well as 16-bit DOS and Windows (Win16) applications. Since the suite is a collection of products, before installation, you should determine which products will support your applications.

First, determine if your application is a 32-bit (Win32) or a 16-bit (DOS & Win16) application. If you are unsure, refer to your product's documentation or contact the software manufacturer.

Running 32-Bit Software

If you determine that your application requires 32-bit support, you should install one or more of the following driver products:

- **MBX Driver**
- **Ethernet MBX Driver**
- **Remote MBX Driver**

For more information on these products, refer to the [MBX Architecture and Companion Products](#) section.

Running 16-Bit Software

If your application is a 16-bit DOS/Windows application (which you wish to run under 32-bit Windows platforms), you must install the **Virtual MBX Driver** and at least one of the driver products mentioned above in [Running 32-bit Software](#).

The **Virtual MBX Driver** allows all 16-bit NETLIB/NetBIOS-compatible applications (e.g. ModSoft or Concept) to run concurrently with all 32-bit applications in the same computer. For more information on this product, refer to the [MBX Architecture and Companion Products](#) section.

Installation Manager

The MBX Driver Suite uses the **Installation Manager** for controlling the installation/upgrading process of the selected MBX driver products.

How to start the Installation Manager?

To start the **Installation Manager**, use one of the following procedures:

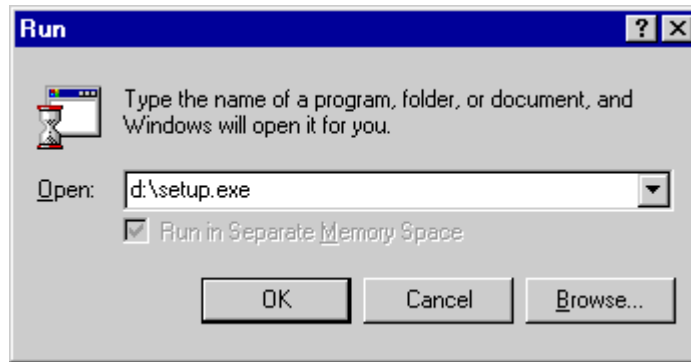
Auto-run

Insert the MBX Driver Suite CD into the CD drive and let the auto-run start the **Installation Manager**.

Manual start

Run the **Setup.exe** file found in the MBX Driver Suite CD root directory. Click the **Start** button and select **Run...** from the menu. In the dialog box, enter:

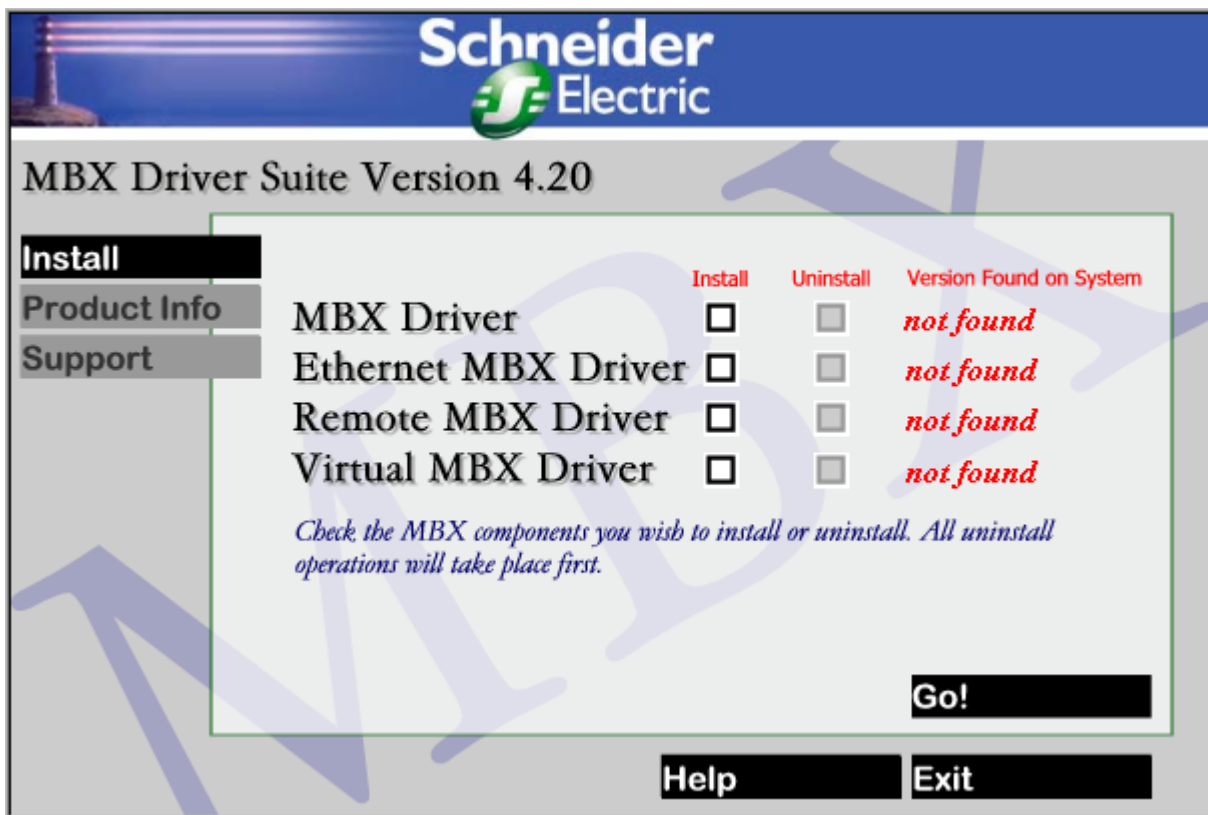
```
{CD_drive_letter}:\Setup.exe
```



Alternatively, you can double click the **Setup.exe** file from the Windows Explorer.

Note: For systems that do not have a CD drive, you can use a network CD drive to install the MBX Driver Suite.

Once the **Installation Manager** starts, you should see the following screen:



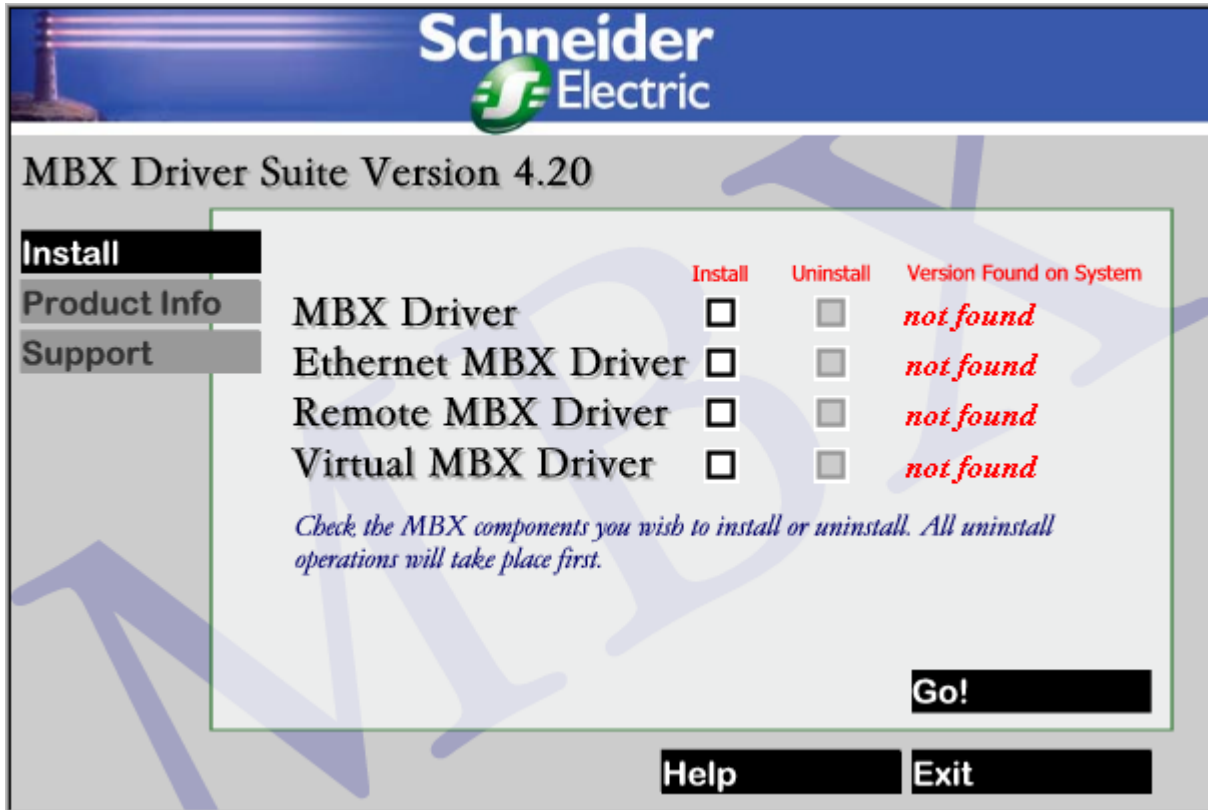
The three tabs, **Install**, **Product Info**, and **Support** control different aspects of the installation process.

