CASIO
HT Development Media Kit
Quick Start Guide

(Version 1.01)

CASIO Computer Co., Ltd.

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Editorial Record

Manual Version no.	Date edited	Page	Content
1.00	March 2015	all	Original version
1.01	August 2015	35	In Chapter 5.1, the description of the license is corrected.
		13, 20, 36, 79, 84, 86, 87, 89	IT-G500 WEC7 model is added.

Preface

This guide clearly and concisely sets out the information developers need to know to get started with the CASIO Development Media Kit with the integrated Windows® Embedded CE OS development. The best methods of connecting to your development system are covered and step by step instructions for installing and testing the CASIO Development Kits are included.

The purpose of this guide is to get you to the point where you can start development; you should refer to the library manuals for detailed information on the specific APIs.

In this guide, the following name is mentioned by an abbreviation.

Abbreviation	Formal name
WEC7	Microsoft Windows Embedded Compact 7
WEH6.5	Microsoft Windows Embedded Handheld 6.5

1. Product Overview

1.1 Library Configuration

This product provides various libraries including those listed in the table.

Table 1.1

Library	Description	C++	VB C#
System Library	Library that is used to control the system.	Yes	Yes
Laser Scanner Library	Library that is used to control the built-in laser scan engine.	Yes	Yes
Bluetooth Library	Library that is used to control the built-in Bluetooth module.	Yes	Yes
Camera Library	Library that is used to control the built-in CAMERA module.	Yes	Yes
Imager Library	Library that is used to control the built-in CMOS Imager.	Yes	Yes
NFC Library	Library that is used to control to communicate with IC card.	Yes	Yes
NFCMifare Library	Library that is used to control to communicate with MIFARE.	Yes	Yes
NFCFelica Library	Library that is used to control to communicate with FeliCa.	Yes	Yes
NFCHFTag Library	Library that is used to control to communicate with ISO15693 tag.	Yes	Yes
WANGPRS Library	Library that is used to control the built-in WANGPRS module.	Yes	Yes
JPEG Library	Library that is used to handle and manipulate JPEG image functions.	Yes	-
FLINK Library	Library that is used to control and carry out transmission/reception of files between PC and other device.	Yes	Yes

Note:

The abbreviations used in the table are;

C++ : Visual C++
VB : Visual Basic .NET
C# : Visual C# .NET

Table 1.2 shows each file name of the Dynamic Link Library and Dynamic Link Class Library.

Table 1.2

Library		Dynamic Link Library	Dynamic Link Library (Class Library)
Common Device Control Library			
	System Library	SystemLib.dll	SystemLibNet.dll
	Laser Scanner Library	OBReadLib.dll	OBReadLibNet.dll
	Bluetooth Library	BluetoothLib.dll	BluetoothLibNet.dll
	Camera Library	CameraLib.dll	CameraLibNet.dll
	Imager Library	ImagerLib.dll	ImagerLibNet.dll
	NFC Library	NFCLib.dll	NFCLibNet.dll
	NFCMifare Library	NFCMifareLib.dll	NFCMifareLibNet.dll
	NFCFelica Library	NFCFelicaLib.dll	NFCFelicaLibNet.dll
	NFCHFTag Library	NFCHFTagLib.dll	NFCHFTagLibNet.dll
	WANGPRS Library	WangprsLib.dll	WangprsLibNet.dll
JPEG Library		JpegCe.dll	None
FLINK Library		FlinkLib.dll	MoFlinkLib.dll

1.2 Development Manuals

This product provides various development reference manuals as described in the table below.

Table 1.3

Development Manual	Description
Quick Start Guide	This reference manual.
Device Library Base Manual	Reference manual that describes the functions list.
System Library Manual	Reference manual that describes individual functions in detail for System Library.
Laser Scanner Library Manual	Reference manual that describes individual functions in detail for Laser Scanner Library.
Bluetooth Library Manual	Reference manual that describes individual functions in detail for Bluetooth Library.
Camera Library Manual	Reference manual that describes individual functions in detail for Camera Library.
Imager Library Manual	Reference manual that describes individual functions in detail for Imager Library.
NFC Library Manual	Reference manual that describes individual functions in detail for NFC Library.
WANGPRS Library Manual	Reference manual that describes individual functions in detail for WANGPRS Library.
JPEG Library Manual	Reference manual that describes individual functions in detail for JPEG Library.
FLINK Library Manual	Reference manual that describes individual functions in detail for FLINK Library.

2. Prerequisites

2.1 Skills Required

The following skills are required by developers aiming to develop application software.

- Windows programming
- A good knowledge of one or more of the following
  - Visual C++
  - Visual Basic .NET
  - Visual C# .NET
  - Browser based applications (not covered in this guide)

The following skills or experience are also desirable.

- OS(WEC7, WEH6.5)
- Windows Mobile Device Center
- Some networking experience

2.2 System Required

OS

- Microsoft Windows 7 Professional 32bit with ServicePack1
- Microsoft Windows 7 Professional 64bit with ServicePack1

Hardware

- 2.4GHz or higher processor clock speed
- 768MB of RAM or higher
- 1024 x 768 or higher-resolution display

When using Device Emulator for WEC7, below is also required.

- 1024MB of RAM or higher

2.3 Software Required

The development platform, communication software and SDK provided by Microsoft are required in order to develop applications.

Absolutely necessary

- Microsoft Visual Studio 2008 + Service Pack 1 (not free of charge)
- Microsoft Windows Mobile Device Center 6.1
  http://www.microsoft.com/downloads/details.aspx?familyid=46F72DF1-E46A-4A5F-A791-09F07AAA1914&displaylang=en

The following updates are required for Visual Studio 2008 + Service Pack 1 to develop an application for WEC7.
(There is a possibility that following Uniform Resource Locator is changed.)

- Visual Studio 2008 update for Windows Embedded Compact 7
  http://www.microsoft.com/en-us/download/details.aspx?id=11935

- Windows Embedded Compact 7 ATL Update for Visual Studio 2008 SP1
  http://www.microsoft.com/en-us/download/details.aspx?id=27729

The following SDK is required for Visual Studio 2008 + Service Pack 1 to develop an application for WEH6.5.

- Windows Mobile 6 Professional SDK Refresh
  http://www.microsoft.com/en-us/download/details.aspx?id=6135

Optionally necessary

When using Device Emulator for WEC7, below is also required.

- Microsoft Windows Virtual PC
  http://www.microsoft.com/en-us/download/details.aspx?id=3702

3. Installing Development Kit for All Models

3.1 Application Development

This chapter explains about what you need to set up for the development environment before starting your application development.

3.1.1 Application Development for WEC7

1. Installing Development Platform
   Install Microsoft's development platform which supports Visual Studio 2008. For detail, refer to Chapter 2.3 "Software Required".

2. Installing Development Kit to PC
   Install ExportSDK and various libraries. For installation method, refer to Chapter 3.2 "Installing Development Kit".

3. Connecting Device to PC (via Windows Mobile Device Center)
   Connect the device to PC via Windows Mobile Device Center. For connection method, refer to Chapter 4 "Connecting the Device to PC".

4. Setting up the Development Environment
   Transmit the Casio's libraries to the device. For detail, refer to Chapter 5 "Installing Development Kit for Each Model".

5. Installing the Device Emulator
   Install the Device Emulator for WEC7. For installation method, refer to Chapter 6 "Device Emulator". If not necessary to install, go to "6. Application Development" below.

6. Application Development
   Now, the application development environment is set up and your development with the development platform can be started. After application is developed, transfer it to the Device Emulator or an actual terminal of the device via Windows Mobile Device Center for check on the operability. For application development method and transferring your application, refer to Chapter 7 "Visual Studio".

3.1.2 Application Development for WEH6.5

1. Installing Development Platform
   Install Microsoft's development platform which supports Visual Studio 2008. For detail, refer to Chapter 2.3 "Software Required".

2. Installing Development Kit to PC
   Install Microsoft's Windows Mobile 6 Professional SDK Refresh and Casio's Device Library. For installation method, refer to Chapter 3.2 "Installing Development Kit".

3. Connecting Device to PC (via Windows Mobile Device Center)
   Connect the device to PC via Windows Mobile Device Center. For connection method, refer to Chapter 4 "Connecting the Device to PC".

4. Setting up the Development Environment
   Transmit the Casio's libraries to the device. For detail, refer to Chapter 5 "Installing Development Kit for Each Model".

5. Installing the Device Emulator
   Install the Device Emulator for WEH6.5. For installation method, refer to Chapter 6 "Device Emulator". If not necessary to install, go to "6. Application Development" below.

6. Application Development
   Now, the application development environment is set up and your development with the development platform can be started. After application is developed, transfer it to the Device Emulator or an actual terminal of the device via Windows Mobile Device Center for check on the operability. For application development method and transferring your application, refer to Chapter 7 "Visual Studio".

3.2 Installing Development Kit

Download the Development Kit installation CD image file from the following site and write it to a CD-ROM media.
http://www2.casio.co.jp/system_en/pa/PADealer/
(The site requires your user name and password. Enter your user name and password as issued by CASIO.)

Notes:

- You must disable the User Account Control ("UAC") by following the process below before installing the Development Kit Files.

  Case of using Windows 7
  - Navigate to **Control Panel** -> **User Accounts** -> **Change User Account Control Settings**. Select **Never notify** in Choose when to be notified about changed to your computer setting.

When the Development Kit CD-ROM is inserted in the drive of PC, the following menu screen appears automatically. The version number in the menu screen is indicated according to the CD-ROM.

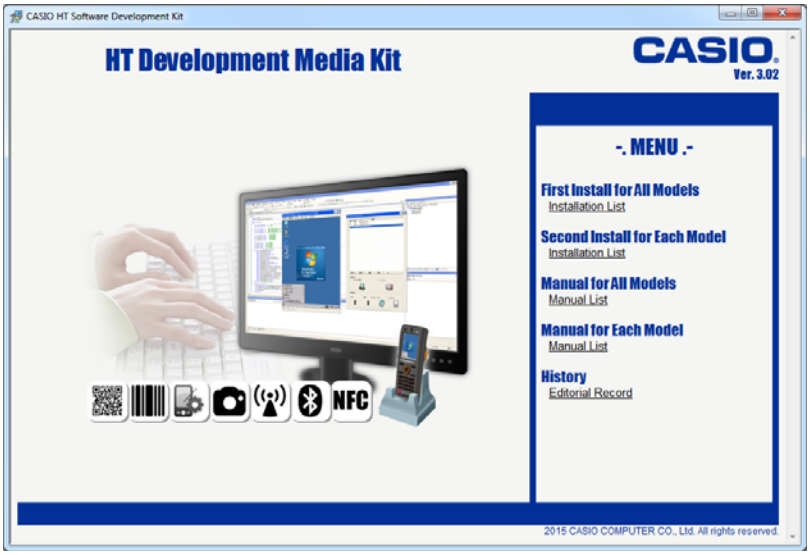


Figure 3.1

3.2.1 Installing ExportSDK

Please be sure to do the update indicated on Chapter 2.3 "Software Required" before install ExportSDK.

Table 3.1

ExportSDK	Device
CASIO ARMv5 ExportSDK	DT-X100 / DT-X200
CASIO ARMv7 ExportSDK	IT-G500 WEC7 Model

In this guide, Installation method of **CASIO ARMv5 ExportSDK** is explained.

1. Click on **Installation List** at First Install for All Models.

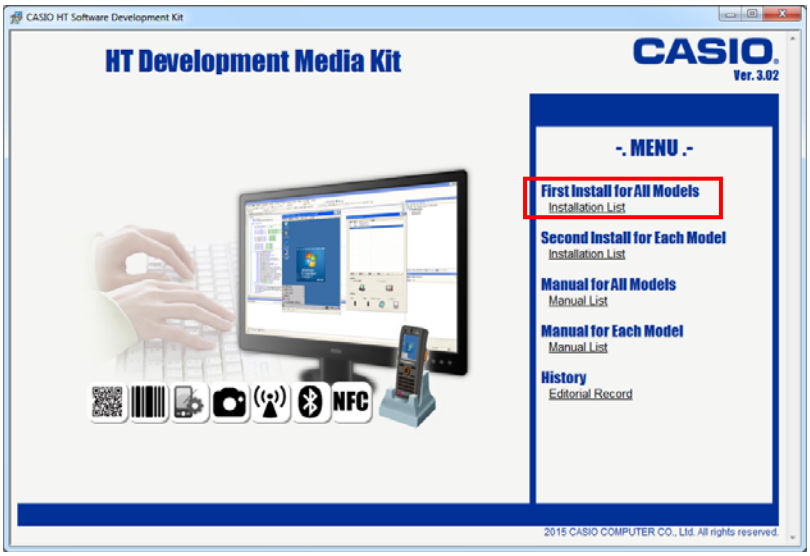


Figure 3.2

2. Click on CASIO ARMv5 ExportSDK.

Figure 3.3

3. Press **Next**.

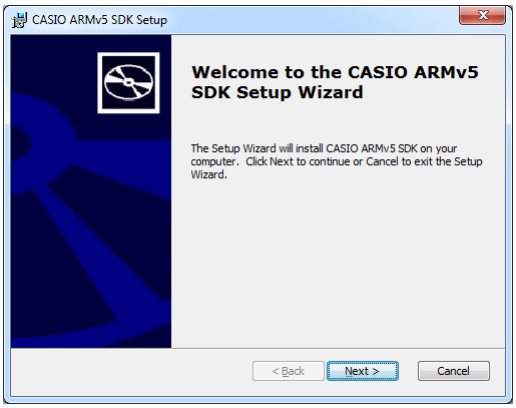


Figure 3.4

4. Agree to the software license and press **Next**.

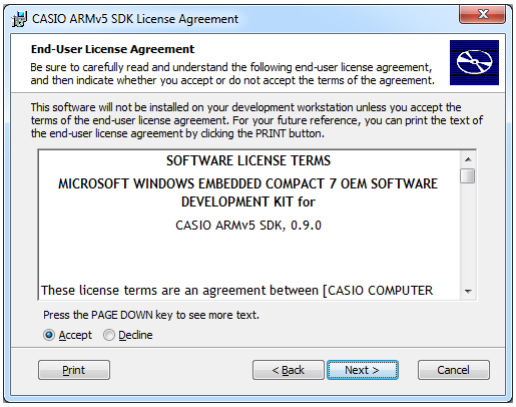


Figure 3.5

5. Enter the **User Name** and **Organization** and press **Next**.

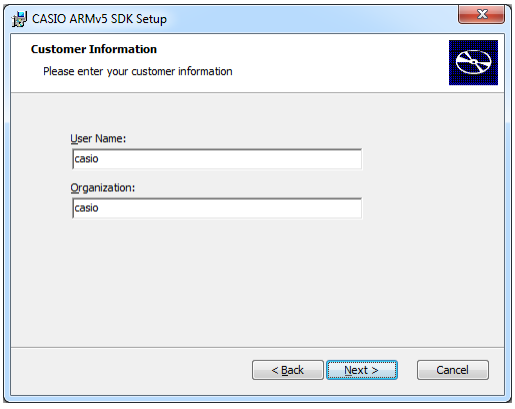


Figure 3.6

6. Select **Complete** for the **Choose Setup Type**.

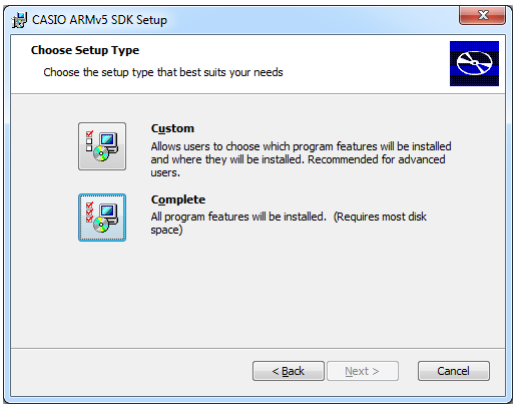


Figure 3.7

7. Change the install destination if necessary and press **Next**. By default, the software is installed in the following locations.
   32bit: C:\Program Files\Windows CE Tools\SDKs\CASIO ARMv5
   64bit: C:\Program Files (x86)\Windows CE Tools\SDKs\CASIO ARMv5

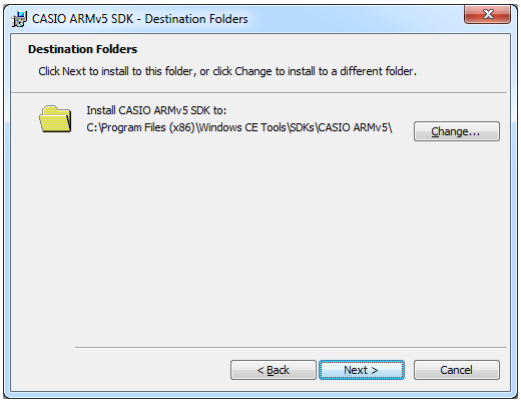


Figure 3.8

8. Press **Install**.

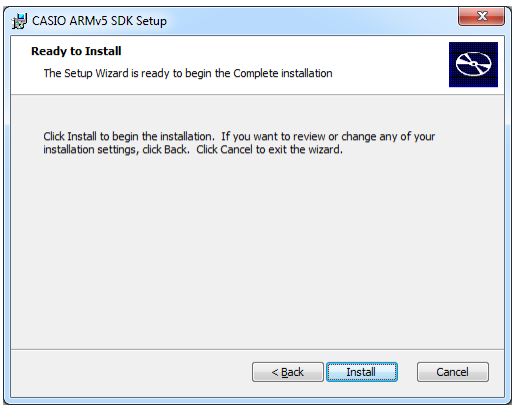


Figure 3.9

9. Press **Finish** when the install has finished.

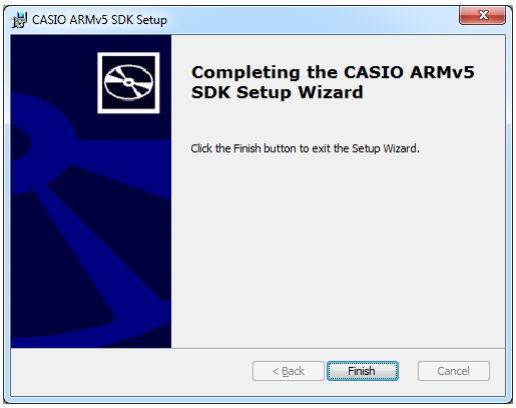


Figure 3.10

3.2.2 Installing Device Library

1. Click on **Installation List** at First Install for All Models.

Figure 3.11

2. Click on **CASIO HT Common Development Device Library**.

Figure 3.12

3. Press **Next**.

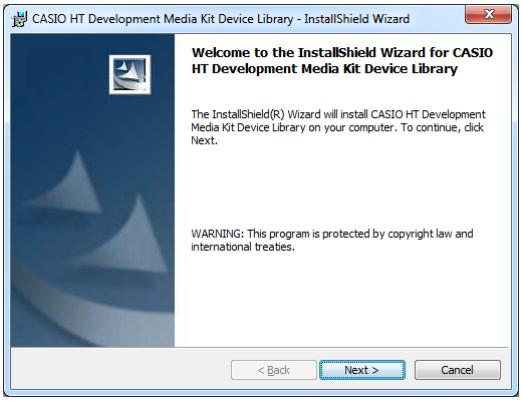


Figure 3.13

4. Agree to the software license and press **Next**.

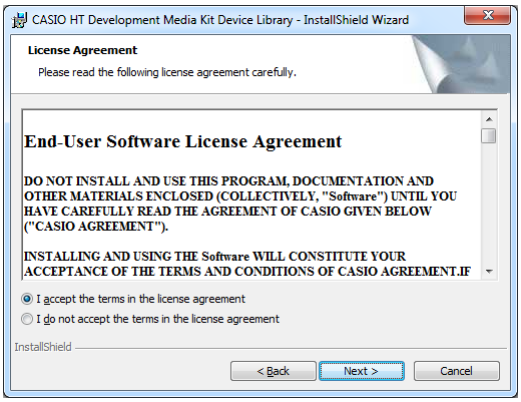


Figure 3.14

5. Enter the **User Name** and **Organization** and press **Next**.

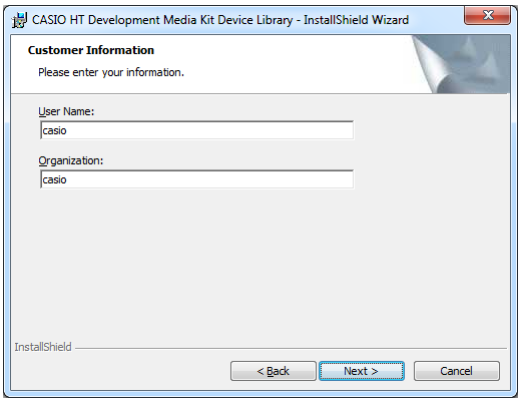


Figure 3.15

6. Select **Complete** for the **Setup Type**.

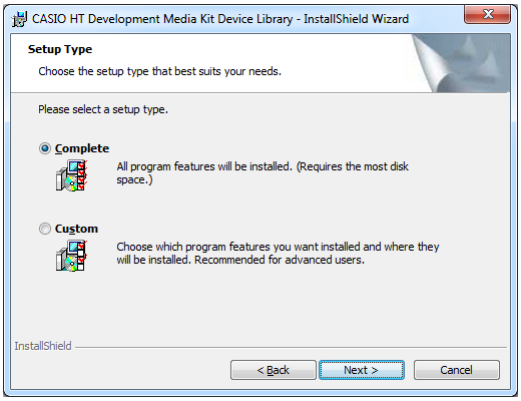


Figure 3.16

7. Press **Install**.

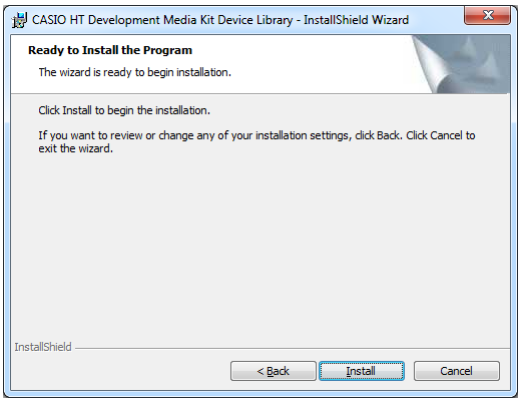


Figure 3.17

8. Press **Finish** when the install has finished.

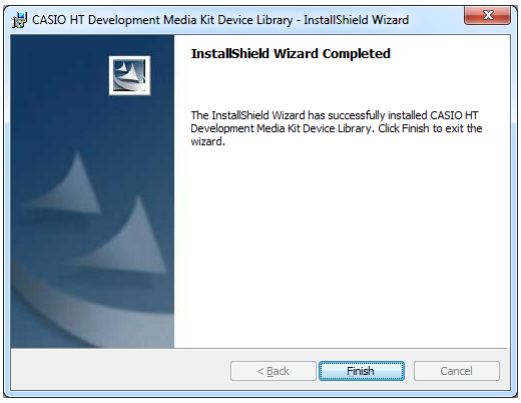


Figure 3.18

3.2.3 Setting the Device Library Path

Set the device library Path for the ExportSDK.
The following describes the procedure to set the Path for the **CASIO ARMv5 ExportSDK**.

