LMWIN

Communication Utility Manual

(Version 1.13)

CASIO Computer Co., Ltd.

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Editorial Record

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		10	In Chapter 2.1.4, explanation about IT-9000 is added.
		56 - 65	In Chapter 3.4.3, explanation about Update the driver for USB cradle is added.
		136	In Chapter 5.3, explanation about IT-9000 is added.
		144	In Chapter 6, explanation about concurrent USB connection via the LMWIN and ActiveSync/Windows Mobile Device Center is improved.
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		9, 10, 12	In Chapter 2.1, explanation about DT-970 is added.
		13	In Chapter 2.2.2, explanation about DT-970 is added.
		14	In Chapter 2.3 (Operating System), explanation about Windows 8 Professional and DT-970 is added.
		14	In Chapter 2.3 (Access-able Terminal by Interface), explanation about USB(USB-SERIAL) is added.
		20	In Chapter 3.2.1, explanation about installed files (usbser.cat, usbser.inf) is added.
		22	In Chapter 3.4, explanation about USB(USB-SERIAL) is added.
		67 - 76	In Chapter 3.4 , chapter 3.4.4 "Installing the Driver for USB Cradle (USB-SERIAL)" is added
		86	In Chapter 3.6.5, explanation about USB(USB-SERIAL) is added.
		128	In Chapter 3.11, chapter 3.11.5 "USB(USB-SERIAL) Interface" is added
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1.12	December 2013	107, 109	In Chapter 3.9.1, explanation about the configuration (device..ini) of TCP/IP, TCP/IP(NEW), B.S/B.B, USB-SERIAL is added
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		50 ,59, 61, 71, 72 78, 80	In Chapter 3.4.3, explanation about Windows Server 2012 R2 Standard (64bit) and Windows 8.1 Professional (32bit/64bit) is added.
		142	In Chapter 5.1, explanation about the parameter of FLCE is modified.
		144	In Chapter 5.2.1, explanation about the parameter of FLCE is modified.
		151	In Chapter 5.2.8, explanation about the parameter of FLCE is modified.
		159	In Chapter 6, explanation about Windows Server 2012 R2 Standard (64bit) and Windows 8.1 Professional (32bit/64bit) is added.

1. Overview

This reference manual explains about the LMWIN utility. It describes installation methods, configuration settings, etc. for system configuration required for communication between an applicable CASIO handheld terminal and PC. The object of the utility is to perform the following tasks.

- Send and receive files between the terminal via cradle and PC.
- Remote two-way and one-way command execution (sounding the buzzer, format, etc.)
- Script file execution on PC

Refer also to the dedicated reference manuals (software, hardware and library) available for the respective series of handheld terminal if necessary.

1. Applicable handheld terminal models
    DT-900 series
    DT-930 series
    DT-X5 series
    DT-X7 series
    DT-X10 series
    DT-X11 series
    IT-10 series
    IT-500 series
    IT-600 series
    IT-800 series
    IT-3000 series
    IT-3100 series
    DT-X30 series
    DT-X8 series
    IT-300 series
    IT-9000 series
    DT-970 series

2. System Configuration

This chapter explains system configurations with cradles and software to be employed for the LMWIN operations.

2.1　Interface Mode

2.1.1　RS-232C Mode

This RS-232C interface mode is used to connect the terminal with PC.

- Applicable model and its cradle
   DT-900 via DT-964IO Satellite Cradle

- Connecting the terminal with PC via the cradle
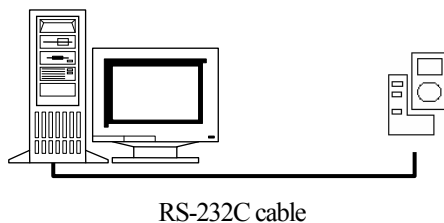
- Communication between the terminal and PC with RS-232C cable
- Maximum 115.2 Kbps
- Chain connection via RS-422 interface (max. 8 terminals)

RS-232C cable

Figure 2.1

- Connecting the terminal directly with PC
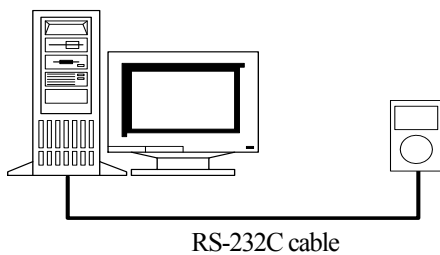
- Communication directly between the terminal and PC with RS-232C cable
- Maximum 115.2 Kbps

RS-232C cable

Figure 2.2

2.1.2 TCP/IP (New) Mode

The TCP/IP (New) mode is used for communication between the terminal and PC in the WLAN configuration.

- Applicable model and its cradle

    IT-600 via HA-D62IO Ethernet Cradle or WLAN

    DT-X7 via HA-F62IO Ethernet Cradle or WLAN

    DT-X30 via HA-G62IO Ethernet Cradle or WLAN

    IT-800 via HA- H62IO Ethernet Cradle or WLAN

    IT-300 via WLAN

    DT-X8 via HA- K62IO Ethernet Cradle or WLAN

    IT-9000 via HA- L62IO Ethernet Cradle or WLAN

    DT-970 via HA- N62IO Ethernet Cradle

- Communication between the terminal and PC in WLAN
- The no. of connectable terminals is logically 256. However, it depends on the condition (network load, specifications on the partner PC, specifications of the terminal itself, etc.)
- Concurrent operation by multiple terminals (the no. of multiple terminals is set according to the configuration setting.)
- The communication speed depends on the RF standard employed and the condition of radio wave in the air.

Ethernet

AccessPoint

. . .

Figure 2.3

2.1.3 B.S/B.B(IOBOX) Mode

This mode is to connect the terminal with PC via one of the cradles in one-to-one configuration or in chain configuration.

- Applicable model and its cradle
    - IT-500 via IT-564IOE Bridge Satellite Cradle
    - DT-X10 via DT-160IOE Bridge Satellite Cradle
    - DT-X11 via DT-160IOE Bridge Satellite Cradle
    - IT-3000/IT-3100 via HA-B61IO Bridge Satellite Cradle
    - DT-X5 via HA-A61IO Bridge Satellite Cradle
    - IT-10 via HA-C61IO Bridge Satellite Cradle
    - DT-930 via HA-E60IO Bridge Basic Cradle
    - DT-970 via HA-E60IO Bridge Basic Cradle

- Connecting the terminal to PC via cradle

- Communication between the terminal and PC via USB/RS-232C cable
- Communication speeds are as follows.
    4 Mbps/115.2 Kbps (max.) for USB connection
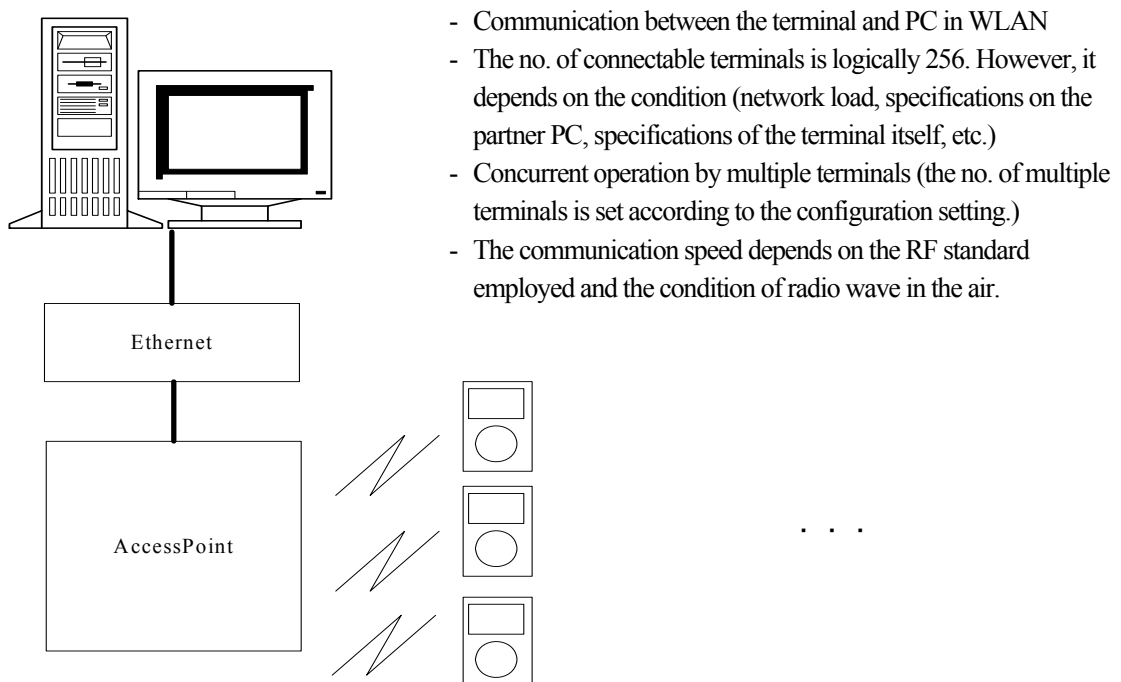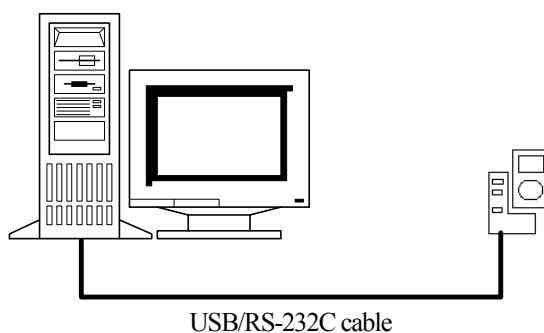   115.2 Kbps (max.) for RS-232C connection

The Cradle operates in active mode.
The Basic Bridge Cradle supports USB connection only and does not support chain connection.

