Schlumberger

Reflex USB
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\Docs*.

The Reader Driver License Agreement is also available from the Reflex Reader Technical Support website: *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*.

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Introduction

The SchlumbergerSema Reflex USB smart card reader is designed to install easily and quickly into an existing PC network infrastructure. The Reflex USB 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 smart card reader uses the computer's Universal Serial Bus (USB) port to transfer data at rates up to 115,200 bps. This high data transfer rate makes the Reflex USB 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 smart card reader is Plug-and-Play-compliant on Windows 98 and Windows Me systems, and hot pluggable on Windows 2000 and Windows XP 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

- Microsoft Windows 98 (Second Edition)
- Windows Me
- Windows 2000 (Service Pack 2)
- Windows XP Professional

NOTE   *The Reflex USB smart card reader has been discontinued. Drivers for the Reflex USB were last verified on the platforms listed above, and are currently available from the Reflex Reader Technical Support website (www.reflexreaders.com/Support/Downloads/downloads.html) on an "as is" basis. See the "End of Life Product Announcements" section in the Release Notes for details.*

Other System Requirements

- **Port** — Universal Serial Bus 1.1 or later

Cards Supported

The Reflex USB smart card reader works with all leading ISO 7816-compatible microprocessor cards, including:

- Cryptographic cards
- Java cards
- Subscriber Identity Modules (SIMs)
- SchlumbergerSema e-gate™ cards

Product Specifications and Features

- **Smart Card Connector** — Friction contacts with ISO-compliant chip position; Association Française de Normalisation (AFNOR) chip position not supported.
- **Card Power** — Compliant with ISO 7816 and EMV — 5V; reader: 39 mA; smart card: ≤ 60 mA (limited by ISO specification).
- **Connection** — Reader's 2-meter cable connects to a Type A USB port. Reader automatically detects card insertion and removal.
- **Communication protocols** — T=0 (asynchronous, half-duplex, byte-oriented) and T=1 (asynchronous, half-duplex, block-oriented)
- **Communication speed** — Variable communication rate of up to 115,200 bps, which you can control through Protocol Parameter Selection commands.
- **Dimensions** — 85mm x 68mm x 15mm (3.75" x 2.75" x .68")
- **Color** — Steel gray

Standards Compliance

- ISO/IEC 7816, parts 1–4
- EMV Level 1
- FCC and CE
- Microsoft PC/SC

Installation

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

Installation Notes

The table presents the following information about installing the Reflex USB 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 smart card reader's power light on each operating system.

Operating System	Installation Notes
Windows 98 / Windows Me	• *Installation sequence:* Install the Reflex USB smart card reader software and the Microsoft Smart Card Base Components (if they are not already installed), connect the Reflex USB smart card reader, and reboot. • *Plug-and-Play compliant:* Operating system detects Reflex USB smart card reader at connect/disconnect; Smart Card Resource Manager detects Reflex USB smart card reader at boot-time (mid-session connect/disconnect detected only at reboot). • *Power light:* Reflex USB 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 smart card reader).
Windows 2000 / Windows XP	• *Installation sequence*: Attach the Reflex USB smart card reader, and then install the Reflex USB smart card reader software. • *Hot pluggable*: Operating system and Smart Card Resource Manager automatically detect Reflex USB smart card reader status at connect/disconnect. • *Power light:* Reflex USB 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 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 SchlumbergerSema Reflex USB smart card reader on a Windows 98 or Windows Me computer, follow these steps, which are described in detail in the sections that follow:

1 Install the new Reflex USB smart card reader software.

2 Connect the Reflex USB smart card reader.

3 Reboot the computer.

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

Step 1: Install the Reflex USB smart card reader software

Go to the Reflex Readers Download website (*www.reflexreaders.com/ Support/Downloads/downloads.html*) to download the latest Reflex USB driver package for Win98/Me. If the Microsoft Base Components are not already installed on your computer, you will also need to download and install that software.

See the package's Install Notes for installation instructions.

Step 2: Connect the Reflex USB smart card reader

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

The Reflex USB 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 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 smart card reader listed in the DeviceManager as an installed device after you complete step 2, the Reflex USB 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 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 smart card reader and then reconnect to it, the Reflex USB smart card reader does not function until you reboot.

