

**Schlumberger**

# ***Reflex USB v2***

## ***Reader Installation Guide***



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You will find the Reader Driver License Agreement (*License.txt*) in the following directory: *\Program Files\Schlumberger\Smart Cards and Terminals\Smart Card Readers\Reflex USB v2\Docs*.

The Reader Driver License Agreement is also available from the Reflex Reader Technical Support website: [www.reflexreaders.com/Support/support.html](http://www.reflexreaders.com/Support/support.html)

Your feedback about this manual is welcome! Comments, questions, and suggestions about any part of the Cyberflex® Access™ documentation library can be posted to the Docs & Samples Conference of the User Discussion Forums: [www.flexforum.com/cgi-bin/dcforum/dcboard.cgi](http://www.flexforum.com/cgi-bin/dcforum/dcboard.cgi).

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# Introduction

The Schlumberger Reflex USB v2 smart card reader is designed to install easily and quickly into an existing PC network infrastructure. The Reflex USB v2 smart card reader supports the Cyberflex® Access™ software environment and takes full advantage of the smart card handling capabilities integrated in Microsoft Windows operating systems (the Personal Computer/Smart Card, or PC/SC, architecture).



The Reflex USB v2 smart card reader uses the computer's Universal Serial Bus (USB) port to transfer data at rates up to 153,000 bps. This high data transfer rate makes the Reflex USB v2 smart card reader ideal for e-commerce and PKI applications that require smart cards to store certificates, generate digital signatures, and perform advanced encryption.

The Reflex USB v2 smart card reader is plug-and-play-compliant on Windows 98 and Windows Me systems, and hot pluggable on Windows 2000, Windows XP, and Windows Server 2003 systems. The reader uses the USB interface both to transfer data and supply power, so you have only one cable to connect.

## Operating Systems Supported

The Reflex 20 drivers were tested on the following platform versions:

- Microsoft Windows 98 (Second Edition)
- Windows Me
- Windows 2000 (Service Pack 4)
- Windows XP Professional (Service Pack 1)
- Windows Server 2003 (Enterprise Edition)

We recommend that you install the specified versions.

## Other System Requirements

- **Port** — Universal Serial Bus 1.1 or later (USB 2.0 specification-compliant)

## Cards Supported

All ISO 7816 microprocessors T=0, T=1, T=14 protocols;  
class A and class AB cards

## Electrical Specifications

- **PC interface** — USB connector type A
- **Power supply** — 5V from PC PS/2 port
- **Power consumption** — Operating mode: 20mA; Idle mode: 5mA
- **Communication speed with PC** — 12M bps
- **Communication speed with card** — 9600-153,000 bps

## Physical Specifications

- **Dimensions** — 90mm x 16.5mm x 70mm (3.54" x 0.65" x 2.76")
- **Color** — Metallic grey
- **Cable Length** — 2m

## Other Features

- Live card insertion/removal support
- PPS support

## Certifications and Standards Compliance

- Microsoft PC/SC
- Microsoft Hardware Compatibility List
- EMV Level 1

## Regulatory Approvals

- FCC
- CE
- UL
- C-UL

# Installation

This section contains instructions for installing the Schlumberger Reflex USB v2 smart card reader. The computer must have an available USB port.



## Installation Notes

The table presents the following information about installing the Reflex USB v2 smart card reader on each supported operating system:

- Overview of the installation sequence on each operating system. For detailed instructions, see the sections that follow.
- Summary of each operating system's plug-and-play or hot pluggable capability.
- Summary of the expected behavior of the Reflex USB v2 smart card reader's power light on each operating system.

### Operating System Installation Notes

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#### Windows 98 / Windows Me

- *Installation sequence:* Install the Reflex USB v2 smart card reader software (the installation program also automatically installs the Microsoft Smart Card Base Components if they are not already installed), connect the Reflex USB v2 smart card reader, and reboot.
- *Plug-and-play compliant:* Operating system detects Reflex USB v2 smart card reader at connect/disconnect; Smart Card Resource Manager detects Reflex USB v2 smart card reader at boot-time (mid-session connect/disconnect detected only at reboot).
- *Power light:* Reflex USB v2 power light is on continuously when the reader is connected to the computer via a USB port (power light blinks continuously when a card is fully inserted into the Reflex USB v2 smart card reader).