1. Navigate to **Tools** -> **Options** from the Visual Studio 2008 menu and select **VC++ Directory** under **Projects and Solutions**.

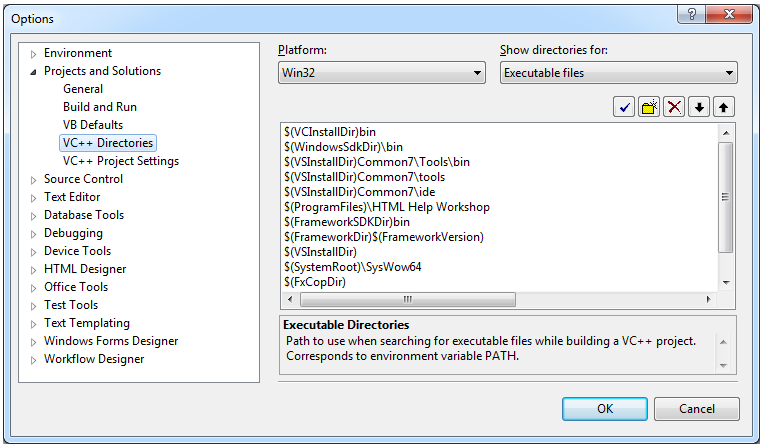


Figure 3.19

2. Select **CASIO ARMv5 (ARMv4I)** for the platform and **Include files** for the project to display the directory. (Select **Windows Mobile 6 Professional SDK (ARMv4I) / CASIO ARMv5 (ARMv4I)** if you are using the **Windows Mobile 6 Professional SDK / CASIO ARMv7 ExportSDK**)

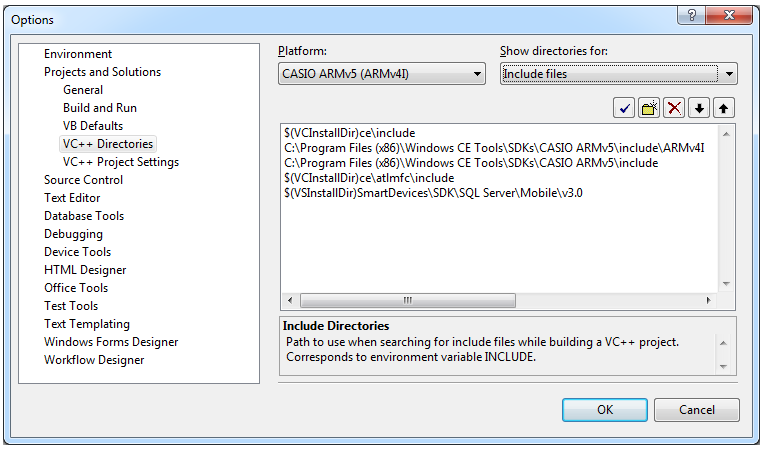


Figure 3.20

3. Register the folder installed in Section 3.2.2 "Installing Device Library" as shown in the figure below.
   32bit: C:\Program Files\CASIO\MBSYS\INCLUDE
   64bit: C:\Program Files (x86)\CASIO\MBSYS\INCLUDE

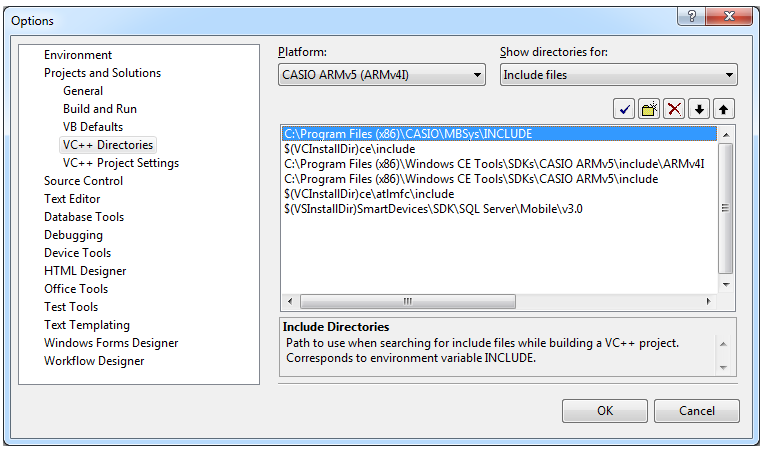


Figure 3.21

4. Select **Library files** for the project to display the directory.

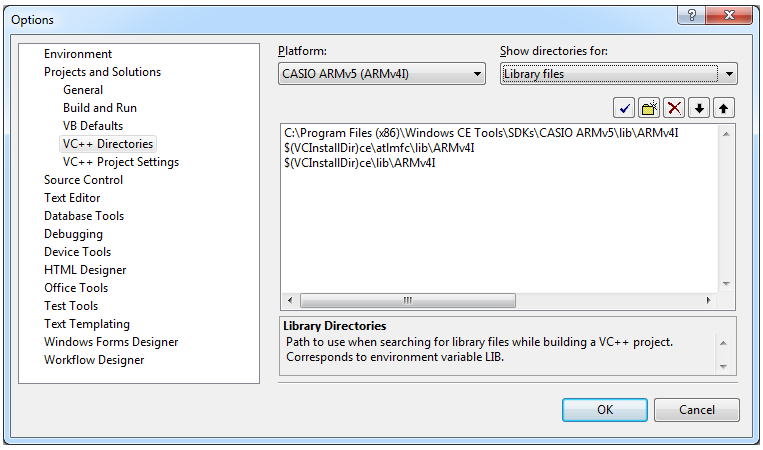


Figure 3.22

5. Register the folder installed in Section 3.2.2 "Installing Device Library" as shown in the figure below.
   32bit: C:\Program Files\CASIO\MBSYS\LIB\ARMV5
   64bit: C:\Program Files (x86)\CASIO\MBSYS\LIB\ARMV5

   Register the following folder if you are using the **Windows Mobile 6 Professional SDK**.
   32bit: C:\Program Files\CASIO\MBSYS\LIB\ARMV4I
   64bit: C:\Program Files (x86)\CASIO\MBSYS\LIB\ARMV4I

   Register the following folder if you are using the **CASIO ARMv7 ExportSDK**.
   32bit: C:\Program Files\CASIO\MBSYS\LIB\ARMV7
   64bit: C:\Program Files (x86)\CASIO\MBSYS\LIB\ARMV7

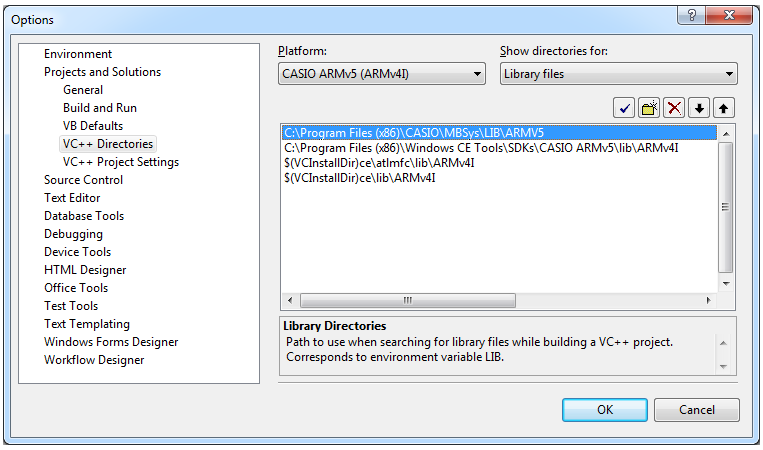


Figure 3.23

4. Connecting the Device to PC

4.1 Installing Windows Mobile Device Center

1. Download the Windows Mobile Device Center Installer to your PC from Microsoft's web site.
2. Run the installer.
3. A progress window of installation is displayed. When windows is closed, installation is completed.

The following describes the communication method for connecting device to PC.
There is 3 kinds of communication method.
Change the setting according to communication method you will use.

4.2 Connection via USB

To establish connection via USB interface with PC runs in Windows 7, use Windows Mobile Device Center ("WMDC"). The device with the factory-setting (default) does not support the WMDC. Follow the procedure below to change the setting on the device.

Procedure

1. Close all applications running on the device.
2. Start USB Connection.
   In case of WEC7, navigate to **Settings** -> **Control Panel** -> **USB Connection**.
   In case of WEH6.5, navigate to **Settings** -> **System** -> **USB Connection**.
3. Click **Connect Utility** tab.

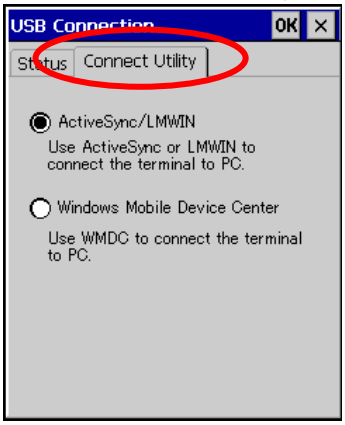


Figure 4.1

4. Choose **Windows Mobile Device Center** radio button and then click **OK** button.

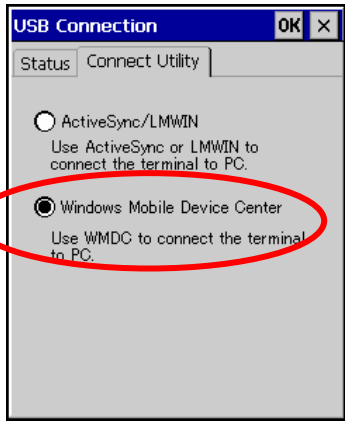


Figure 4.2

5. A dialogue asking your final confirmation appears. Click **YES** button.

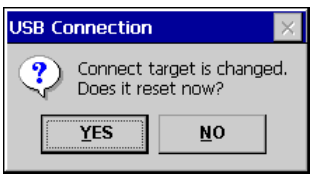


Figure 4.3

6. The device starts up again.
7. Mount the device on the cradle, and then follow a message appeared in the WMDC on the PC.

4.3 Connection via WLAN

To establish communication between the device with the WLAN module integrated and PC via WLAN configuration, follow the steps, 1 to 7, below to set up a WLAN configuration on the device. After setting up the configuration, be sure to perform a site survey prior to starting communication via WLAN.

1. Turn on WLAN power.
   In case of WEC7, navigate to **Start** -> **Settings** -> **Control Panel** -> **WLANConfig** and then check on **WLAN Power Enable**.
   In case of WEH6.5, navigate to **Start** -> **Settings** -> **System** -> **WLAN Power** and then check on **WLAN Power**.

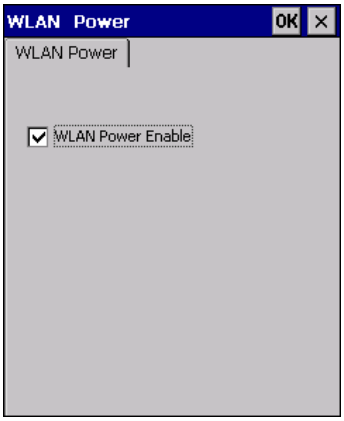


Figure 4.4

2. Start WLANConfig.
   In case of WEC7, navigate to **Start** -> **Settings** -> **Control Panel** -> **WLANConfig** and then click **IP** tab.
   In case of WEH6.5, navigate to **Start** -> **Settings** -> **System** -> **WLAN Settings** and then click **IP** tab.

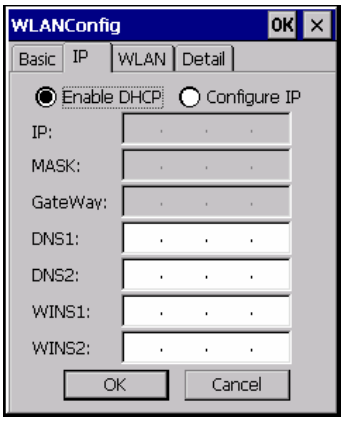


Figure 4.5

Table 4.1

Parameter	Description
Enable DHCP or Configure IP	Determines "Enable" or "Disable" for DHCP.
IP	Determines IP address.
MASK	Determines subnet mask.
GateWay	Determines default gateway.
DNS1	Determines primary DNS address.
DNS2	Determines secondary DNS address.
WINS1	Determines primary WINS address.
WINS2	Determines secondary WINS address.

If any of the settings in Figure 4.5 is omitted, the process described in the following table will automatically take place in the field.

Table 4.2

Parameter	Nothing is set (DHCP)	"Configure IP" is set
Enable DHCP or Configure IP	"Enable DHCP" is assumed.	"Configure IP" is set.
IP	Does not determine IP address.	Entered address is set as is.
MASK	Does not determine subnet mask.	Entered address is set as is.
GateWay	Does not determine gateway.	Entered address is set as is.
DNS1	Does not determine primary DNS address.	Entered address is set as is.
DNS2	Does not determine secondary DNS address.	Entered address is set as is.
WINS1	Does not determine primary WINS address.	Entered address is set as is.
WINS2	Does not determine secondary WINS address.	Entered address is set as is.

3. Click **Basic** tab. Set up each parameter in the tab by referring to the descriptions for the parameters in Table 4.3.

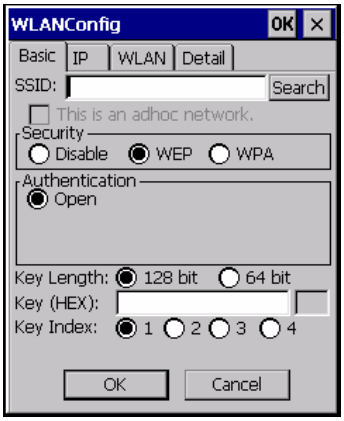


Figure 4.6

Table 4.3

Parameter		Description
SSID		Enter the SSID of the network you want to connect to.
Security	Disable	None.
	WEP	**Open** in Authentication field.
	WPA	**PSK** in Authentication field (if selected, the Key field must be set also.) **EAP-PEAP** in Authentication field **EAP-TLS** in Authentication field
Key		Enter 26 (maximum) alphanumeric digits (13 hex pairs) in the Key field if **128 bit** radio button is selected. Or, enter 10 (maximum) alphanumeric digits (5 hex pairs) in the Key field if **64 bit** radio button is selected. The field displays the number of characters that have been entered. ***** in the field implies that the key has been extracted from the ini file. If ***** in the field is edited, a new key has been deemed to be set. Or, if it has never been edited, the key extracted from the ini file becomes effective as is.

If **EAP-PEAP** radio button in Authentication field is selected, click the **EAP-Properties** button that appears when selecting the **EAP-PEAP** radio button to set also the following parameters.

Table 4.4

Parameters in EAP-Properties screen	Description	Default
User name	Input a user name in alphanumeric (maximum 100 alphanumeric).	None
Password	Input a password in alphanumeric (maximum 100 alphanumeric). ***** in the field implies that the password has been extracted from the ini file. If ***** in the field is edited, a new password has been deemed to be set. Or, if it has never been edited, the password extracted from the ini file becomes effective as is.	None
Domain	Input a domain in alphanumeric (maximum 100 alphanumeric).	None
Validate server certificate	Set up the requisition for server certificate. With check mark : certificate is required. Without check mark: certificate is not required.	Certificate is not necessary

If **EAP-TLS** radio button in Authentication field is selected, click the **EAP-Properties** button that appears when selecting the **EAP-TLS** radio button to set the following settings.

Table 4.5

Parameters in EAP-Properties screen	Description	Default
User name	Input a user name in alphanumeric (maximum 100 alphanumeric).	None
Certificate	Select a client certificate installed already (maximum 100 alphanumeric). **Search** button in the field will display a list of installed client certificates. Select one by highlighting it.	None
Domain	Input in alphanumeric (maximum 100 alphanumeric)	None
Validate server certificate	Set up the requisition for server certificate. With check mark : certificate is required. Without check mark : certificate is not required.	Certificate is required.

4. Click **WLAN** tab.

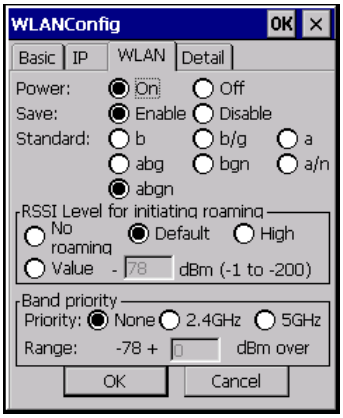


Figure 4.7

Table 4.6

Field / Radio Buttons	Description		Default
Power	On	Enable power to the integrated WLAN module.	Yes
	Off	Disable power to the integrated WLAN module.	
Save	Enable	Enable power save mode for the WLAN module.	Yes
	Disable	Disable power save mode for the WLAN module.	
Standard		Set up IEEE802.11 standard effect.	Abgn
RSSI Level for initiating roaming	No roaming	Set up "-100 dBm" for roaming starting threshold level, a level where communication via WLAN is practically impossible, so that roaming should not be carried out.	
	Default	Set up "-78 dBm" for the roaming starting threshold level.	Yes
	High	Set up "-72 dBm" for roaming starting threshold level, for faster (more frequent) roaming	
	Value	Set up roaming starting threshold level manually.	
Band priority	None	Automatic switching to the highest strength network in 2.4GHz or 5GHz.	Yes
	2.4GHz	Automatic switching to 2.4GHz if a network that is stronger than Range value is found.	
	5GHz	Automatic switching to 5GHz if a network that is stronger than Range value is found.	

5. Click **Detail** tab.

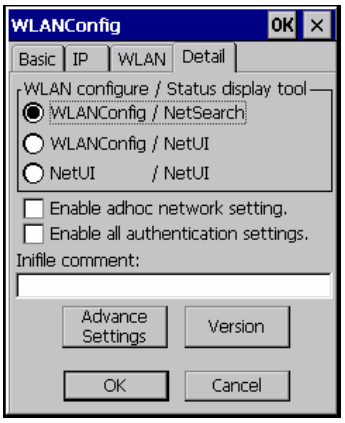


Figure 4.8

Table 4.7

Field / Radio Buttons		Description	Default
WLAN configure, Status display tool	WLANConfig, NetSearch	- Use only CASIO provided WLAN tool. - Configure WLAN setting with settings extracted from the ini file. - Initiate NetSearch when tapping the icon in the task tray.	Yes
	WLANConfig, NetUI	- Use both CASIO provided WLAN tool and MS tool. - Configure WLAN setting with settings extracted from the ini file. - Initiate NetUI (MS tool) when tapping the icon in the task tray.	
	NetUI/NetUI	- Use only the MS tool. - Configure WLAN setting, not with settings extracted from the ini file. - Initiate NetUI when tapping the icon in the task tray. If this radio button is selected and the **OK** button that appears in the subsequent popup warning message is clicked, other settings in the ini file will be deleted. Only the WLAN configuration set with NetUI is saved.	
Enable adhoc network setting		With check mark : enable the setting.	
		Without check mark : disable the setting.	Yes
Enable all authentication settings		With check mark : enable the setting.	
		Without check mark : disable the setting.	Yes
Inifile comment		Enter a comment of up to 100 characters to be written in the ini file.	None

6. If **OK** button in the popup warning message (see Table 4.7 for description of NetUI/NetUI radio button) is clicked, the screen in Figure 4.9 appears. Click **OK** button to perform a reset on the terminal so that the setting takes effect.