Install Tab

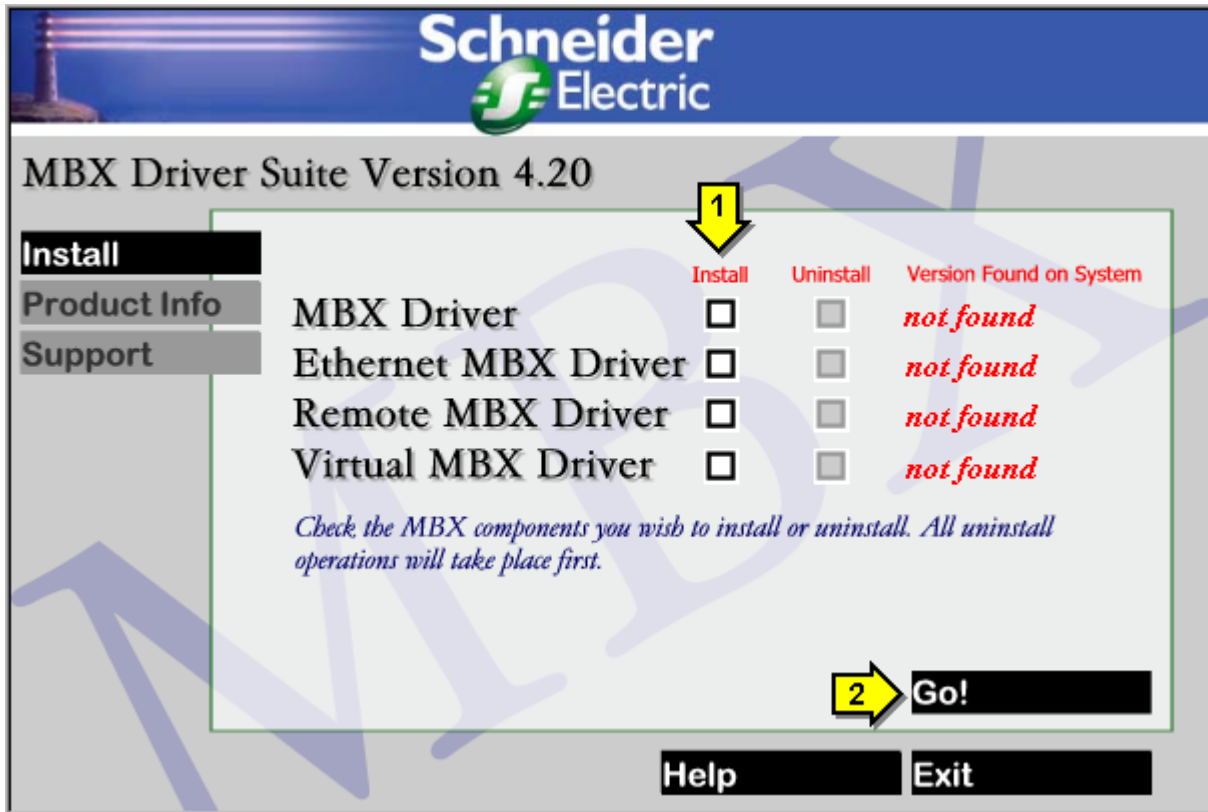
This is the main screen from which you install or upgrade the MBX Driver Suite. The **Installation**

Manager detects previous installations of all MBX driver products included in the suite. The **Version Found on System** column shows the versions of products already installed on the system. If the version is prior to version 4.20, an **Uninstall** checkbox will automatically be selected.

Note: Even if only one **Install** checkbox is selected, the **Installation Manager** will uninstall all MBX driver products with versions prior to 4.20.

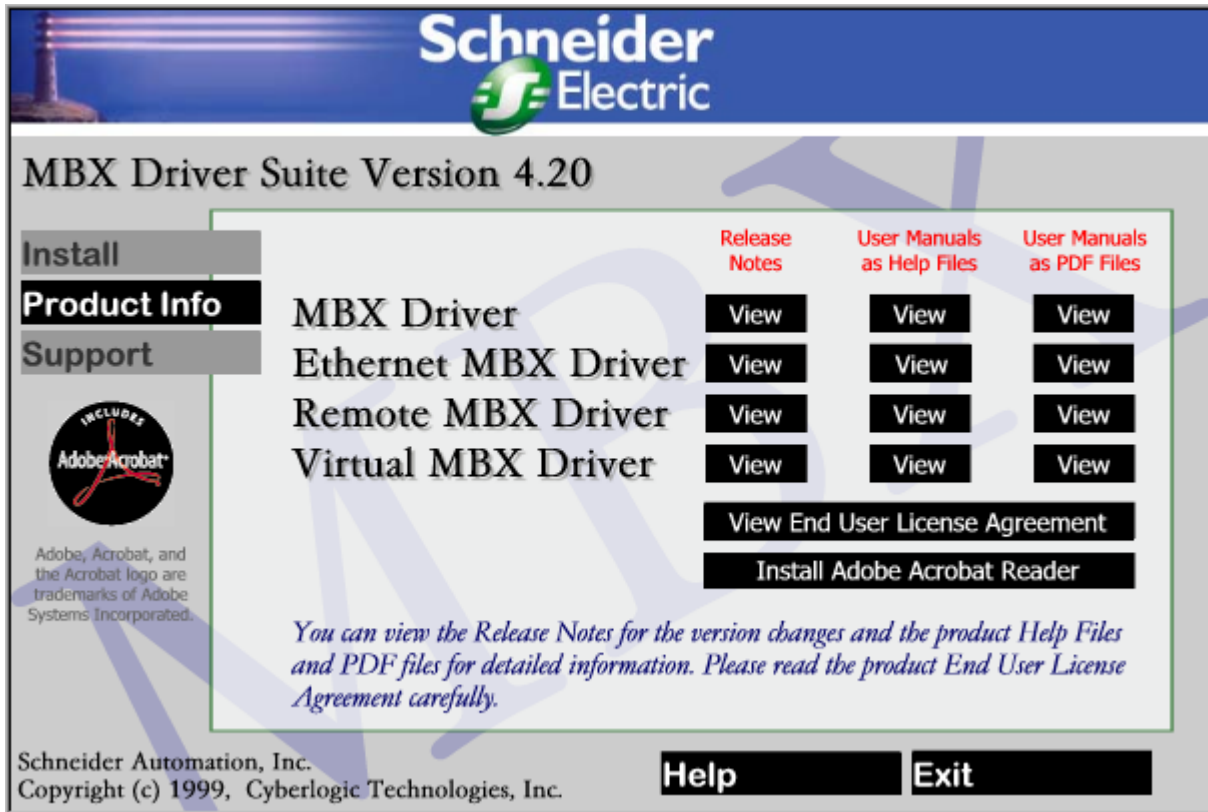


Once you make your selections, click the **Go!** button. If you want to cancel the installation, click the **Exit** button.



Product Info Tab

This screen allows you to view information related to each MBX driver product included in the MBX Driver Suite. You may use this information to decide which product to install. For future reference, the **Release Notes**, **Help Files**, and **PDF Files** will be available after the product installation.



Schneider Electric

MBX Driver Suite Version 4.20

Install
Product Info
Support

INCLUDES Adobe Acrobat

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MBX Driver
Ethernet MBX Driver
Remote MBX Driver
Virtual MBX Driver

Release Notes
User Manuals as Help Files
User Manuals as PDF Files

View **View** **View**
View **View** **View**
View **View** **View**
View **View** **View**

View End User License Agreement
Install Adobe Acrobat Reader

You can view the Release Notes for the version changes and the product Help Files and PDF files for detailed information. Please read the product End User License Agreement carefully.

