

**DigitalPersona, Inc.**

# **U.are.U SDK**

Version 2.0

## **Platform Guide for Windows CE**



digitalPersona.

**DigitalPersona, Inc.**

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This manual describes how to use the U.are.U SDK to develop applications for devices based on Microsoft Windows CE.

The U.are.U SDK is available for multiple platforms and this document describes issues specific to developing applications for devices based on Microsoft Windows CE:

- System requirements
- Installation
- The Windows CE sample application

For a detailed description of the SDK, consult the U.are.U SDK Developer Guide.

## Getting Updated Documentation

If you are viewing this guide from the download package for the U.are.U SDK, you may want to check online at our website for an updated version of this document at

<http://www.digitalpersona.com/Support/Reference-Material/DigitalPersona-SDK-Reference-Material/>

## Pre-Requisites

This chapter assumes that you have a working knowledge of C/C++ and that you know how to develop for Windows CE devices.

## System Requirements

### Development System

- Windows XP Professional or higher
- VisualStudio 2005 or 2008
- SDK for Microsoft Windows CE 5.0 is required to build the sample application provided with this SDK

### Target Runtime Hardware (CE Device)

The Windows CE-based device that will run the application must be one of the following hardware platforms:

- Intel x86 architecture with CPU from 600MHz and at least 16Mb of available RAM;
- ARMv4I with CPU from 400MHz and at least 16Mb of available RAM.

The file sizes are (in Kb):

	<b>x86</b>	<b>ARMv4I</b>
Capture runtime (drivers + SDK layer)	160	245
Fingerprint recognition runtime	90	144

In addition, the device must also have:

- a USB port
- 16 MB free memory
- Windows CE 5.0, 6.0, 6.1, 6.5

The SDK works on a variety of hardware and is intended to have a small footprint so that it can run even on minimal hardware. Less capable hardware will work, but response time may not be optimal.

## Installation

There are two steps to the installation:

1. Installing on the development system
2. Installing on the CE device (the target hardware)

These steps are described below.

### Installing on the Development System

To install the SDK on your development system:

1. Unzip the distribution file into a folder.
2. Open the SDK folder.
3. Run `DigitalPersona U.are.U CE SDK.msi`.

The files installed on the Developer's machine (SDK installation) are:

`dpfj.h` (Fingerjet Engine API)

`dpfpdd.h` (DP Capture API)

#### WindowsCE

##### Bin

```
STANDARDSDK_500 (ARMV4I)
    dpfj.dll (fingerprint recognition engine)
    dpfpdd.dll (fingerprint capture)
STANDARDSDK_500 (x86)
    dpfj.dll (fingerprint recognition engine)
    dpfpdd.dll (fingerprint capture)
```

##### Lib

```
STANDARDSDK_500 (ARMV4I)
    dpfj.lib
    dpfpdd.lib
STANDARDSDK_500 (x86)
    dpfj.lib
    dpfpdd.lib
Samples
    Include
        WTL80
        <22 files, the whole WTL library>
    UareUSample
        Capture.h
        Enumeration.h
        Helpers.h
        Identification.h
        resource.h
```

```
stdafx.h
UareUSample.rc
UareUSample.rc2
UareUSample2005.vcproj
UareUSample2008.vcproj
Verification.h
WinMain.h
```

## Installing on the Target Hardware (4500 and 4000B Readers)

To install the run-time environment on the target hardware platform:

1. Unzip the distribution file into a folder.
2. Open the CE5 or CE6 folder, corresponding to the version of CE that you are running on the target hardware.
3. Open the Runtime Install folder.
4. Open the ARMV4I or X86 folder corresponding to the processor on the target hardware.
5. If you are using ActiveSync, connect ActiveSync between the host PC and the target hardware and run Setup.exe. If you are NOT using ActiveSync, copy the .cab file and run it on the target hardware.
6. Follow the onscreen instructions to complete setup.
7. Plug the supported Fingerprint Reader into the USB port of the target hardware.

On the CE machine the files that are installed are: (by default these files will be copied to \Windows, but the files can be in another other place, depending on your installation choices):

Driver for 4x00 readers:

```
dpD00701.dll
dpDevMgr.dll
dpDrvApi.dll
dpDrvDatApi.dll
dpFC.dll
dpI00701.dll
dpObjMgr.dll
dpUsbAda.dll
dpUSBFPD.dll
```

SDK layer (for fingerprint capture and recognition):

```
dpfj.dll
dpfpdd.dll
```

Binary for sample program:

```
UareUSample.exe
```

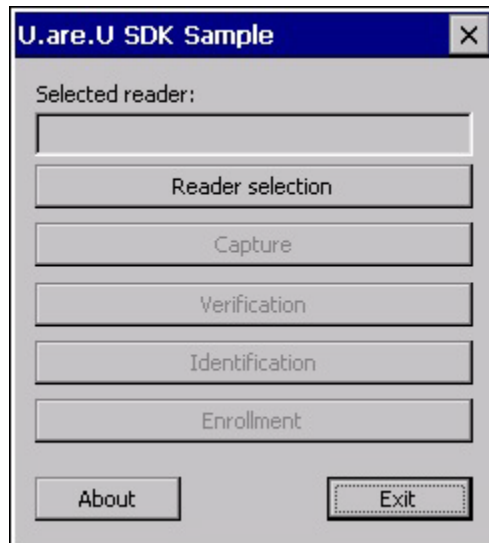
## Uninstalling

If you need to uninstall the SDK, use the installation applet in the Control Panel.

