

**Desktop ISO 14443-4 reader
Desktop ISO 14443-4 reader with OCR
Desktop ISO 14443-4 reader with OCR QA**

Installation guide

Integrated Engineering

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Document : ISO 14443-4 USB reader installation
ISO 14443-4 USB reader with OCR installation
ISO 14443-4 USB reader with OCR QA installation
Version : 6.0

This manual is applicable for the following products:

- 800-8250 Desktop/ISO14443-4/e-Doc
- 800-8252 Desktop/ISO14443-4/e-Doc+AED
- 800-8251 Desktop/ISO14443-4/e-Doc+OCR
- 800-8253 Desktop/ISO14443-4/e-Doc+OCR+AED
- 800-8255 Desktop/ISO14443-4/e-Doc+OCR/QA
- 800-8254 e-Passport add-on

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1. Introduction

1.1 Document purpose

This document describes the software installation procedure for Integrated Engineering's ISO 14443-4 USB readers. This installation procedure consists of four parts:

1. Installation of the ISO 14443-4 USB reader drivers.
2. Installation of the ISO 14443-4 USB reader with OCR drivers
3. Installation of the ISO 14443-4 USB reader with OCR QA drivers
4. Installation of BSI (Bundesamt für Sicherheit in der Informationstechnik) LDS GoldenReader tool.

1.2 Document version history

Version 4.0 1st of July 2006 revised document.

Installation guide for Integrated Engineering ISO 14443-4 USB reader, ISO 14443-4 USB with OCR, ISO 14443-4 USB with OCR QA and BSI Golden Reader tool (GRT for short) under Microsoft Windows 2000 and Windows XP Professional.

1.3 Document validity

This document applies only for Microsoft Windows 2000 and Windows XP Professional.

This manual is written based on Windows 2000. The order of installation steps and screenshots may slightly vary for Windows XP.

1.4 Remarks

1. The ISO 14443-4 reader is powered from the PC's USB port. To function the reader requires a USB port that supplies 5 Volt. The reader will not function on USB ports that supply 3.3 Volt.
2. The ISO 14443-4 USB reader with OCR and ISO 14443-4 USB reader with OCR QA is powered by an AC/DC adapter 12V DC 2,4A. These readers are protected with a fuse (F1.6AL250V).
3. The ISO 14443-4 e-Doc with OCR Quality Assurance uses RTS/CTS handshaking.
4. In some occasions when the reader is disconnected and reconnected Windows fails to detect the reader. If this occurs. Please log off and log on in order for Windows to reinitialise its drivers.
5. BSI's Golden Reader tool is a demonstration tool. The tool is not intended for benchmarking.

1.5 Installation possibilities

- For the driver installation of an ISO 14443-4 USB reader, article number 800-8250 proceed with chapter 3.
- For the driver installation of an ISO 14443-4 USB reader with OCR, article number 800-8251 proceed with chapter 4.
- For the driver installation of an ISO 14443-4 USB reader with OCR QA, article number 800-8255 proceed with chapter 5.

2. Specifications

2.1 Power supply

Max 5 V DC.

2.2 Fuse

The e-Document readers with OCR use a F1.6AL250V fuse.

2.3 USB cable

The maximum length of the USB cable is 2.9 meter

2.4 Certifications

FCC / CANADA RADIO CERTIFICATION

These devices comply with part 15 of the FCC rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Le fonctionnement est soumis aux deux conditions suivantes : (1) Ce dispositif ne peut pas causer de perturbations nuisibles et (2) ce dispositif doit accepter toute perturbation quelconque qu'il reçoit, y compris des perturbations susceptibles de provoquer un fonctionnement indésirable. Les changements ou modifications n'ayant pas été expressément approuvés par la partie responsable de la conformité peuvent faire perdre à l'utilisateur l'autorisation de faire fonctionner le matériel.

CE MARKING

HID Global hereby declares that these proximity readers are in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Por el presente, HID Global declara que estos lectores de proximidad cumplen con los requisitos esenciales y otras disposiciones relevantes de la Directiva 1999/5/EC.

HID Global déclare par la présente que ces lecteurs à proximité sont conformes aux exigences essentielles et aux autres stipulations pertinentes de la Directive 1999/5/EC.

A HID Global, por meio deste, declara que estes leitores de proximidade estão em conformidade com as exigências essenciais e outras condições da diretiva 1999/5/EC.

HID Global bestätigt hiermit, dass die Leser die wesentlichen Anforderungen und anderen relevanten Bestimmungen der Richtlinie 1999/5/EG erfüllen.

HID Global dichiara che i lettori di prossimità sono conformi ai requisiti essenziali e ad altre misure rilevanti come previsto dalla Direttiva europea 1999/5/EC.

3. ISO 14443-4 USB reader - driver installation

3.1 General procedure overview

This procedure describes the installation steps for the ISO 14443-4 USB reader USB driver. These installation steps are valid only for Windows 2000 and Windows XP Professional.

3.2 Prerequisites

1. *Before proceeding, make sure that the PC is switched on and running.*
2. *Make sure the CD is placed in the CDROM player.*
3. *This installation instruction requires that Windows plug-and-play for USB devices is enabled.*
4. *USB driver installation is only required when an Integrated Engineering USB reader is connected to a PC for the very first time.*

3.3 Step 1: Connect the reader to the PC

- Connect the reader to a USB port of the PC.
- The reader will respond with seven times red LED, seven times green LED and after that a beep when the PC is running and the USB port is functioning properly.
- In case of CCID configuration LED F2 will flash green.

3.4 Step 2: Installing the USB driver

When the reader is plugged in the USB port and Windows plug-and-play for USB devices is functioning properly, Windows will display the "Found new Hardware" dialog displayed in Figure 1. The Integrated Engineering ISO 14443-4 reader is recognised by Windows as SmartID/Pro or SmartID/CCID.

Note:

The following examples show the installation of the SmartID/Pro reader. The installation of the SmartID/CCID reader is identical.

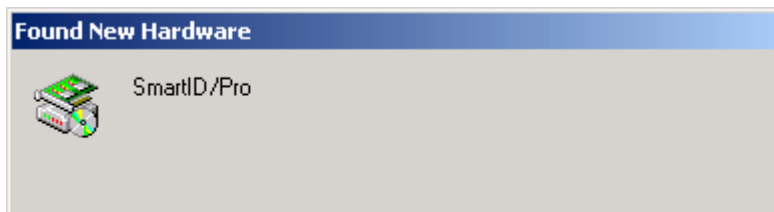


Figure 1: Windows Found new Hardware dialog

After searching its internal driver database Windows will display the Found New Hardware Wizard to allow the installation of the USB driver for the reader see Figure 2.



Figure 2: Windows Found new hardware wizard dialog

Click on the "Next" button to proceed with the installation of the USB driver. The "Found new hardware wizard" displays a new screen see Figure 3.



Figure 3: Select hardware drivers location

Select "Search for a suitable driver for my device (recommended)" to allow Windows to locate the correct drivers automatically. Click on the "Next" button to proceed. The Found new hardware wizard will display a new screen to specify the locations to search for the required drivers see Figure 4.

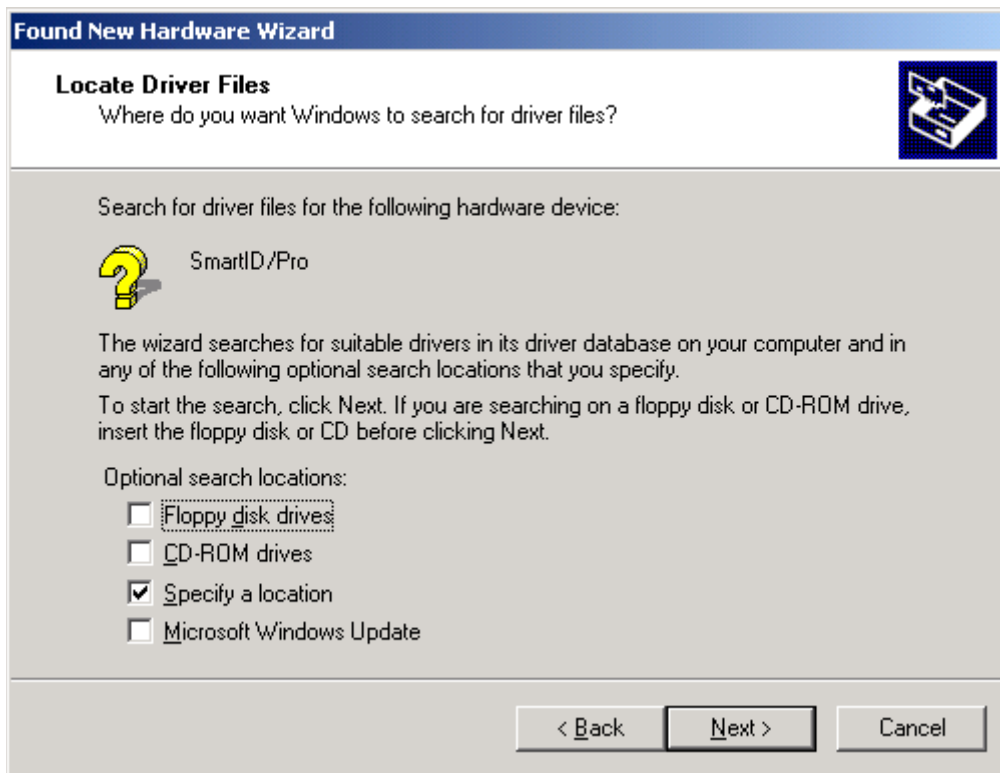


Figure 4: Select location to search for drivers

Place a "Check mark" in the Specify a location field and remove all other "Check marks" by clicking in the field next to options. The value of the options will toggle if you click a field more than once. Press "Next" to proceed. The installation driver dialog Figure 5 opens.