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Help **Exit**

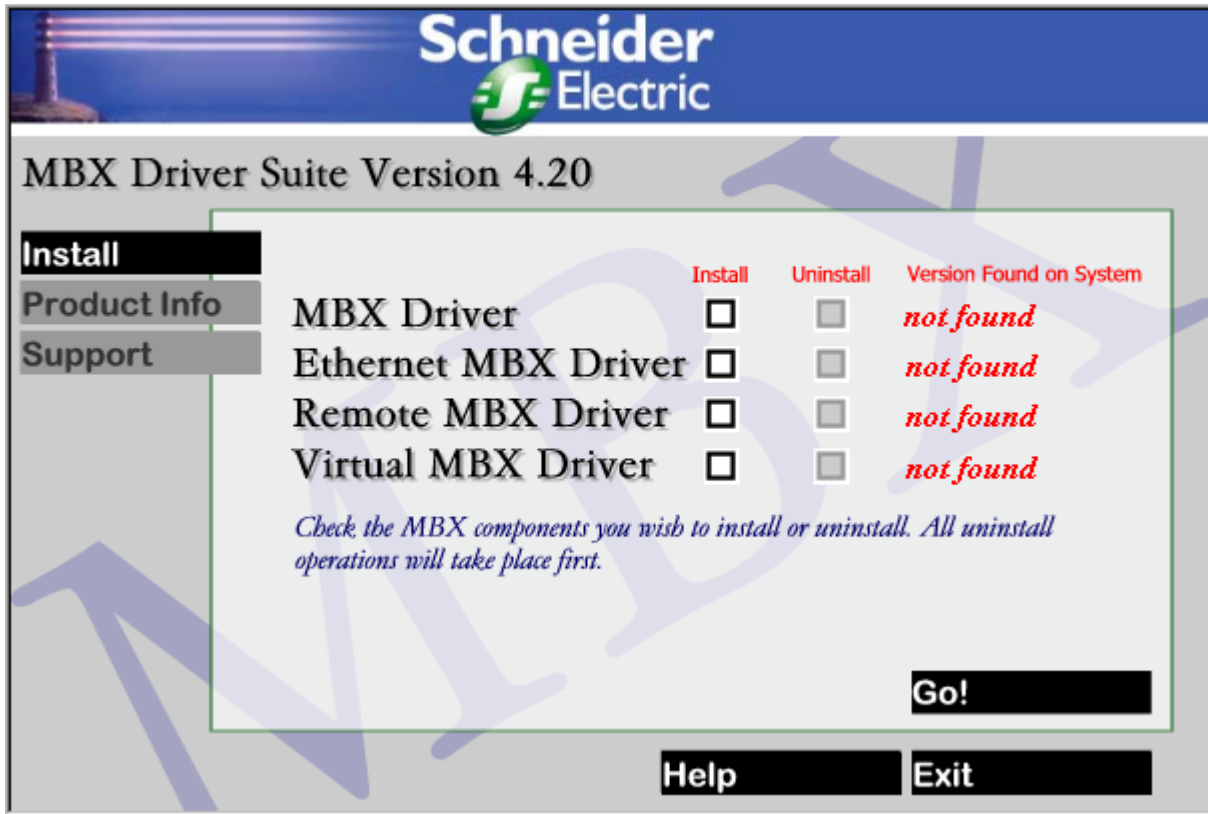
Support Tab

This screen provides you with Technical Support information. Before you contact Technical Support, make sure to read the **Troubleshooting** section in the product's help file.

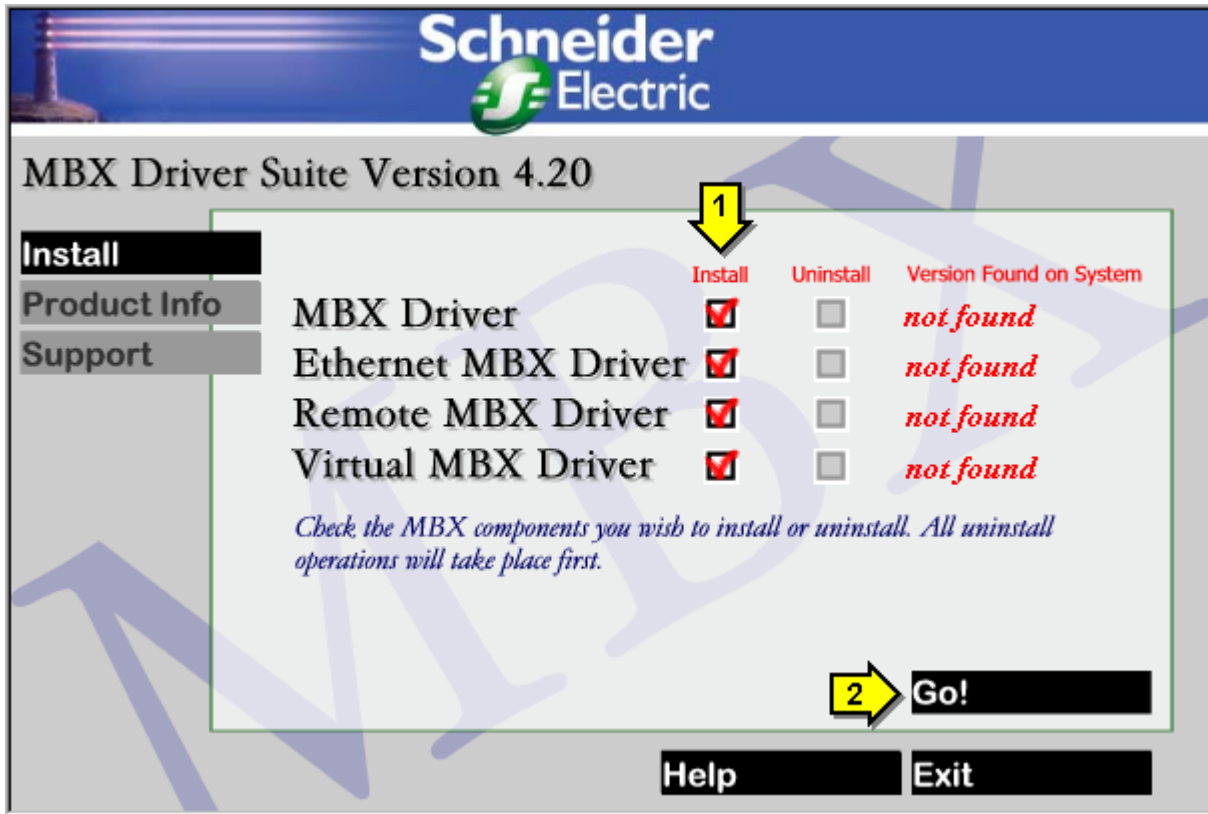


First Time Installation

The **Installation Manager** detects previous installations of all MBX driver products included in the suite. If this is the first installation of these products, the **Version Found on System** column on the **Install** tab screen will show **not found** for all products.