USB/RS-232C cable

Figure 2.4

- Connecting multiple terminals to PC in chain-connection

- Communication between multiple terminals and PC with USB or RS-232C cable
- The no. of connectable terminals is 8 in chain-connection mode with RS-422 cables.
- Communication speeds are as follows.
    Max. 115.2 Kbps for USB connection
    Max. 115.2 Kbps for RS-232C connection
    Max. 115.2 Kbps for RS-422 connection

- The first cradle operates in active mode and the second forth operate in passive mode.
- Communication to the PC by one terminal at a time.
- The 4 Mbps comm. speed does not support communication to the PC by the second terminal forth connected in chain-connection mode.
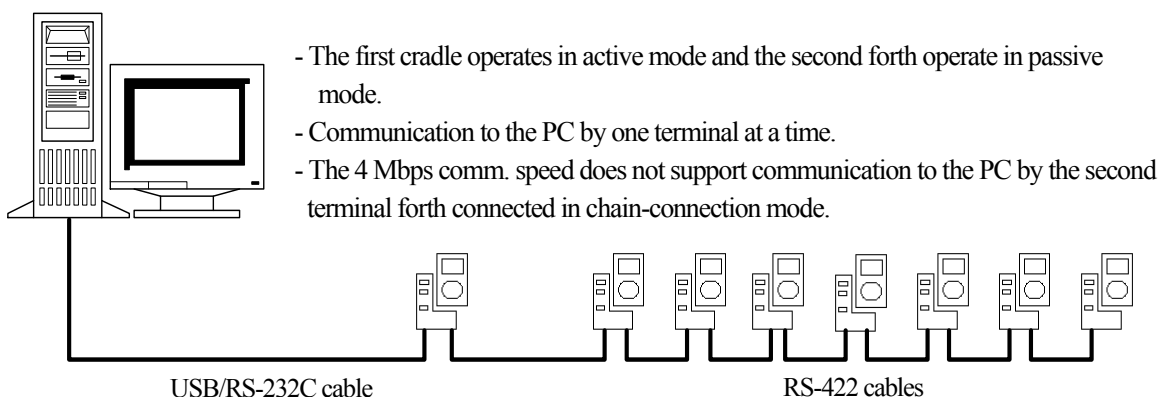
USB/RS-232C cable   RS-422 cables

Figure 2.5

- Concurrent operation by multiple terminals
- Applicable model and its cradle
   IT-500 via IT-560IOE Bridge Basic Cradle or IT-564IOE Bridge Satellite Cradle
   DT-X10 via DT-160IOE Bridge Satellite Cradle
   DT-X11 via DT-160IOE Bridge Satellite Cradle
   IT-3000/IT-3100 via HA-B61IO Bridge Satellite Cradle
   DT-X5 via HA-A60IO Bridge Basic Cradle or HA-A61IO Bridge Satellite Cradle
   IT-10 via HA-C61IO Bridge Satellite Cradle

- Concurrent communication to PC by multiple terminals (max. 8 terminals) with USB cables
- Communication speeds are as follows.
   Max. 4 Mbps/115.2 Kbps
- All connected cradles operate in active mode.
- USB-HUB configuration is also possible.

USB cable
USB cable
USB cable
USB cable
USB cable
USB cable
USB cable
USB cable
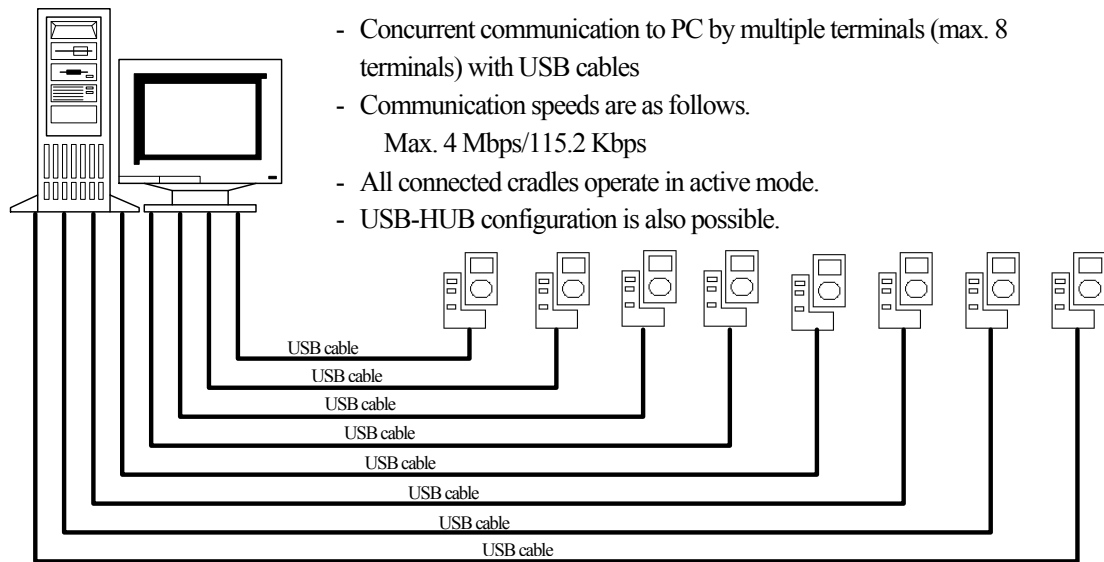
Figure 2.6

2.1.4 USB Mode

- Applicable model and its cradle and unit and cable
   IT-10 via HA-C60IO Basic Cradle
   IT-600 via HA-D60IO USB Cradle
   DT-X7 via HA-F60IO USB Cradle
   DT-X30 via HA-G60IO USB Cradle
   IT-800 via HA-H60IO USB Cradle
   IT-300 via HA-J65US unit or HA-J80USBM cable
   DT-X8 via HA-K60IO USB Cradle
   IT-9000 via HA-L60IO USB Cradle

- Communication between the terminal and PC with USB cable.
- The number of terminals can be connected is one.
- Communication to PC by the terminal via USB interface on the cradle
- Max. communication speed is 12 Mbps.

USB cable

Figure 2.7

Note:

To establish communication between IT-10 and Windows Vista PC via USB interface, setting for communication on the IT-10 terminal must be changed for USB interface by installing the CAB file of USB setup tool. For the CAB file name, refer to "List of the paths and files" on page 18.
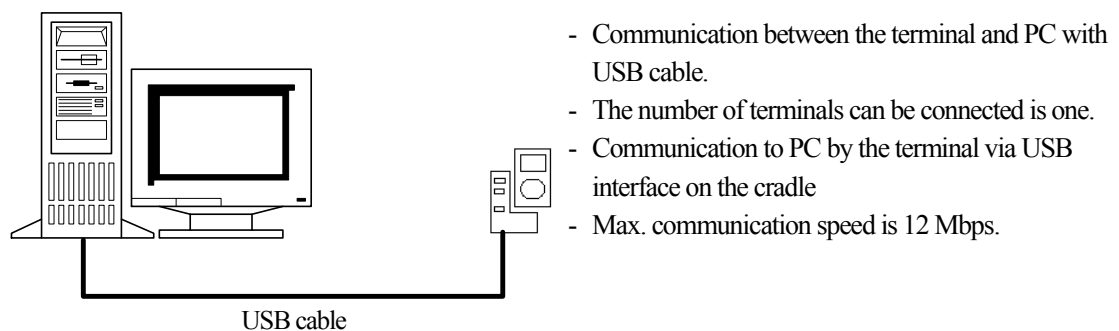
2.1.5 USB(USB-SERIAL) Mode

- Applicable model and its cradle and unit and cable
  DT-970 via HA-N60IO USB Cradle or HA- N62IO Ethernet Cradle or HA-N81USBC USB Cable
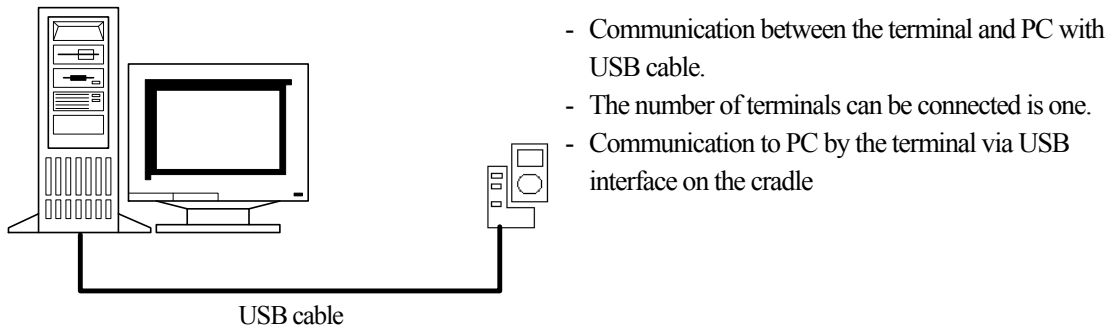
- Communication between the terminal and PC with USB cable.
- The number of terminals can be connected is one.
- Communication to PC by the terminal via USB interface on the cradle

USB cable

Figure 2.7

2.2 Software Configuration

2.2.1 Software on PC

The following table shows a list of software run on PC for the LMWIN operations.

Table 2.1   List of the software

Category	Program	Description
LMWIN	Lmwin32.exe	LMWIN utility tool
	Driver32.dll	RS-232C interface driver
	Hfc32.dll	Command parsing driver
	Lman32.dll	Connection monitoring driver
	Tcpipdrv.dll	TCP/IP (including "New") mode driver
	IrDAdrv.dll	B.S/B.B mode driver
	IrDAntdrv.dll	B.S/B.B mode (for WinNT4.0 OS) driver
	IrDAmuldrv.dll	B.S/B.B (for concurrent access by multiple terminals) mode driver
	Usbdrv.dll	USB mode driver
	Lmwin32.chm	Help files
	LMWIN.INI	Initial setup file for execution
	DEVICE.INI	Configuration file
File check	FCHK.EXE	File check tool

2.2.2 Software on Terminal

The following table shows a list of software run on CASIO handheld terminal for the LMWIN utility tool.

Table 2.2   List of the software

Category	Program	Description
File transfer	FLCE.exe	Client utility tool for upload/download
File check	FCHKCE.EXE	File check tool

Notes:
- The software listed in the table are for a Windows CE terminal.
- For file transfer on DT-900 and DT-930 and DT-970, navigate to **System** menu → **Transmit** menu.

2.3 Operating Environment

Operating System

Following table shows the operating systems ("OS") that support the LMWIN to run on PC. Your PC must meet each hardware feature required by the respective Oss.

Table 2.3

Applicable OS
Microsoft Windows 2000 Professional / Server (SP4 or a later version)
Microsoft Windows XP Professional (SP2 or a later version)
Microsoft Windows Server 2003 Standard (SP1 or a later version)
Microsoft Windows Vista Business / Ultimate
Microsoft Windows Server 2008 Standard (32bit) / R2 Standard (64bit)
Microsoft Windows 7 Professional (32bit / 64bit)
Microsoft Windows 8 Professional (32bit / 64bit)
Microsoft Windows 8.1 Professional (32bit / 64bit)
Microsoft Windows Server 2012 R2 Standard (64bit)

Note:

- For DT-900 series, Windows 2000 and Windows XP Professional support the LMWIN.
- The communication in B.S/B.B mode is not supported in Windows Server 2008 or later.
- The communication with IT-10 in USB mode is not supported in Windows Server 2008 or later.
- The communication in USB(USB-SERIAL) mode is not supported in Windows 2000.

Access-able Terminal by Interface

Table 2.4

Interface	Handheld Terminal
RS-232C	· Terminal with the accessibility to a cradle with integrated RS-232C interface · Terminal with RS-232C port that can be directly connected to a device
TCP/IP	· Terminal with the accessibility to a cradle with integrated LAN interface
TCP/IP (New)	· Communication via the TCP/IP (New) in WLAN is also possible.
B.S/B.B (IOBOX)	· Terminal with the accessibility to either Bridge Basic Cradle or Bridge Satellite Cradle
USB	· Terminal run under Windows CE and with USB port integrated or, terminal with the accessibility to a cradle with integrated USB port.
USB(USB-SERIAL)	· Terminal with the accessibility to a cradle with integrated USB port.