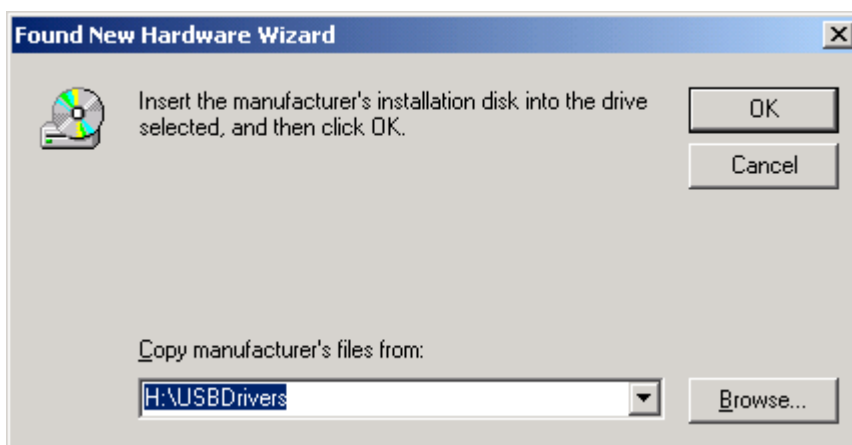


Figure 5: Driver location dialog

Click on the "Browse..." button to open the browse dialog see Figure 6.

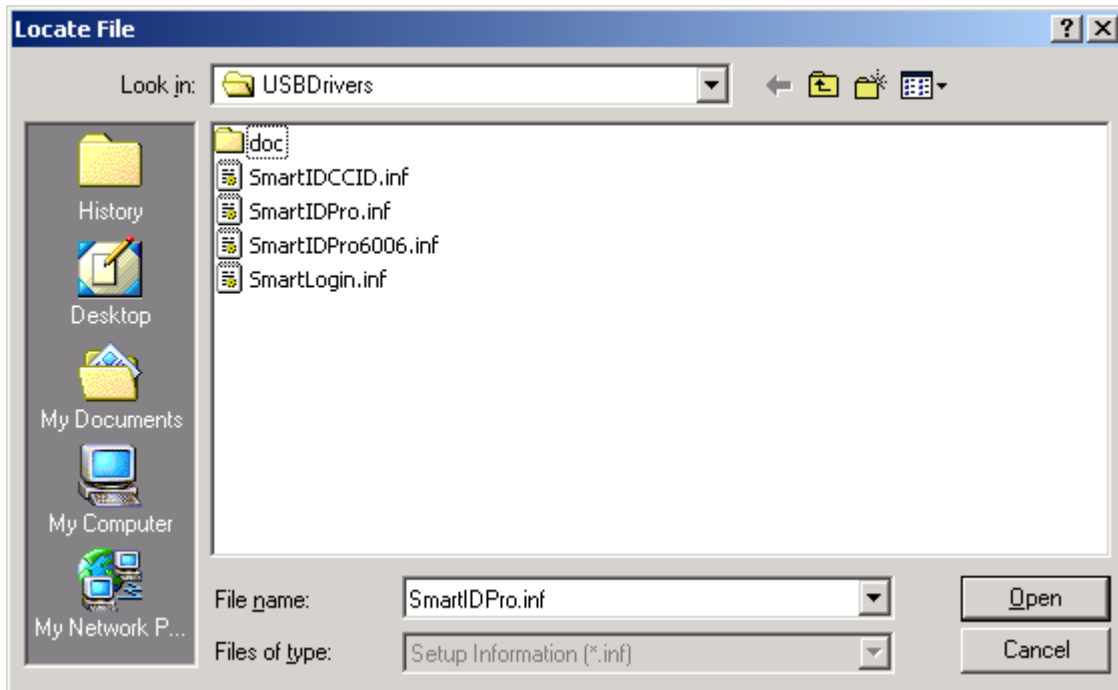


Figure 6: Locate driver file(s) dialog

Make sure the CDROM with the "GoldenReader" tool that holds the USB drivers is placed in the CDROM drive. Navigate with the Locate File dialog to the "USBDriver" directory on the CD. Select the file SmartIDPro.inf and click on the Open button. The Found New Hardware Wizard will display a screen to display the search results Figure 7.

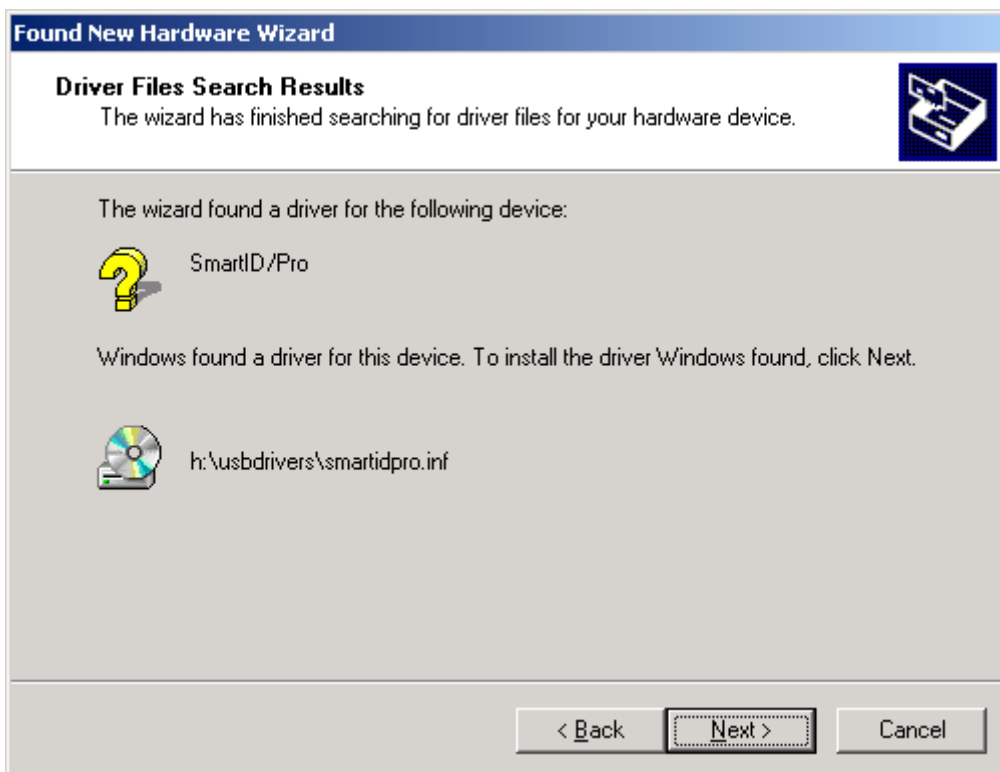


Figure 7: Driver Files Search Results

Click on the Next button to confirm the installation of the displayed driver. The Found New Hardware Wizard displays the final screen to confirm that the driver is installed Figure 8.



Figure 8: Confirmation of installed driver

The installation of the USB driver for the reader is completed, click on Finish to close the Found New Hardware Wizard.

In some occasions Windows will display a message requesting a reboot of the PC to finalise the installation of the driver. Please reboot the PC by following the instructions on the screen.