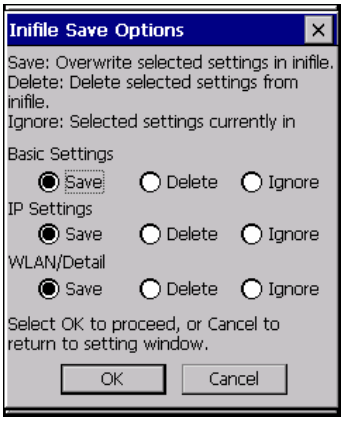


Figure 4.9

7. Check to make sure that the connection has been established using the **NetSearch** utility, and then navigating to the **Ping** function in there. Enter HostName first and then click **Ping** to check that you are connected to the network correctly.

4.4 Connection via Ethernet Cradle

This chapter describes how to establish a high speed LAN connection.

1. Connect the dedicated AC adapter to the Ethernet cradle.
2. Connect one end of the network cable to the Ethernet cradle and the other end to the network hub.
3. Make sure the selector switch on the back of the Ethernet cradle is set to the position **LAN**.

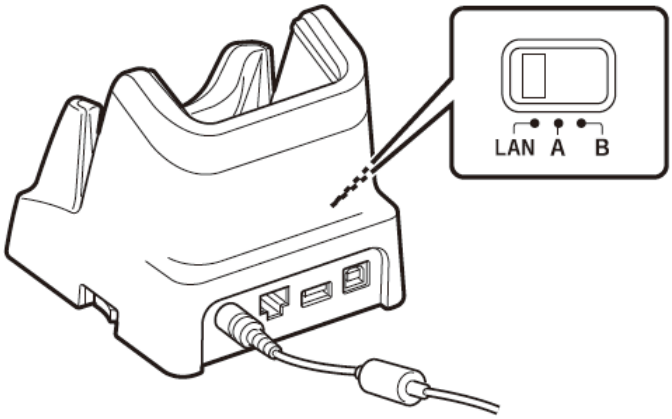


Figure 4.10

4. Place the device in the cradle.
5. Navigate to **Settings** -> **Control Panel** -> **Network and Dial-up Connections** on the device.
6. The following screen appears. Double click the **AX887721** icon. The icon will not appear unless the terminal is placed in the cradle.

Figure 4.11

4.5 Accessing Shared Network Drive on Your LAN

Assuming you have a valid network connection established, you can access shared drives on your PC from the **File Explorer** on the device. The following shows the steps to initiate this. This access is supported only in WEC7.

Procedure in WEC7

1. Configure a network connection on the device.
2. Double click My Device.
3. Navigate to **View** -> **Address Bar**.
4. Type \\xxxx\ where xxxx is the network name of the PC.
5. A network logon dialog box will appear. Enter a valid User ID, Password and Network Domain.
6. Any shared network drives on the target PC will be displayed and you will be able to copy files freely between them and the device.

4.6 Direct TCP/IP Connection from Visual Studio

If you have a network connection to the device (for example, via WLAN or the Ethernet cradle) then you can establish a direct link to the development PC without using Windows Mobile Device Center.

For Visual Studio 2008

1. Download the files listed below to the device.
   - Clientshutdown.exe
   - ConmanClient2.exe
   - CMAccept.exe
   - DeviceDMA.dll
   - eDbgTL.dll
   - TcpConnectionA.dll

   The source folder in the PC:
   C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Target\wce400\armv4i
   The destination folder in the device:
   \Windows

2. Run **ConmanClient2.exe** on the device.
3. Set the device IP address in Visual Studio 2008.
4. Navigate to **Tools** in the main menu of Visual Studio 2008 -> **Options…** -> **Device Tools** -> **Devices**.
5. Choose **Device** in the pull-down menu of **Devices:** and click **Properties…**.
6. Click **Transport:** to access **Configure…** and set up **Device IP address** as shown in Figure 4.12.

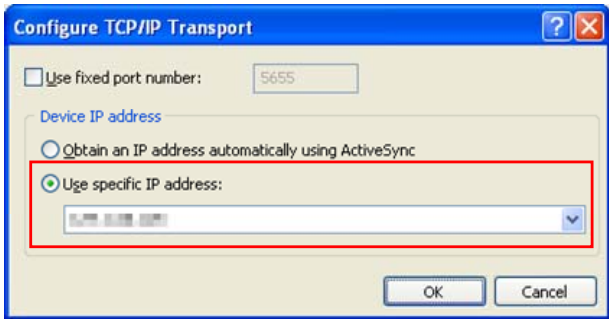


Figure 4.12

7. Run CMAccept.exe on the device.
8. Navigate to **Tools** in the main menu of Visual Studio 2008 -> **Connect to Device…**.

9. Choose **Device** in the list of **Devices:** and click **Connect** button. The screen in Figure 4.13 if appear indicates the success of connection establishment.

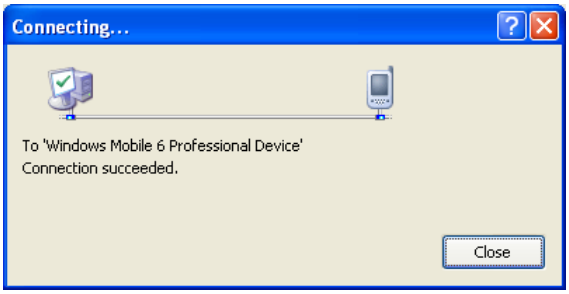


Figure 4.13

5. Installing Development Kit for Each Model

5.1 Installing Device Library for Each Model

After installing Device Library for Each Model, the CAB files in Table 5.1 will be installed in the folder below.

The contents of CAB files

CAB files are installed in the following folder by default. Following AAA is model name.
32bit: C:\Program Files\CASIO\MBSYS\CAB\AAA
64bit: C:\Program Files (x86)\CASIO\MBSYS\CAB\AAA

The run-time library described on the following table is stocked in CAB files. Following AAA is model name, BBB is OS name, and CCC is version information. The name of cab file which install System Library Version 3.01 to IT-G500 is SystemLibITG500WEHE.301.CAB.

Table 5.1

Library	CAB file
System Library	SystemLib[AAABBB]E.[CCC].CAB
Laser Scanner Library	OBReadLib[AAABBB]E.[CCC].CAB
Bluetooth Library	BluetoothLib[AAABBB]E.[CCC].CAB
Camera Library	CameraLib[AAABBB]E.[CCC].CAB
Imager Library	ImagerLib[AAABBB]E.[CCC].CAB
JPEG library	JpegCe[AAABBB]E.[CCC].CAB
FLINK library	Flink[AAABBB]E.[CCC].CAB
NFC Library	NFCLib[AAABBB]E.[CCC].CAB
WANGPRS Library	WANGPRSLib[AAABBB]E.[CCC].CAB

Notes:

1. When using Device Emulator, these CAB files are already installed. So it is not necessary to install these files.
2. The name of CAB file and the kind depend on the model.
3. About the library available on each model, refer to **Device Library Base Manual**.

Installation procedure

In this guide, the following describes the procedure to install Device Library for **DT-X200** to device.

(1) Installing to PC

Click on **Installation List** at Second Install for Each Model.

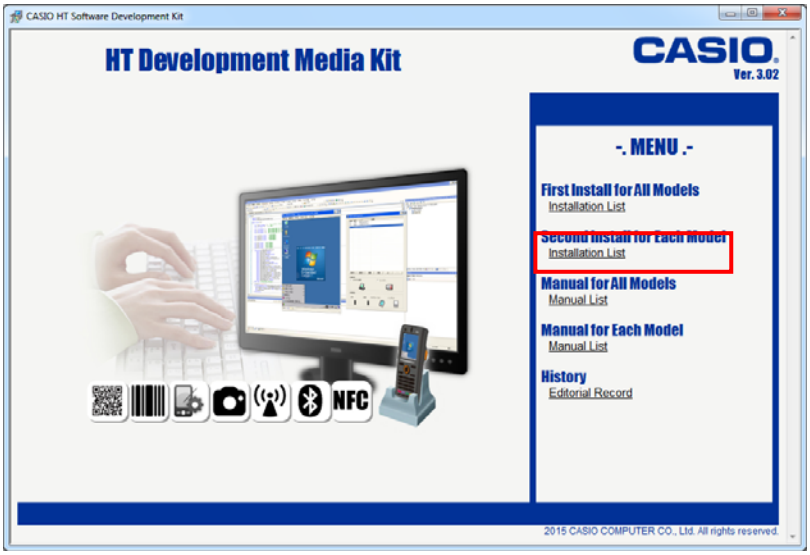


Figure 5.1

Click on **CASIO HT Development Media Kit Device Library for DT-X200**.

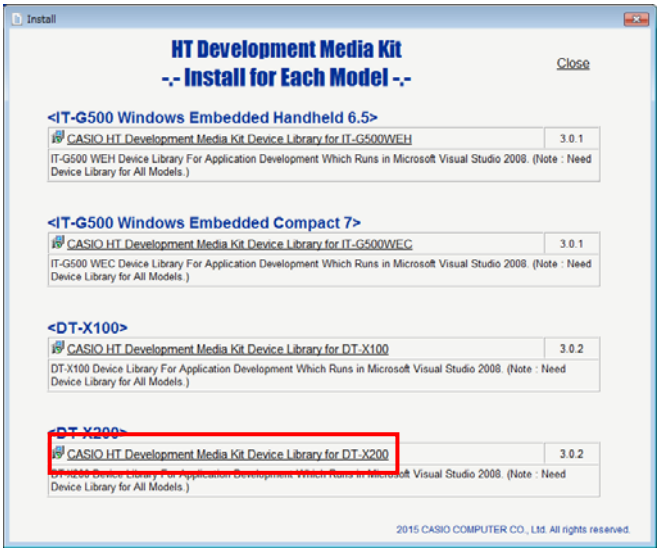


Figure 5.2

Press **Next**.

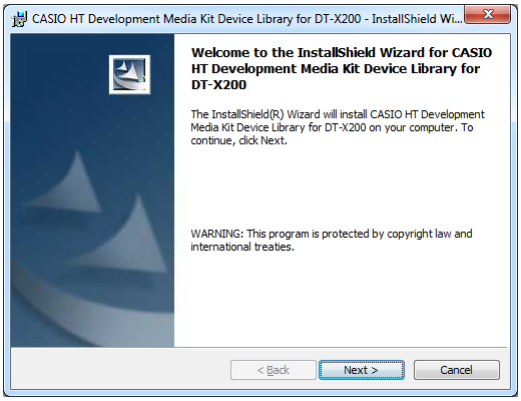


Figure 5.3

Agree to the software license and press **Next**.

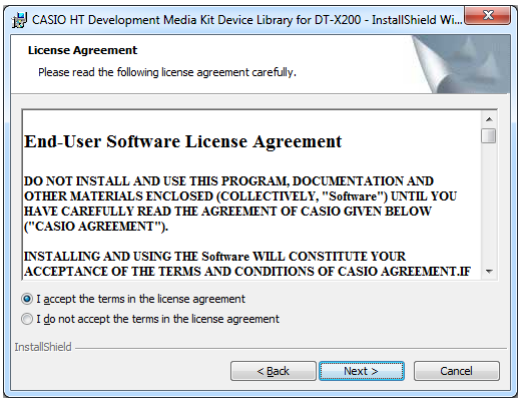


Figure 5.4

Enter the **User Name** and **Organization** and press **Next**.

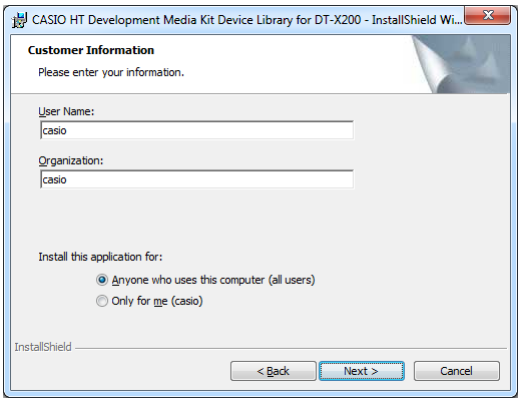


Figure 5.5

Select **Complete** for the **Setup Type**, press **Next**.

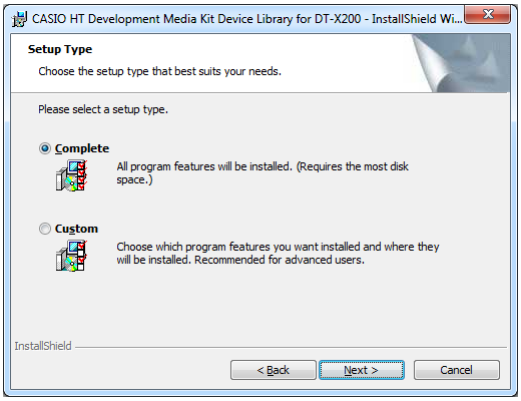


Figure 5.6

Press **Install**.

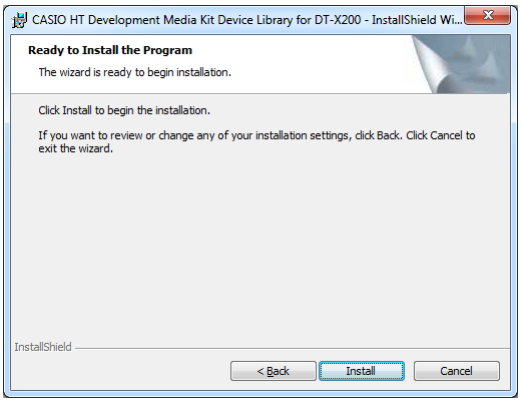


Figure 5.7

Press **Finish** when the install has finished.

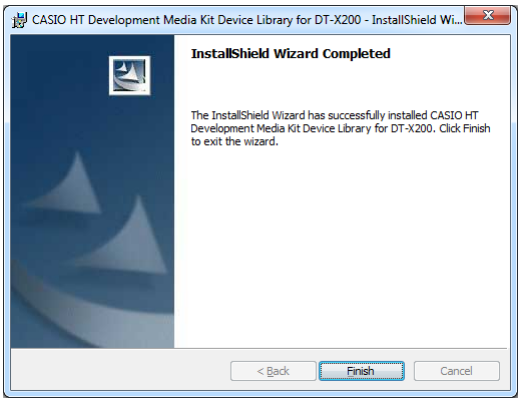


Figure 5.8

(2) Transmission of a CAB file

Transfer each CAB file to any folder on DT-X200 by Windows Mobile Device Center.

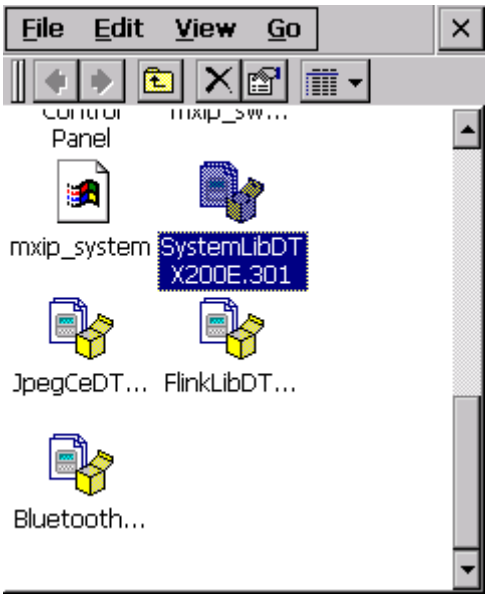


Figure 5.9

Notes:

- In this guide, CAB file is placed on root folder of DT-X200.
- For use method of Windows Mobile Device Center, refer to Chapter 4 "Connecting the Device to PC".

(3) Installation of a CAB file

Execute transmitted CAB file.

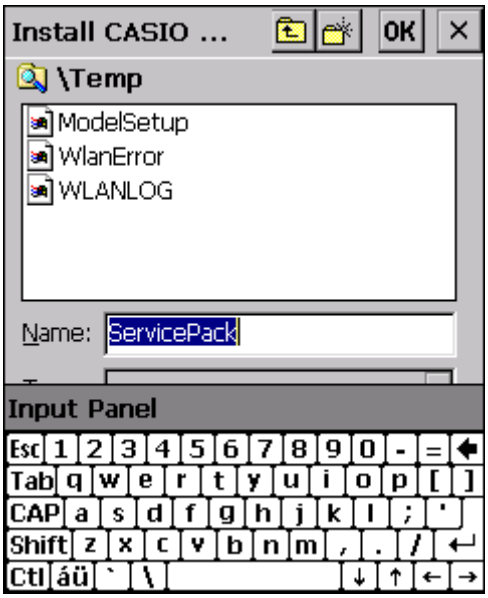


Figure 5.10

Press Enter Key on hardware or software keyboard.

(4) Installation completion

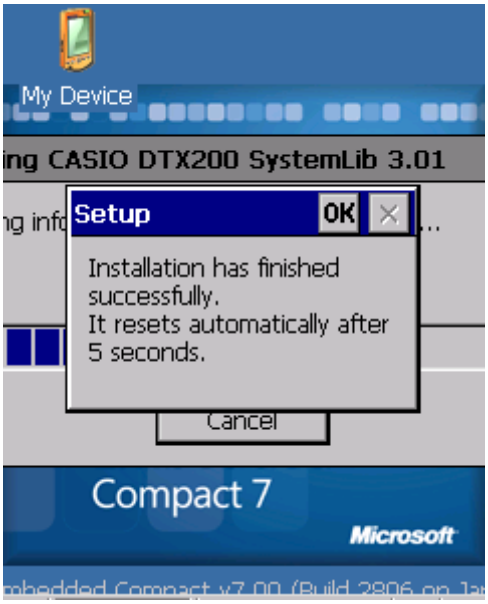


Figure 5.11

- In this guide, Installation of System Library is described for example. Also install other libraries by the same procedure.
- If you execute Full Reset on device, install again.

System Library becomes available by the above mentioned procedure.

6. Device Emulator

Device Emulator provides to application developers as "an environment which enables the confirmation of basic application behavior and source-level debugging without the actual device".