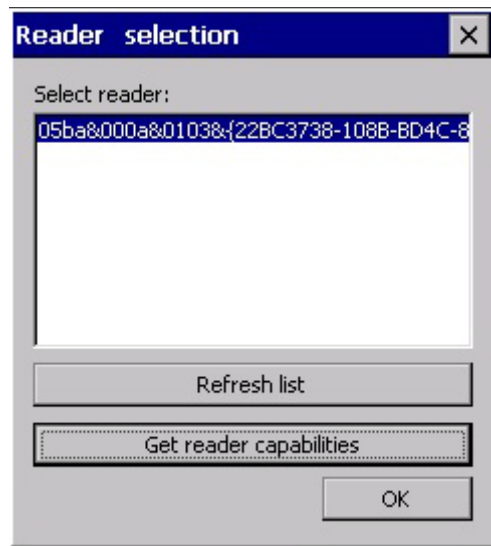
## The Sample Application

U.are.U SDK includes a sample application to demonstrate the features of the SDK. The sample application is located in the `Sample` folder. The source file is `Sample/WinMain.cpp` and the compiled file, `UareUSample.exe` can be downloaded to your CE device for testing. Depending on your version of Visual Studio, you can use `UareUSample2005.vcproj` or `UareUSample2008.vcproj`.

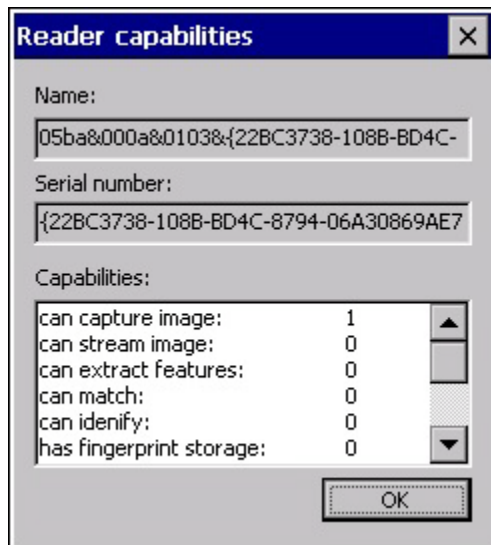
The application demonstrates the features of the SDK. When you launch the application, you see the main screen as shown below.



Click on **Reader Selection** to open a device. All available devices will be displayed, as shown on the screen below.



Clicking on the **Get reader capabilities** button will display additional information about the selected reader, as shown below.



Click **OK** to return to the previous screen. Click **OK** to select the device. At the point, you are returned to the main screen and all of the buttons are enabled.

Click on the **Capture** button to put the device into capture mode and you can press your finger onto the reader to capture a fingerprint and display it on the screen as shown below.



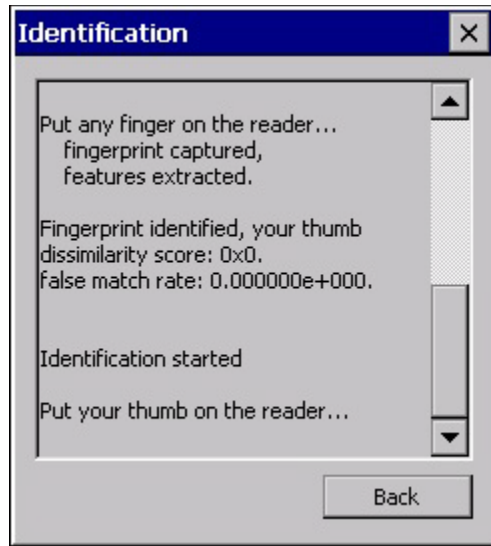
Click on the **Back** button to return to the main screen.

Click on the **Verification** button next. You will be prompted to put your finger onto the reader. Then you can put a second finger on the reader. If you use the same finger, you will see a message that the fingerprints matched, as shown below.

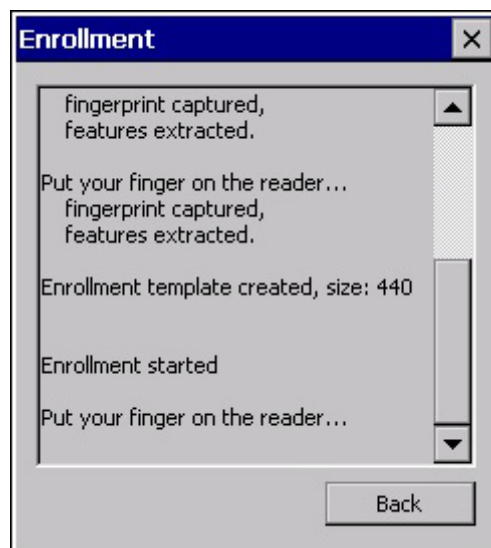


When you click on **Back** you will return to the main screen.

Click on **Identification** to test the next component of the sample program. You will be prompted to provide a thumbprint, index finger, etc. Then you will be prompted to provide another finger and you will receive a message indicating if there was a match and which finger was detected, as shown in the image below.



Next, click on the **Enrollment** button from the main screen.



This feature simply captures a fingerprint, creates a FMD, and displays a message on the screen to confirm that it was successful.

Note that if you unplug the device, you will receive an error message and the associated error code.