4. ISO 14443-4 USB reader with OCR - driver installation

4.1 General procedure overview

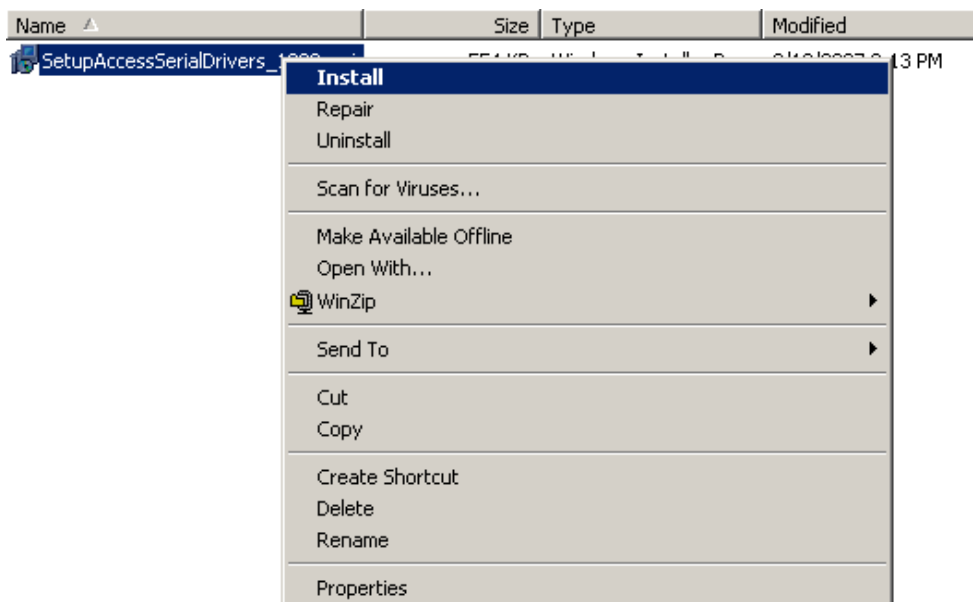
This procedure describes the installation steps for the ISO 14443-4 USB reader with OCR drivers. These installation steps are valid only for Windows 2000 and Windows XP Professional.

4.2 Prerequisites

1. *Before proceeding, make sure that the PC is switched on and running.*
2. *Make sure the CD is placed in the CDROM player.*
3. *This installation instruction requires that Windows plug-and-play for USB devices is enabled.*
4. *USB driver installation is only required when an Integrated Engineering USB reader is connected to a PC for the very first time.*

4.3 Step 1: Access Keyboards driver installation

1. Open the "Access Keyboards" folder on the installation CD.
2. Open the "Driver" folder in the "Access Keyboards" folder.
3. Right mouse click on the SetupAccessSerialDrivers_1020.msi file.
 - See AK Picture 1.