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#### Windows 2000 / Windows XP / Windows Server 2003

- *Installation sequence:* Attach the Reflex USB v2 smart card reader, and then install the Reflex USB v2 smart card reader software.
  - *Hot pluggable:* Operating system and Smart Card Resource Manager automatically detect Reflex USB v2 smart card reader status at connect/disconnect.
  - *Power light:* Reflex USB v2 power light is on continuously when the reader is connected to the computer via a USB port (power light blinks continuously when a card is fully inserted into the Reflex USB v2 smart card reader).
- 



*Refer to the release notes for driver version numbers and information about potential installation issues.*

## Unsigned Driver Warning Messages

A driver is “unsigned” if certification of the driver by Microsoft was pending but not yet complete at the time of release. Depending on driver signing options established by local system security policy (Control Panel > System Properties > Hardware > Driver Signing...), driver installation on Windows 2000, Windows XP, and Windows Server 2003 might either silently allow, display a warning message, or block the installation of unsigned drivers. If a warning message is displayed, click **Yes** or **Continue Anyway** to complete the driver installation.



## Installing on Windows 98 or Windows Me

To install the Schlumberger Reflex USB v2 smart card reader on a Windows 98 or Windows Me computer, complete these tasks.



*Be sure to install the smart card reader software before you connect the reader. If the proper software is not present when the computer detects the reader, a partial configuration may result. A partial configuration can interfere with future attempts to configure the reader properly.*

### **Step 1: Install the Reflex USB v2 smart card reader software**

*If the Reflex USB v2 smart card reader software was installed on your computer during installation of the Cyberflex Access Software Development Kit or the Cyberflex Access Integration Kit, you do not need to install additional driver software. The installation program also automatically installed the Microsoft Smart Card Base Components. If you want to be certain that you have the latest driver, check the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)).*

*If the driver Reflex USB v2 smart card reader software is not installed on your computer, go to the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)) to download the Reflex USB v2 driver package for Win98/Me. See the package's Install Notes for installation instructions.*

### **Step 2: Connect the Reflex USB v2 smart card reader**

Insert the Reflex USB v2 smart card reader cable connector into the USB port. The Reflex USB v2 smart card reader is compliant with plug-and-play specifications, so you can make the connection while the computer is running.

The Reflex USB v2 smart card reader power light glows continuously to indicate that the reader is receiving power, and the computer automatically begins to scan for Plug-and-Play-compliant hardware. Displayed messages report that the system has found the new hardware, and has located and installed the software for it.

### **Step 3: Reboot the computer**

The Windows 98 and Windows Me operating systems detect the Reflex USB v2 smart card reader as soon as it is connected to the host computer, but the Smart Card Resource Manager detects it only during reboot or restart. Therefore,

although you will see the Reflex USB v2 smart card reader listed in the Device Manager as an installed device after you complete step 2, the Reflex USB v2 smart card reader is not usable until you reboot.

These are other situations that require you to reboot your computer:

- If you connect the Reflex USB v2 smart card reader in mid-session, the Smart Card Resource Manager is unaware of the change until you reboot.
- If you remove the Reflex USB v2 smart card reader and then reconnect to it, the Reflex USB v2 smart card reader does not function until you reboot.
- If you remove the Reflex USB v2 smart card reader without first stopping the device, these errors display:

```
Reader removal monitor error retry threshold
reached. The parameter is incorrect.
Reader monitor 'Schlumberger Reflex USB v2 0'
received uncaught error code: The parameter is
incorrect.
```

To make the Reflex USB v2 reader functional, reconnect it and reboot.

At this point you are ready to start using the Reflex USB v2 smart card reader. You can test the reader setup using the Smart Card Reader Tools. From the Start menu on the Windows taskbar, select **Programs** → **Schlumberger Smart Cards and Terminals** → **Smart Card Readers** → **Tools**.