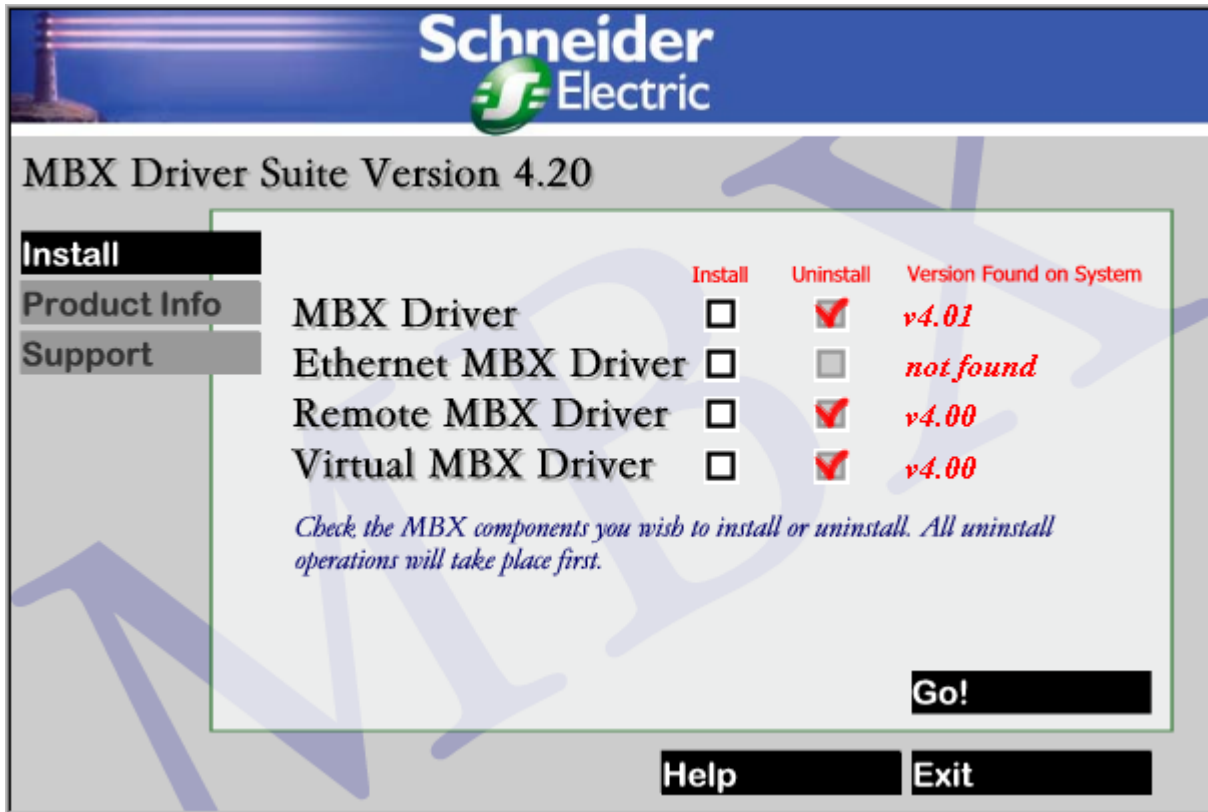


To install the MBX driver products of your choice, select the appropriate checkboxes in the **Install** column. Once you make your selections, click the **Go!** button. If you want to cancel the installation, click the **Exit** button.



Upgrading the MBX Drivers

The **Installation Manager** detects previous installations of all MBX driver products included in the suite. The **Version Found on System** column on the **Install** tab screen shows the versions of products already installed on the system. If the version is prior to version 4.20, an **Uninstall** checkbox will be automatically selected.

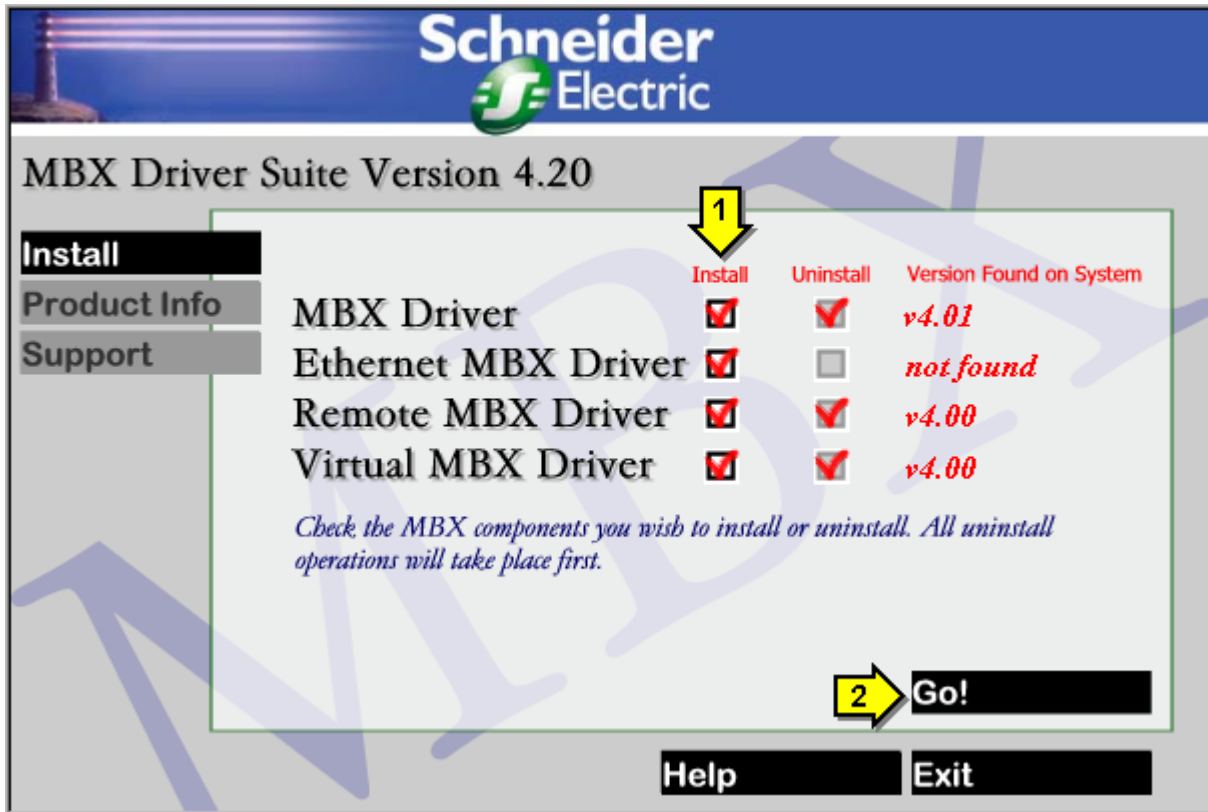


To upgrade all installed products, select the appropriate checkboxes in the **Install** column.

Note: Even if only one **Install** checkbox is selected, the **Installation Manager** will uninstall all MBX driver products with version prior to 4.20.

When upgrading from any 4.xx version (e.g. 4.01), the **Installation Manager** will also upgrade your current driver configuration. As a result, in most cases, no configuration will be required after the upgrade is completed. However, for versions prior to 4.00 (e.g. 2.11), all configuration information will be removed. For that reason, **make sure that you have a good record of your configuration information of all of these installations**. Once the MBX Driver Suite products are upgraded, you will have to recreate all of your configurations.

After making your selections in the **Install** column, click the **Go!** button to start the upgrade process.