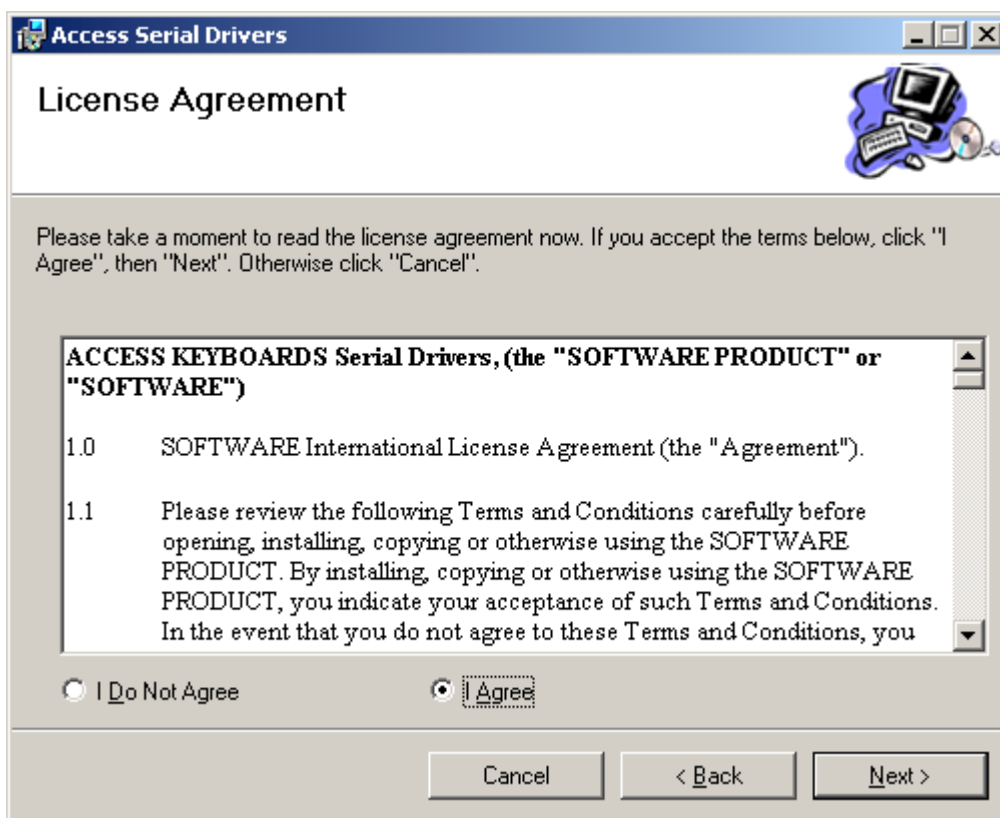
AK Picture 1

4. Select "Install".
 - The following window will appear.
 - See AK Picture 2.



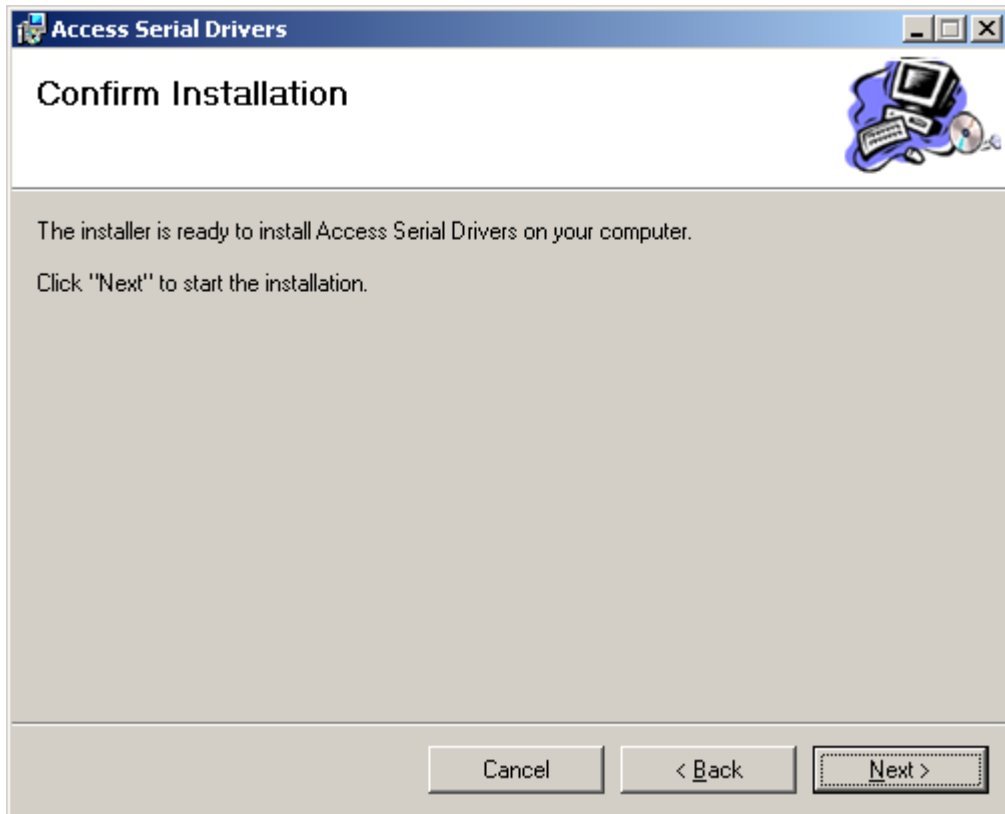
AK Picture 2

5. Click on "Next".
 - The following window will appear.



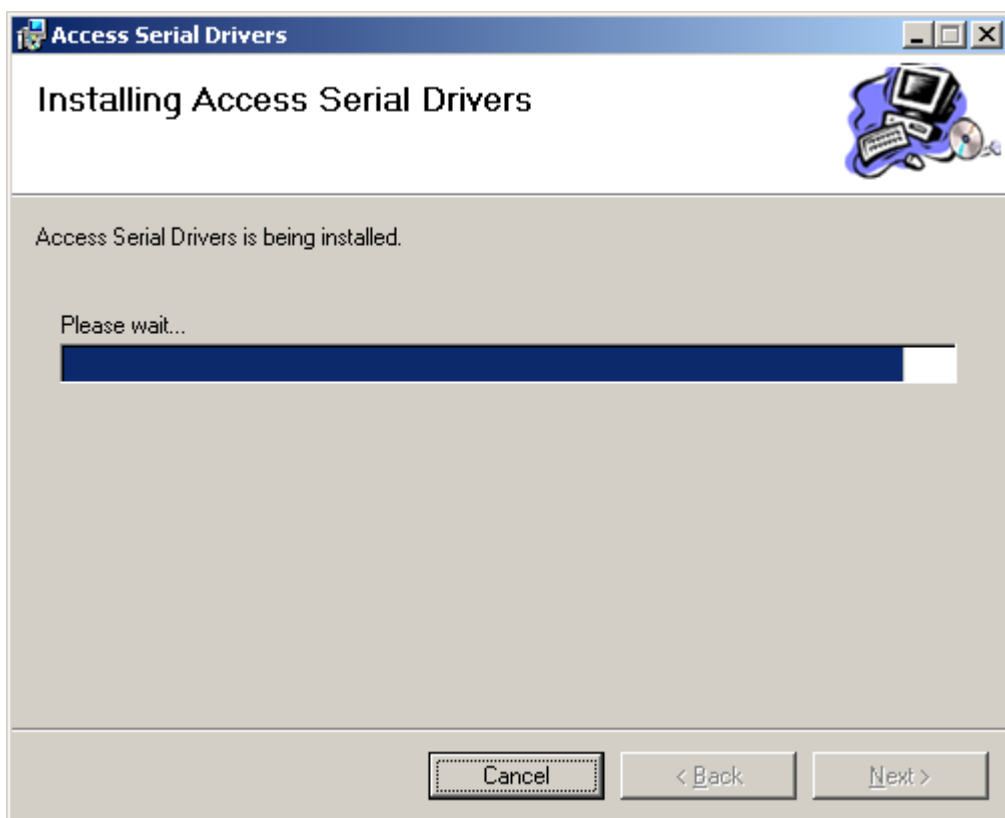
AK Picture 3

6. Select "I Agree" and click on "Next".
 - The following window will appear.



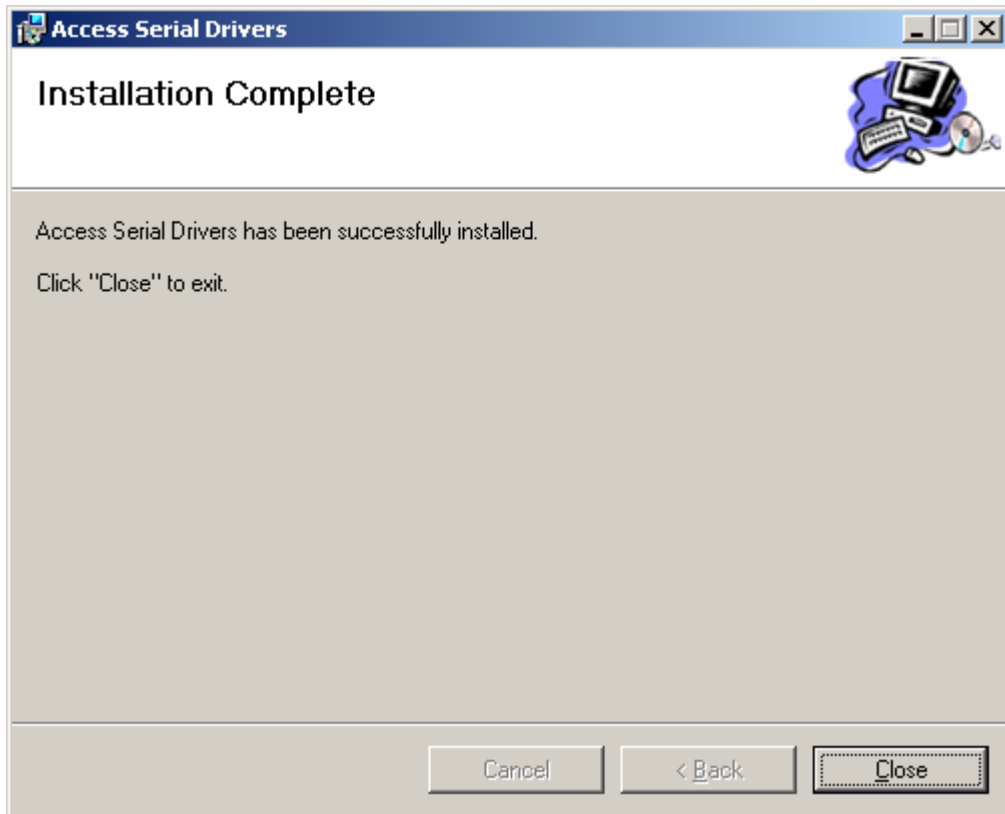
AK Picture 4

7. Select "I Agree" and click on "Next".
 - The following window will appear and shows the progress indicator.



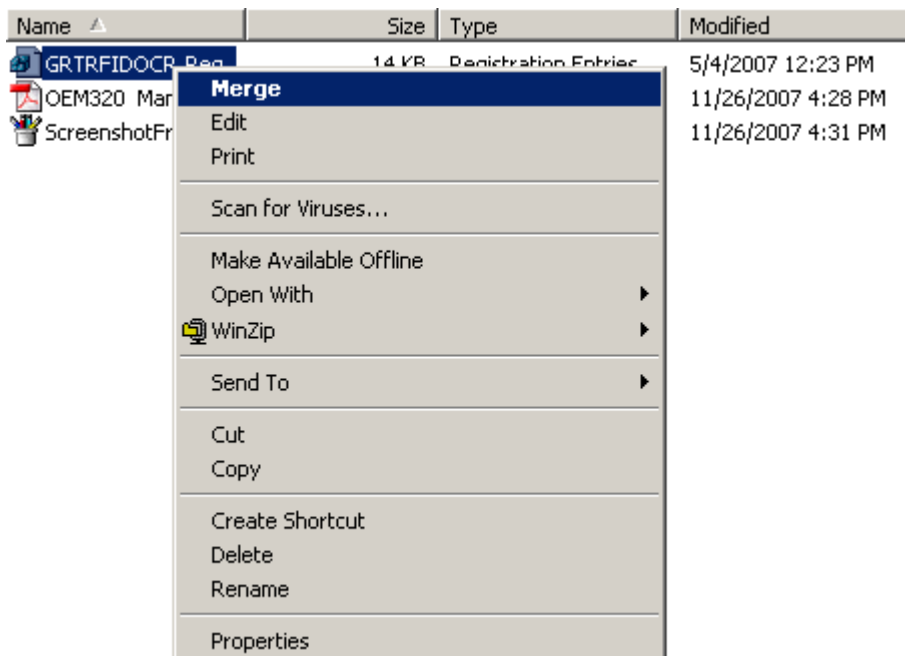
AK Picture 5

8. Click on "Next" when the progress indicator is finished.
 - The following window will appear.



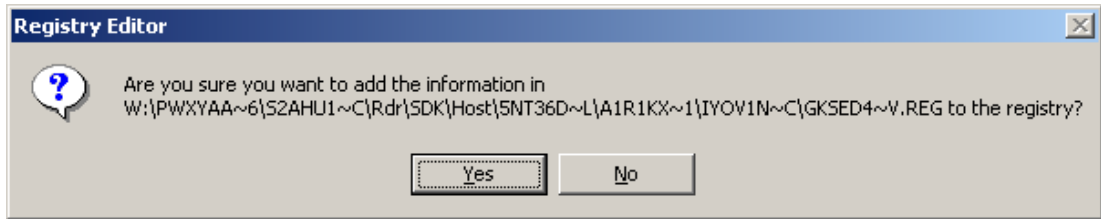
AK Picture 6

9. The driver installation is finished. Click on "Close" to exit.
10. Open the "IERSettings" folder in the "Access Keyboards" folder.
11. Right mouse click on the GRTRFIDOCR.Reg file.
 - See AK Picture 7.



AK Picture 7

12. Select "Merge".
- The following window will appear.
 - See AK Picture 8.



AK Picture 9

13. Click on "Yes".
- The following window will appear.



AK Picture 10

14. Click on "OK".
- The installation is finished.

4.4 Step 2: Connect the reader to the power

- The reader will respond with seven times red LED, seven times green LED and after that a beep when it is functioning properly.
- In case of CCID configuration LED F2 will flash green.

4.5 Step 3: Connect the reader to the PC

- Connect the reader to a USB port of the PC.

4.6 Step 4: Installing the USB driver

When the reader is plugged in the USB port and Windows plug-and-play for USB devices is functioning properly, Windows will display the "Found new Hardware" dialog displayed in Figure 1. The Integrated Engineering ISO 14443-4 reader is recognised by Windows as SmartID/Pro or SmartID/CCID.

Note:

The following examples show the installation of the SmartID/Pro reader. The installation of the SmartID/CCID reader is identical.

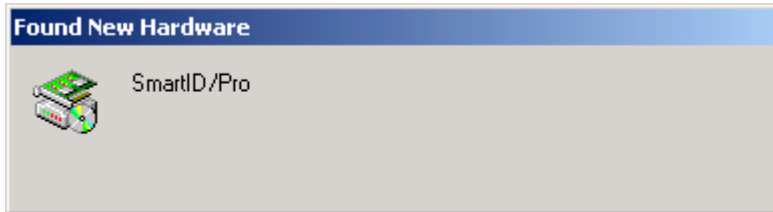


Figure 9: Windows Found new Hardware dialog

After searching its internal driver database Windows will display the Found New Hardware Wizard to allow the installation of the USB driver for the reader see Figure 2.



Figure 10: Windows Found new hardware wizard dialog

Click on the "Next" button to proceed with the installation of the USB driver. The "Found new hardware wizard" displays a new screen see Figure 3.



Figure 11: Select hardware drivers location

Select "Search for a suitable driver for my device (recommended)" to allow Windows to locate the correct drivers automatically. Click on the "Next" button to proceed. The Found new hardware wizard will display a new screen to specify the locations to search for the required drivers see Figure 4.