*Refer to the release notes for driver version numbers and information about potential installation issues.*

## **Updating on Windows 98 or Windows Me**

If you are updating the Reflex USB v2 smart card reader software (not installing the hardware and software for the first time), complete these tasks.

### **Step 1: Install the new Reflex USB v2 smart card reader software**

*If the new Reflex USB v2 smart card reader software was installed on your computer during installation of the Cyberflex Access Software Development Kit or the Cyberflex Access Integration Kit, you do not need to install additional driver software. If you want to be certain that you have the latest driver, check the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)).*

To manually update the Reflex USB v2 smart card reader software on your computer, go to the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)) to download the Reflex USB v2 driver package for Win98/Me. See the package's Install Notes for installation instructions.

**Step 2: Step through the Update Device Driver wizard**

Use the Upgrade Device Driver wizard to configure the Reflex USB v2 smart card reader to use the new driver:

- 1** To start the Device Manager, select **Start** → **Settings** → **Control Panel**. Double-click **System**, and then click the **Device Manager** tab.
- 2** In the Device Manager, expand the Smart card readers device type, and then double-click the name of the device to open its Properties.
- 3** In the device's Properties, click the **Driver** tab, and then click the **Update Driver** button.

The Update Device Manager wizard is launched. Select the option to let the wizard search for suitable drivers for the device. If you need more information about using the wizard to complete this task, see the operating system's Help.

**Step 3: Reboot the computer**

After the wizard has finished updating the Reflex USB v2 driver, reboot the computer.



*Refer to the release notes for driver version numbers and information about potential update issues.*

## Installing or Updating on Windows 2000, Windows XP, or Windows Server 2003

To install or update the Schlumberger Reflex USB v2 smart card reader on a Windows 2000, Windows XP, or Windows Server 2003 computer, complete these tasks.

### **Step 1: *Connect the Reflex USB v2 smart card reader***

Insert the Reflex USB v2 smart card reader cable connector into the USB port. The Reflex USB v2 smart card reader is hot pluggable on Windows 2000, Windows XP, and Windows Server 2003 computers, so you can make the connection while the computer is running.

The Reflex USB v2 smart card reader power light glows continuously to indicate that the reader is receiving power.

### **Step 2: *Install the Reflex USB v2 smart card reader software***

*If the Reflex USB v2 smart card reader software was installed on your computer during installation of the Cyberflex Access Software Development Kit or the Cyberflex Access Integration Kit, you do not need to install additional driver software. If you want to be certain that you have the latest driver, check the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)).*

*To manually install or update the Reflex USB v2 smart card reader software, go to the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)) to download the Reflex USB v2 driver package for Windows 2000 or Windows XP. See the package's Install Notes for installation instructions.*

Note that the Microsoft Smart Card Base Components are pre-installed on Windows 2000, Windows XP, and Windows Server 2003 computers; do *not* reinstall the Microsoft Smart Card Base Components.

After the Reflex USB v2 smart card reader software is installed, messages will report that the system has found the new hardware and has located and installed the software for it.

**NOTE** *On Windows 2000, Windows XP, and Windows Server 2003 computers, the operating system sometimes automatically configures the Reflex USB v2 to use a different driver from the one that is installed with the Cyberflex Access SDK or Cyberflex Access Integration Kit. See the Troubleshooting chapter for information about checking the driver version and manually updating the driver if necessary.*

The Reflex USB v2 smart card reader is ready to use without rebooting the computer. The Smart Card Resource Manager automatically detects the reader's change in status whenever you disconnect or reconnect it.

At this point you are ready to start using the Reflex USB v2 smart card reader. You can test the reader setup using the Smart Card Reader Tools. From the Start menu on the Windows taskbar, select **Programs** → **Schlumberger Smart Cards and Terminals** → **Smart Card Readers** → **Tools**.