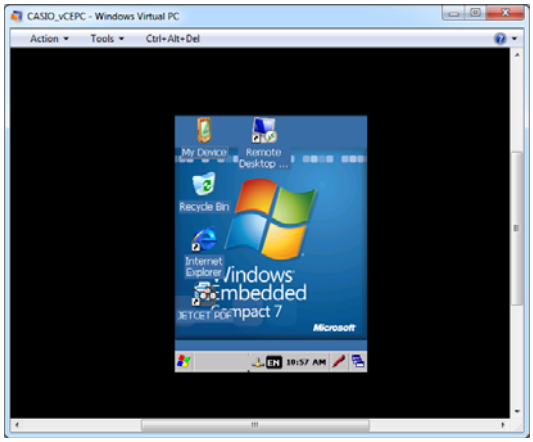


Figure 6.1 Device Emulator

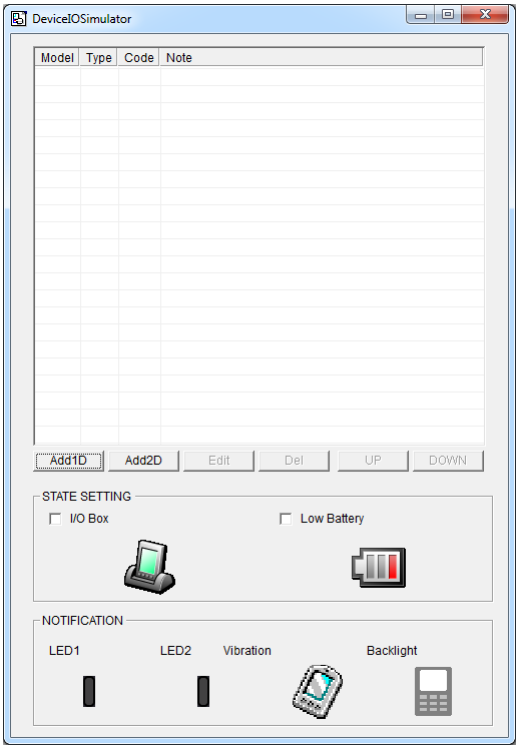


Figure 6.2 I/O Simulator

6.1 Device Emulator for WEC7

6.1.1 Installing ExportSDK

1. Click on **Installation List** at First Install for All Models.

Figure 6.3

2. Click on **CASIO x86 ExportSDK**.

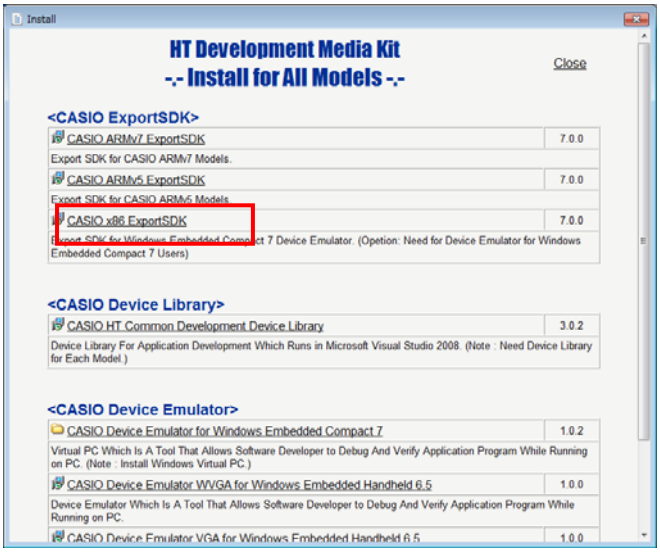


Figure 6.4

3. Press **Next**.

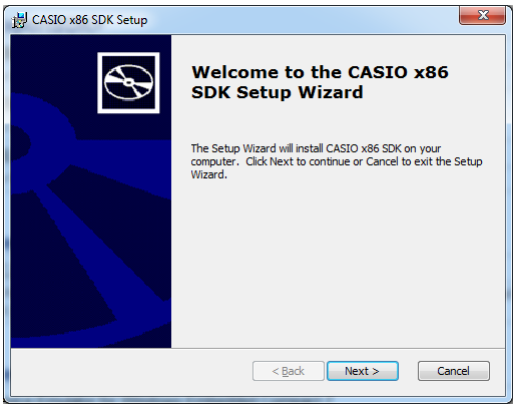


Figure 6.5

4. Agree to the software license and press **Next**.

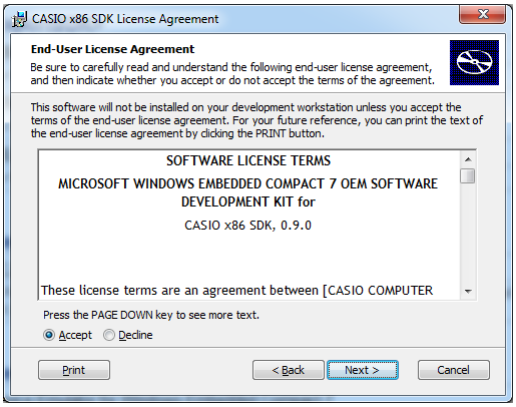


Figure 6.6

5. Enter the **User Name** and **Organization** and press **Next**.

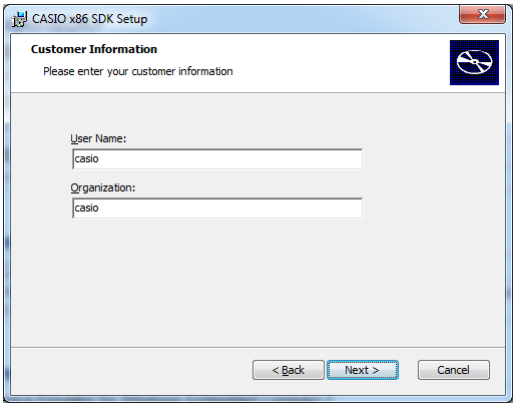


Figure 6.7

6. Select **Complete** for the **Choose Setup Type**.

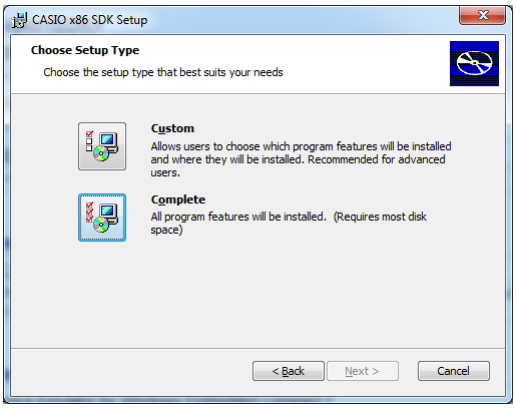


Figure 6.8

7. Change the install destination if necessary and press **Next**. By default, the software is installed in the following locations.
   32bit： C:\Program Files\Windows CE Tools\SDKs\CASIO x86
   64bit： C:\Program Files (x86)\Windows CE Tools\SDKs\CASIO x86

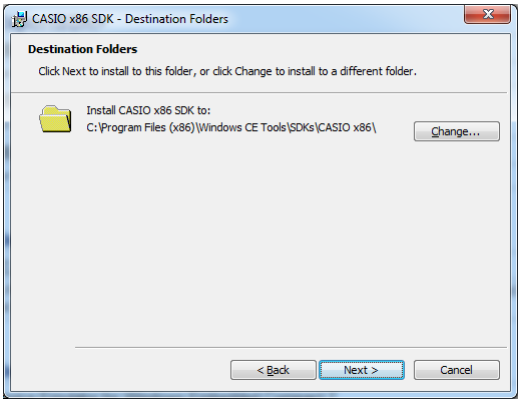


Figure 6.9

8. Press **Install**.

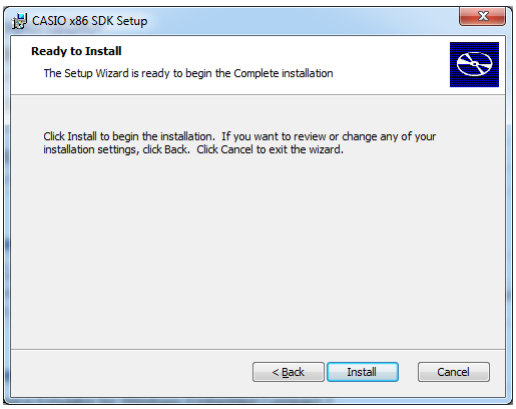


Figure 6.10

9. Press **Finish** when the install has finished.

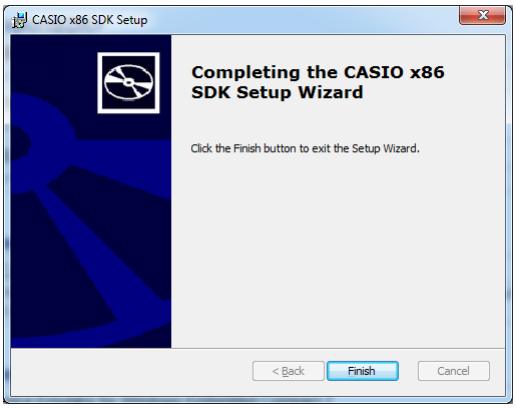


Figure 6.11

6.1.2 Installing Device Library

Installing the development kit device library also installs the VirtualPC device library. Refer to Section 3.2.2 "Installing Device Library" for details about the installation method.

6.1.3 Installing Device Emulator

Install the **Windows Embedded Compact 7 Emulator Image for CASIO**.
VirtualPC is located in the following directory in CD-ROM.
SETUP\COMMON\DEVICEEMULATOR\VIRTUALPC

1. Copy the VirtualPC folder above to an arbitrary directory on your PC.
   This guide uses the example of copying the folder to C:\DT-X200\.

2. Navigate to **Windows Virtual PC** from the Start menu and select **Create virtual machine**.

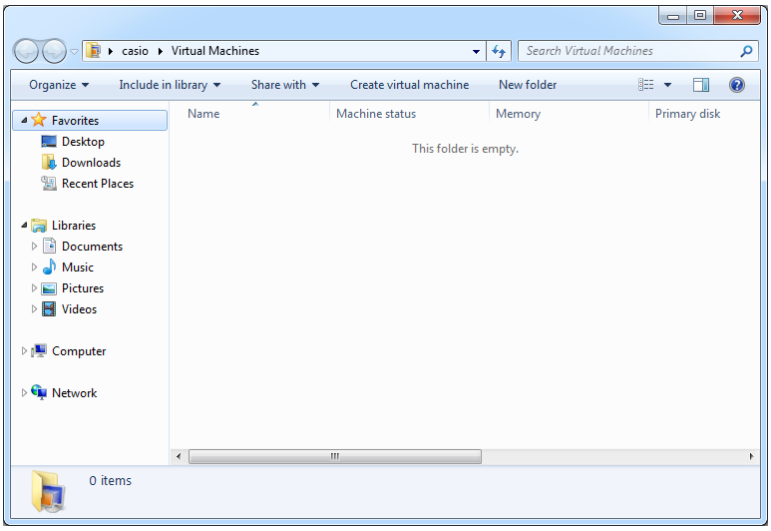


Figure 6.12

3. Enter the **Name** and **Location** and press **Next**.
   The name in this example is **CASIO_vCEPC**.

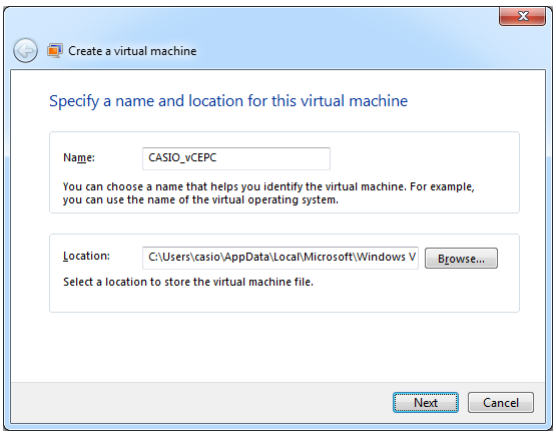


Figure 6.13

4. Enter a value of 256 MB or greater for the **RAM**, check the **Use computer network connection** option and press **Next**. By changing this value, **Storage memory** and **Program memory** are changed in Device Emulator.

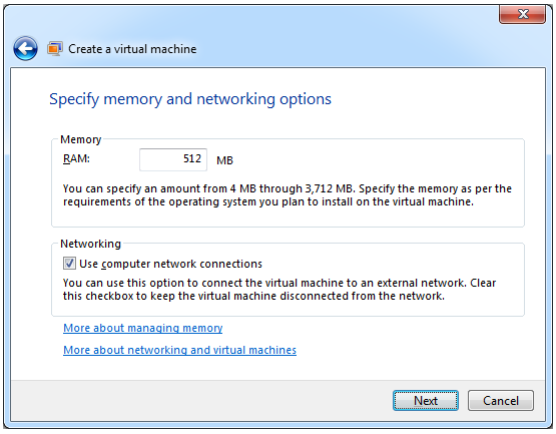


Figure 6.14

5. Select the **CASIO_vCEPC_E.vhd** created in step 1 as the **Location** for **Use an existing virtual hard disk** and press **Create**.
   WQVGA : CASIO_vCEPC_WQVGA_E.vhd
   Other resolutions : CASIO_vCEPC_E.vhd

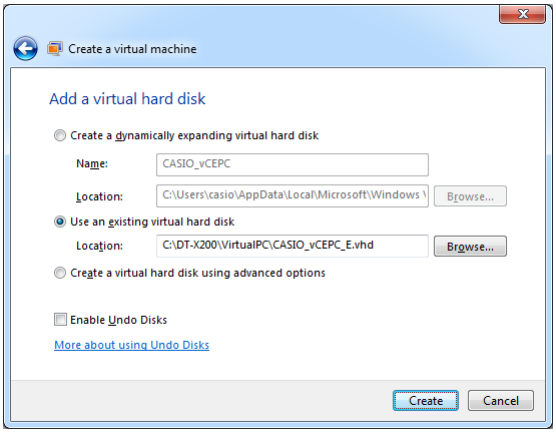


Figure 6.15

6. Select the **CASIO_vCEPC.vmcx** created in step 5 and press **Settings**.

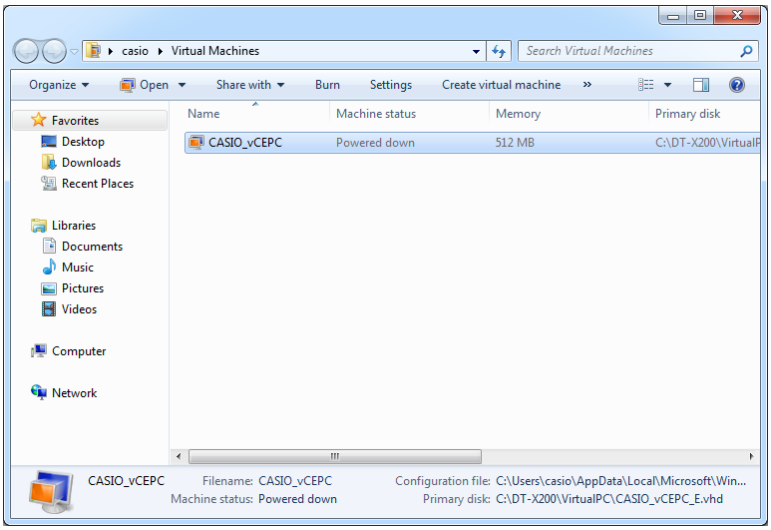


Figure 6.16

7. Select the **CASIO_FLASHDISK_E.vhd** item installed in step 1 for **Hard Disk 2** and press **OK**.

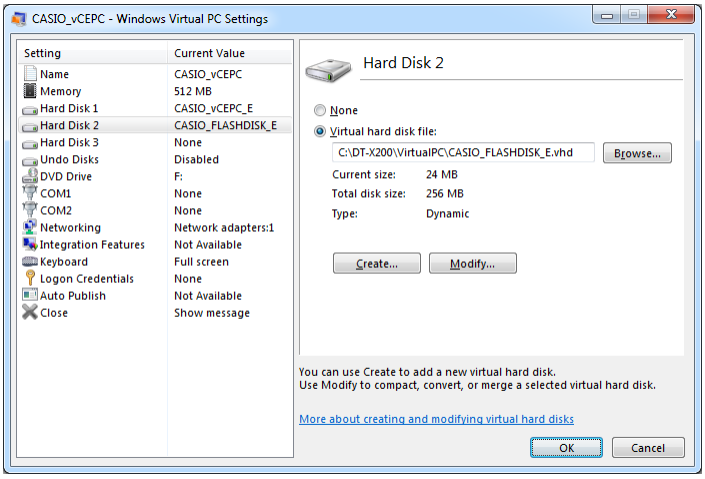


Figure 6.17

6.1.4 Starting Up Device Emulator

Start up the **CASIO VirtualPC**.

1. Double click the **CASIO_vCEPC.vmcx** created in Section 6.1.3 "Installing Device Emulator" to display the screen below.

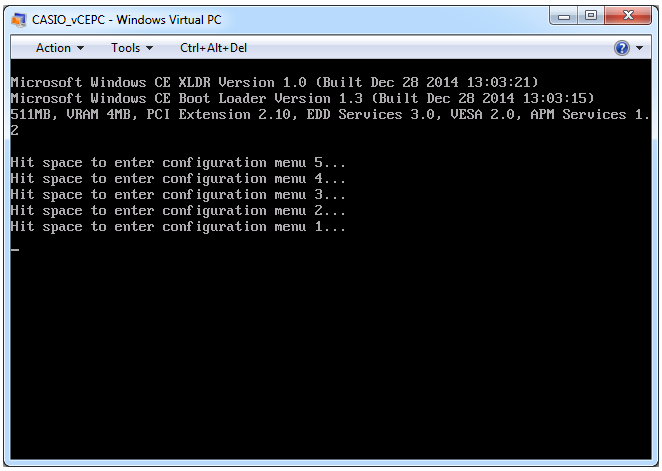


Figure 6.18

2. Device Emulator will launch after a brief wait. (The software may take several minutes to start up depending on the environment.)

Figure 6.19

6.1.5 Relating ExportSDK to Device Emulator

Relate **CASIO x86 SDK** installed in Section 6.1.1 "Installing ExportSDK" to **Device Emulator**.

1. While referring to section 6.1.4 "Starting Up Device Emulator", start Device Emulator, double-click the icon on the taskbar and skip the **IP address**.

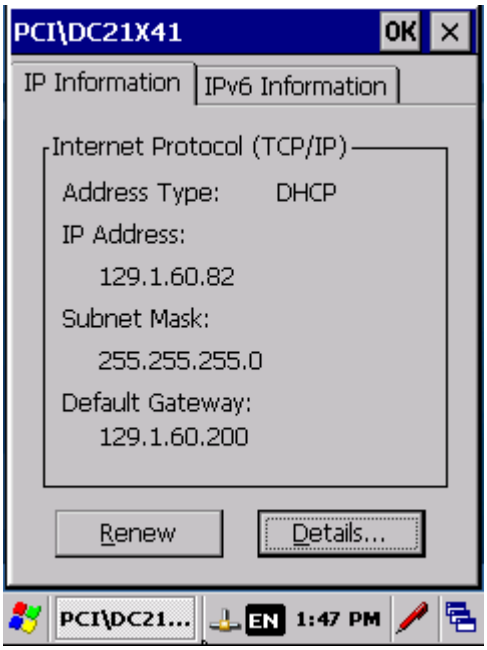


Figure 6.20

2. Navigate to **Tools** -> **Options** from the Visual Studio 2008 menu and select **Devices** from the **Device Tools**.

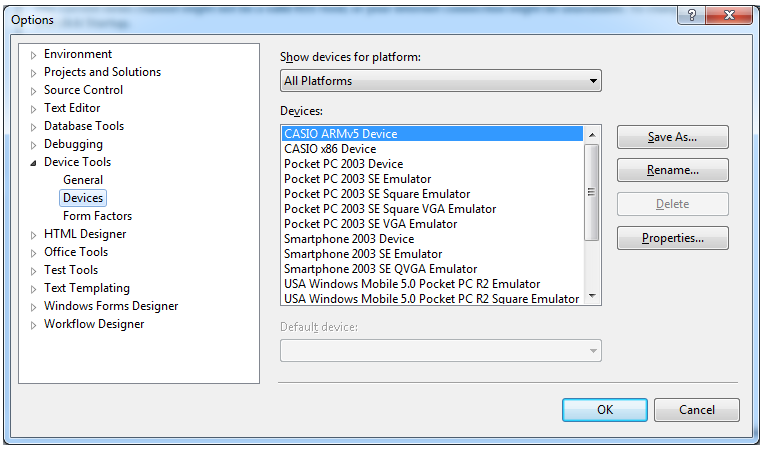


Figure 6.21

3. Select **CASIO x86 Device** from the device list and press **Properties**.

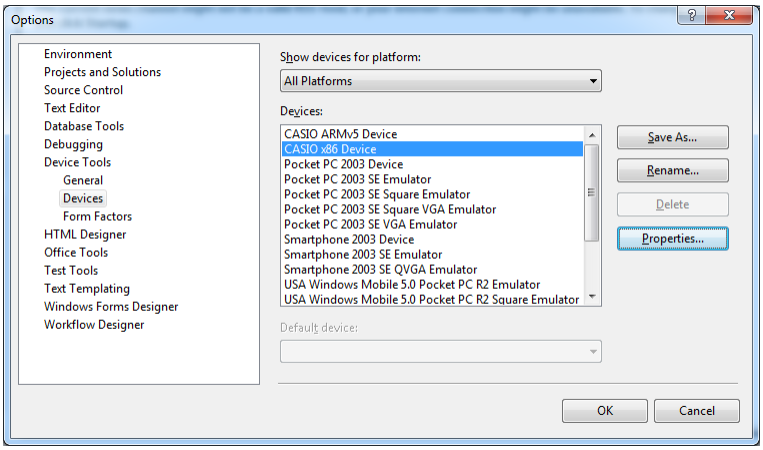


Figure 6.22

4. Press **Configure** under **Transport**.

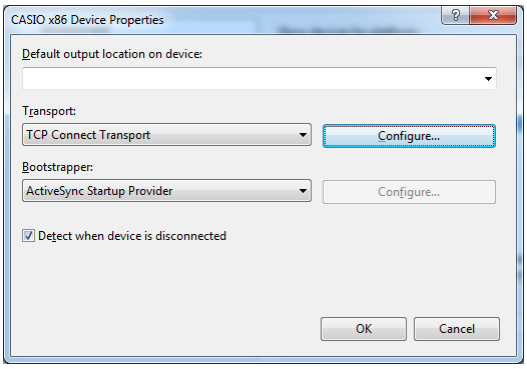


Figure 6.23

5. Enter the IP address that was skipped in step 1 for the **Use specific IP address** and press **OK**.

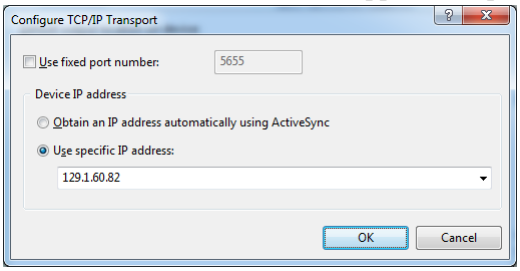


Figure 6.24

6. Navigate **Tools** -> **Connect to Device** from the Visual Studio 2008 menu, select **CASIO x86** for the platform and press **Connect**.