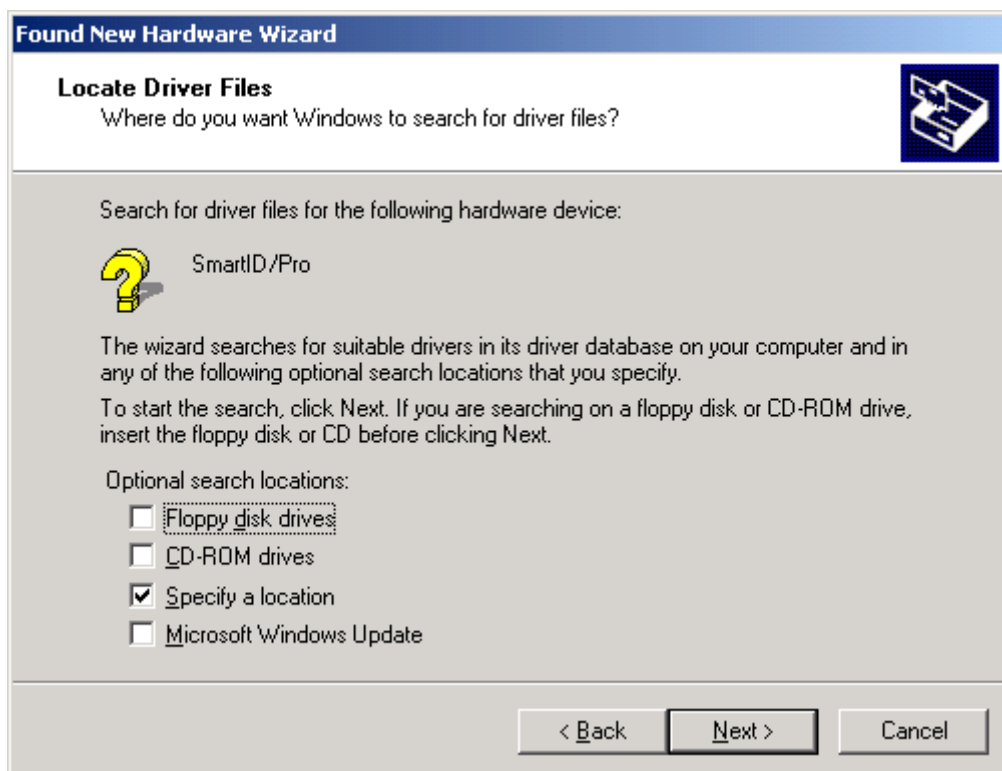


Figure 12: Select location to search for drivers

Place a "Check mark" in the Specify a location field and remove all other "Check marks" by clicking in the field next to options. The value of the options will toggle if you click a field more than once. Press "Next" to proceed. The installation driver dialog Figure 5 opens.



Figure 13: Driver location dialog

Click on the "Browse..." button to open the browse dialog see Figure 6.

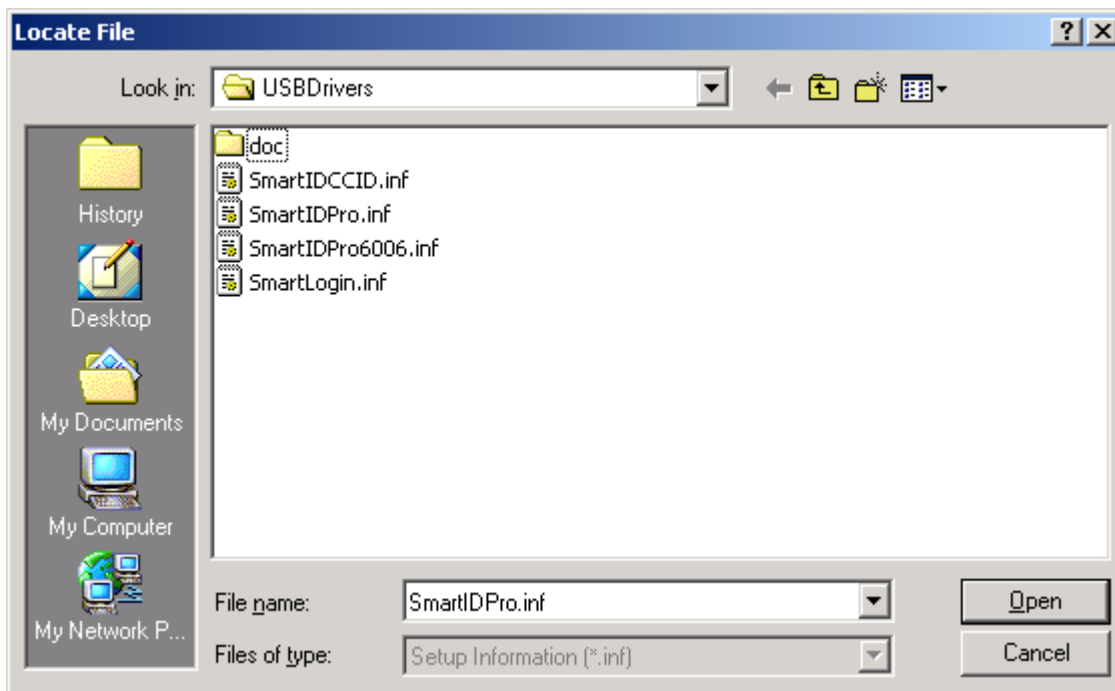


Figure 14: Locate driver file(s) dialog

Make sure the CDROM with the "GoldenReader" tool that holds the USB drivers is placed in the CDROM drive. Navigate with the Locate File dialog to the "USBDriver" directory on the CD. Select the file SmartIDPro.inf and click on the Open button. The Found New Hardware Wizard will display a screen to display the search results Figure 7.

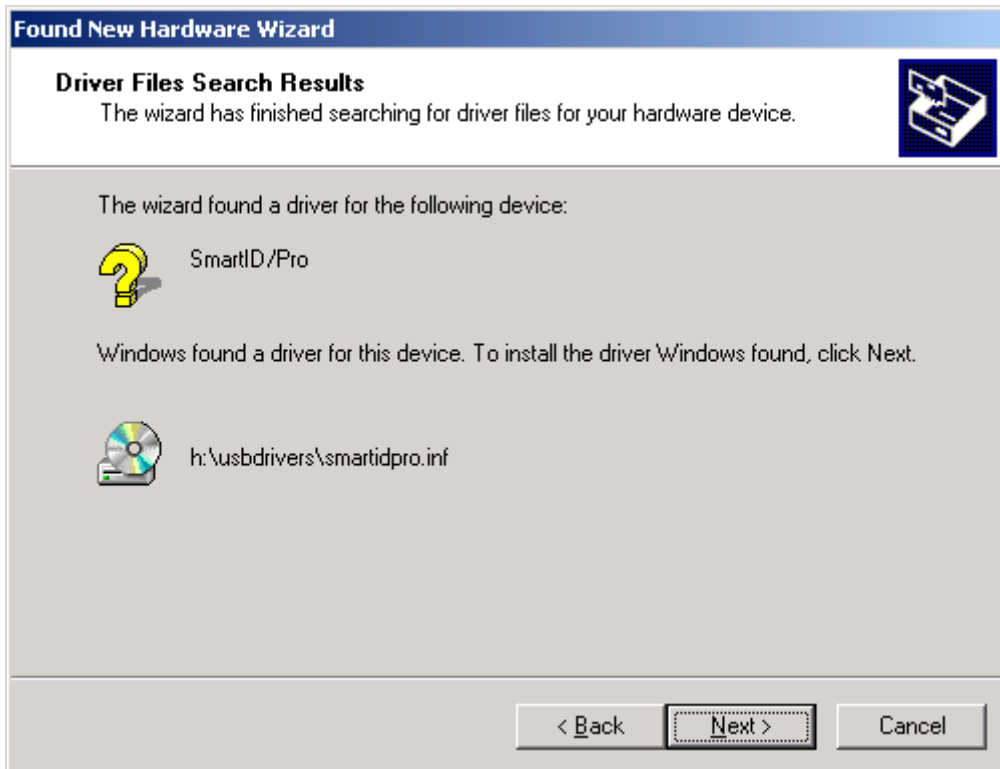


Figure 15: Driver Files Search Results

Click on the Next button to confirm the installation of the displayed driver. The Found New Hardware Wizard displays the final screen to confirm that the driver is installed Figure 8.



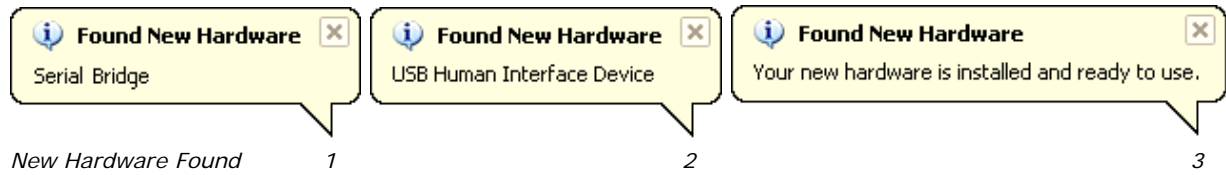
Figure 16: Confirmation of installed driver

The installation of the USB driver for the reader is completed, click on Finish to close the Found New Hardware Wizard.