- If you remove the Reflex USB 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 0' received
uncaught error code: The parameter is incorrect.
```

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

At this point you are ready to start using the Reflex USB 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**.

Updating on Windows 98 or Windows Me

To update the Reflex USB smart card reader software, complete these tasks, which are described in detail in the sections that follow:

1 Install the new Reflex USB smart card reader software.

2 Step through the Update Device Driver wizard.

3 Reboot the computer.

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

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

Go to the Reflex Readers Download website (*www.reflexreaders.com/ Support/Downloads/downloads.html*) to download the latest Reflex USB 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 operating system's Update Device Driver wizard to point the operating system to 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 Reader 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 and guides you through the process of locating the new Reflex USB driver. If you need more information about using the wizard, refer to the operating system's Help.

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

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

Installing or Updating on Windows 2000 or Windows XP

To install or update the SchlumbergerSema Reflex USB smart card reader on a Windows 2000 or Windows XP computer, complete these tasks, which are described in more detail in the sections that follow.

1 Connect the Reflex USB smart card reader.

2 Install the Reflex USB smart card reader software.

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

Step 1: Connect the Reflex USB smart card reader

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

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

Step 2: Install the Reflex USB smart card reader software

Go to the Reflex Readers Download website (*www.reflexreaders.com/Support/Downloads/downloads.html*) to download the Reflex USB driver package for Win 2000 or Win XP.

See the package's Install Notes for installation instructions.

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

After the Reflex USB 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 and Windows XP systems, the operating system sometimes automatically configures the Reflex USB to use a different driver from the one you have installed. See the Troubleshooting chapter for information about checking the driver version and manually updating the driver if necessary.*

The Reflex USB 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 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**.

Troubleshooting

This section describes some problems you might encounter when you set up and use the SchlumbergerSema Reflex USB smart card reader, along with possible causes and solutions. If you need additional help, use the User Discussion Forums or contact the SchlumbergerSema reader support team through the Reflex Reader Technical Support website (*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 smart card reader's connector plug is not inserted securely in the USB port.

Solution: Make sure the Reflex USB smart card reader's USB connector plug is securely inserted in a USB port on the computer. See "Installation Notes" starting on page 3 for a summary of the expected behavior of the Reflex USB 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 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 smart card reader incorrectly, leading to problems with attempts to configure the reader properly in the future.

Solution: Uninstall the Reflex USB smart card reader and then reinstall it on your system. 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 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 smart card reader will not function again in the current Windows session, even if you reconnect it.

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

If you do not need to use the Reflex USB 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 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 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 smart card reader functional again, reconnect it and reboot the system. The Smart Card Resource Manager detects the Reflex USB smart card reader only at boot-time on Windows 98 and Windows Me computers.

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

The Reflex USB is not using the driver I installed

The operating system chose the wrong reader driver

Cause Description: On Windows 2000 and Windows XP systems, the operating system sometimes automatically configures the smart card reader to use a different driver from the one that you installed. 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* 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 you installed.

On *Windows XP* 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 you installed.

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 you installed, 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 you installed, you can check the version number using the Device Manager.

1 To start the Device Manager on Windows 2000, select **Start** → **Settings** → **Control Panel**. Double-click **System**, click the **Hardware** tab, and then click the **Device Manager…** button.

To start the Device Manager on Windows XP, select **Start** → **Control Panel**. Double-click **System**, click the **Hardware** tab, and then click the **Device Manager…** button.

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. In the device's Properties, click the **Driver** tab. Click **Driver Details….** to display driver information, including driver file name and version number.

3 Compare the version number displayed in the Driver File Details screen to the version number for the driver listed on the Reflex Readers Download website (*www.reflexreaders.com/Support/Downloads/downloads.html*).

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) to update the smart card reader driver:

1 To start the Device Manager on Windows 2000, select **Start** → **Settings** → **Control Panel**. Double-click **System**, click the **Hardware** tab, and then click the **Device Manager…** button.

To start the Device Manager on Windows XP, select **Start** → **Control Panel**. Double-click **System**, click the **Hardware** tab, and then click the **Device Manager…** button.

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

3 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) wizard is launched.

4 In the Upgrade Device Driver wizard (on Windows 2000) or Hardware Update (on Windows XP) wizard, select to display a list of known drivers for the device so that you can select a specific driver.

5 In the Select a device driver screen, click **Have Disk …**

6 In the Install from Disk screen, type in or browse to the *\Program Files\Schlumberger\Smart Card Readers\reader_name* directory, and click **OK**.

7 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**.

8 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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