Recommended Hardware Features for PC

Table 2.5

Device	Feature
CPU clock frequency	Recommended specifications by each OS in Table 2.3 must be met.
Memory size	Recommended specifications by each OS in Table 2.3 must be met.
USB controller	UHCI ("Universal Host Controller Interface") produced by Intel is recommended.

3. LMWIN

3.1 Basic Functions

This chapter describes the LMWIN communication utility that can perform the following functions.
- File transmission/reception between the terminals and PC.
- Execution of various commands (sounding buzzer, formatting, etc.).
- Execution of a script file on PC.

15 commands below can be executed on the terminals and on the PC. For detail of each command, refer to Chapter 3.8 "Commands".
- Send file
- Receive file
- Append file and send
- Append file and receive
- Delete file
- Move file and change file name
- Sound buzzer
- Set date and time
- Display character strings
- End session
- Execute co-process
- Retrieve disk information
- Retrieve file information
- Set file information
- Format (see note)

Note:
Windows CE based terminals do not support the "Format" command.

3.2 Installing LMWIN

The LMWIN can be installed in your PC using the installer formed with the following three files that are downloaded from the CASIO web.

- Setup.exe
- en_LMWIN.msi
- Data1.cab

When **Setup.exe** file is initiated, all the files required for the installation process is created automatically. If a previous version of the LMWIN is already in your PC, uninstall it first before installing new version. For information about file configuration of the communication utility refer to Chapter 2.2 "Software Configuration".

3.2.1 Installation Procedure

Procedure of installing the LMWIN is described using the Windows Server 2000 screens and the installation paths. Depending on the OS your PC runs, the screens appeared on your PC may be slightly different from those used in this chapter. However, the operating procedure remains the same irrespective of the OS.

Installation Procedure

1. Double-click the **Setup.exe** icon on your PC to initiate the LMWIN.
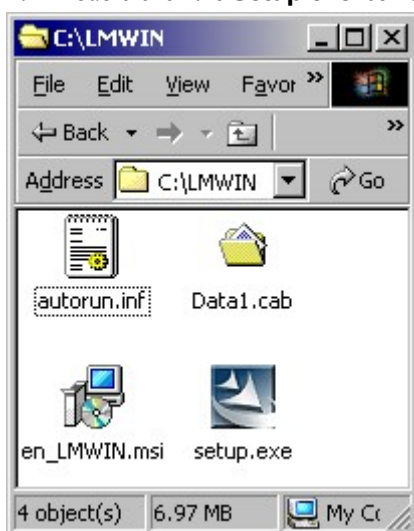

 Figure 3.1

2. In case the screen of UAC (User Account Control) appears, Click **Yes** button.

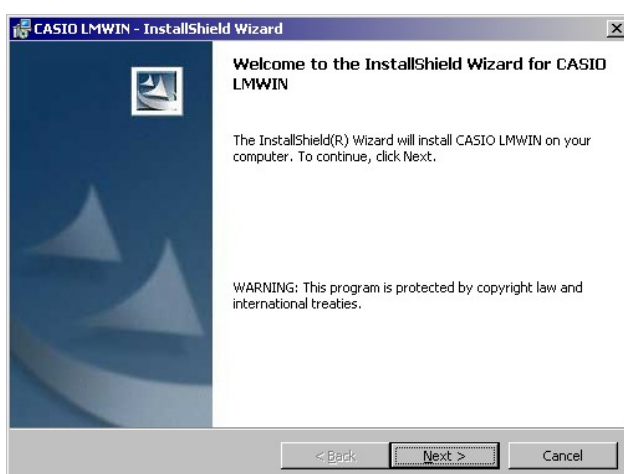3. The Wizard screen appears. Click **Next >** button.

 Figure 3.2

17

4. The screen about the license agreement appears. Carefully read the whole sentence appeared and check the radio button of **I accept the terms in the license agreement**, and click **Next >** button if you agree with all the terms.

Figure 3.3

5. Enter your information in **User Name** and **Organization** fields and click **Next >** button.
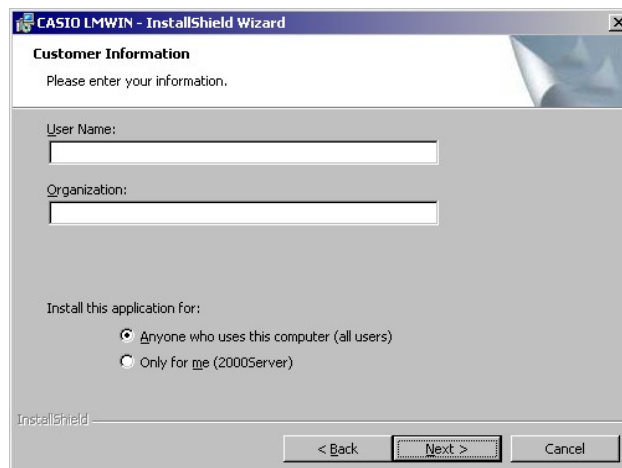

Figure 3.4

6. If you agree with the default destination folder specified in following figure to install the LMWIN, click **Next >** button, otherwise click **Change …** button to specify a different destination path.
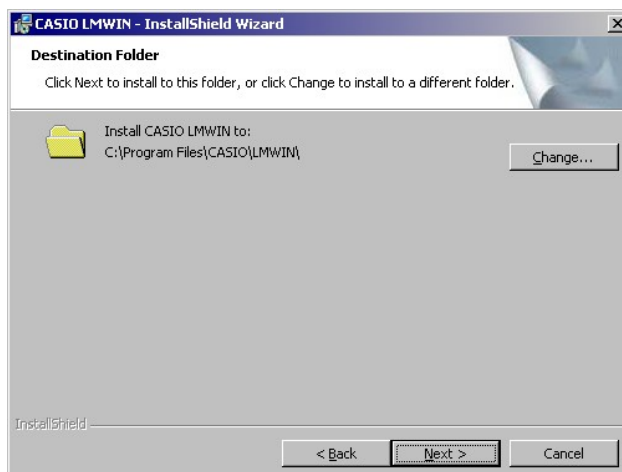

Figure 3.5

7. Following window when appears informs you that the installation is ready to start. If it is OK, click **Install** button and then all the files (see "List of the paths and files".) are copied to the destination folder.
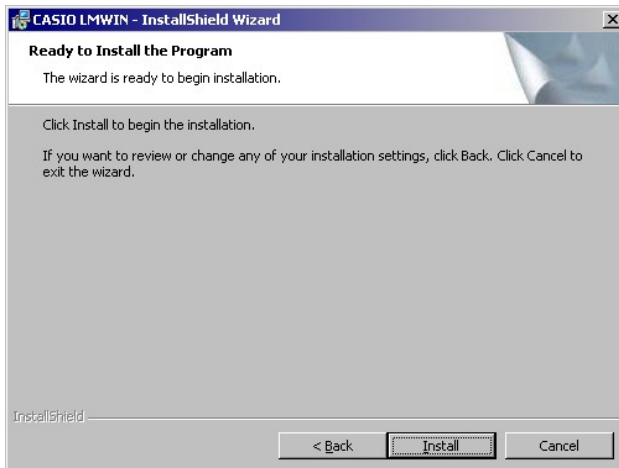

Figure 3.6

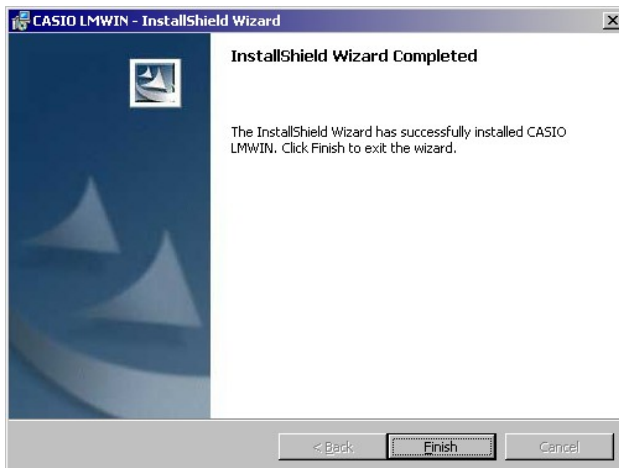8. The installation is complete. Click **Finish** button to exit the wizard.

Figure 3.7

List of the paths and files

After the installation of the LMWIN, all the files listed below are installed in the destination folder if the default path (C:\Program Files\CASIO\) is specified.

Table 3.1

Path	File
\lmwin\	FCHK.EXE
	lmwin32.exe
	driver32.dll
	hfc32.dll
	irdadrv.dll
	irdamuldrv.dll
	irdantdrv.dll
	lman32.dll
	scsidrv.dll
	tcpipdrv.dll
	usbdrv.dll
	LMWIN32.chm
	device.ini
	lmwin.ini
\lmwin\IRXpress\USB\	IRXpressUSBIrDA.exe
	SetupUSBIrDA.exe
\lmwin\IRXpress\RS232C\	IRXpressSerialIrDA.exe
	SetupSerialIrDA.exe
\lmwin\IRXpress64\　(Note1)	SetupUSBIrDA(x64).exe
\lmwin\WCEUSBSH\	wceusbsh.cat
	wceusbsh.inf
	wceusbsh.sys
\lmwin\LMWUSB64\　(Note1)	LMWUSB64.dll
	LMWUSB64.inf
	WdfCoInstaller01009.dll
	winusbcoinstaller2.dll
	WUDFUpdate_01009.dll
\lmwin\USBSER\　(Note2)	usbser.cat
	usbser.inf
\lmwin\CAB\	USBClientIT-10_110.CAB
	Setup.exe

Note1: Available from LMWIN Ver7.08
Note2: Available from LMWIN Ver7.11

3.3 Uninstalling

In this chapter, the screens appeared in the Windows Server 2000 OS are used to explain the procedure to uninstall the LMWIN. Depending on the OS your PC runs, the screens appear on your PC may be slightly different from those used in this chapter. However, the procedure remains the same irrespective of the OS.

Uninstall Procedure

1. Navigate to **Control Panel** → **Add/Remove Programs** → **CASIO LMWIN** and then click **Remove** button.
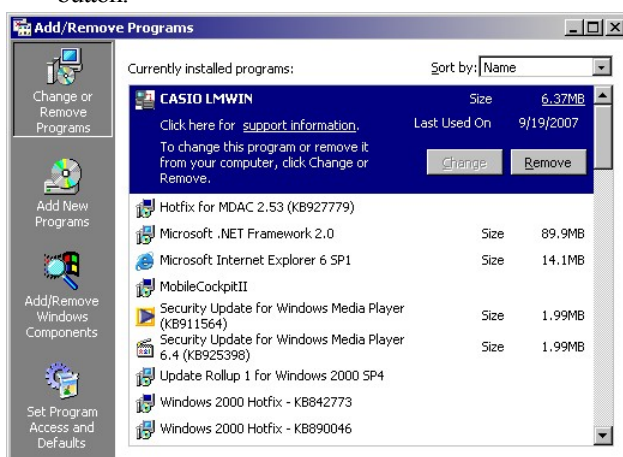

 Figure 3.8

Note:
If the **User Account Control** screen appears to ask you Administrative Authorization before proceeding to uninstallation, click **Continue** button to continue the rest of the operation.