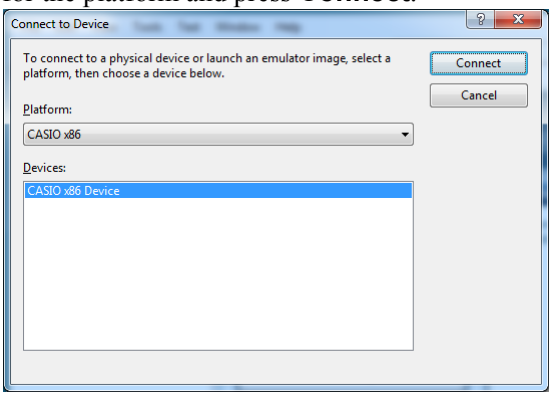


Figure 6.25

7. Device Emulator setting has succeeded if **Connection succeded** is displayed as in the figure below. If a message other than the one shown below is displayed, please check that the IP address entered matches the Device Emulator IP address.

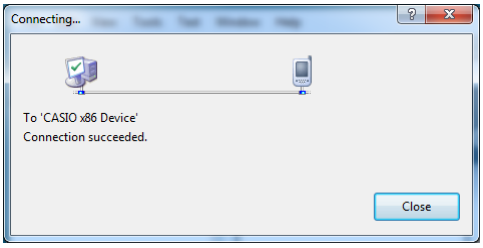


Figure 6.26

6.1.6 Setting the Device Emulator Screen Resolution

Set the screen resolution of Device Emulator.
The default starts up with a resolution of 480x800.
The following example describes the procedure to start up with a screen resolution of 480x640.

1. Start Device Emulator and press the **space** key while the screen below is displayed.

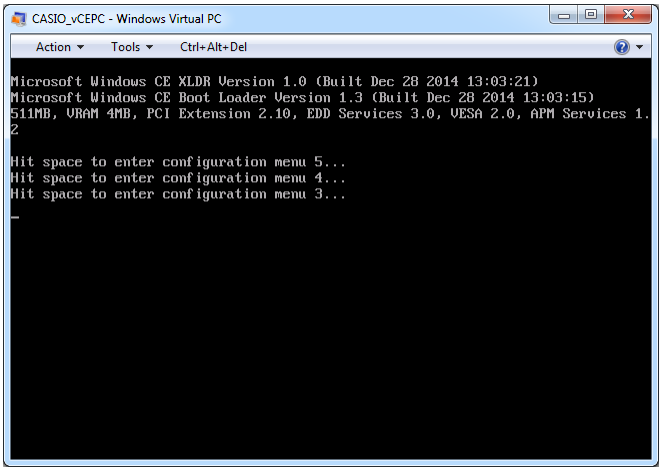


Figure 6.27

2. Press **5** on the keyboard when the **Main Menu** of the Device Emulator Bootloader starts.

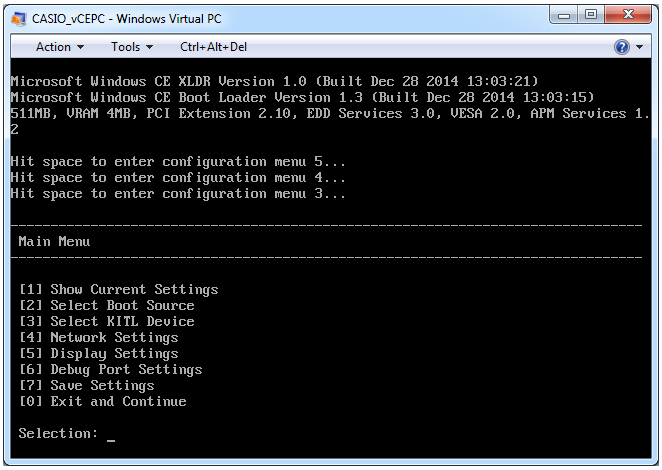


Figure 6.28

3. Press **3** on the keyboard when the **Display Settings** starts.

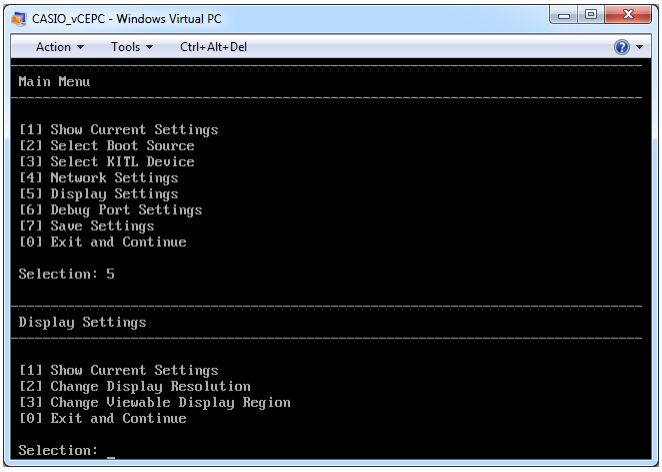


Figure 6.29

4. Press the **h** key on the keyboard when the **Select Display Mode** starts.

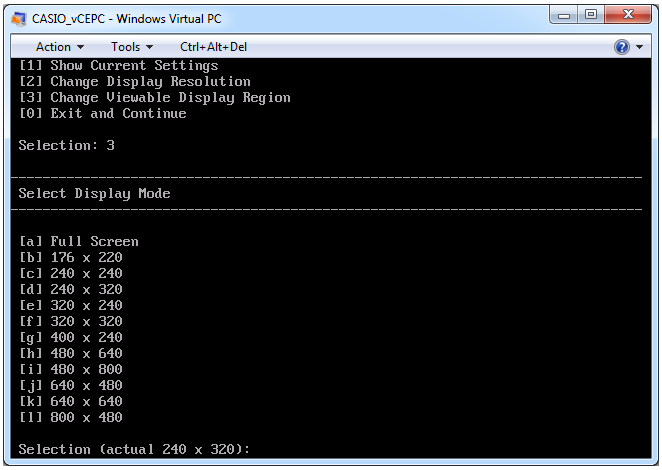


Figure 6.30

5. Press the **0** key to return to the **Display Settings**.

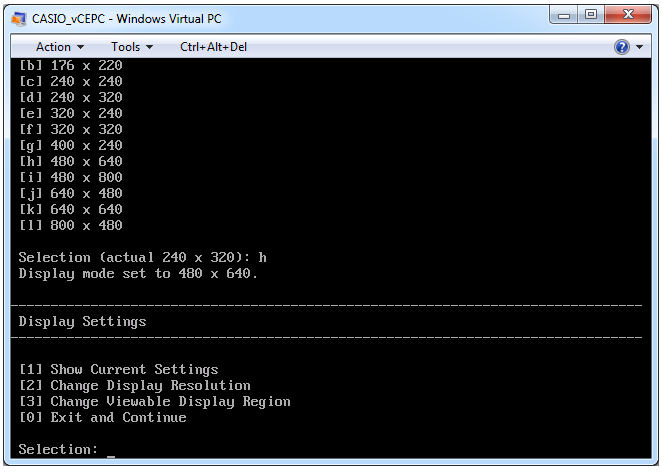


Figure 6.31

6. If you will start Device Emulator at a resolution of 480x640 from now on, then press the **7** key to save the settings and then the **0** key to start Device Emulator.

   If you will start Device Emulator at a resolution of 480x640 just one time, then press the **0** key to start Device Emulator.

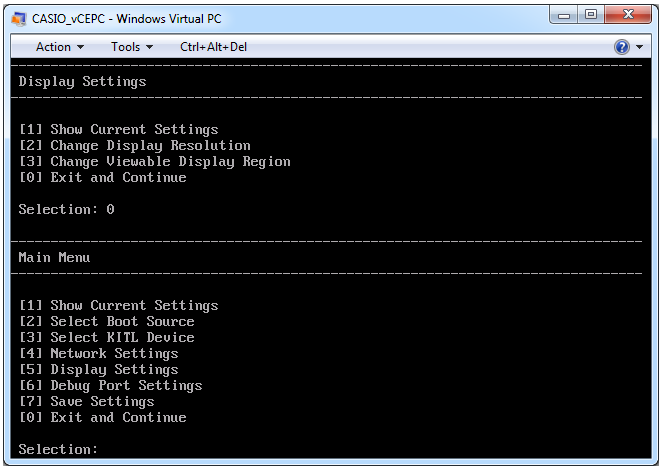


Figure 6.32

7. Device Emulator will start up at a resolution of 480x640. (The software may take several minutes to start up depending on the environment.)

Figure 6.33

6.1.7 Setting the Device Emulator Disk Size

The default size of FlashDisk is 512MB in Device Emulator. Follow the procesure below to increase the size of FlashDisk in Device Emulator. These screens are different depending on the environment.

1. Start **Run**, enter **diskmgmt.msc** and click **OK**.

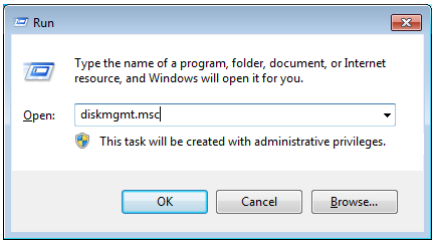


Figure 6.34

2. **Disk Management** will start. Navigate to **Action** -> **Create VHD**.

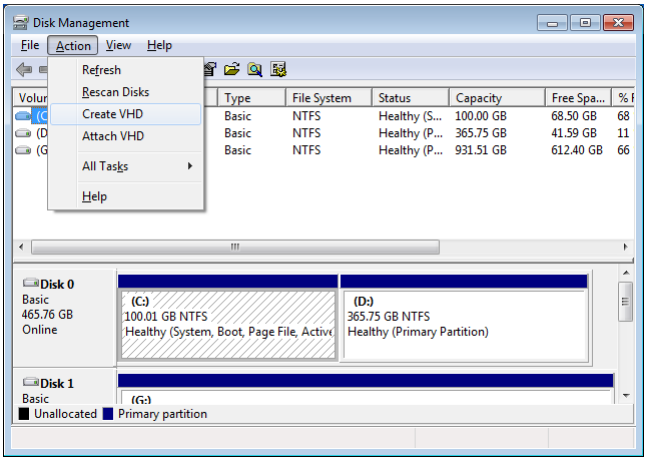


Figure 6.35

3. Enter the location and name of FlashDisk that is newly created to **Location**. And enter the size of FlashDisk to **Virtual hard disk size**. Select **Dynamically expanding** at **Virtual hard disk format** and click **OK**.
   In this guide, FlashDisk having a size of 4GB is created to C:\DT-X200\CASIO_FLASHDISK_E_4G.vhd.

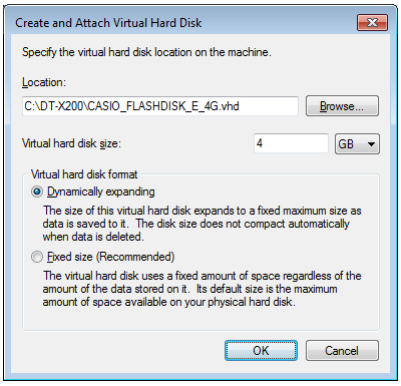


Figure 6.36

4. Right-click on the disk created in Step 3. Select **Initialize Disk**. Disk number is different depending on the environment.

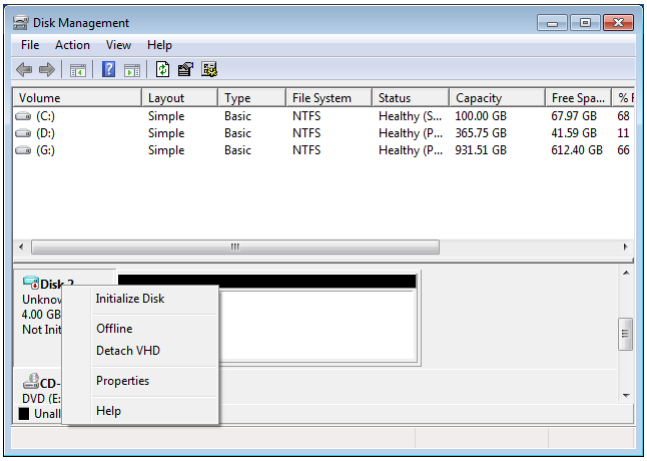


Figure 6.37

5. Select only the disk created in Step 3 at **Select disks**. And select **MBR** at **Use the following partition style for the selected disks**. Click **OK**.

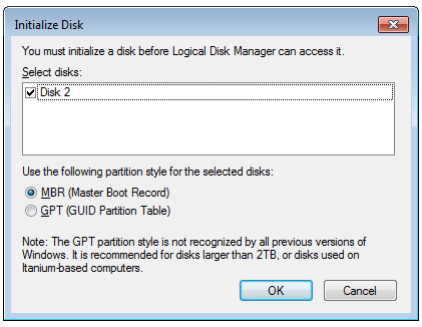


Figure 6.38

6. Make sure that the following red frame in is **Online**. If **Not Initialized** is shown, start again from Step 4. Right-click on the place where **Unallocated** is being displayed, please select the **New Simple Volume**.

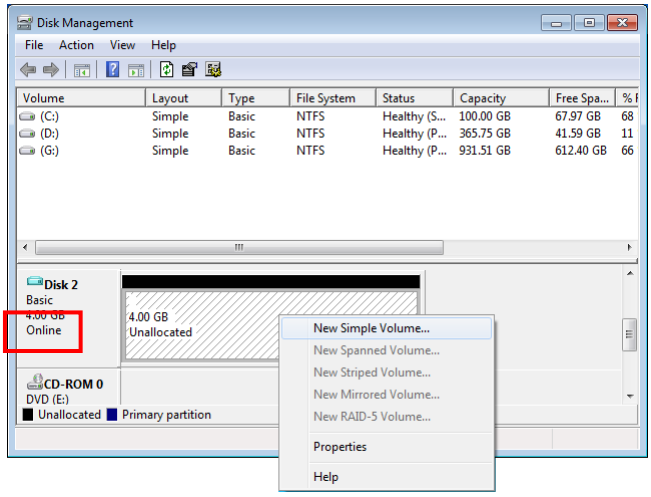


Figure 6.39

7. **New Simple Volume Wizard** will start. Click **Next**.

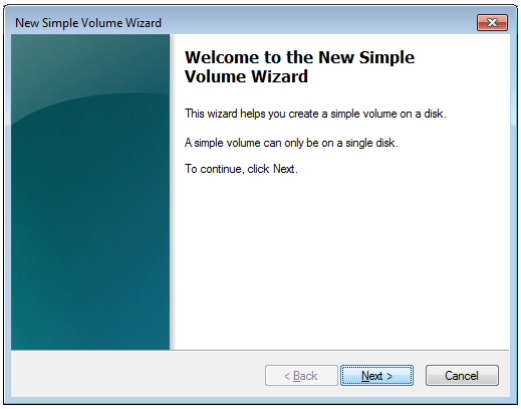


Figure 6.40

8. Enter the same value as **Maximum disk space in MB** to **Simple volume size in MB**. Click **Next**.

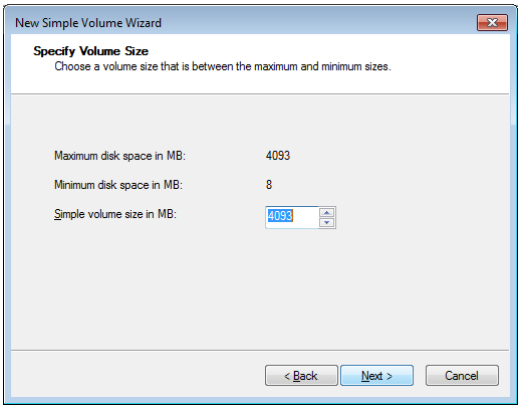


Figure 6.41

9. Select the drive letter not in use at **Assign the following drive letter**. Click **Next**.

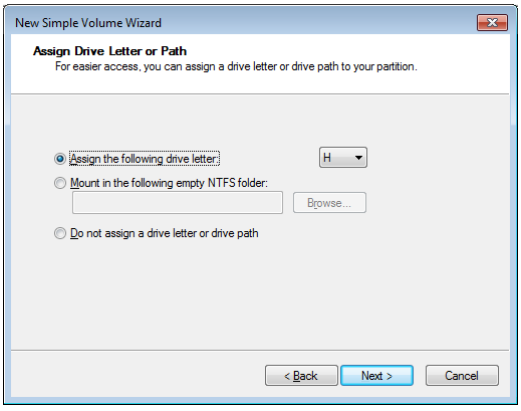


Figure 6.42

10. Select **FAT32** at **File system** and empty the field of **Volume label**. Click **Next**.

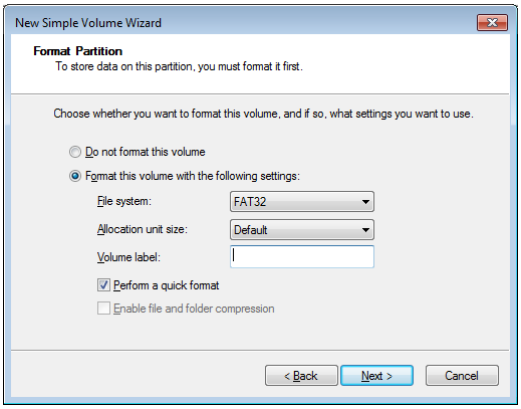


Figure 6.43

11. Make sure that the settings are correct. Click **Finish**.

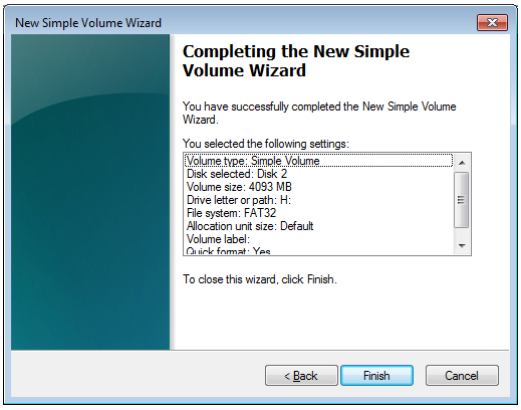


Figure 6.44

12. Return to **Disk Management**. Navigate to **Action** -> **Attach VHD**.

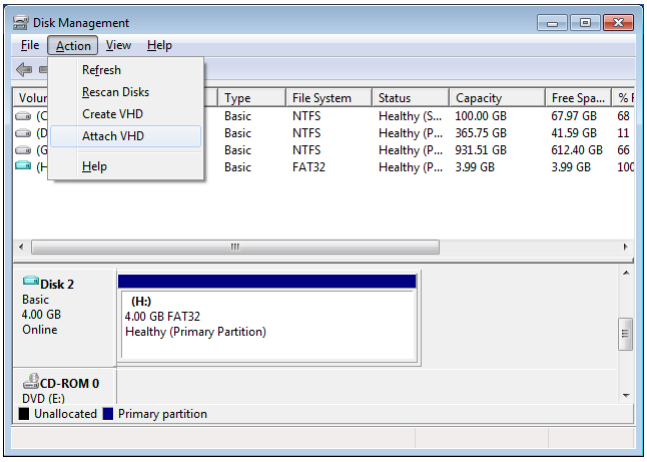


Figure 6.45

13. Select existing FlashDisk at **Location**. Click **OK**.
    In this guide, C:\DT-X200\CASIO_FLASHDISK_E.vhd is selected.

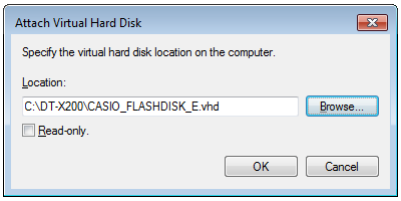


Figure 6.46

14. Copy all folders and all files in the disk attached in Step 13 by explorer. And paste the folders and the files to the disk created in Step 3.