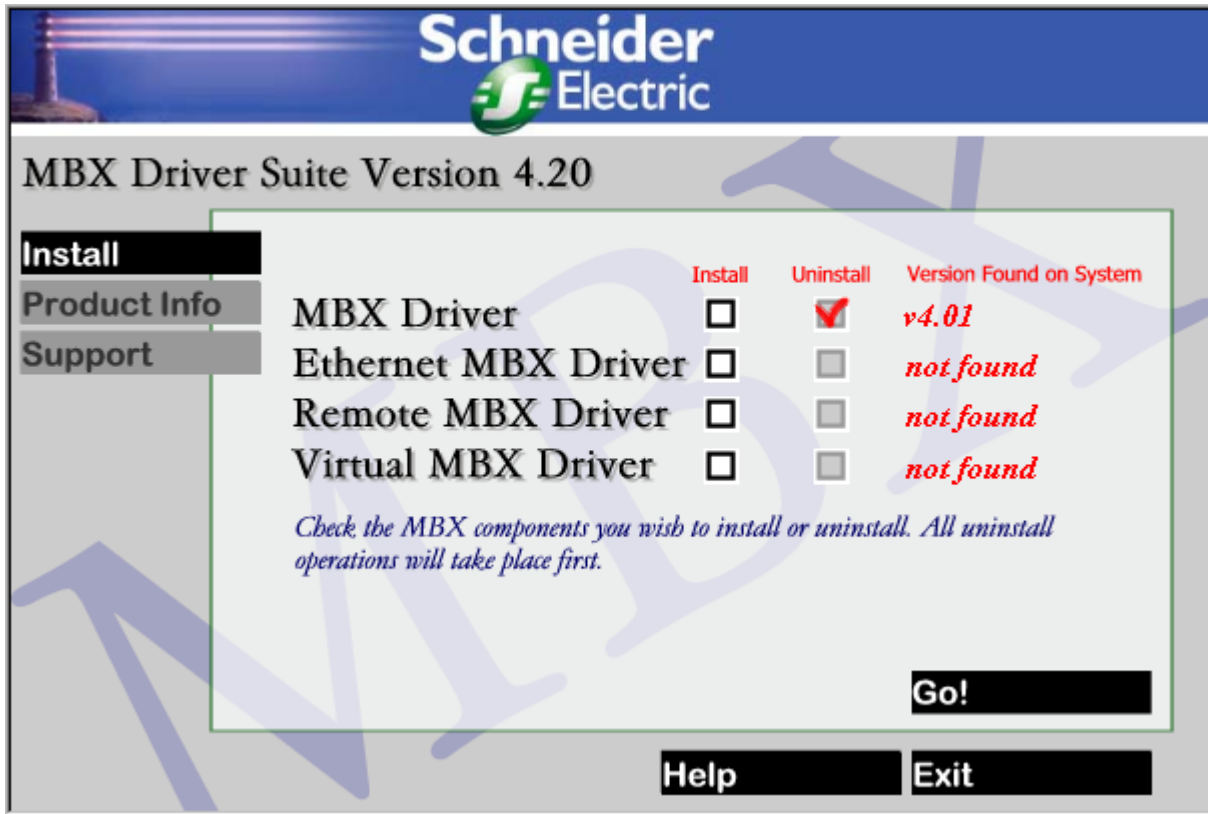


Typical Driver Installation

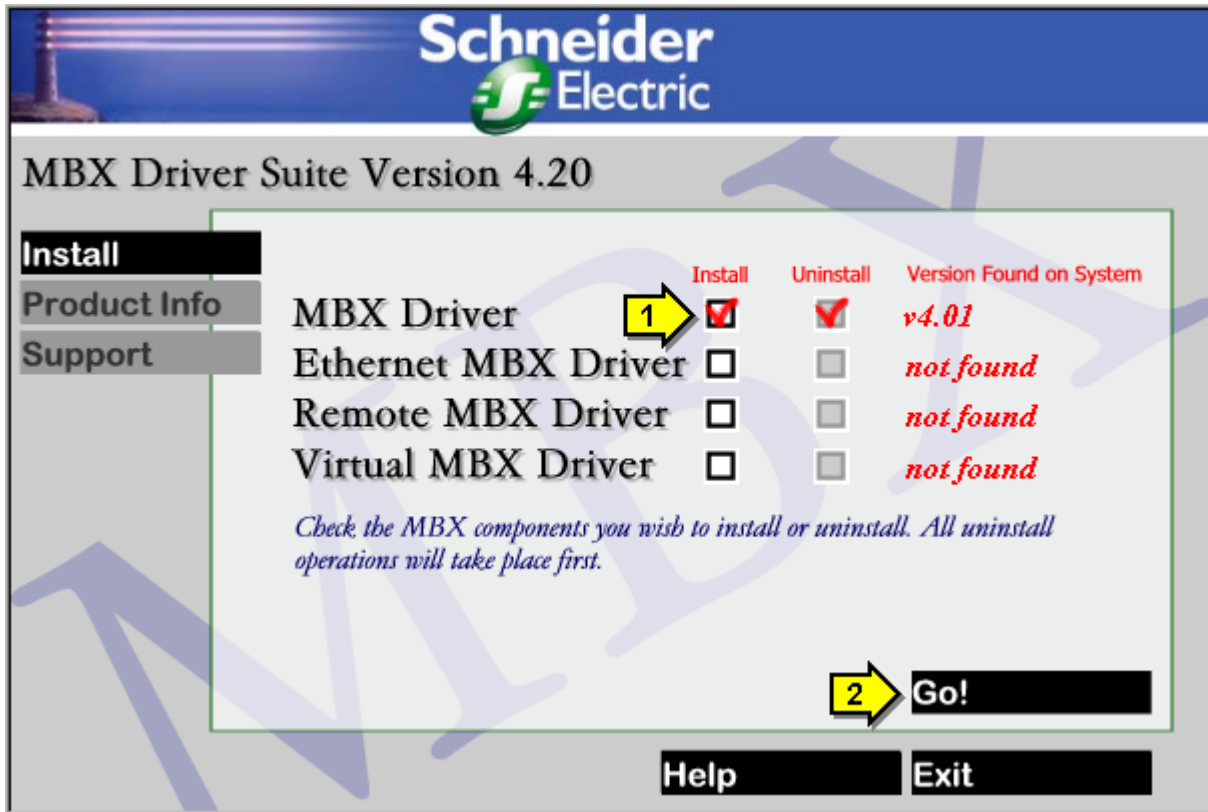
The following steps show a typical MBX Driver Suite installation session. Use them only as a guideline. Depending on your selections, your installation may vary from the one shown here. As a guide through the installation process, always read the instructions on the screen.

In the example below, we will upgrade the MBX Driver version 4.01.

1. Insert the MBX Driver Suite CD into the CD drive. The auto-run will start the **Installation Manager**, and you should see the following screen:

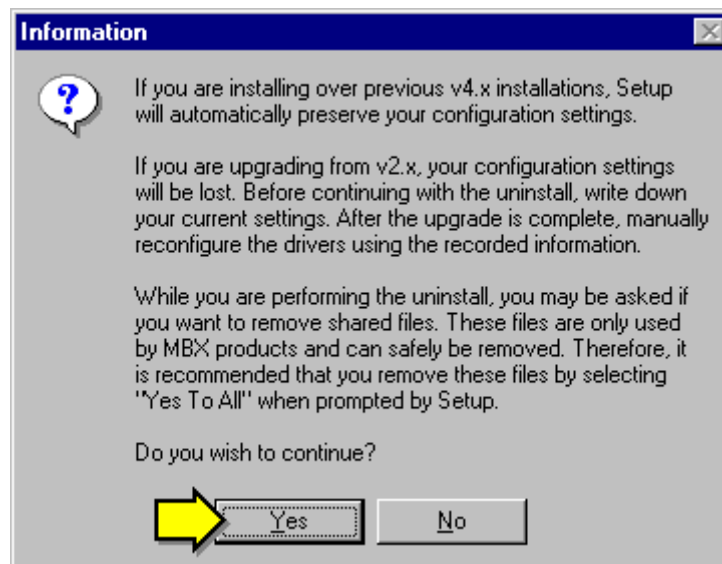


2. Select the **MBX Driver** in the **Install** column and click **GO!** to begin the setup process.

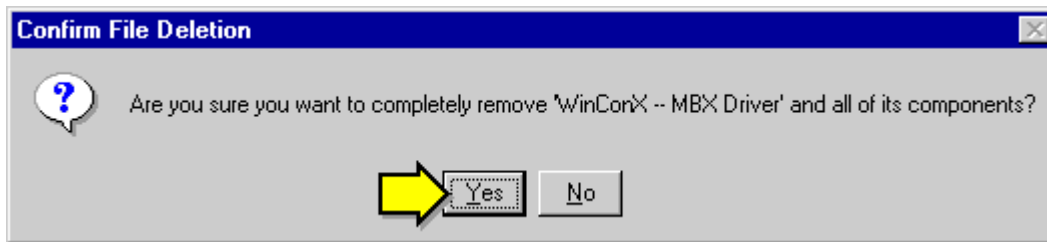


When upgrading from any 4.xx version (e.g. 4.01), the **Installation Manager** will upgrade your current driver configuration as well. As a result, in most cases, no configuration will be required after the upgrade is completed. However, for versions prior to 4.00 (e.g. 2.11), all configuration information will be removed. For that reason, **make sure that you have a good record of your configuration information of all of these installations**. Once the MBX Driver Suite products are upgraded, you will have to recreate all of your configurations.

3. Click **Yes** to start the uninstall phase.

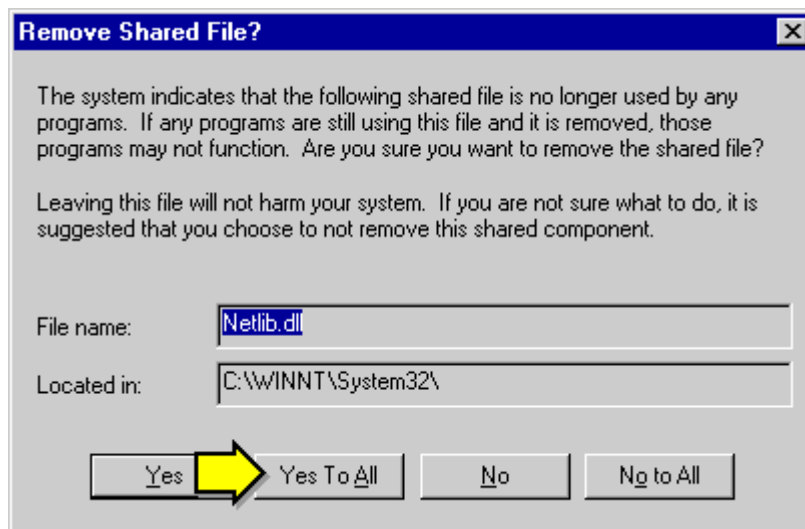


- Click **Yes** to start the uninstallation of the MBX Driver version 4.01.