2. A dialogue message appears. If you are sure to remove the LMWIN, click **Yes** button.
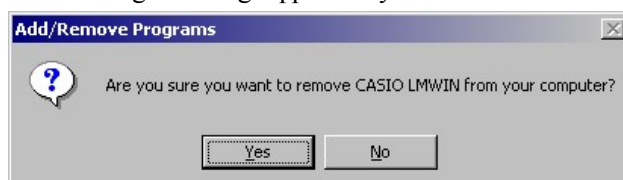

 Figure 3.9

3. After removing the utility, start up your PC again.

3.4 Device Drivers

In addition to the installation of the LMWIN in your PC, the drivers listed in the table below must be installed if necessary.

Table 3.2

Interface	Driver	Remark
RS-232C	Not required.	If RS-232C port on PC is already operable, the driver and its related files are not necessary to install.
TCP/IP	Not required.	If TCP/IP port on PC is already operable, the driver and its related files are not necessary to install.
TCP/IP (New)	Not required.	
B.S/B.B(IOBOX)	IRXpresseUSBIrDA.exe	For USB connection. The installer for USB driver.
	SetupUSBIrDA.exe (See note 1)	For Windows 8/8.1 (32bit) and Windows 7 (32bit) and Windows Vista.
	IRXpresseSerialIrDA.exe	For RS-232C connection. Installer for RS-232C driver.
	SetupSerialIrDA.exe (See note 2)	For Windows 8/8.1 (32bit) and Windows 7 (32bit) and Windows Vista.
	SetupSerialIrDA(x64).exe	For Windows 8/8.1 (64bit) and Windows 7(64bit)
USB	wceusbsh.cat wceusbsh.inf wceusbsh.sys	USB driver
	LMWUSB64.dll LMWUSB64.inf WdfCoInstaller01009.dll winusbcoinstaller2.dll WUDFUpdate_01009.dll	USB driver (64bit)
USB(USB-SERIAL)	usbser.cat usbser.inf	USB driver (32/64bit)

Notes:

1. In Windows 8 /8.1 (32bit) and Windows 7 (32bit) and Windows Vista OS, install both **SetupUSBIrDA.exe** and **IRXpressUSBIrDA.exe** drivers in the same local folder, otherwise an error occurs, and then carry out **SetUSBIrDA.exe** driver only.

2. In Windows 8/8.1 (32bit) and Windows 7 (32bit) and Windows Vista OS, install both **SetupSerialIrDA.exe** and **IRXpressSerialIrDA.exe** drivers in the same local folder, otherwise an error occurs, and then carry out **SetupSerialIrDA.exe** driver only.

3.4.1 Installing IRXpress

This chapter describes about the installation procedure for **IRXpress** ("IrDA driver") used for Bridge Satellite cradle and Bridge Basic cradle (B.S/B.B).

Method of installing USB driver, RS-232C driver and into which OS kind of the PC you install the drivers is different from each driver and OS. The installation requires the power on all cradles to be turned off.

USB Driver

- In Windows Server 2003, Windows XP and Windows 2000, carry out **IRXpressUSBIrDA.exe** .
- In Windows 8 (32bit) and Windows 7 (32bit) and Windows Vista, install both **SetupUSBIrDA.exe** and **IRXpressUSBIrDA.exe** in the same local folder, otherwise an error occur, and then carry out **SetupUSBIrDA.exe**.
- In Windows 8/8.1 (64bit) and Windows 7 (64bit), carry out **SetupUSBIrDA(x64).exe**.

RS-232C Driver

- In Windows Server 2003, Windows XP and Windows 2000, carry out **IRXpressSerialIrDA.exe**.
- In Windows 8/8.1 (32bit) and Windows 7 (32bit) and Windows Vista, install both **SetupSerialIrDA.exe** and **IRXpressSerialIrDA.exe** in the same local folder, otherwise error occur, and then carry out **SetupSerialIrDA.exe** only.

Note:

Depending on the OS your PC runs, screens and icons appeared on the PC may be different from those appeared in other OS. However, the procedure to install drivers remains the same irrespective of the OS.

USB Driver

The procedure below is explained when USB driver is installed in a Windows 2000 OS PC. In Windows Server 2003, Windows XP and Windows 2000, the color gradation of screens and the shape of icons may be different from those appeared in this procedure.

1. Initiate **IRXpressUSBIrDA.exe**
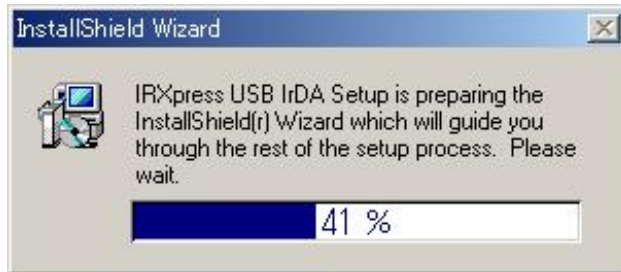2. The screen below appears to inform you that the setup is ready.

Figure 3.10

3. When the preparation is complete, the background screen changes to InstallShield Wizard screen. As soon as the setup screen is popped up, click **Next >** button in the screen.
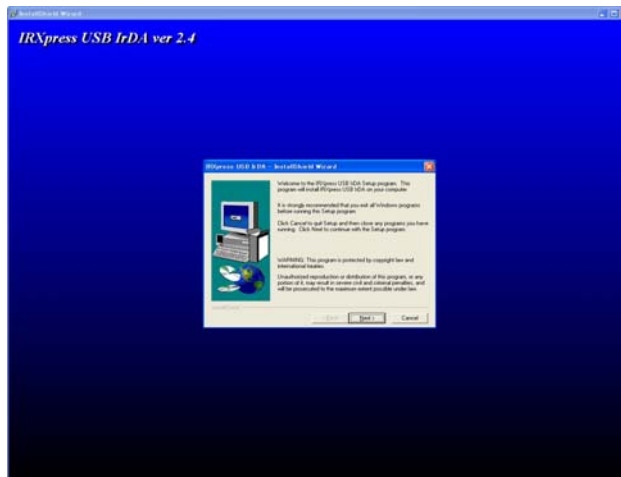   The rest of screens show only pop-up screens and the background screen is omitted.

Figure 3.11

4. Click **Browse …** button to specify a destination folder to install **IRXpressUSBIrDA** driver. If no destination folder is specified, the driver is automatically installed under the path of C:\Program\IRXpress\IRXpressUSBIrDA. Click **Next >** button.

Figure 3.12

5. The screen shows the current status in destination folder. If it is okay with you, click **Next >** button.
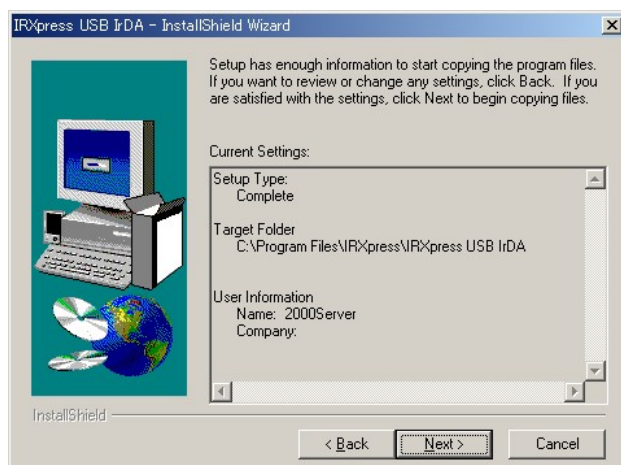

Figure 3.13

6. Now, the installation is complete. Clicking **Finish** button starts up the PC again. Be sure to close all running applications before clicking the button.

 Figure 3.14

Note:
In Windows 2000, device recognition on cradle is carried out automatically when the PC is started up. In Windows XP and Windows Server 2003, recognition process must be carried out manually. For the procedure, refer to the following pages.

In Windows XP

7. After the PC has started up again, turn on the power on the cradle. The screen below appears soon in the PC. Choose **Install the software automatically [Recommended]** radio button.

Figure 3.15

8. Click **Finish** button to end the device recognition process.

Figure 3.16

Note:
Above figures appear only once if the cradle is connected to USB port on the PC for the very first time after installation of USB driver.

In Windows Server 2003

7. After the PC has started up, turn on the power on the cradle. Access **Device Manager** and right-click **IRXpressUSBIrDAController** listed in **Other devices** and carry out **Update driver**.

8. Choose **Install the software automatically [Recommended]** radio button to proceed ahead.

Figure 3.17

9. Click **Finish** button to end the device recognition process.

Figure 3.18

In Windows 8 (32bit) and Windows 7 (32bit) and Windows Vista

1. Initiate **SetupUSBIrDA.exe**.

2. In case the screen of UAC (User Account Control) appears, click **Yes** button. And when the following screen appears, click **Enable** button.
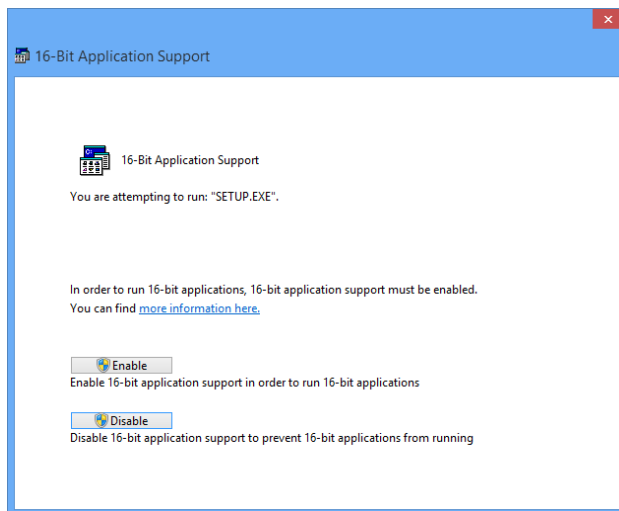
Figure 3.19

3. After the installation is complete, the background screen changes to InstallShield Wizard screen and the setup screen pops up. Click **Next >** button in the screen.
    The rest of the screens in the procedure show only pop-up screens and the background screen is omitted.

Figure 3.20

4. Click **Browse …** button to specify a destination folder to install **IRXpressUSBIrDA** driver. If no destination is specified, the driver is automatically installed under the path of C:\Program File\IRXpress\IRXpressUSBIrDA. Click **Next >** button.