In some occasions Windows will display a message requesting a reboot of the PC to finalise the installation of the driver. Please reboot the PC by following the instructions on the screen.

4.7 Verification Access Keyboard driver

After the installation of the SmartReader USB driver, the Access Keyboard driver needs to be verified. Windows will display the "Found new Hardware" dialog and automatically installs the driver for the Serial Bridge and USB Human Interface Device.



5. ISO 14443-4 USB reader with OCR QA

- driver installation

5.1 General procedure overview

This procedure describes the installation steps for the ISO 14443-4 USB reader with OCR drivers. These installation steps are valid only for Windows 2000 and Windows XP Professional.

5.2 Prerequisites

1. *Before proceeding make sure that the PC is switched on and running.*
2. *Make sure the CD is placed in the CDROM player.*
3. *This installation instruction requires that Windows plug-and-play for USB devices is enabled.*
4. *USB driver installation is only required when an Integrated Engineering USB reader is connected to a PC for the very first time.*

5.3 Step 1: Connect the reader to the power

- The reader will respond with three times red LED, three times green LED and after that a beep when it is functioning properly.
- In case of CCID configuration LED F2 will flash green.

5.4 Step 2: Connect the reader to the PC

- Connect the USB reader to a USB port of the PC.

5.5 Step 3: Connect the Serial QA reader to the PC

- Connect the QA reader to a serial port of the PC.

5.6 Step 4: Installing the USB driver

When the reader is plugged in the USB port and Windows plug-and-play for USB devices is functioning properly, Windows will display the "Found new Hardware" dialog displayed in Figure 1. The Integrated Engineering ISO 14443-4 reader is recognised by Windows as SmartID/Pro or SmartID/CCID.

Note:

The following examples show the installation of the SmartID/Pro reader. The installation of the SmartID/CCID reader is identical.

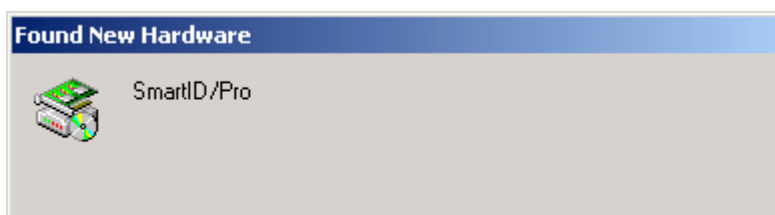


Figure 17: Windows Found new Hardware dialog

After searching its internal driver database Windows will display the Found New Hardware Wizard to allow the installation of the USB driver for the reader see Figure 2.



Figure 18: Windows Found new hardware wizard dialog

Click on the "Next" button to proceed with the installation of the USB driver. The "Found new hardware wizard" displays a new screen see Figure 3.



Figure 19: Select hardware drivers location

Select "Search for a suitable driver for my device (recommended)" to allow Windows to locate the correct drivers automatically. Click on the "Next" button to proceed. The Found new hardware wizard will display a new screen to specify the locations to search for the required drivers see Figure 4.

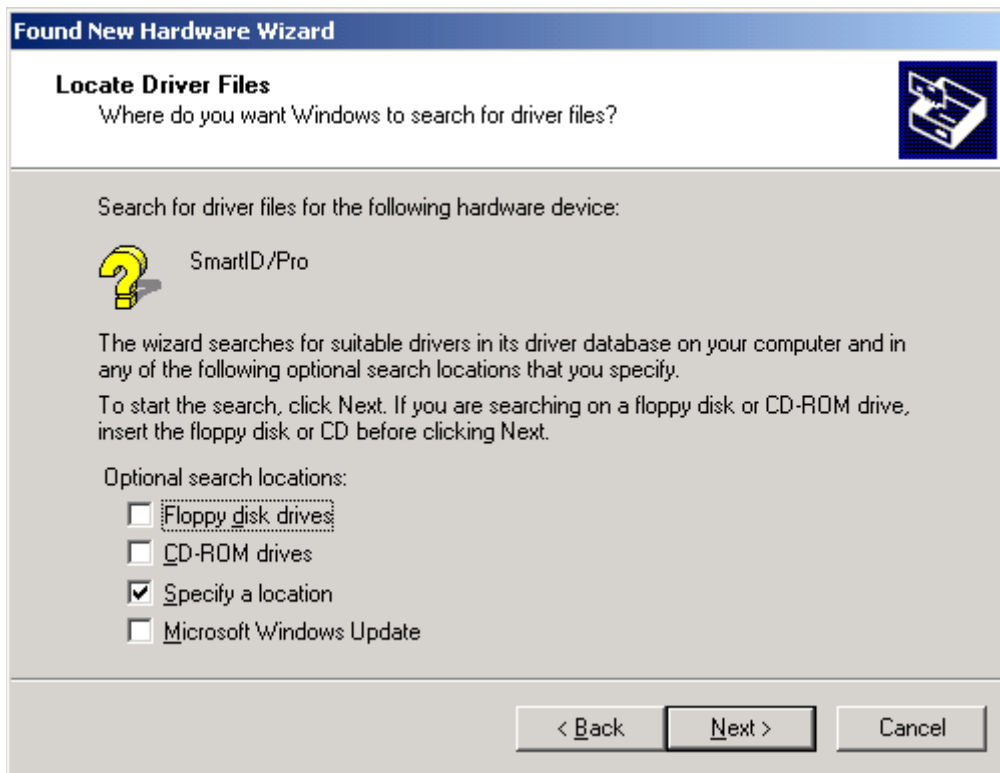


Figure 20: Select location to search for drivers

Place a "Check mark" in the Specify a location field and remove all other "Check marks" by clicking in the field next to options. The value of the options will toggle if you click a field more than once. Press "Next" to proceed. The installation driver dialog Figure 5 opens.

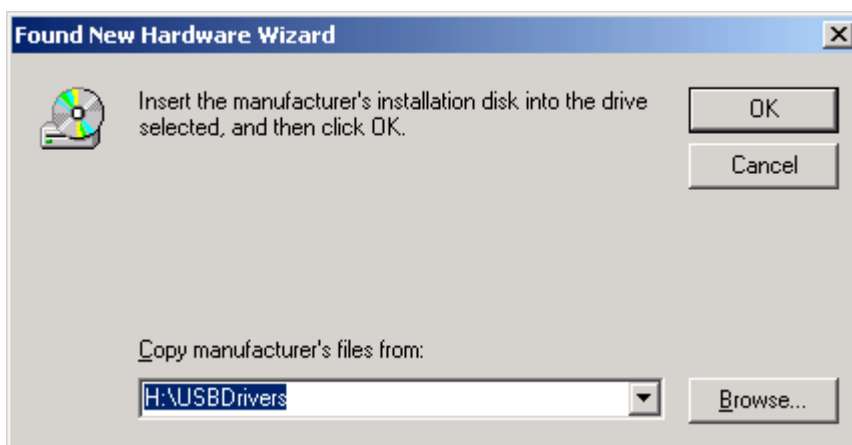


Figure 21: Driver location dialog

Click on the "Browse..." button to open the browse dialog see Figure 6.

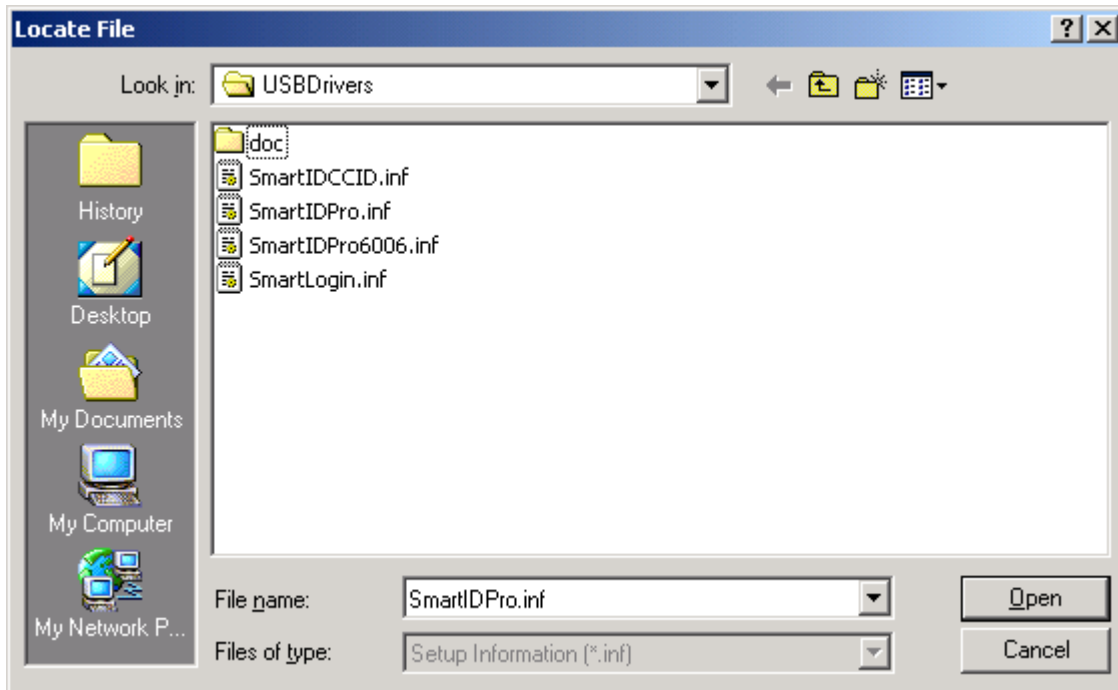


Figure 22: Locate driver file(s) dialog

Make sure the CDROM with the "GoldenReader" tool that holds the USB drivers is placed in the CDROM drive. Navigate with the Locate File dialog to the "USBDriver" directory on the CD. Select the file SmartIDPro.inf and click on the Open button. The Found New Hardware Wizard will display a screen to display the search results Figure 7.