15. Return to **Disk Management**. Right-click on the disk created in Step 3. Select **Detach VHD**.

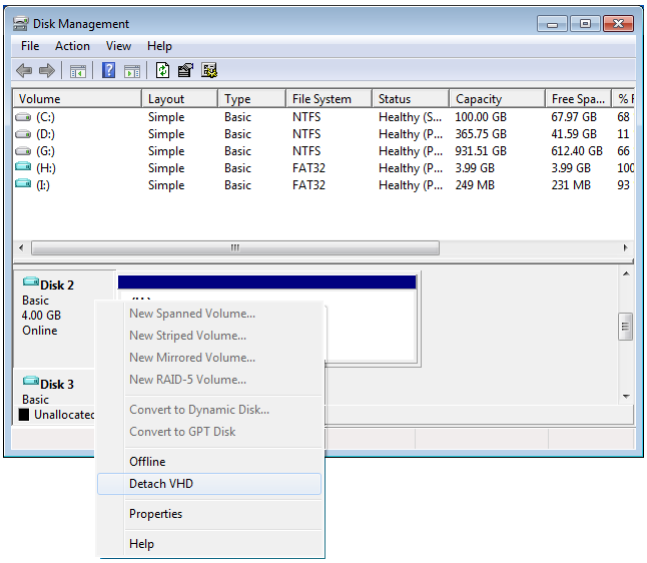


Figure 6.47

16. Make sure that the disk created in Step 3 is displayed at **Virtual hard disk file location**. Click **OK**.

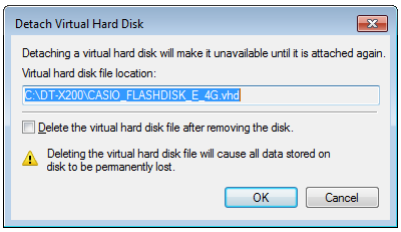


Figure 6.48

17. By the same procedure, detach the disk that is attached in Step 13.

18. Select the file for Device Emulator named **CASIO_vCEPC.vmcx**. And click **Settings**.

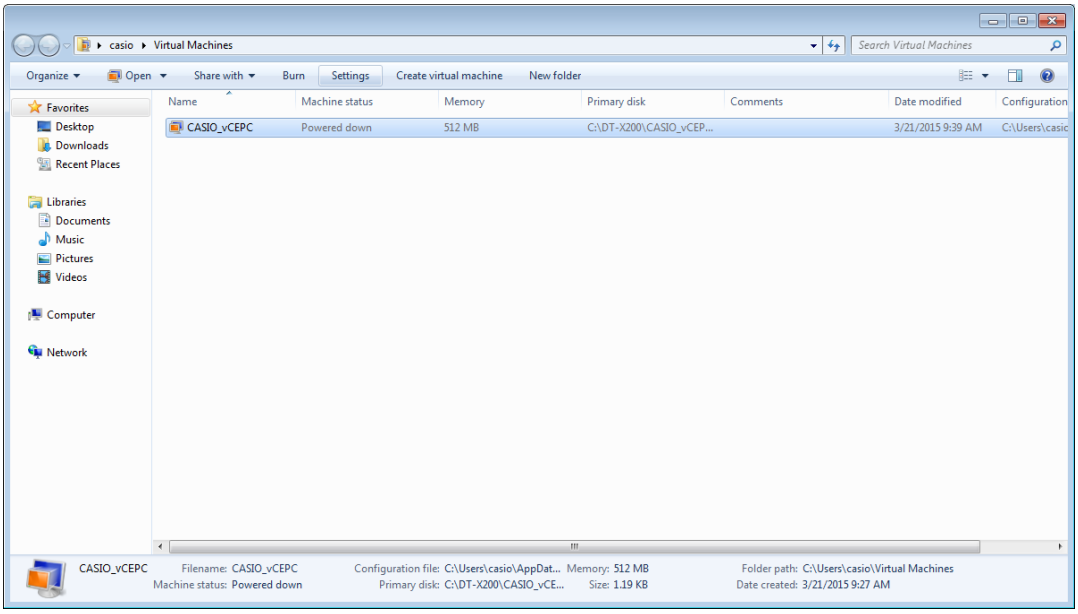


Figure 6.49

19. Select the disk created in Step 3 for Hard Disk 2. Click **OK**.

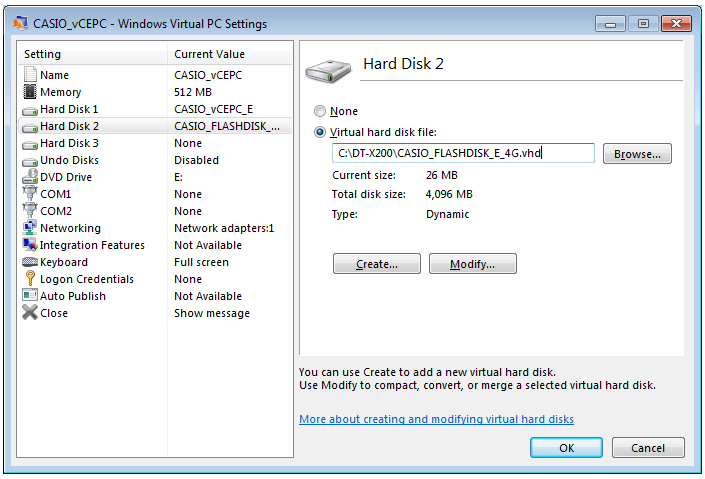


Figure 6.50

6.2 Device Emulator for WEH6.5

6.2.1 Installing Device Emulator

1. Click on **Installation List** at First Install for All Models.

Figure 6.51

2. Click on **CASIO Device Emulator WVGA for Windows Embedded Handheld 6.5**. (Select **CASIO Device Emulator VGA for Windows Embedded Handheld 6.5** if you are using the VGA Emulator.)

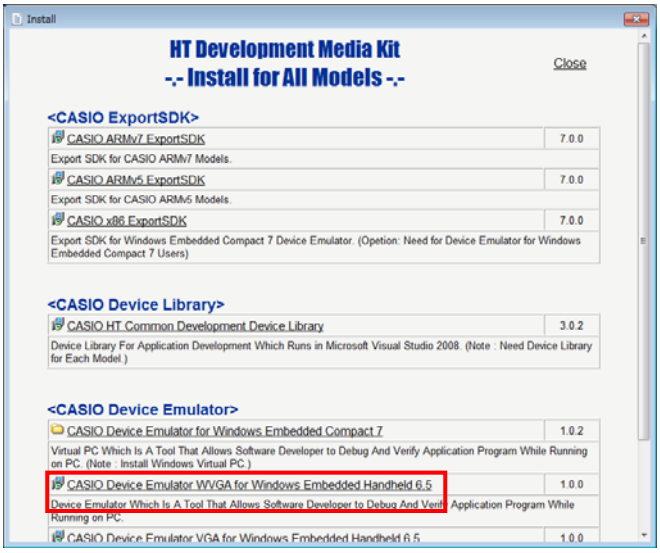


Figure 6.52

3. Press **Next**.

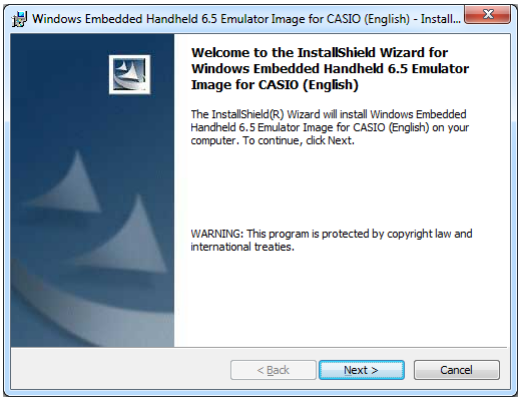


Figure 6.53

4. Agree to the software license and press **Next**.

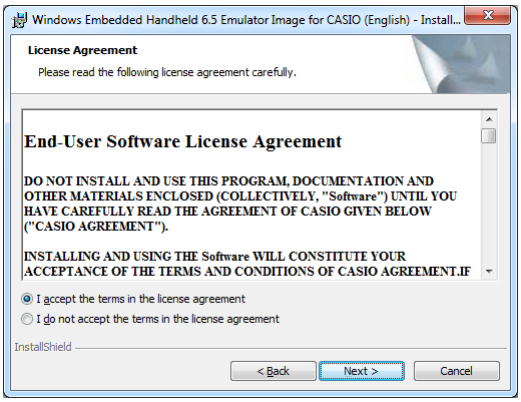


Figure 6.54

5. Enter the **User Name** and **Organization** and press **Next**.

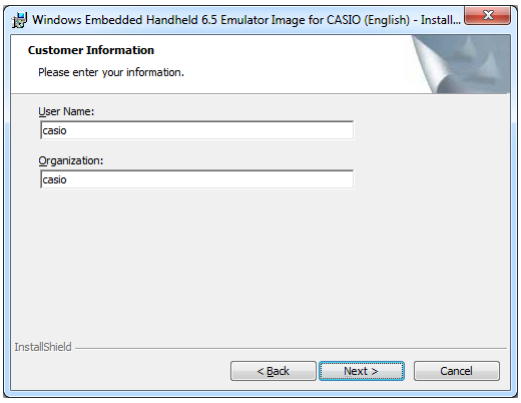


Figure 6.55

6. Change the install destination if necessary and press **Next**. By default, the software is installed in the following locations.
   32bit: C:\Program Files\Windows Mobile 6 SDK
   64bit: C:\Program Files (x86)\Windows Mobile 6 SDK

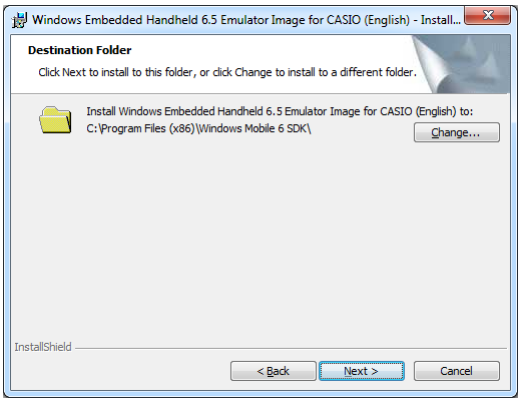


Figure 6.56

7. Press **Install**.

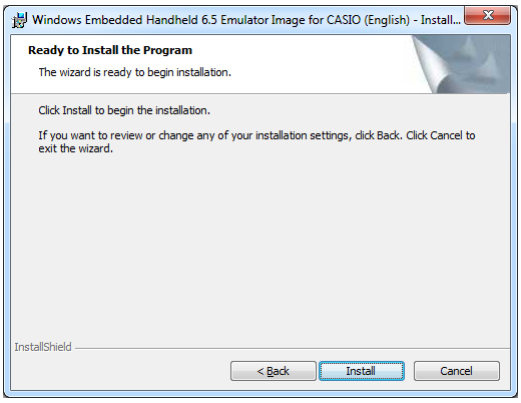


Figure 6.57

8. Press **Finish** when the install has finished.

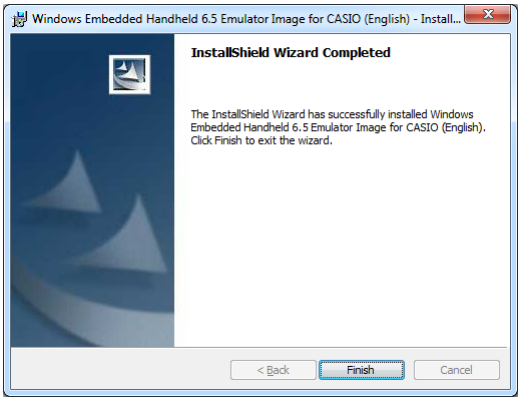


Figure 6.58

6.2.2 Starting Up Device Emulator

It requires installation of I/O Simulator to start up Device Emulator. For installation method, refer to Chapter 6.3.1 "Installing I/O Simulator". There are WVGA Device Emulator and VGA Device Emulator. In this guide, starting up method of WVGA Device Emulator is explained.

1. Navigate to **Start** -> **CASIO Device Emulator** -> **WEH6.5 WVGA**. When using VGA Device Emulator, navigate to **Start** -> **CASIO Device Emulator** -> **WEH6.5 VGA**.
2. Device Emulator will launch.

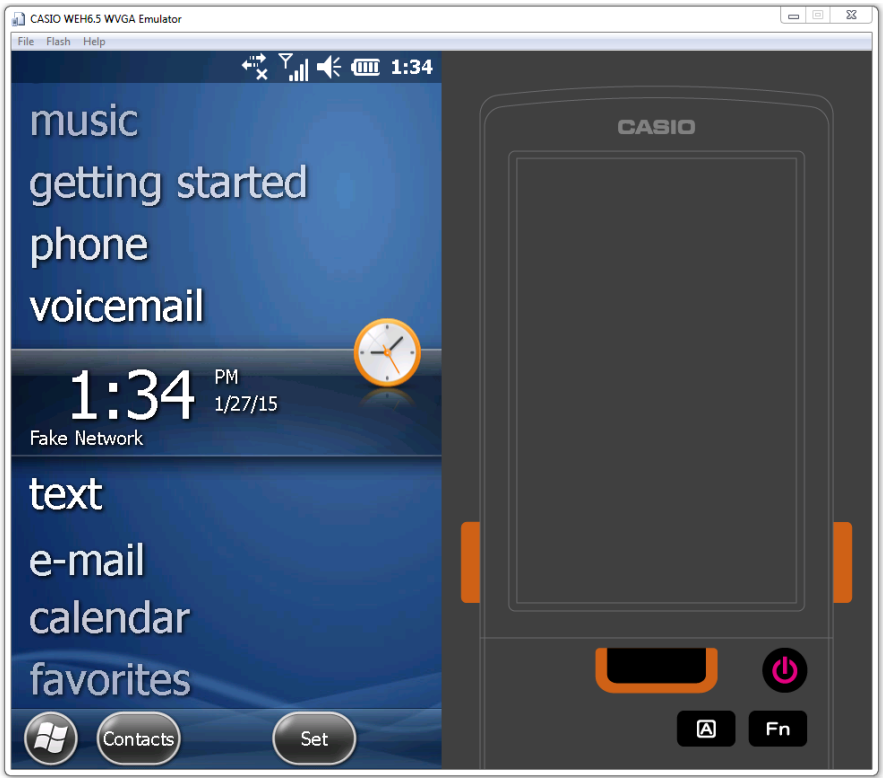


Figure 6.59

6.2.3 Connecting to Device Emulator

Setting Windows Mobile Device Center

1. Start up Windows Mobile Device Center and then navigate to **Mobile Device Settings** -> **Connection Settings**.
2. In **Connection Settings** screen, check in the **Allow connections to one of the following** box and choose **DMA** in the pull-down menu.

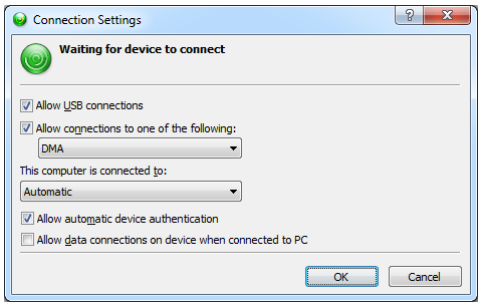


Figure 6.60

Connection via Windows Mobile Device Center

1. Navigate to **Tools** -> **Device Emulator Manager…** from the Visual Studio 2008 menu.
2. Right click on **CASIO WEH6.5 WVGA Emulator** and select **Cradle**.

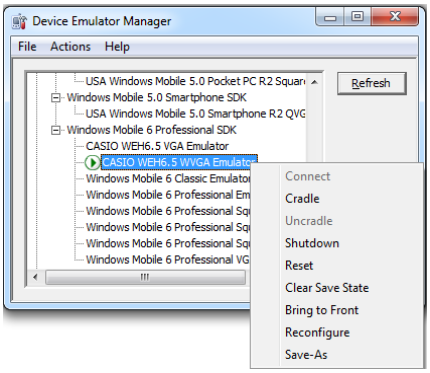


Figure 6.61

3. Windows Mobile Device Center launches and the  icon appears on status bar in Device Emulator.

6.3 I/O Simulator

The next section continues by explaining how to install the software needed to use the I/O simulator.

6.3.1 Installing I/O Simulator

If the old version of **CASIO IO Simulator** is already installed, uninstall it. And if there is **CASIO Device Emulator** in list of Uninstall a program of Control Panel, also uninstall it. After the uninstallation has been completed, follow the procedure below to install CASIO IO Simulator.

1. Install the **CASIO IO Simulator** in the **Installation List** at First Install for All Models on the product CD-ROM.

Figure 6.62

2. Enable sharing for the following folder, if you will use Device Emulator for WEC7. Enable read and write access permissions.
   C:\ProgramData\CASIO

6.3.2 Starting Up I/O Simulator

1. Navigate to CASIO Device IO Simulator on start menu.
2. Following message is displayed. If you will use Device Emulator for WEC7, press **Yes**.

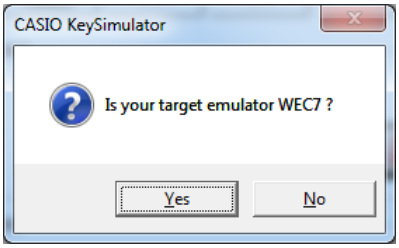
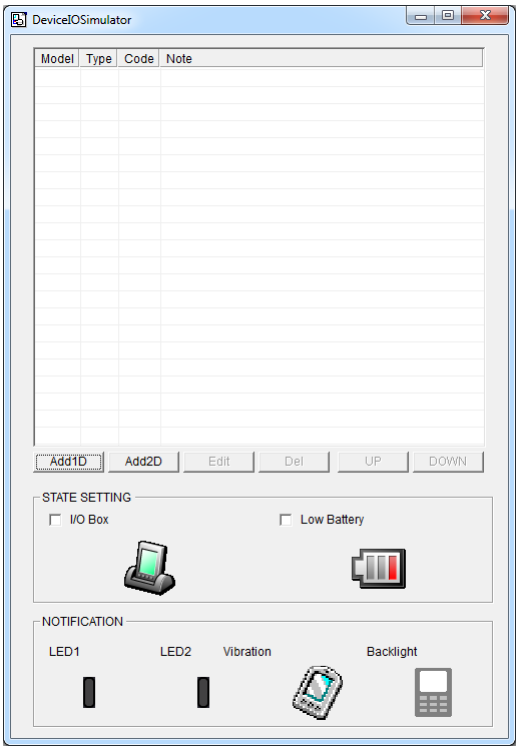


Figure 6.63

3. IO Simulator and Key Simulator start.



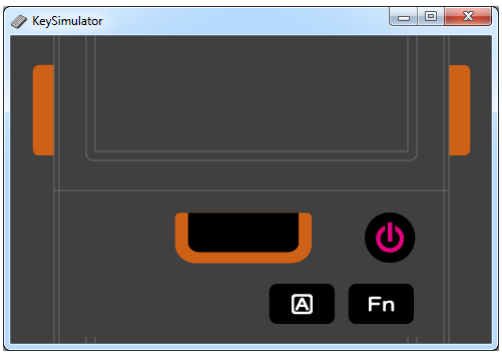


Figure 6.64

6.3.3 Operating I/O Simulator

The I/O Simulator simulates registration of bar codes, generation of low battery warning, detection of terminal being mounted on the cradle.

Registration of bar code symbologies

1. Registration
   Click **ADD1D** or **ADD2D** button (circled in red in Figure 6.65) to go into the bar code registration mode.

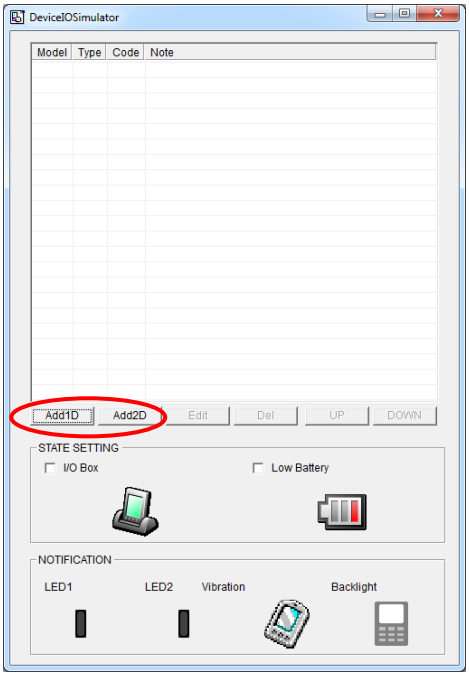


Figure 6.65

2. Bar code registration
   Choose a bar code symbology in the **Code Type** pull-down menu that you wish to register in the **I/O Simulator**.

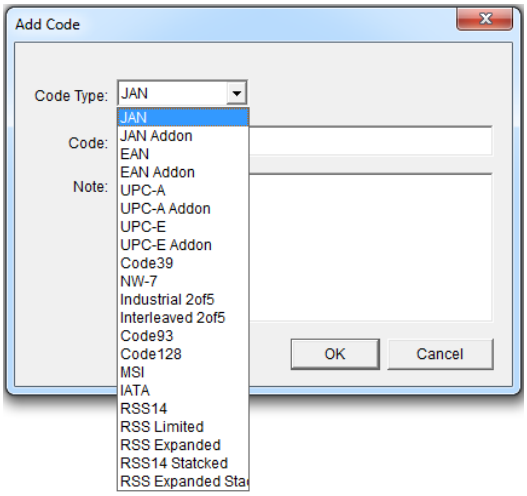


Figure 6.66

3. Registration of bar code and note

   Enter bar code data in the **Code** field (see Figure 6.67) and a note about the bar code in the **Note** field if necessary. Click **OK** button to complete the bar code registration.