*Refer to the release notes for driver version numbers and information about potential installation and update issues.*



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## Troubleshooting

This section describes some problems you might encounter when you set up and use the Schlumberger Reflex USB v2 smart card reader, along with possible causes and solutions. If you need additional help, use the User Discussion Forums or contact the Schlumberger reader support team through the Reflex Reader Technical Support website ([www.reflexreaders.com/Support/support.html](http://www.reflexreaders.com/Support/support.html)).



*Refer to the release notes for information about other known product issues.*

### ***The reader power light isn't on***

**Cause Description:** The Reflex USB v2 smart card reader's connector plug is not inserted securely in the USB port.

**Solution:** Make sure the Reflex USB v2 smart card reader's USB connector plug is securely inserted in a USB port on the computer. See "Installation Notes," on page 3 for a summary of the expected behavior of the Reflex USB v2 smart card reader power light on each operating system.

### ***The reader power light is on, but I can't connect to the reader***

#### ***Windows NT 4.0 support***

**Cause Description:** The computer is running Windows NT, which does not support USB devices, even if the hardware has a USB port.

**Solution:** Choose a smart card reader compatible with Windows NT, such as the Reflex Lite reader.

### ***BIOS Setup***

**Cause Description:** The USB port is disabled in the computer's Basic Input/Output System (BIOS).

**Solution:** Check to see if the USB controller appears as a system device. Open the Device Manager (for information about how to open the Device Manager, refer to the documentation for your system) and verify that the USB controller appears in the device tree, as shown in the following example:



If the USB controller appears, the BIOS setting is likely to be enabled. If it does not appear, check to make sure the USB controller is enabled in the BIOS setup. For information about your BIOS control system, refer to the documentation for your system.

### ***Premature reader connection***

**Cause Description:** The Reflex USB v2 smart card reader software was not present on the computer when you connected the reader hardware and the system detected its presence. In this situation, the system might configure the Reflex USB v2 smart card reader incorrectly, leading to problems with attempts to configure the reader properly in the future.

**Solution:** Uninstall the Reflex USB v2 smart card reader and then reinstall it on your computer. For information about uninstalling hardware, see the documentation for your system.



## ***An error message says the removal monitor error retry threshold has been reached***

### ***Reader disconnection (Windows 98 and Windows Me systems)***

**Cause Description:** The Reflex USB v2 smart card reader was disconnected in the middle of a session on a Windows 98 or Windows Me system. The Smart Card Resource Manager service responds with the following error:

```
Reader removal monitor error retry threshold reached. The
specified network resource or device is no longer available.
```

If you click **OK** to close the message box, the following message might display:

```
Reader monitor 'Schlumberger Reflex USB 0' received uncaught
error code: The device does not recognize the command.
```

If one or both of these messages appear, the Reflex USB v2 smart card reader will not function again in the current Windows session, even if you reconnect it.

**Solution:** Reconnect the Reflex USB v2 smart card reader and reboot the computer. The Smart Card Resource Manager detects the Reflex USB v2 smart card reader only at boot-time on Windows 98 and Windows Me computers.

If you do not need to use the Reflex USB v2 smart card reader again in the current Windows session, close the message boxes and continue the session.

### ***Device driver reinitialization (Windows 98 and Windows Me systems)***

**Cause Description:** The system reinitialized the Reflex USB v2 smart card reader's device driver when you clicked the **Refresh** button in the Device Manager tab of the System Properties window on a Windows 98 or Windows Me system. The reinitialization interrupted the Smart Card Resource Manager service, and the Reflex USB v2 smart card reader stopped working.

The Smart Card Resource Manager service responds with the Microsoft Smart Card System errors shown earlier in this section.

**Solution:** To make the Reflex USB v2 smart card reader functional again, reconnect it and reboot the computer. The Smart Card Resource Manager detects the Reflex USB v2 smart card reader only at boot-time on Windows 98 and Windows Me computers.

If you do not need to use the Reflex USB v2 smart card reader again in the current Windows session, close the message boxes and continue the session.