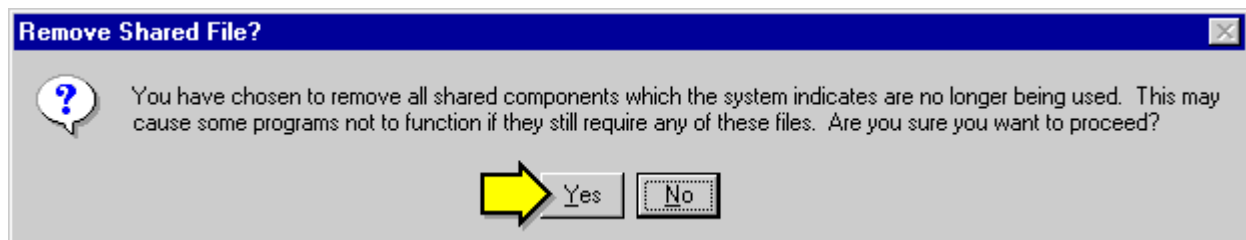


During the uninstall phase you may be presented with questions about removing shared files. Because these files are only used by the MBX products, they can be safely removed during uninstallation.

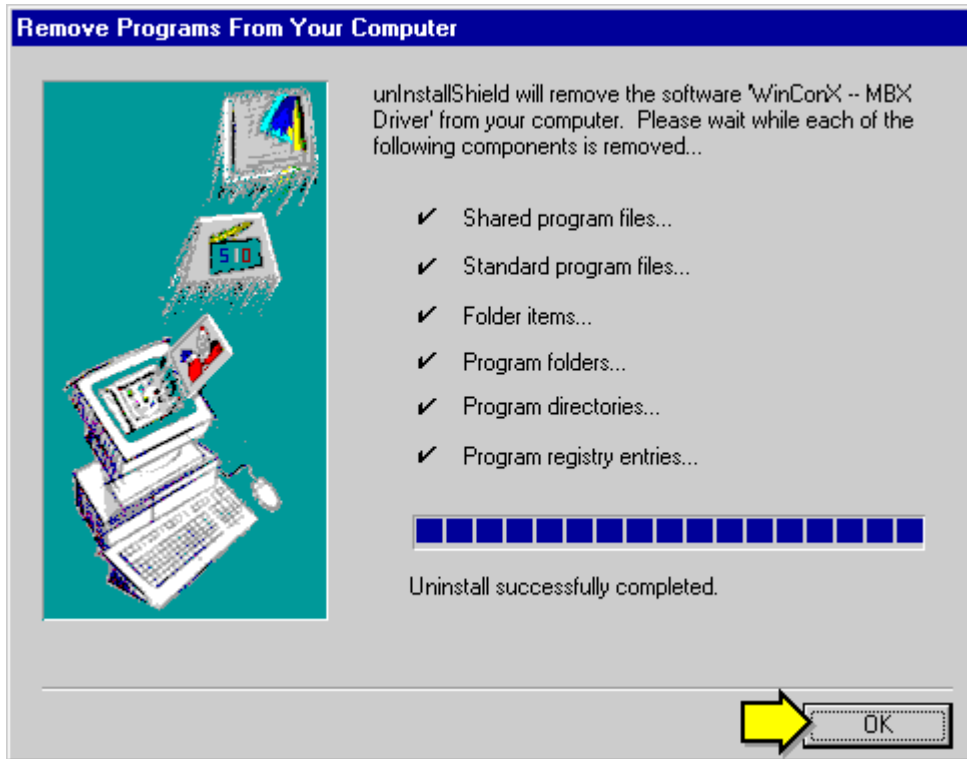
- Click **Yes To All**.



- Click **Yes** to continue.

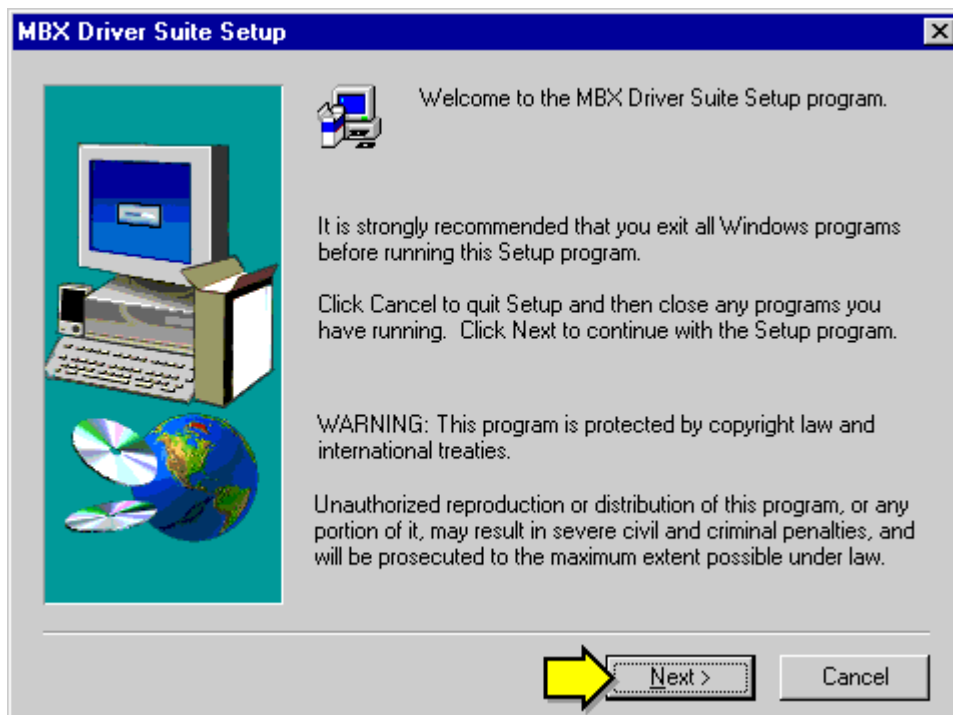


- Click **OK** to continue.



This ends the uninstall phase.