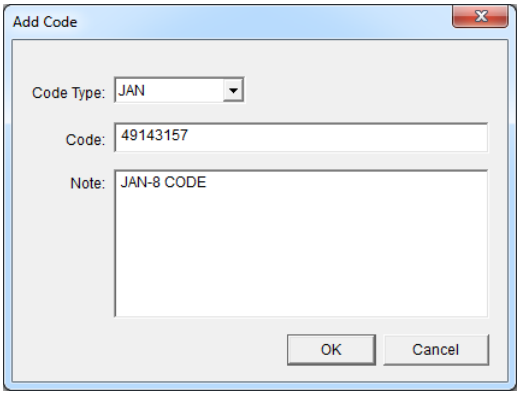


Figure 6.67

4. Completion of registration

   After completion of the bar codes registration, the screen in Figure 6.68 shows a list of bar codes that have been registered in the **I/O Simulator**. Prior to debugging with the **Device Emulator**, make sure that you register all bar codes you wish to use in debugging.

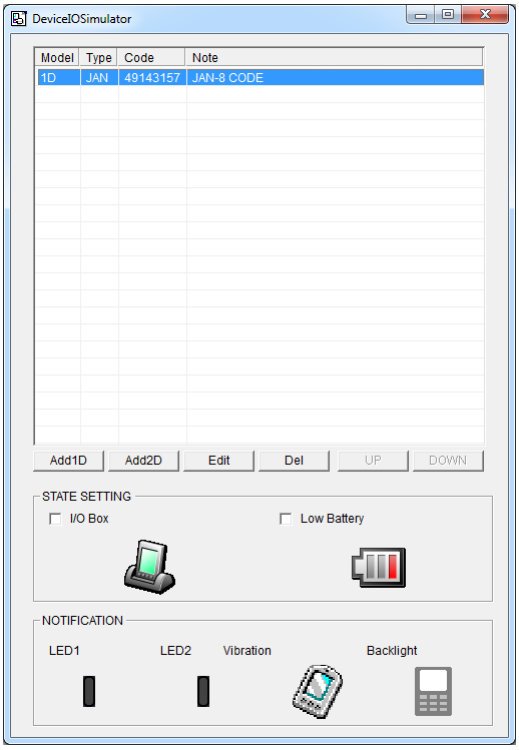


Figure 6.68

5. Editing registered bar code content
   Highlight a bar code in the list of registered bar codes (see Figure 6.68) and click **Edit** button. Figure 6.69 appears for editing the bar code and its information.

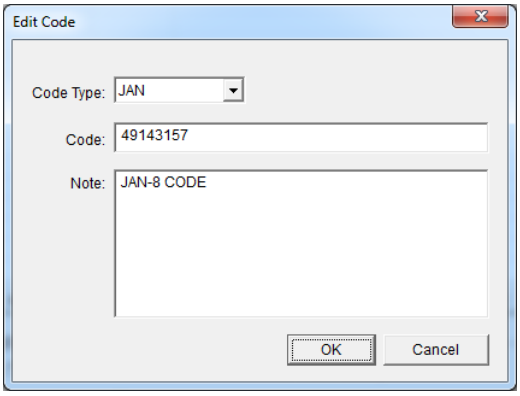


Figure 6.69

6. Deleting registered bar code content
   Highlight a bar code in the list of registered bar codes (see Figure 6.68) and click the **Del** button. Dialogue screen in Figure 6.70 appears for you to confirm the deletion. If it is okay to delete, click **Yes** button, otherwise click **No** button.

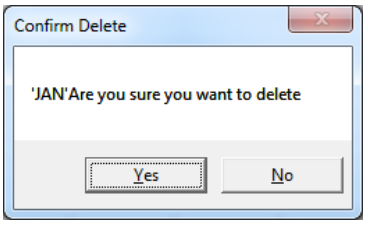


Figure 6.70

Detection of Terminal in Cradle and Low Battery Warning

If you check the **I/O Box** and **Low Battery** boxes in STATE SETTING field (see Figure 6.71), the simulator simulates the respective events in the emulator.

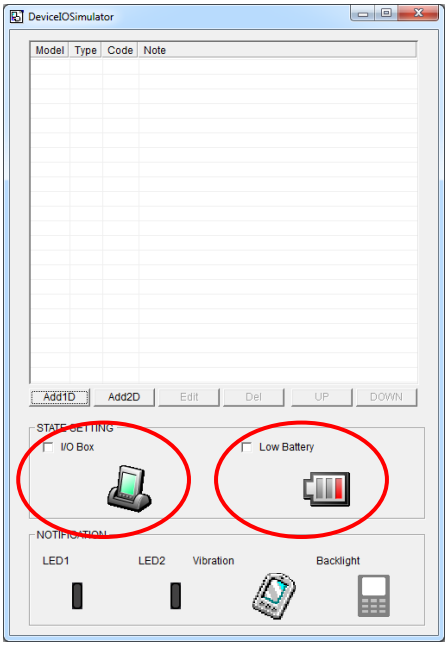


Figure 6.71

I/O Box

If this box is checked, a notification is issued that the connection between the **Device Emulator** and cradle has been established. This notification can be utilized by the application.

Low Battery

If this box is checked, a notification that a low battery state has occurred is raised. The icon in the Toolbar in the emulated screen appears too. The notification can be utilized by the application to recognize the low battery state in the hardware.

Indications

The I/O Simulator expresses a change of state that occurred in the **Device Emulator**.

- LED

When the **Device Emulator** turns on the LED, the LED icon (LED2) in the I/O Simulator also turns on. See Figure 6.72.

- Vibration

When the **Device Emulator** vibrates, the vibration icon in the I/O Simulator also turns on. See Figure 6.72.

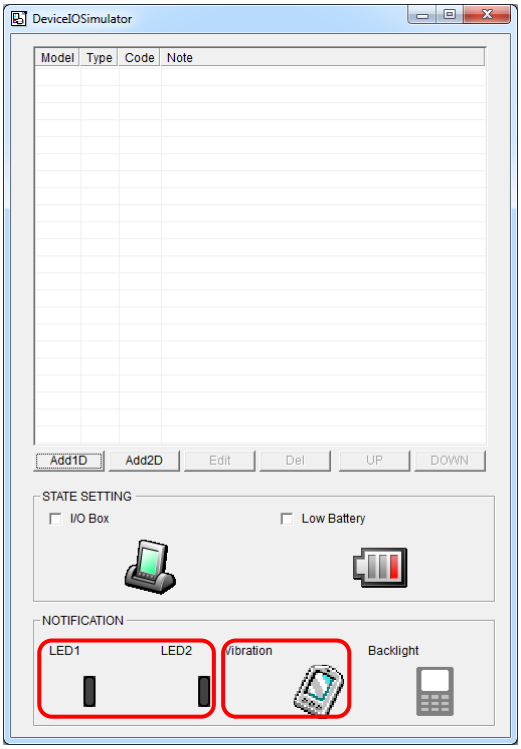


Figure 6.72

Keys

A key event is notified to Device Emulator by input on the Key Simulator.
If you use key which doesn't exist in Key Simulator, input by keyboard of PC.

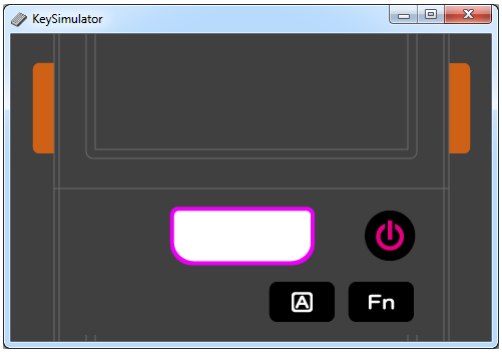


Figure 6.73

7. Visual Studio

This chapter describes application development steps in Visual Studio 2008 to create an example program.

The example program referred to in this chapter is an application program developed in three development environments - C++, Visual Basic and C# - using the CASIO Common Device Control Library or Common Device Control Class Library. The example program for all three environments repeats turning on and off the LED to brink for a period of 5 seconds.

The example program in this chapter runs also in the Device Emulator.

7.1 Developing in VB

This chapter describes necessary steps to develop the example application program in VB environment using the Common Device Control Class Library.

Application Development Procedure

Subsequent steps show how to create and start up a simple program using one of the system functions. When running the program, the LED will blink in red for 5 seconds.

1. Create a new VB Smart Device Application in Visual Studio.

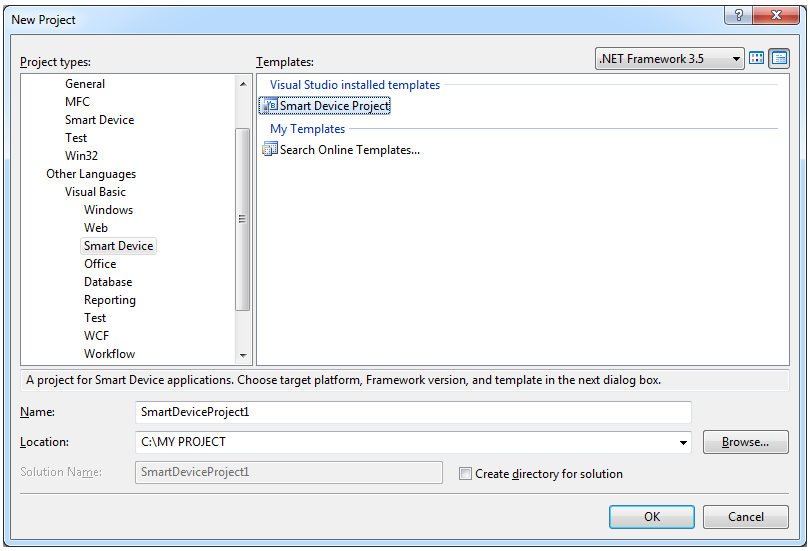


Figure 7.1

2. Select **WindowsCE** for Target platform and select **Device Application** from Templates.

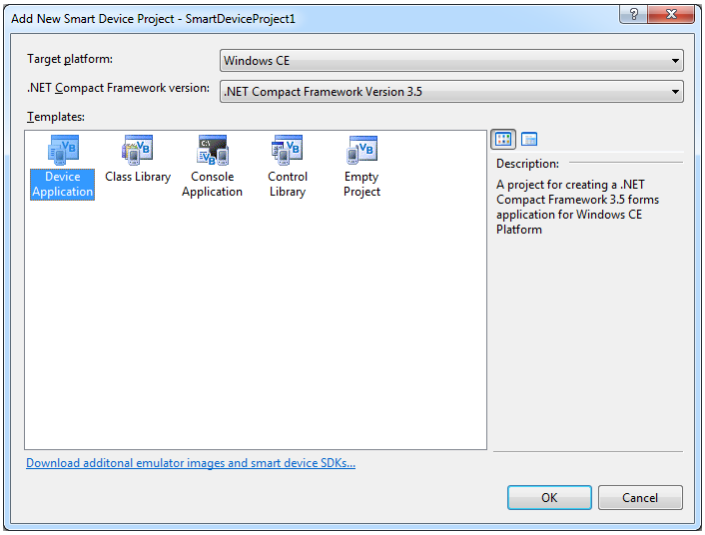


Figure 7.2

3. Navigate to **Project** -> **Add Reference** from the Visual Studio 2008 menu.

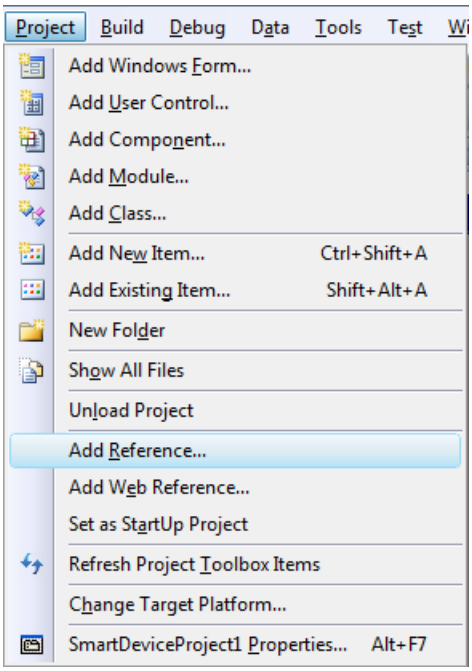


Figure 7.3

4. Click **Browse** tab.

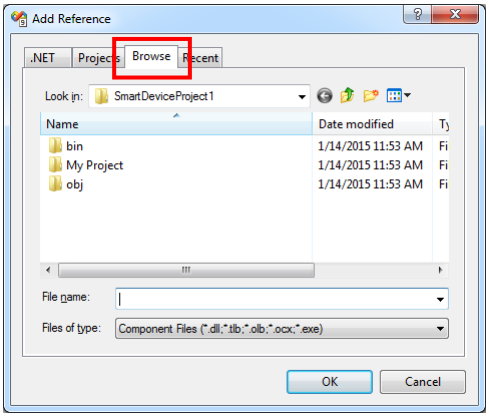


Figure 7.4

5. Reference folder which Class Library is installed, and select **SystemLibNet.dll**.
   32bit: C:\Program Files\CASIO\MBSYS\WindowsCE
   64bit: C:\Program Files (x86)\CASIO\MBSYS\WindowsCE

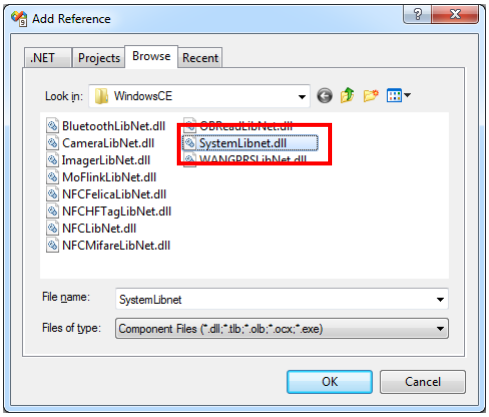


Figure 7.5

6. Click **OK** to close the dialog.

7. Change form size to 240,320 by form property.
8. Add a button to the form, rename it **SetLED.**

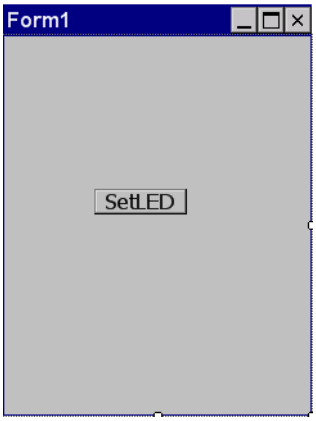


Figure 7.6

9. Double click the button. named **SetLED** to display code of the form.

10. In the event function for the button to click, add the following code.

```
Dim result As Int32
Dim msg As String

result = Calib.SystemLibNet.Api.SysSetLED( _
          Calib.SystemLibNet.Def.LED_RED, 5, 8, 8)

'.NET vales of "true" and "false" are "-1" and "0" respectively.
If result = -1 Then
   result = Calib.SystemLibNet.Api.SysGetLED()
   Select Case (result And &HF)
      Case Calib.SystemLibNet.Def.LED_OFF
         msg = "LED_OFF"
      Case Calib.SystemLibNet.Def.LED_RED
         msg = "LED_RED"
      Case Calib.SystemLibNet.Def.LED_GREEN
         msg = "LED_GREEN"
      Case Calib.SystemLibNet.Def.LED_ORANGE
         msg = "LED_ORANGE"
      Case Calib.SystemLibNet.Def.LED_BLUE
         msg = "LED_BLUE"
      Case Calib.SystemLibNet.Def.LED_CYAN
         msg = "LED_CYAN"
      Case Calib.SystemLibNet.Def.LED_MAGENTA
         msg = "LED_MAGENTA"
      Case Else
         msg = "LED_UNKNOWN"
   End Select
   MessageBox.Show(msg, "LED")
End If
```

Note:
If you type this code manually you should see the IntelliSense offer you suitable options as appropriate. If you do not, make sure you review steps 1 to 5 to make sure you have added the reference correctly.

11. Navigate to **Build** -> **Build Solution** from the Visual Studio 2008 menu to build application.

12. Initiate **Windows Mobile Device Center** to establish connection between the device and PC.

13. Choose Deploy <name of project> on Build menu.

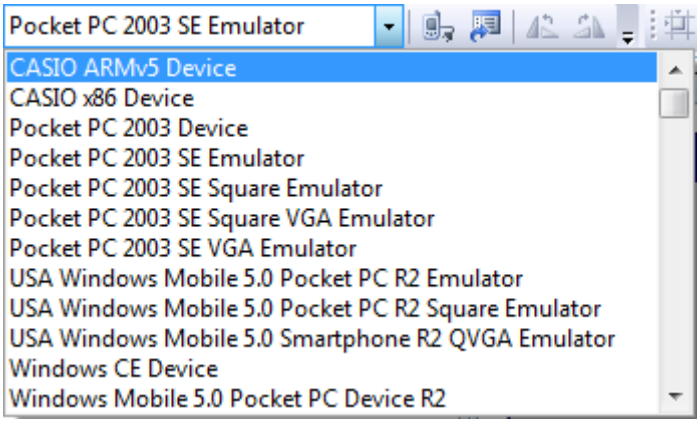


Figure 7.7

Table 7.1

Build menu	Device
CASIO ARMv5 Device	DT-X100 / DT-X200
CASIO ARMv7 Device	IT-G500 WEC7 Model
CASIO x86 Device	Device Emulator for WEC7
Windows Mobile 6 Professional Device	IT-G500 WEH6.5 Model
CASIO WEH6.5 WVGA Emulator	WVGA Device Emulator for WEH6.5
CASIO WEH6.5 VGA Emulator	VGA Device Emulator for WEH6.5

14. Navigate to **Debug** -> **Start Debugging** or **Start Without Debugging** from the Visual Studio 2008 menu.

    The project will be built and copied to the device. By default, it will be copied to **\Program Files\<name of project>** folder. **SystemLibNet.dll** will be deployed to the same folder.

    Check that the program works correctly on the device.

7.2 Developing in C#

This chapter describes necessary steps to develop the example application program (see Chapter 8) in C# environment using the Common Device Control Class Library.

Application Development Procedure

Subsequent steps show how to create and start up a simple program using one of the system functions. When running the program, the LED will blink in red for 5 seconds.