## ***The Reflex USB v2 is not using the driver installed with the SDK or IK***

### ***The operating system chose the wrong reader driver***

**Cause Description:** On Windows 2000, Windows XP, and Windows Server 2003 systems, the operating system sometimes automatically configures the smart card reader to use a different driver from the one that is installed with the Cyberflex Access SDK or Cyberflex Access IK. A detailed discussion follows.

**Solution:** Reconfigure the smart card reader to use the correct driver. Detailed instructions follow.

When the operating system detects that a smart card reader has been added (during installation) or changed (during update), the operating system tries to find the best driver for the device.

On *Windows 2000 and Windows XP (pre-SP1)* systems, depending on characteristics of both the new driver and drivers already installed on a system, the operating system sometimes automatically configures the smart card reader to use a driver that is not the one that is installed with the Cyberflex Access SDK or Cyberflex Access IK.

On *Windows XP SP1 and Windows Server 2003* systems, at the time of release, if the smart card reader is plugged in before the driver software is installed, the correct driver is automatically selected by the operating system. If the reader is not plugged in before the driver software is installed, the operating system sometimes automatically configures the smart card reader to use a driver that is not the one that is installed with the Cyberflex Access SDK or Cyberflex Access IK.

You can confirm whether your smart card reader is using the correct driver by checking the driver version number, as outlined in “Checking a Driver Version” in this section.

If you discover that your smart card reader is configured to use an older driver and you want to use the driver that was installed with the Cyberflex Access SDK or Cyberflex Access IK, you can manually update the driver using the instructions outlined in “Manually Updating a Driver” in this section.

### **Checking a Driver Version**

To confirm whether your smart card reader is configured to use the driver that was installed with the Cyberflex Access SDK or Cyberflex Access IK, you can check the version number using the Device Manager.

- 1 In the Device Manager, expand the Smart card readers device type, and then double-click the name of the device to open its Properties. In the device’s Properties, click the **Driver** tab. Click **Driver Details...** to display driver information, including driver file name and version number.
- 2 Compare the version number displayed in the Driver File Details screen to information in the Driver Versions table in the release notes to confirm whether the operating system has configured the smart card reader to use the driver included in the installation package.

**NOTE** *You can also check version numbers of the latest available reader drivers on the Reflex Readers Download website ([www.reflexreaders.com/Support/Downloads/downloads.html](http://www.reflexreaders.com/Support/Downloads/downloads.html)). In some cases, drivers posted to the website are newer than drivers installed with the Cyberflex Access SDK and Cyberflex Access IK.*

If the smart card reader is currently configured to use an older driver, you can manually update the driver using the instructions that follow.

### **Manually Updating a Driver**

Use the Upgrade Device Driver wizard (on Windows 2000) or Hardware Update wizard (on Windows XP and Windows Server 2003) to update the smart card reader driver:

- 1 In the Device Manager, expand the Smart card readers device type, and then double-click the reader device to open its Properties.

- 2 In the device's Properties, click the **Driver** tab, and then click the **Update Driver...** button. The Upgrade Device Driver wizard (on Windows 2000) or Hardware Update (on Windows XP and Windows Server 2003) wizard is launched.
- 3 On Windows 2000, in the Upgrade Device Driver wizard, select "Display a list of the known drivers for this device so that I can choose a specific driver." On Windows XP and Windows Server 2003, in the Hardware Update wizard, select "Install from list or specific location (Advanced)," click **Next**, and then click "Don't search. I will choose the driver to install."
- 4 In the Select a device driver screen, click **Have Disk ...**
- 5 In the Install from Disk screen, type in or browse to the *\Program Files\Schlumberger\Smart Card Readers\reader\_name* directory, and click **OK**.
- 6 In the Select a Device Driver window, select the new device driver from the list, and click **Next**.  
You might see warnings that you are about to install an unsigned driver or that you are about to install an unsigned driver over a signed driver. Click **Yes** or **Continue Anyway**.
- 7 Follow screen instructions to complete updating the driver. If you need more information about using the wizard to complete this task, refer to the operating system's Help.

The smart card reader is ready to use without rebooting the system.

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