5. The screen shows the current status in destination folder. If it is okay with you, click **Next >** button.
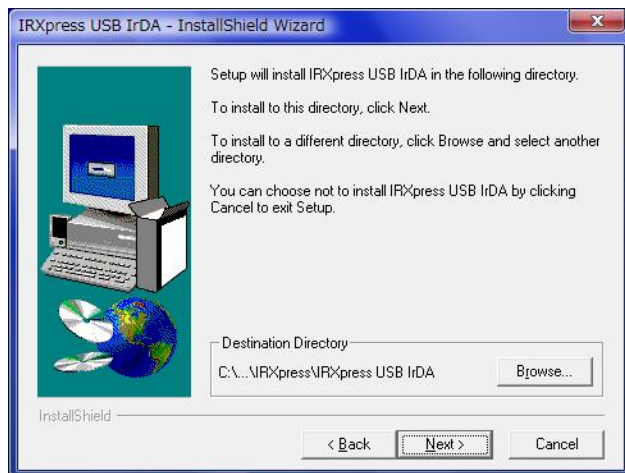

Figure 3.21

6. Now, the installation is complete. Clicking **Finish** button starts up the PC again. Be sure to close all running applications before clicking it.

Figure 3.22

7. After the PC has started up, turn on the power on cradle.

8. While the power of cradle is on, navigate to **Control Panel** → **Device Manager** and right-click **IRXpress USB IrDA Controller** and then choose **Properties**.

9. Choose **Search automatically for updated driver software**.

10. Choose **Install this driver software anyway** to complete the device recognition.
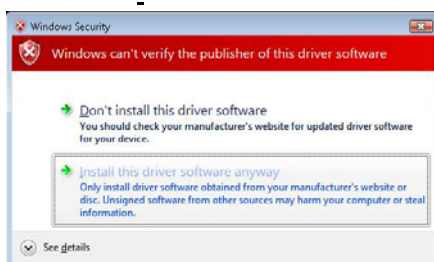
Figure 3.23

11. After the device recognition process is complete, the screen below appears indicating that communication via IrDA is ready to start. However, click **Close** button and start up the PC again as per instructed in the screen.

Figure 3.24

In Windows 8.1 (32bit)

1. Navigate to **Control Panel** -> **Programs and Features** -> **Turn Windows features on or off**, and check on **NTVDM** at **Legacy Components**.
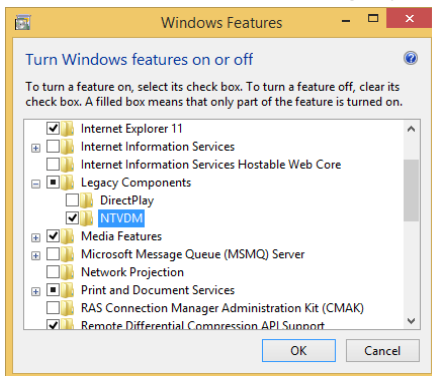

Figure 3.25

2. Initiate **SetupUSBIrDA.exe**.

3. In case the screen of UAC (User Account Control) appears, click **Yes** button. And when the following screen appears, click **Enable** button.

4. After the installation is complete, the background screen changes to InstallShield Wizard screen and the setup screen pops up. Click **Next >** button in the screen.
   The rest of the screens in the procedure show only pop-up screens and the background screen is omitted.

Figure 3.26

5. Click **Browse …** button to specify a destination folder to install **IRXpressUSBIrDA** driver. If no destination is specified, the driver is automatically installed under the path of C:\Program File\IRXpress\IRXpressUSBIrDA. Click **Next >** button.

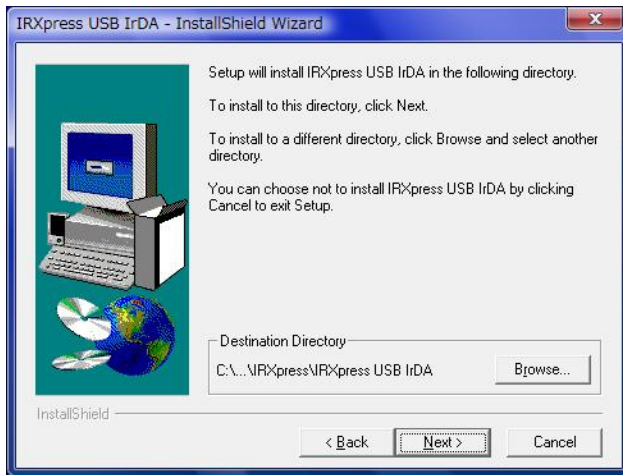6. The screen shows the current status in destination folder. If it is okay with you, click **Next >** button.

Figure 3.27

7. Now, the installation is complete. Clicking **Finish** button starts up the PC again. Be sure to close all running applications before clicking it.

Figure 3.28

8. After the PC has started up, turn on the power on cradle.

9. Right-click **RegIRXpress** shortcut created on desktop screen, and select **Run as administrator**.
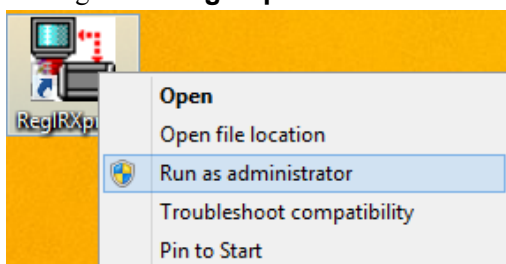

Figure 3.29

Note: In case shortcut is not created, right-click **RegIRXpressUSB.bat** located in install folder of IRXpress (default: C:\Program Files\IRXpress\IRXpress USB IrDA), and select **Run as administrator**.

10. Click **Install** button.
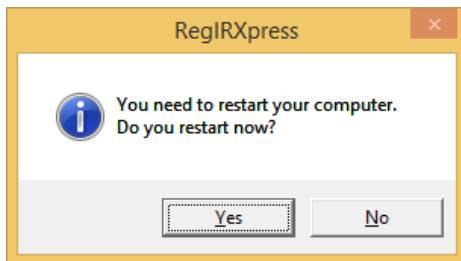

Figure 3.30

10. Click **Yes** button.

Figure 3.31

Note: **RegIRXpress** shortcut on desktop screen is moved to **Recycle bin**, when **Yes** button is clicked.

In Windows 8/8.1 (64bit) and Windows 7 (64bit)

1. Initiate **SetupUSBIrDA(x64).exe**.

2. In case the screen of UAC (User Account Control) appears, Click **Yes** button.

3. InstallShield Wizard screen and the setup screen pops up. Click **Next >** button in the screen.
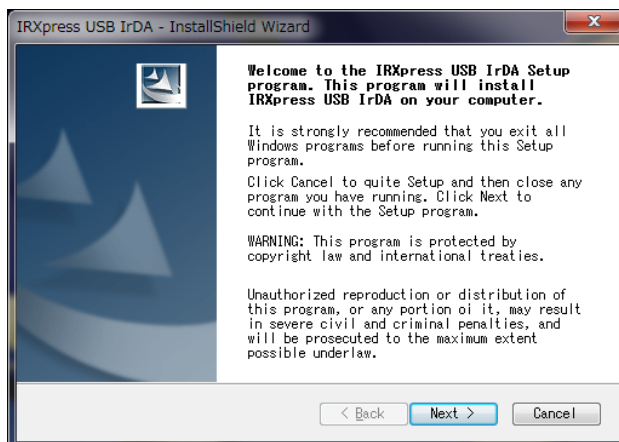

Figure 3.32

4. The screen shows the current status in destination folder. If it is okay with you, click **Next >** button.
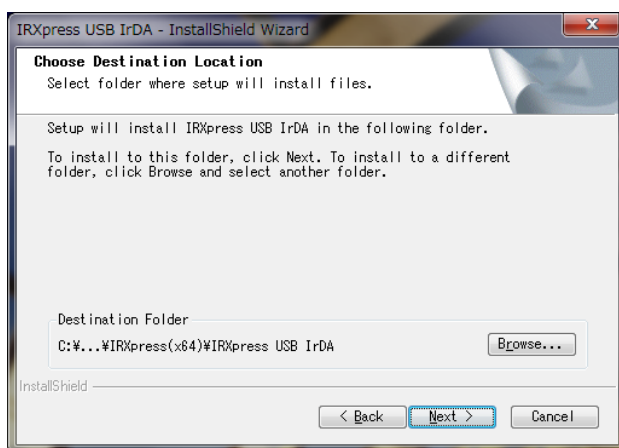
Figure 3.33

5. The screen shows the current status. click **Next >** button.
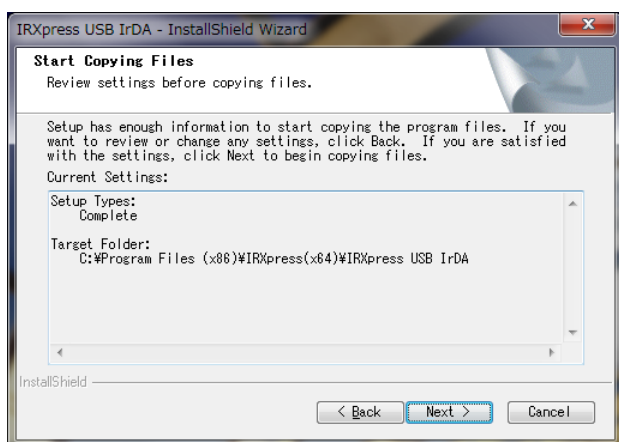

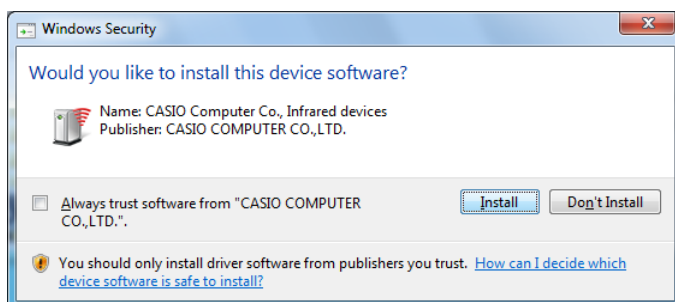Figure 3.34

6. click **Install** button.

Figure 3.35

7. After the device recognition process is complete, the screen below appears indicating that communication via IrDA is ready to start. However, click **Close** button and start up the PC again as per instructed in the screen.
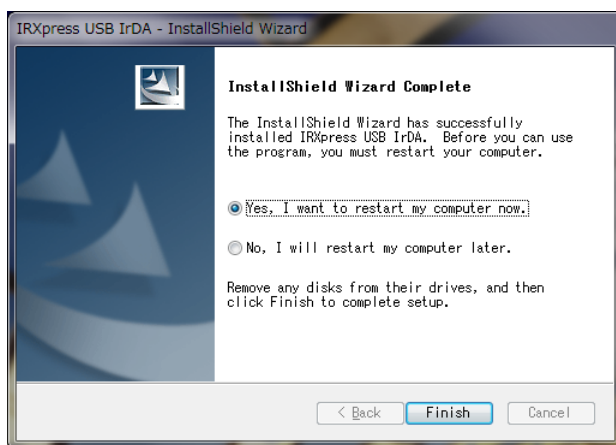
Figure 3.36

8. After the PC has started up, turn on the power on cradle.

9. If the screen to prompt PC to restart appears, click **Restart Now** button and start up the PC again.
   Note: In Windows 8, above screen to prompt PC to restart appears on desktop screen.