8. Click **Next** to continue.

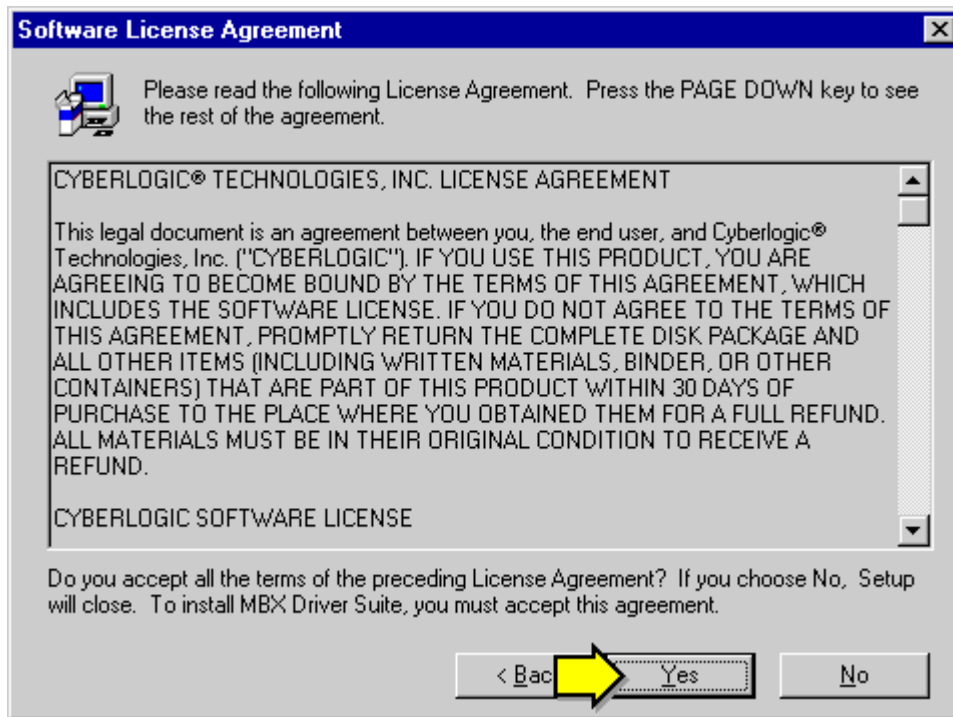


9. Click **OK** to continue.

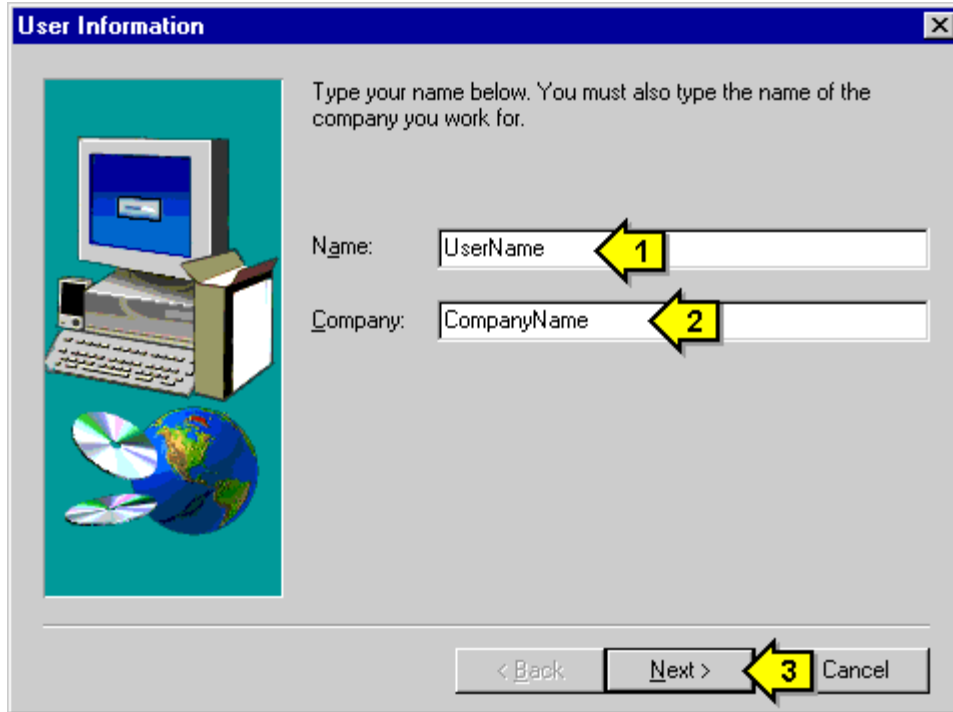


Please read the following Software License Agreement. You must agree to the terms of this agreement and click **Yes** to continue the installation.

10. Click **Yes** to continue.

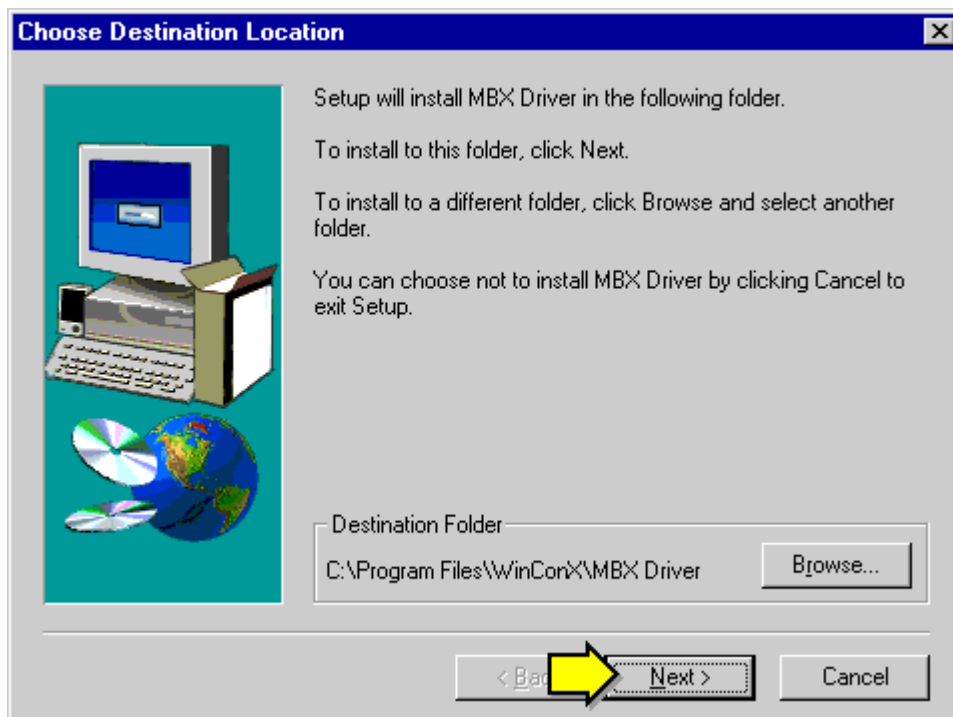


11. Enter your name and your company name and click **Next** to continue.



You can use the **Browse** button to select the destination directory for your installation. However, we recommend using the default directory.

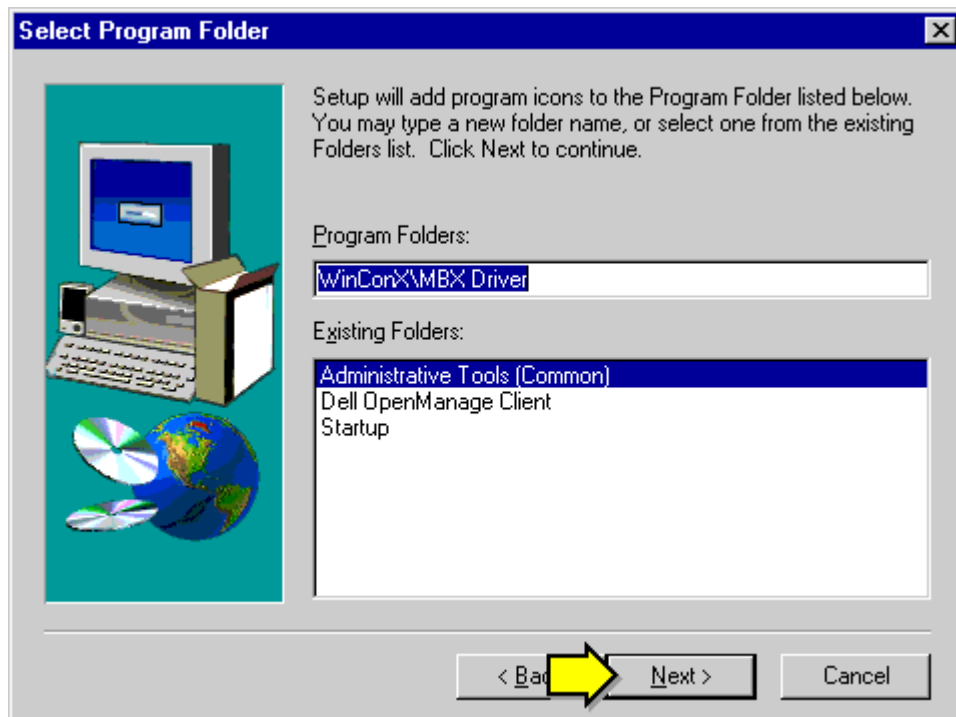
12. Click **Next** to continue.



You may create a new name for the destination folder. However, we recommend using the default

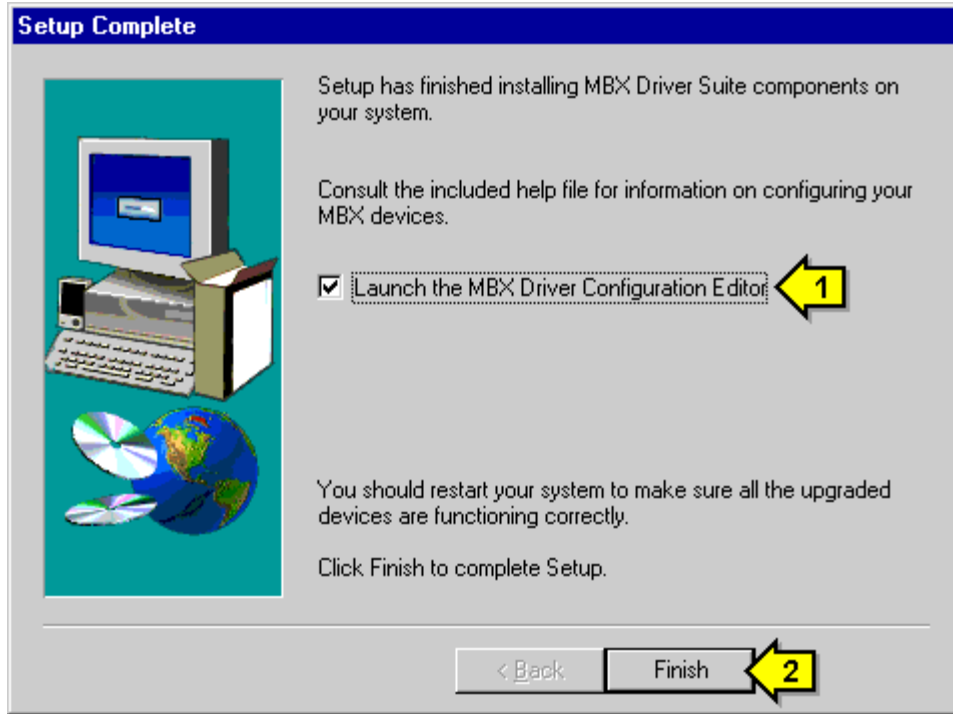
folder name.