1. Create a new C# Smart Device Application in Visual Studio .NET.

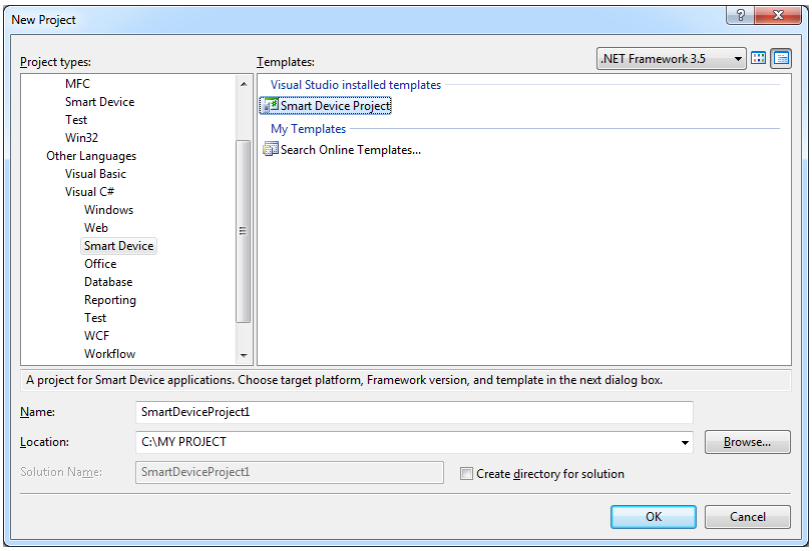


Figure 7.8

2. Select **WindowsCE** for Target platform and select **Device Application** from Templates.

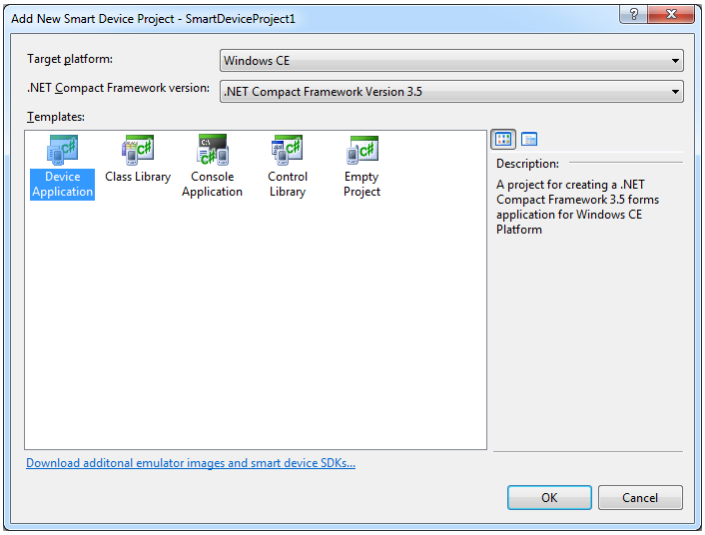


Figure 7.9

3. Navigate to **Project** -> **Add Reference** from the Visual Studio 2008 menu.

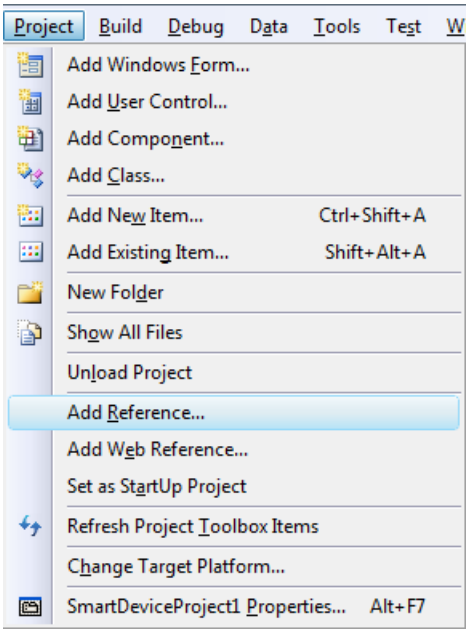


Figure 7.10

4. Click **Browse** tab.

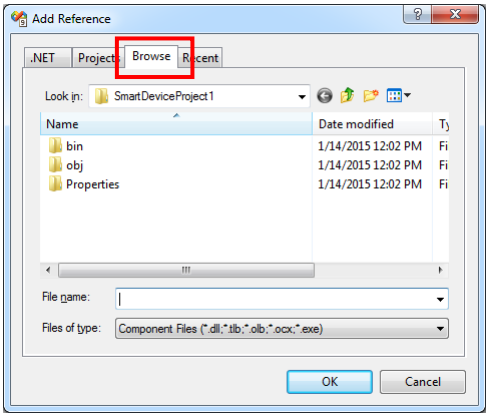


Figure 7.11

5. Reference folder which Class Library is installed, and select **SystemLibNet.dll**.
   32bit: C:\Program Files\CASIO\MBSYS\WindowsCE
   64bit: C:\Program Files (x86)\CASIO\MBSYS\WindowsCE

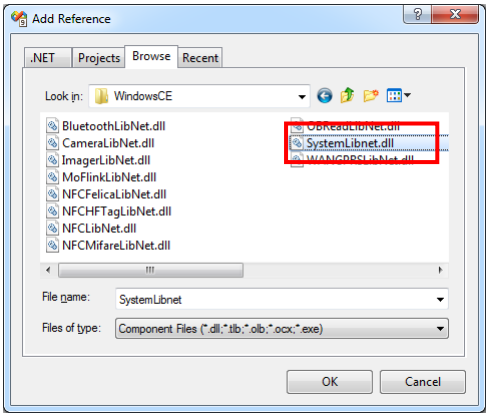


Figure 7.12

6. Click **OK** to close the dialog.

7. Change form size to 240,320 by form property.
8. Add a button to the form, rename it **SetLED.**

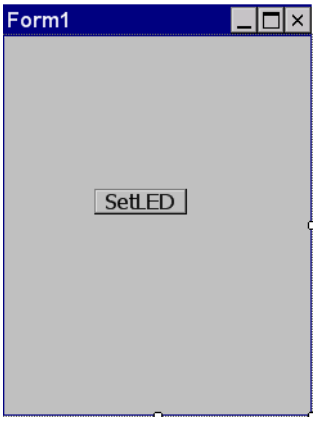


Figure 7.13

9. Double click the button. named **SetLED** to display code of the form.

10. At the top of your source file add the following code.

```
using Calib;
```

11. Add a button to your form, rename it LED and double click it and then add the following code:

```
Int32 result = new Int32();
string msg;

result = SystemLibNet.Api.SysSetLED(SystemLibNet.Def.LED_RED, 5,
8, 8);

// .Net values "true" and "false" are "-1" and "0" respectively.
if(result == -1)
{
    result = SystemLibNet.Api.SysGetLED();
    switch(result & 0x0000000F)
    {
        case SystemLibNet.Def.LED_OFF:
            msg = "LED_OFF";
            break;
        case SystemLibNet.Def.LED_RED:
            msg = "LED_RED";
            break;
        case SystemLibNet.Def.LED_GREEN:
            msg = "LED_GREEN";
            break;
        case SystemLibNet.Def.LED_ORANGE:
            msg = "LED_ORANGE";
            break;
        case SystemLibNet.Def.LED_BLUE:
            msg = "LED_BLUE";
            break;
        case SystemLibNet.Def.LED_CYAN:
            msg = "LED_CYAN";
            break;
        case SystemLibNet.Def.LED_MAGENTA:
            msg = "LED_MAGENTA";
            break;
        default:
            msg = "LED_UNKNOWN";
            break;
    }
    MessageBox.Show( msg, "LED");
}
```

Note:
If you add this code manually you should see the IntelliSense offer you suitable options as appropriate. If you do not see this, then review steps 2 to 4 in the previous page to make sure you have not made a mistake.

12. Navigate to **Build** -> **Build Solution** from the Visual Studio 2008 menu to build application,.

13. Initiate **Windows Mobile Device Center** to establish connection between the device and PC.

14. Select Deploy <name of project> on Build menu.

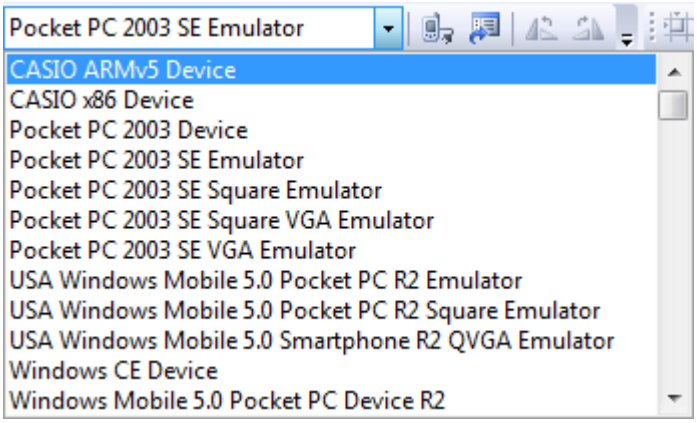


Figure 7.14

Table 7.2

Build menu	Device
CASIO ARMv5 Device	DT-X100 / DT-X200
CASIO ARMv7 Device	IT-G500 WEC7 Model
CASIO x86 Device	Device Emulator for WEC7
Windows Mobile 6 Professional Device	IT-G500 WEH6.5 Model
CASIO WEH6.5 WVGA Emulator	WVGA Device Emulator for WEH6.5
CASIO WEH6.5 VGA Emulator	VGA Device Emulator for WEH6.5

15. Navigate to **Debug** -> **Start Debugging** or **Start Without Debugging** from the Visual Studio 2008 menu.

    The project will be built and copied to the device. By default, it will be copied to **\Program Files\<name of project>** folder. **SystemLibNet.dll** will be deployed to the same folder.

    Check that the program works correctly on the device.

7.3 Developing in C++

This chapter describes necessary steps to develop the example application program in C++ environment using the Common Device Control Library.

1. Create a new C++ **Win32 Smart Device Project** in Visual Studio 2008.

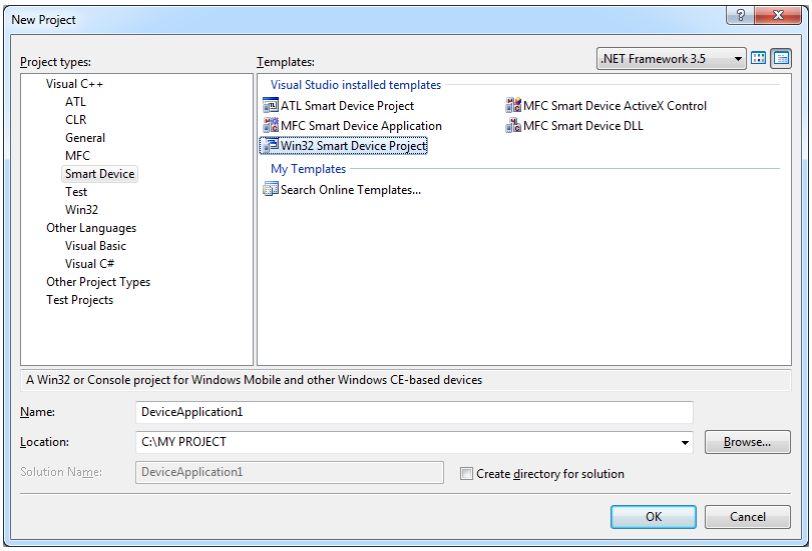


Figure 7.15

2. Press **Next**.

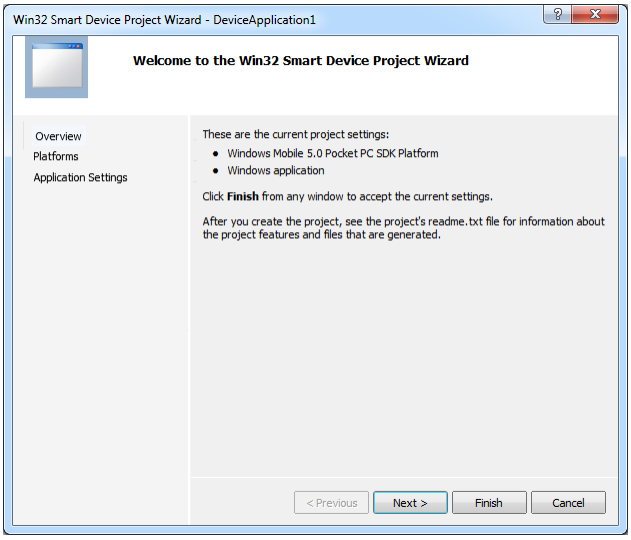


Figure 7.16

3. Choose **Windows Mobile 5.0 Pocket PC SDK** in the Selected SDKs field in the Platforms of Win32 Smart Device Project Wizard and click **<** button.

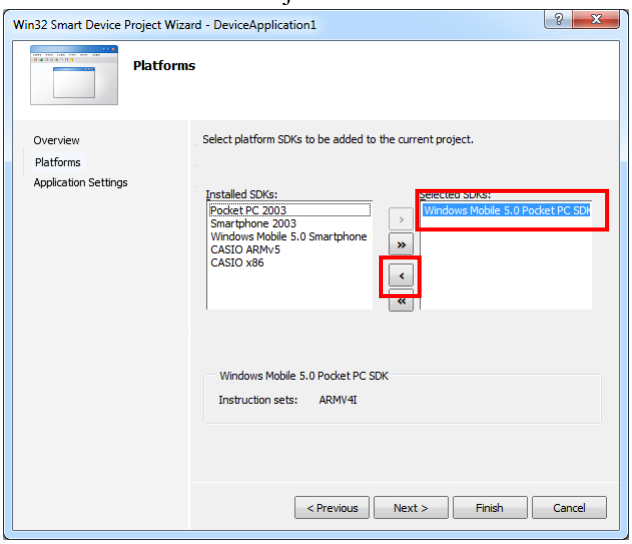


Figure 7.17

4. Choose SDK for device which you will use in the **Installed SDKs** field and click **>** button. In this guide, 2 of all SDK is chosen.

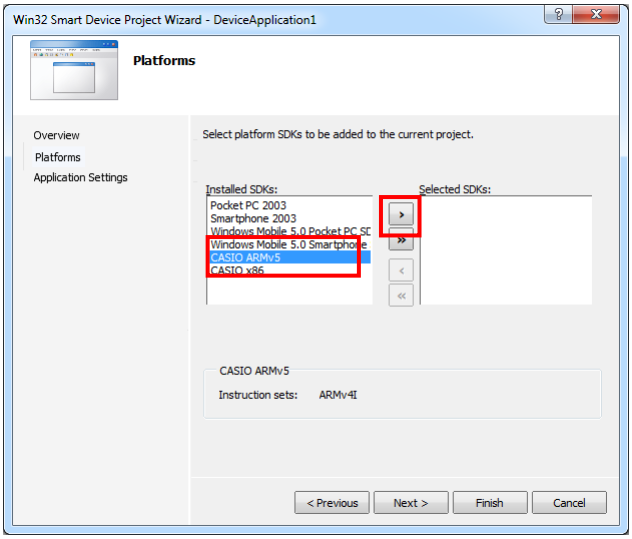


Figure 7.18

Table 7.3

SDK	Device
CASIO ARMv5	DT-X100 / DT-X200
CASIO ARMv7	IT-G500 WEC7 Model
CASIO x86	Device Emulator for WEC7
Windows Mobile 6 Professional SDK	IT-G500 WEH6.5 Model / Device Emulator for WEH6.5

5. Confirm that there are **CASIO ARMv5**, **CASIO ARMv7**, **CASIO x86** and **Windows Mobile 6 Professional SDK** in the Selected SDKs field, and press **Next**.

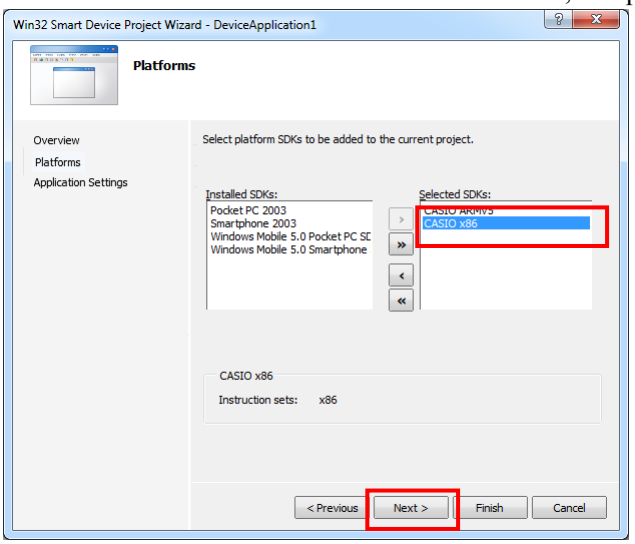


Figure 7.19

6. Choose **Console application** for the Application type in the Application Settings menu, and press **Finish**.

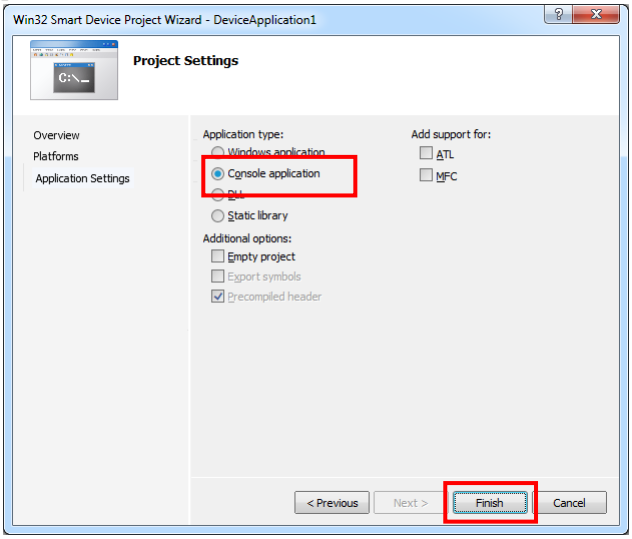


Figure 7.20

7. In Solution Explorer, click **DeviceApp.cpp** and then append the source code below subsequent to "#include <commctrl.h>".

```
#include <SystemLib.h>
#if !defined(_countof)
#define _countof(_Array) (sizeof(_Array) / sizeof(_Array[0]))
#endif
```

8. Append the source code below in the main function of **DeviceApp.cpp**.

```
DWORD result;
TCHAR msg[16];

result = SysSetLED(LED_RED, 5, 8, 8);

if(result == TRUE)
{
    result = SysGetLED();
    switch(result & 0x0000000F) {
    case LED_OFF:
        wcscpy_s( msg, _countof(msg), TEXT("LED_OFF") );
        break;
    case LED_RED:
        wcscpy_s( msg, _countof(msg), TEXT("LED_RED") );
        break;
    case LED_GREEN:
        wcscpy_s( msg, _countof(msg), TEXT("LED_GREEN") );
        break;
    case LED_ORANGE:
        wcscpy_s( msg, _countof(msg), TEXT("LED_ORANGE") );
        break;
    case LED_BLUE:
        wcscpy_s( msg, _countof(msg), TEXT("LED_BLUE") );
        break;
    case LED_CYAN:
        wcscpy_s( msg, _countof(msg), TEXT("LED_CYAN") );
        break;
    case LED_MAGENTA:
        wcscpy_s( msg, _countof(msg), TEXT("LED_MAGENTA") );
        break;
    default:
        wcscpy_s( msg, _countof(msg), TEXT("LED_UNKNOWN") );
        break;
    }
    MessageBox(NULL, msg, TEXT("LED"), MB_OK);
}
```

9. Navigate to **Build** -> **Compile** from the Visual Studio 2008 menu to build application.

10. Navigate to **Project** -> **DeviceApplication1 Properties** from the Visual Studio 2008 menu.

11. Navigate to **Configuration Properties** -> **Linker** -> **Input** -> **Additional Dependencies** and then append **SystemLib.lib** (see red circle in Figure 7.21).

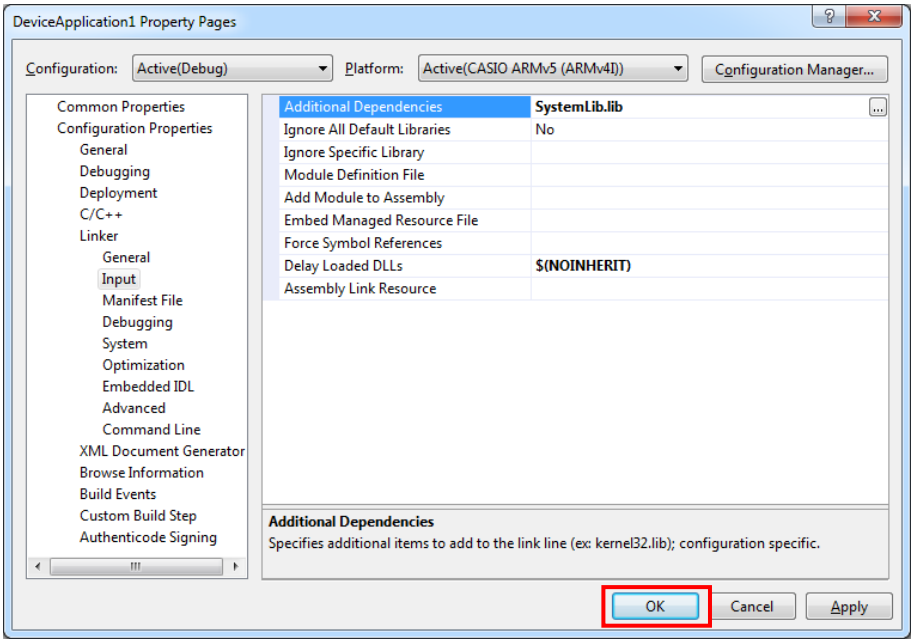


Figure 7.21

12. Choose **Device** for the Target to establish connection with the PC.

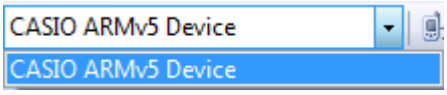


Figure 7.22

Table 7.4

Build menu	Device
CASIO ARMv5 Device	DT-X100 / DT-X200
CASIO ARMv7 Device	IT-G500 WEC7 Model
CASIO x86 Device	Device Emulator for WEC7
Windows Mobile 6 Professional Device	IT-G500 WEH6.5 Model
CASIO WEH6.5 WVGA Emulator	Device Emulator for WEH6.5

13. Navigate to **Debug** -> **Start Debugging** or **Start Without Debugging** from the Visual Studio 2008 menu.

    The project will be built and copied to the device. By default, it will be copied to **\Program Files\<name of project>** folder.

    Check that the program works correctly on the device.

8. Resources

Microsoft's own http://msdn.microsoft.com/mobility/default.aspx is an extremely comprehensive resource for programmers targeting WindowsCE .NET based devices. It includes links to most other useful web based resources. You will find detailed Software and Library manuals on http://world.casio.com/system/pa.