Configuring USB Communication

1. While the power on cradle has been turned on, navigate to **Control Panel** → **Device Manager** and right-click **CASIO IRXpress USB Intranet** and then choose **Properties**.
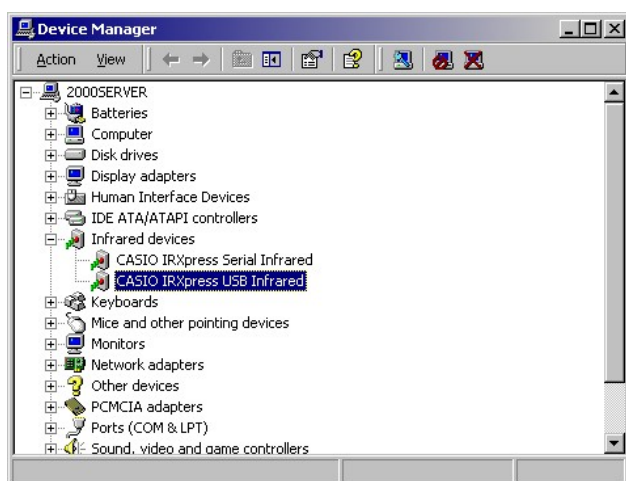

Figure 3.37

Note:
In Windows Vista OS, if **User Account Control** screen appears to ask you for Administrative Authorization when you open **Device Manager**, click **Continue** button to open it.

Setting Communication Speed
1. In **CASIO IRXpress USB Infrared Properties** screen, choose **Advanced** tab and **Maximum Connect Rate** in **Property** field. While **Maximum Connect Rate** is highlighted, choose either one of the communication speeds in **Value** pull-down menu, and then click **OK** button.
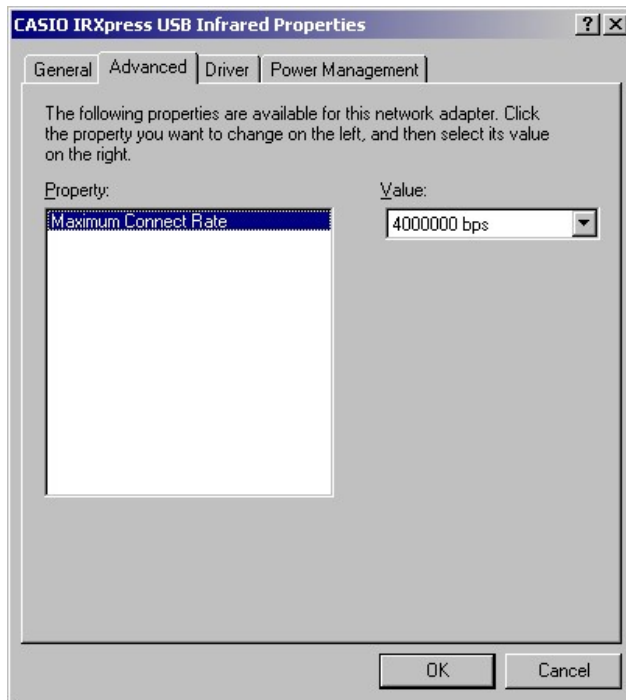

Figure 3.38

Choose either one of the communication speeds according to the cradle configuration.

Single configuration　　: 4 Mbps or 115.2 Kbps

Chain configuration　　: 115.2 Kbps only

Notes:
- The communication speeds appear in the tab only when cradle(s) with its power turned on is connected to the PC. Be sure to connect cradle(s) and turn on the power on all connected cradles before setting the communication speed.
- To change communication speed, be sure close the LMWIN (or ActiveSync) first.

RS-232C Driver

The procedure below explains in case the RS-232C driver is installed in a Windows 2000 OS PC. In Windows Server 2003, Windows XP and Windows 2000, the color gradation of screens and the shape of icons may be different from those appeared in this procedure.

1. Initiate **IRXpressSerialIrDA.exe**.

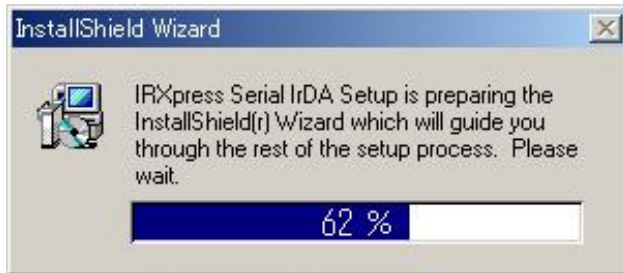2. As soon as the file is initiated, the InstallShieldWizard dialogue screen appears.

Figure 3.39

3. After the preparation is complete, the background screen changes to the InstallShieldWizard screen, and then the setup screen is popped up in the center. Click **Next >** button to continue the rest of the process.

The rest of the screens in the procedure show only pop-up screens and the background screen is omitted.

Figure 3.40

4. Click **Browse …** button to specify a destination folder to install **IRXpressSerialIrDA** driver. If no destination is specified, the driver is automatically installed under the path of C:\Program File\IRXpress\IRXpressSerialIrDA. Click **Next >** button.
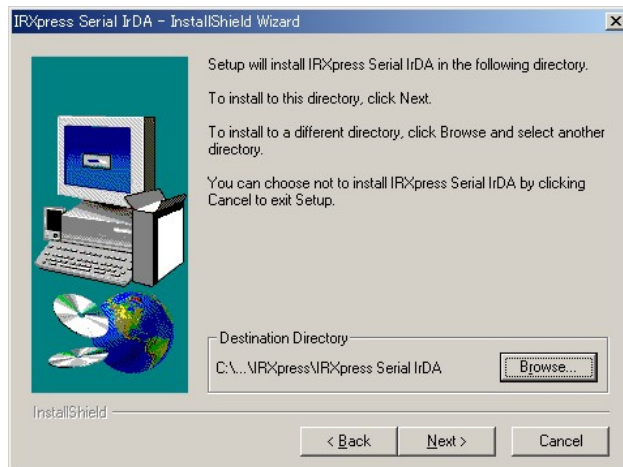

 Figure 3.41

5. The screen shows the current status in the destination folder. If it is okay with you, click **Next >** button.
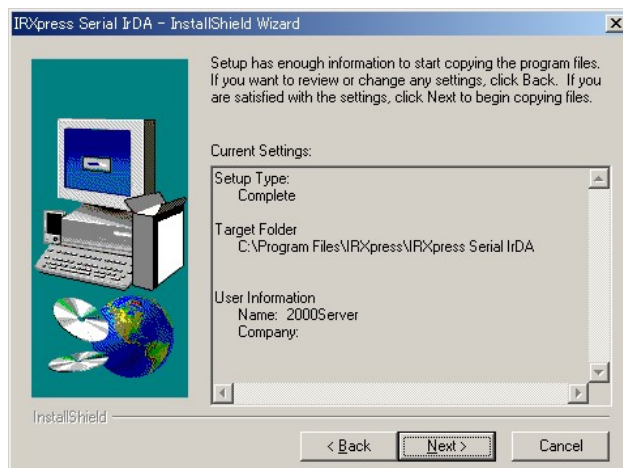

 Figure 3.42

6. Now, the installation is complete. Choose **Yes, I want to restart computer now** radio button. Clicking **Finish** button starts up the PC again. Be sure to close all running applications before clicking it.

Figure 3.43

In Windows 8 (32bit) and Windows 7 (32bit) and Windows Vista

1. Initiate **SetupSerialIrDA.exe** file.

2. In case the screen of UAC (User Account Control) appears, Click **Yes** button.

3. When the preparation is complete, the background changes to InstallShield Wizard screen and the pop-up screen appears in the center. Click **Next >** button.

    The rest of the screens in the procedure show only pop-up screens and the background screen is omitted.

Figure 3.44

4. Click **Browse …** button to specify a destination folder to install **IRXpressSerialIrDA** driver. If no destination is specified, the driver is automatically installed under the path of C:\Program File\IRXpress\IRXpressSerialIrDA. Click **Next >** button.
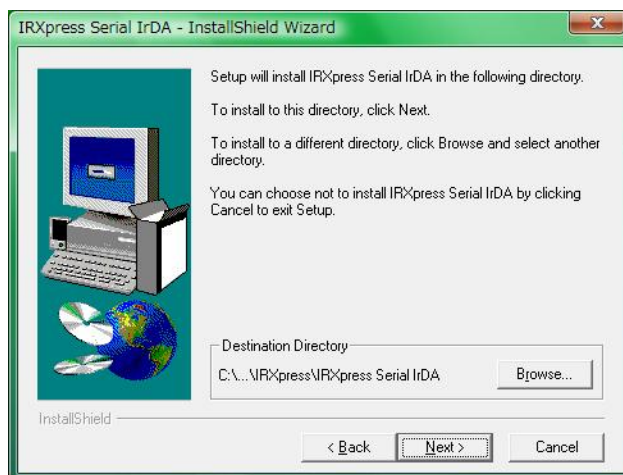

Figure 3.45

5. The screen shows the current status in the destination folder. If it is okay with you, click **Next >** button.
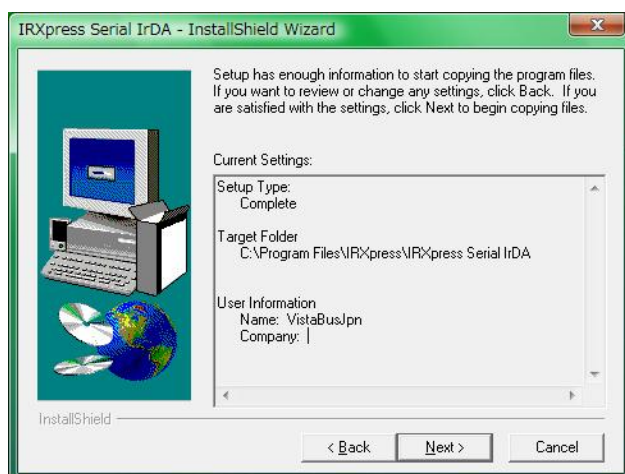
Figure 3.46

6. Choose **Install this driver software anyway** to complete the device recognition process.
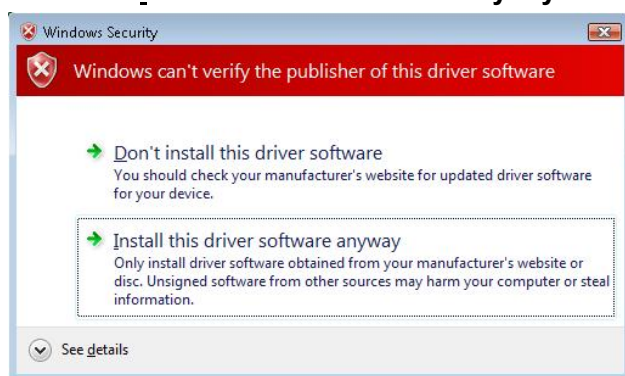