13. Click **Next** to continue.



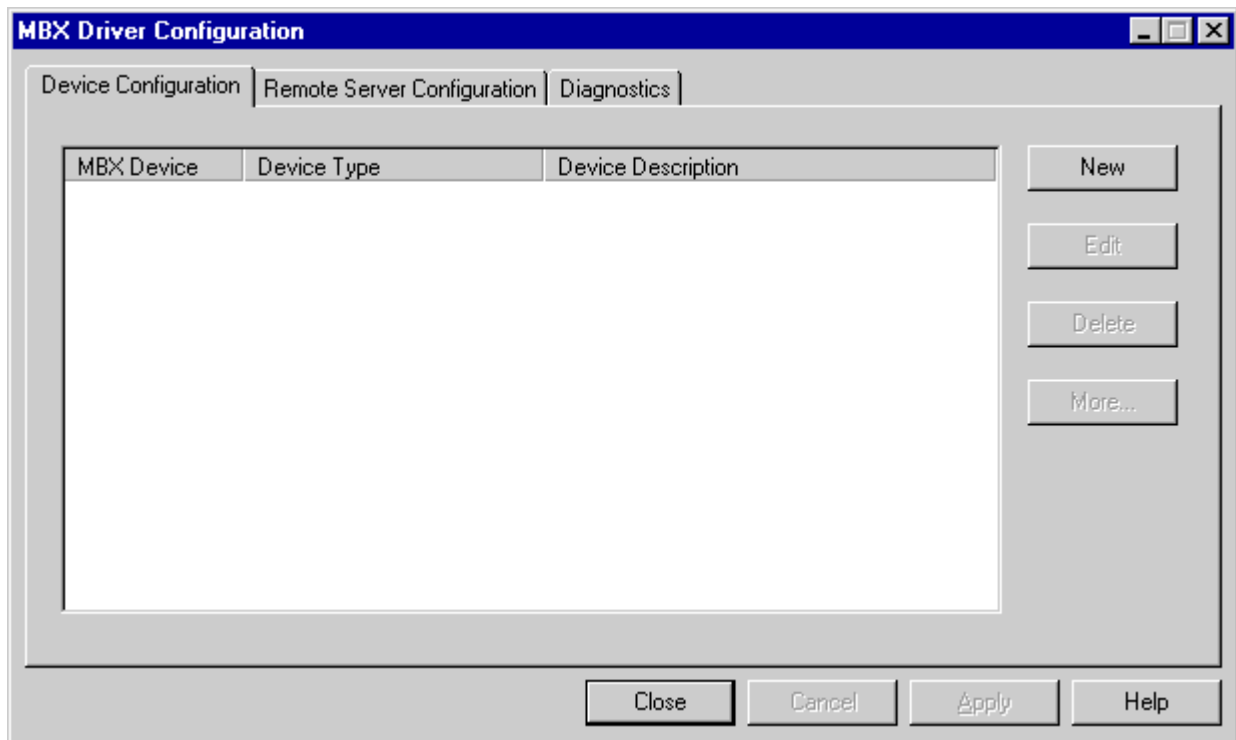
Before the MBX Driver can be used, it must be configured. This is done through the MBX Driver Configuration editor. The setup program can automatically start this editor for you.

14. Make sure that the **Launch the MBX Driver Configuration Editor** checkbox is selected and click **Finish** to continue.



Click the **Help** button to get more information on using the MBX Driver Configuration editor.

- 15. Configure the MBX Driver. You can get help on the driver configuration by clicking the **Help** button found on the dialog box. Click **Close** when done.



Legacy Installations

To support legacy installations, the MBX Driver Suite CD contains the floppy disk images of versions 2.xx and 4.0x of all MBX Driver Suite components. You can find these images in the directory tree starting from the <CD Drive Letter>\Legacy directory.

Note: MBX driver products prior to version 4.20 **can only be installed from a floppy disk** (see [Installation Procedure](#) subsection below). **Direct installation from a CD will fail.**

Disk Image Locations

Version 2.xx for Windows 9x

(found under \Legacy\v2xx\Win9x)

- **LNETLIB** (*Local NETLIB Library, v2.10*)
- **RNETLIB** (*Remote NETLIB Library, v2.10*)
- **VDD** (*Virtual Device Driver for NETLIB/NetBIOS, 2.10*)

Version 2.xx for Windows NT

(found under \Legacy\v2xx\WinNT)

- **LNETLIB** (*Local NETLIB Library, v2.11*)
- **RNETLIB** (*Remote NETLIB Library, v2.00*)
- **VDD** (*Virtual Device Driver for NETLIB/NetBIOS, 2.00*)

Version 4.0x for Windows 9x

(found under \Legacy\v40x\Win9x)

- **LMBX** (*MBX Driver, v4.01*)
- **RMBX** (*Remote MBX Driver, v4.00*)
- **VMBX** (*Virtual MBX Driver, v4.00*)

Version 4.0x for Windows NT

(found under \Legacy\v40x\WinNT)

- **LMBX** (*MBX Driver, v4.01*)
- **RMBX** (*Remote MBX Driver, v4.00*)
- **VMBX** (*Virtual MBX Driver, v4.00*)

Installation Procedure

1. Locate the selected product directory in the \Legacy directory tree on the MBX Driver Suite CD.
2. Make sure that your Windows Explorer is set up to view all files.

- a) In Windows Explorer, pull down the **View** menu and select **Folder Options...**
 - b) Select the **View** tab and uncheck **Hide file extensions for known file types**.
 - c) Check the **Show all files** box located under **Hidden files**.
 - d) Press **OK** to finish.
 - e) After the installation disk is created, you may return to the **View** tab and **Restore Defaults**.
3. Copy all files and subdirectories in the product directory to a 1.44 MB, 3.5" floppy disk.
 4. Select all files on the floppy disk and disable the **Read Only** file attribute (in Windows Explorer go to the **File** menu, select **Properties** and uncheck the **Read Only** check box).
 5. Uninstall all MBX driver products with versions higher than the version being installed.
 6. Make sure the floppy disk is not write-protected. To start installation, run the installer program located in the floppy disk root directory. For Windows NT products, version 2.xx, run the **install.bat** file. For all other products, run the **setup.exe** program.
 7. Follow the on-screen instructions to complete the installation.

Troubleshooting

Frequently Asked Questions

Helpful Hints

When upgrading an older version of an MBX driver product, the **Installation Manager** will first uninstall the old version of the product. If a file that has to be deleted during the uninstall phase is being used by some program, the uninstaller will not be able to delete this file. To remedy the problem, the uninstaller will force the system to reboot. To avoid system reboots, exit all applications using MBX driver products before upgrading to the new version. This includes stopping all MBX drivers and remote servers.

Frequently Asked Questions

I do not have a CD-ROM drive on my notebook. How can I install the MBX Driver Suite?

You have two options: 1) you can use an external CD-ROM drive (some models connect through the parallel port) 2) you can use a network CD-ROM drive from another computer on the network. See the [Installation](#) section for more information.

I want to use a popular 32-bit HMI program. I installed the MBX Driver and when I use the MBX Demo program, everything works fine. However, I cannot get my HMI software to communicate over Modbus Plus. What's wrong?

By now, most major industrial software products are fully compatible with the MBX Driver. If the version of your HMI product does not work with the MBX Driver, ask your HMI software manufacture for an updated version that does.

I have several computers with version 4.01 of the MBX Driver. Recently I purchased a new SA85 adapter card that came bundled with the MBX Driver Suite CD. Can I upgrade all of my systems with that CD?

The license agreement allows you to use this CD only on a single computer and you need to purchase additional licenses to accommodate additional systems. However, there are subscription/upgrade programs designed to alleviate this problem and to ensure prompt software updates to the latest revision levels. For details of these subscription programs, contact your Schneider Automation, Inc. Modicon brand distributor or visit Schneider Automation's *Schneider Alliances* website at www.modicon.com. You may also find additional information and white papers at Cyberlogic's website at www.cyberlogictech.com.