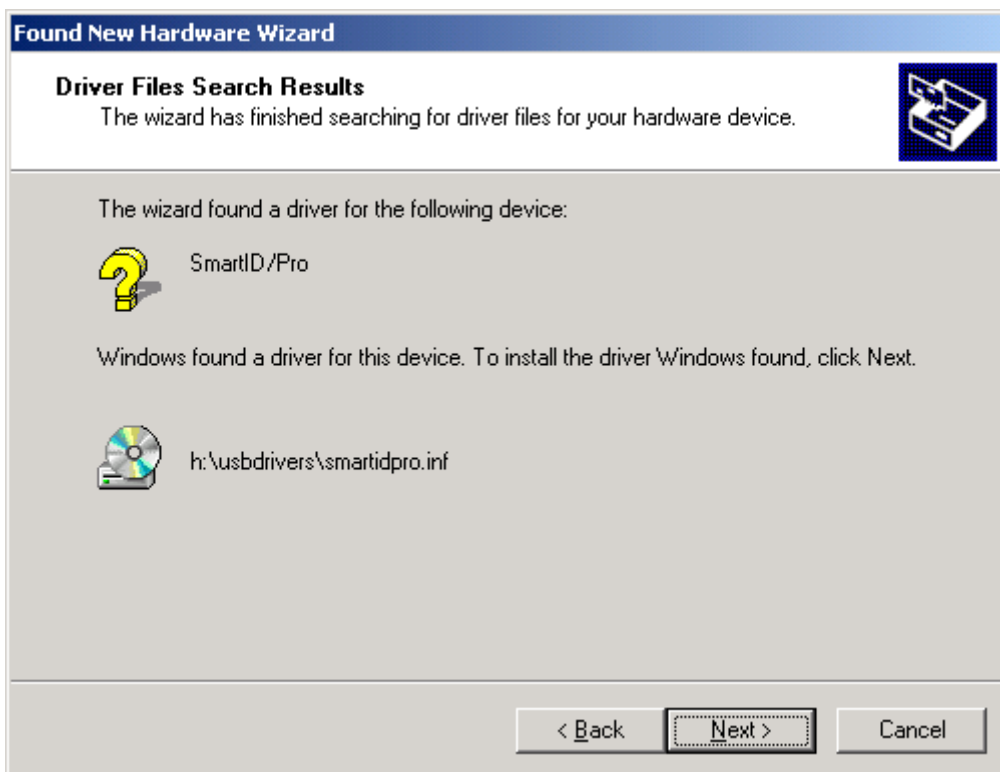


Figure 23: Driver Files Search Results

Click on the Next button to confirm the installation of the displayed driver. The Found New Hardware Wizard displays the final screen to confirm that the driver is installed Figure 8.



Figure 24: Confirmation of installed driver

The installation of the USB driver for the reader is completed, click on Finish to close the Found New Hardware Wizard.

In some occasions Windows will display a message requesting a reboot of the PC to finalise the installation of the driver. Please reboot the PC by following the instructions on the screen.

Trouble shooter:

In case of disconnecting the power plug accidentally, or disconnecting the reader from the PC Soft6700KBWedgeD.exe needs to be restarted.

When the power or USB connection is cut always first shut Soft6700KBWedgeD.exe before reconnecting the reader.

Always first put the power on the reader and after that connect the reader to the PC. By disconnecting the OCR reader from the PC first disconnect the serial connection then the USB connection and after that disconnect the power.

6. BSI – GoldenReader tool installation

6.1 Prerequisites

Before attempting to install BSI's GoldenReader tool make sure of the following:

1. *The PC is switched on and running.*
2. *The CD is placed in the CDROM player.*
3. *The USB driver of Integrated Engineering's ISO 14443-4 reader is loaded.*

6.2 Running the GoldenReader tool directly from CD

BSI's GoldenReader tool can run directly from the CD without installation on the PC hard disk. However due to practical reasons, like not being able to store configuration settings, this is not advised.

6.3 Installing GoldenReader tool on your hard disk

1. Start Microsoft Windows Explorer.
2. Double click on the "My Computer" Icon in the "Folder" pane on the left.
 - The "My Computer" folder will unfold.
3. Double click on the CDROM Icon
 - The right pane of Windows Explorer will display the contents of the CD.
4. Right mouse click on the "GoldenReaderTool" folder and select copy from the menu.
5. Double click on the "C: disk Icon" in the left pane of Microsoft explorer.
6. Right click on the "Program Files" folder and select paste.
 - The contents of the CDROM folder "GoldenReaderTool" is now copied to "C:\Program Files".
7. Click on the following folders: "Program Files", "GoldenReaderTool", "GoldenReader_xxx" * to navigate to the directory where the GoldenReader tool is installed.
 - The right pane of Windows Explorer displays the installed GoldenReader files.
8. Right click on "GoldenReader.exe" and select Send To => Desktop (create shortcut).

* "xxx" is the version number of GoldenReader Tool
--

6.4 Configuring the GoldenReader Tool

1. Start the GoldenReader tool by double clicking the "GoldenReader" Icon on your desktop.
 - The welcome screen of the GoldenReader tool will appear see Figure 23 in chapter 7. Appendix A - GoldenReader tool screens.
2. Click on the Configuration button.
 - The Configuration dialog will appear. See Figure 26 in chapter 7. Appendix A - GoldenReader tool screens.
3. Select the reader to use with GoldenReader Tool:
 - IE SmartID/CCID 0
 - Integrated Engineering Smart-ID
 - NMDA Tx-PR-400
 - Philips Pegoda
4. Click on the "OK" button to confirm and save the reader settings.
 - The GoldenReader tool is now ready for use.

Note:

For IE ISO14443-4 USB PCSC/CCID readers the configuration dialog will display:
⇒ IE SmartID/CCID 0

If more IE ISO14443-4 USB PCSC/CCID readers are connected they will be displayed as:
⇒ IE SmartID/CCID 0
⇒ IE SmartID/CCID 1
⇒ IE SmartID/CCID ...