Figure 3.47

7. Now, the installation is complete. Choose **Yes, I want to restart computer now** radio button. Clicking **Finish** button starts up the PC again. Be sure to close all running applications before clicking it.
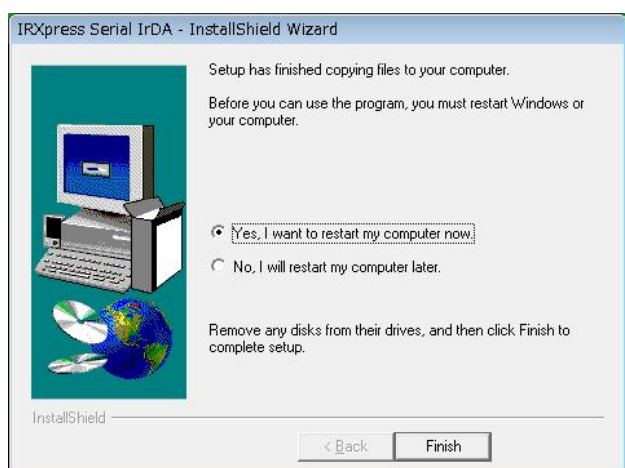

Figure 3.48

In Windows 8.1 (32bit)

1. Navigate to **Control Panel** -> **Programs and Features** -> **Turn Windows features on or off**, and check on **NTVDM** at **Legacy Components**.
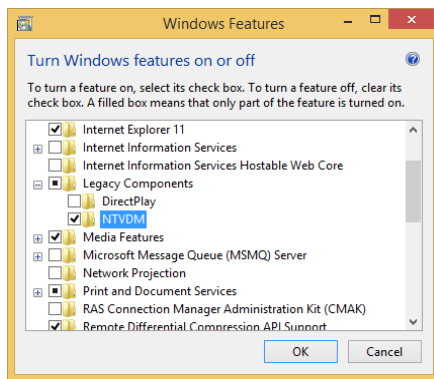
Figure 3.49

2. Initiate **SetupUSBIrDA.exe**.

3. In case the screen of UAC (User Account Control) appears, click **Yes** button. And when the following screen appears, click **Enable** button.

4. After the installation is complete, the background screen changes to InstallShield Wizard screen and the setup screen pops up. Click **Next >** button in the screen.
   The rest of the screens in the procedure show only pop-up screens and the background screen is omitted.

Figure 3.50

5. Click **Browse …** button to specify a destination folder to install **IRXpressUSBIrDA** driver. If no destination is specified, the driver is automatically installed under the path of C:\Program File\IRXpress\IRXpressUSBIrDA. Click **Next >** button.
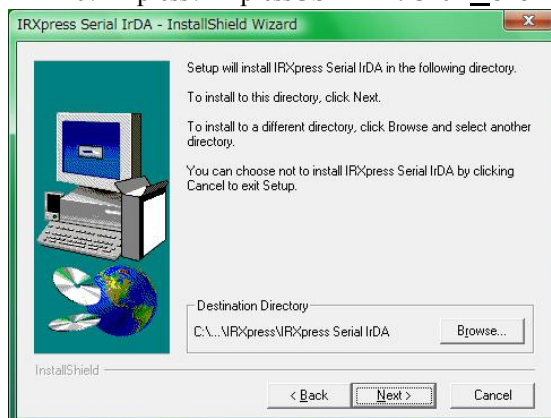

Figure 3.51

6. The screen shows the current status in destination folder. If it is okay with you, click **Next >** button.
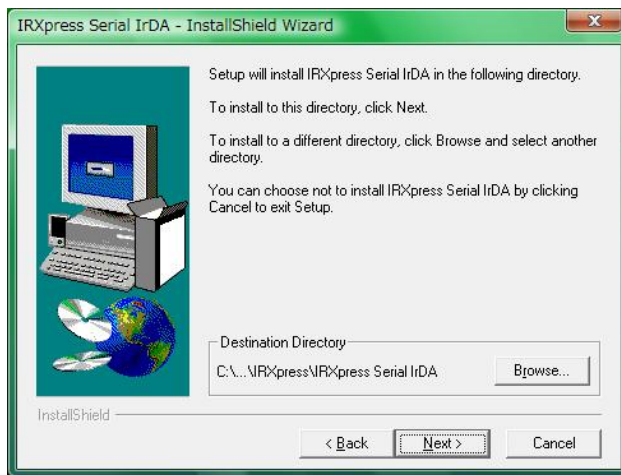

 Figure 3.52

7. Now, the installation is complete. Clicking **Finish** button starts up the PC again. Be sure to close all running
     applications before clicking it.

 Figure 3.53

8. After the PC has started up, turn on the power on cradle.

9. Right-click **RegIRXpress** shortcut created on desktop screen, and select **Run as administrator**.
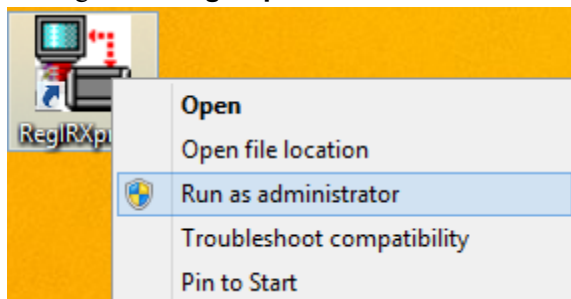

Figure 3.54

Note: In case shortcut is not created, right-click **RegIRXpressSerial.bat** located in install folder of IRXpress
     (default: C:\Program Files\IRXpress\IRXpress Serial IrDA), and select **Run as administrator**.

10. Click **Install** button.

Figure 3.55

10. Click **Yes** button.
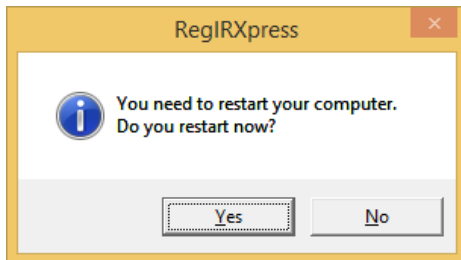
Figure 3.56

Note: **RegIRXpress** shortcut on desktop screen is moved to **Recycle bin**, when **Yes** button is clicked.

[Appendix]

If RS-232C communication is not started after above install operation, driver may not be installed correctly for some reason.

In this case, please make following operation.

1. Navigate to **Control Panel → Device Manager,** and select PC icon on **Device Manager,**.
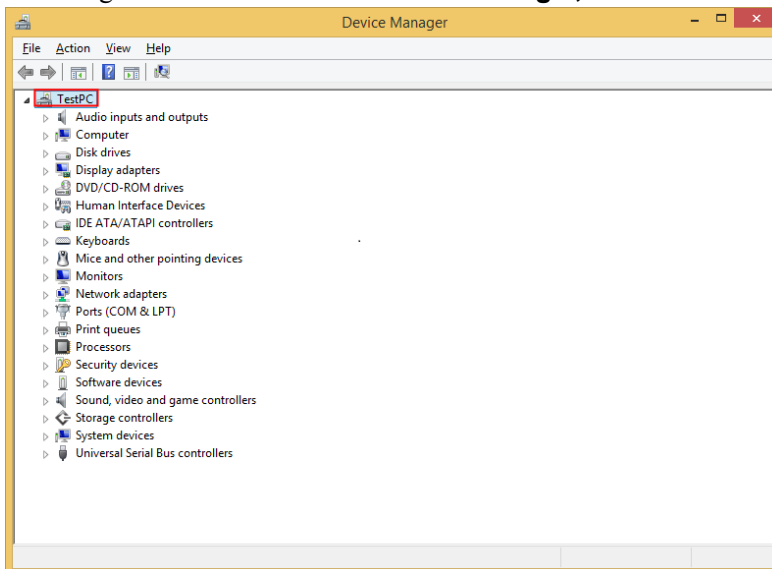
Figure 3.57

2. Navigate to **Action → Add legacy hardware**.

Figure 3.58

3.   Click **Next >** button.

Figure 3.59
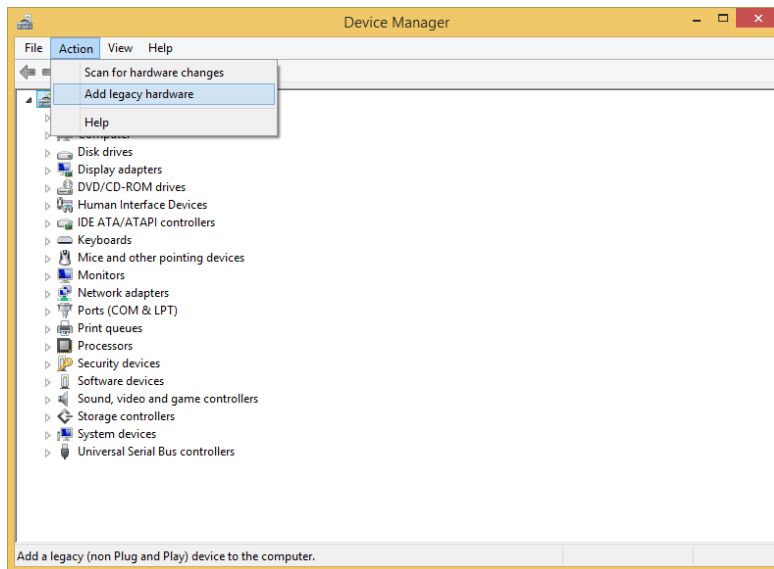
4.   Select **Install the hardware that manually select from a list(Advanced)**, and click **Next >** button.
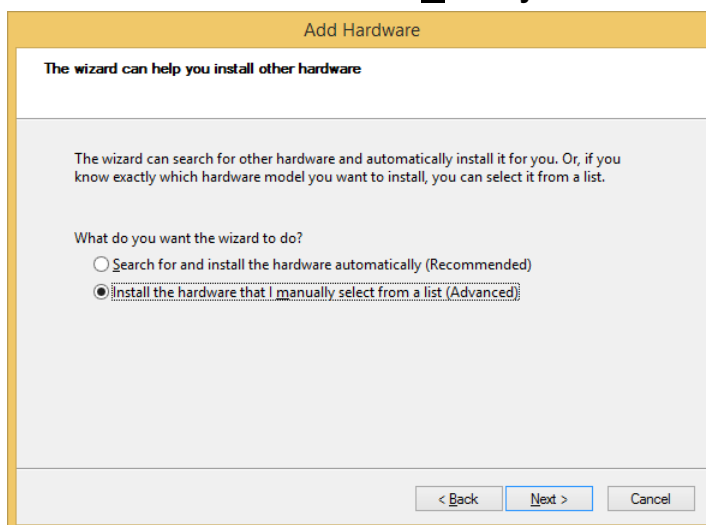
Figure 3.60