7. Appendix A - GoldenReader tool screens

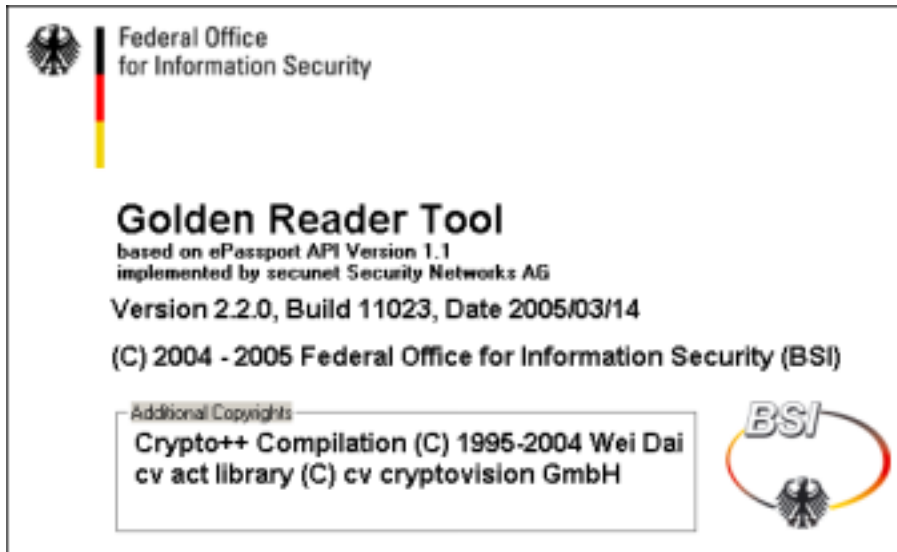


Figure 23: GoldenReader tool welcome screen

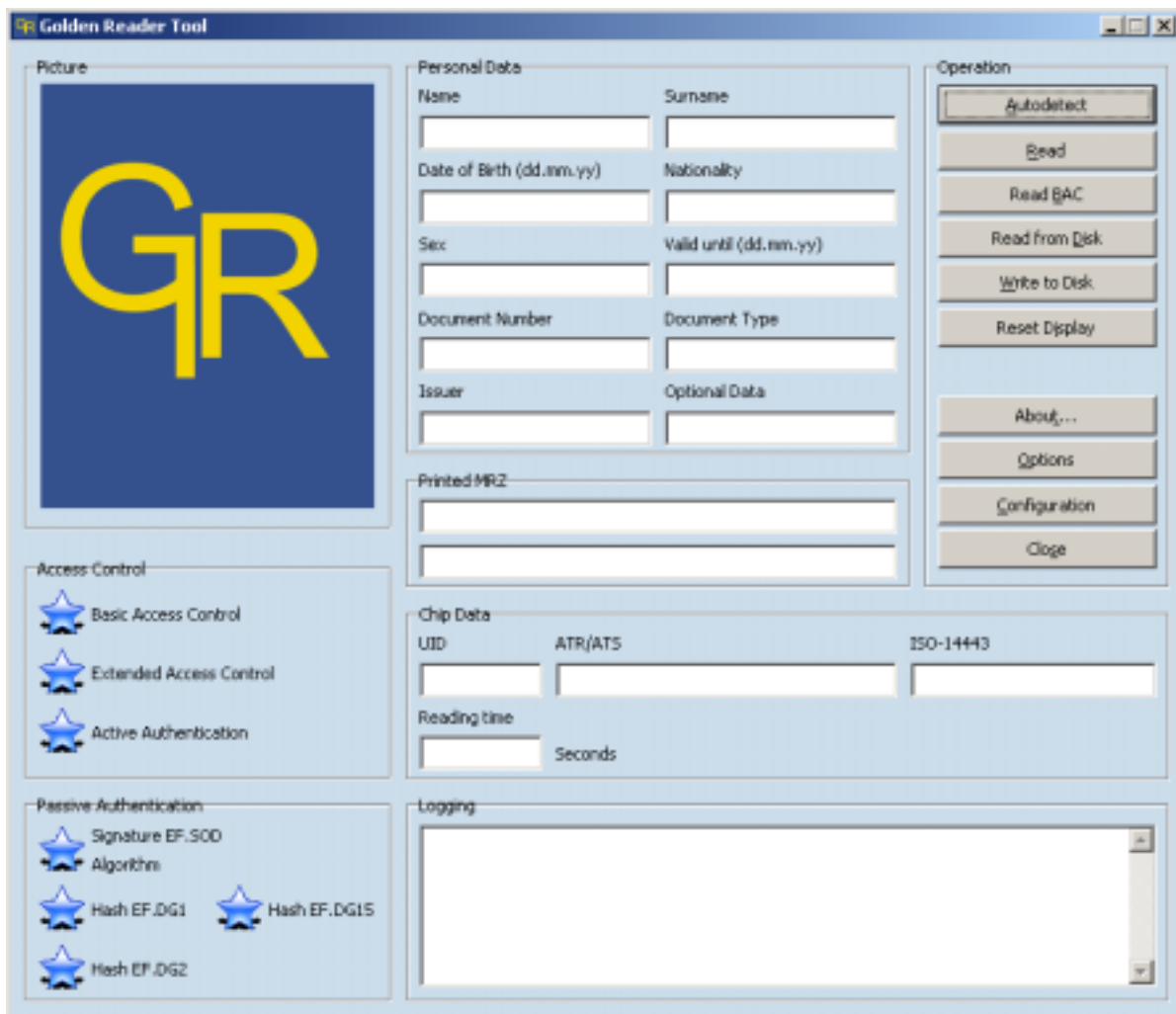


Figure 24: GoldenReader tool main window

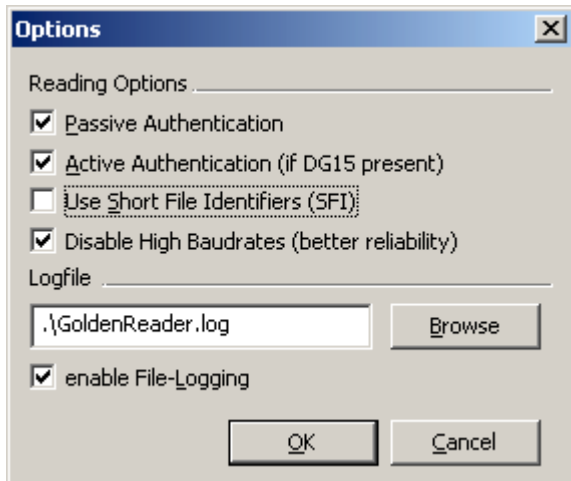


Figure 25: GoldenReader tool Options dialog

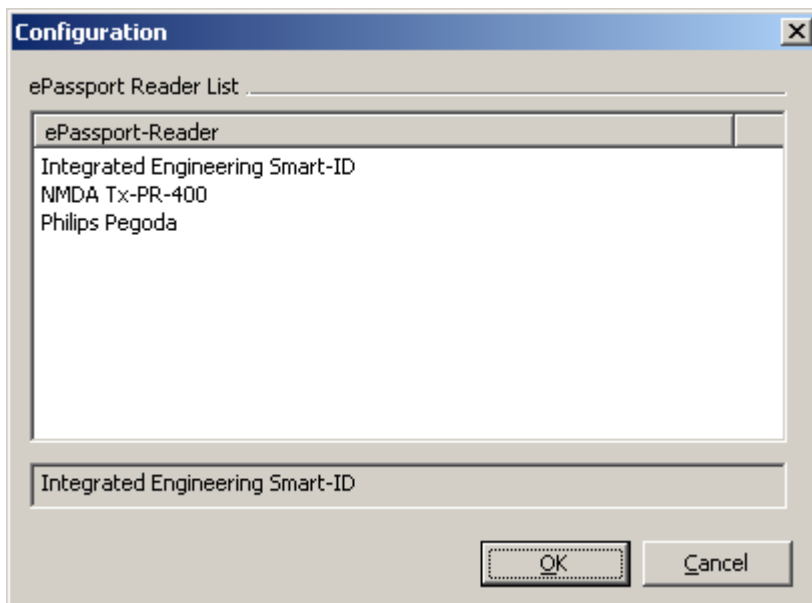


Figure 26: GoldenReader tool Configuration dialog

8. Appendix B - GoldenReader tool read-me file

READ-ME FILE

The Golden Reader Tool on this CD has been developed for the Bundesamt für Sicherheit in der Informationstechnik (BSI) in Bonn, Germany. BSI has allowed Integrated Engineering (IE) to supply this Golden Reader Tool (GRT) with the IE reader which has been integrated in this GRT.

The Golden Reader Tool has been developed to support, facilitate and promote interoperability between various chips and RFID readers. The GRT is subject to changes and/or updates.

The GRT you have now received represents the status of the GRT of the moment the release of this version by BSI. BSI wants to be able to communicate changes and/or updates in the GRT to its recipients. Therefore the Bundesamt für Sicherheit in der Informationstechnik will be informed by Integrated Engineering who receives the Golden Reader Tool through Integrated Engineering, including an E-mail address.

In case you need any support with the GRT please contact Integrated Engineering at +31 20 4620755, or by E-mail at info@smart-id.com

9. Appendix C – Notes on reading performance

Reading speed from chip to application depends on a number of factors such as chip type, chip OS, application (like GoldenReader tool) and CPU speed.

To achieve maximum reading speed with the GoldenReader tool, make sure to switch all the following application options in the GoldenReader tool: Passive authentication, Use SFI and extended file-logging.

BSI's GoldenReader tool is a demonstration tool. It is not intended for benchmarking. The following is a partial quote from communication between Secunet and Integrated Engineering:

QUOTE

The GRT is not optimized for speed. Due to the design of the rf_api (which was developed during another project) there are several redundant operations while receiving multiple files consecutively (e.g. select DFs). But the GRT never should be a speed demonstration tool. Stability was the first object while developing the rf-api. Special Card Reader "speedups" are also not supported. PC/SC-Readers are all handled equally. Just the special and serial readers are initialized using the highest possible speeds regarding to supplied vendor examples.

What we discovered:

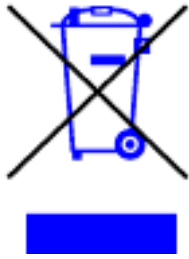
- Extended logging costs time due to the extensive logging of APDUs
- CPU speed affects transfer rates
- CPU type does not

UNQUOTE

Additionally, the GoldenReader tool performance is dependent on the available processing power. Other processor-intensive applications running at the same moment will influence the reading performance of the GoldenReader tool.

Notes

Notes



The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of life. This applies to your device but also to any enhancements marked with this symbol. Do not dispose of these products as unsorted.

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The installation recommendations contained in this manual assume the most favorable framework conditions. The manufacturer cannot guarantee that the system will function perfectly under other conditions.

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