5. Select **Infrared device**, and click **Next >** button.
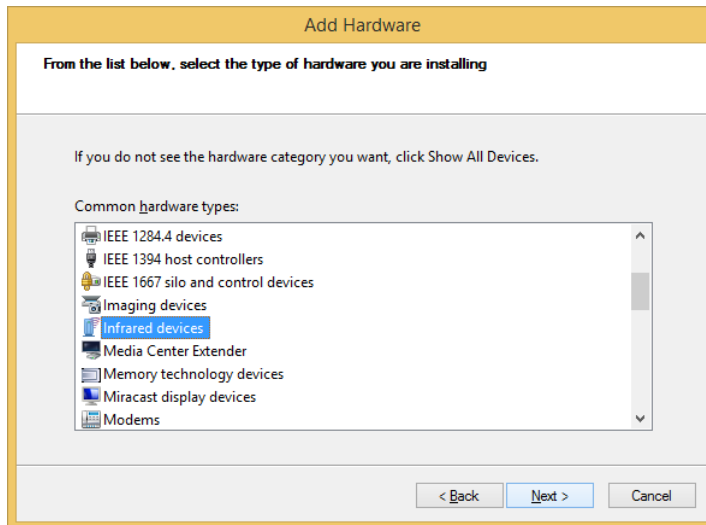
Figure 3.61

6. Select **CASIO IRXpress Serial Infrared,** and click **Next >** button.
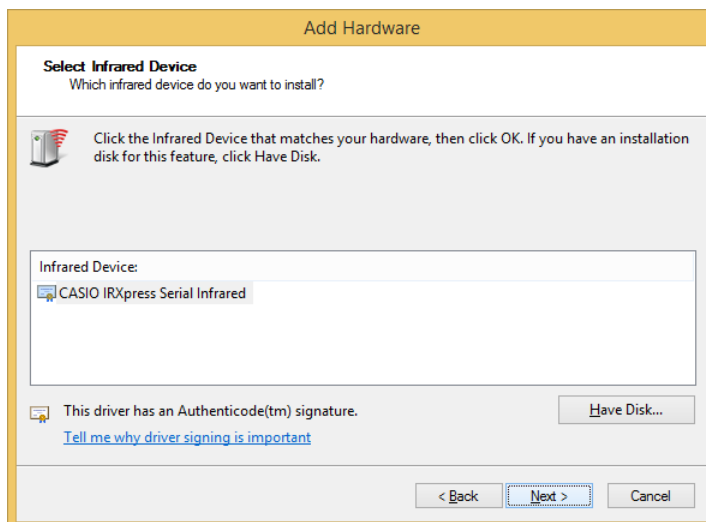
Figure 3.62

7. Click **Next >** button.
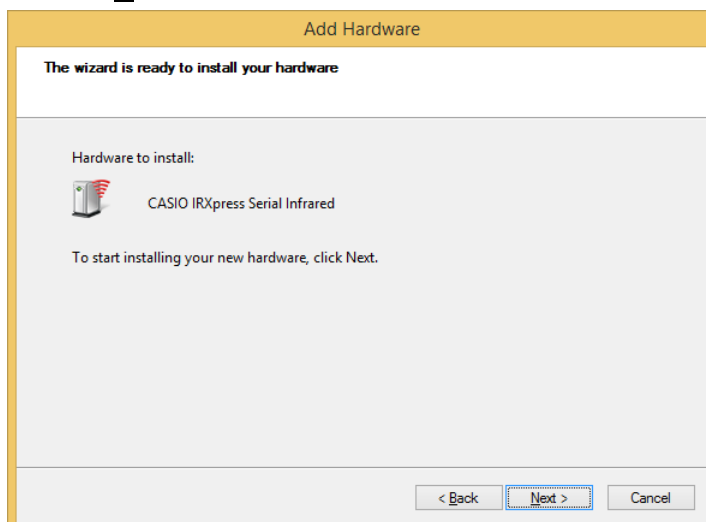
Figure 3.63

8. Click **Finish** button.

Figure 3.64

9. In case following screen appears, click <u>R</u>**estart Now** button.
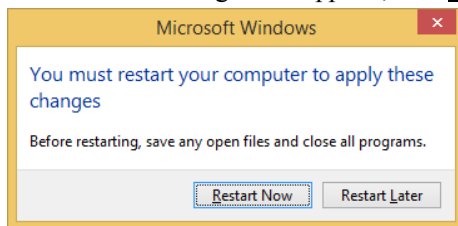
Figure 3.65

Configuring RS-232C Communication

1. While the power on cradle is on, navigate to **Control Panel** → **Device Manager** and right-click **CASIO IRXpress Serial Infrared** and then choose **Properties**.

Figure 3.66

Note:

In Windows Vista OS, if the **User Account Control** screen appears to ask you for Administrative Authorization when you open the **Device Manager**, click <u>C</u>**ontinue** button to open it.

Setting Communication Speed

1. In **CASIO IRXpress Serial Infrared Properties** screen, choose **Advanced** tab and **Maximum Connect Rate** in **Property** field. While **Maximum Connect Rate** is highlighted, choose 115200 bps only in **Value** pull-down menu, and then click **OK** button.
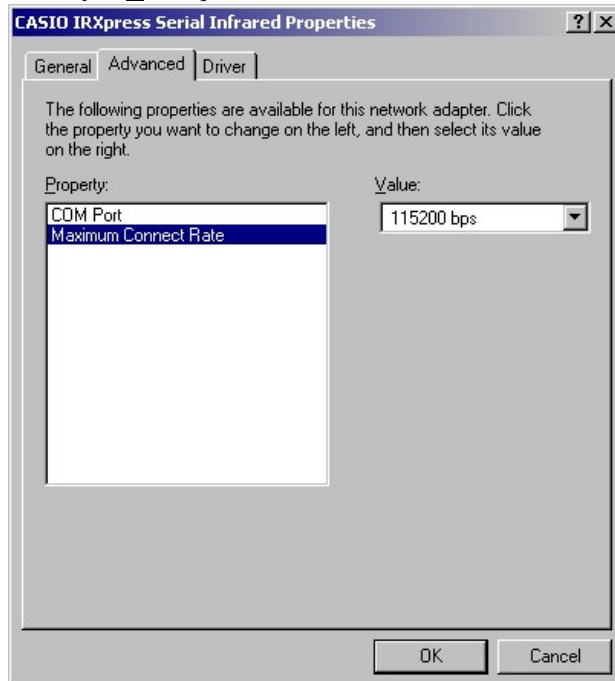
Figure 3.67

Setting the Port

1. In **CASIO IRXpress Serial Infrared Properties** screen, choose **Advanced** tab and **COM Port** in **Property** field. Click **OK** button.
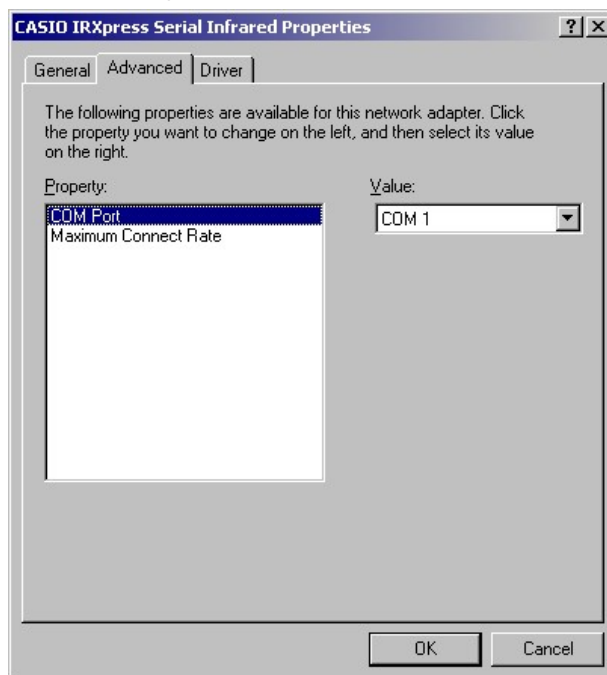
Figure 3.68

Note:
To change the communication speed and the port, be sure to close the LMWIN first.

3.4.2 Uninstalling IRXpress

1. To uninstall the **IRXpress USBIrDA/SerialIrDA**, navigate to **Control Panel** → **Add/Remove Programs** and choose either one of the drivers to uninstall.
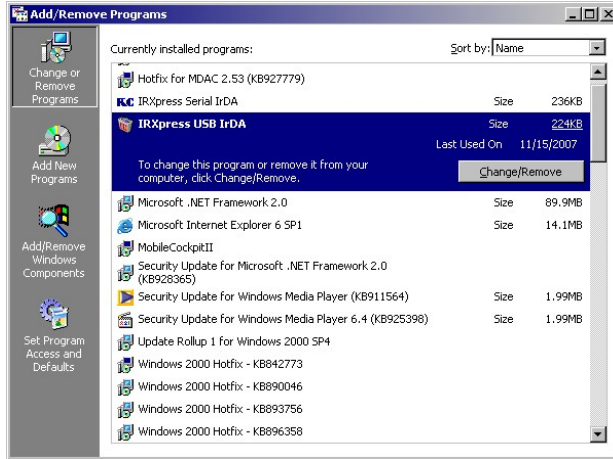
Figure 3.69

Notes:
- Start up the PC again after uninstalling the driver.
- Be sure to keep all the connected cradles being turned off while uninstalling process continues.
- Depending on the PC OS (Windows 8/8.1 Professional, Windows 7 Professional, Windows Vista Business/Ultimate, Windows Server 2003 Standard, Windows XP Professional, Windows 2000 Server/Professional) your PC runs, the screens appeared in the uninstallation process are slightly different from those appeared in other OS. However, the uninstalling procedure remains the same irrespective of the OS.
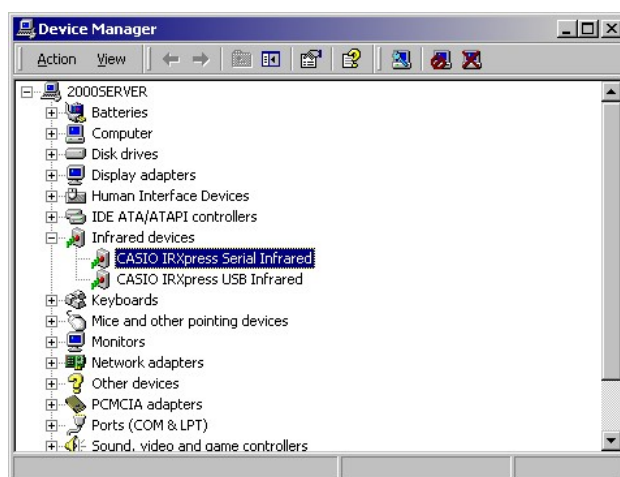- In Windows Vista OS, if the **User Account Control** screen appears to ask you for Administrative Authorization when you open the **Device Manager**, click **Continue** button to open it.

3.4.3 Installing the Driver for USB Cradle

In Windows 8/8.1 (32bit), Windows 7 (32bit), Windows Server 2008 (32bit) and Windows Vista, Windows Server 2003, Windows XP and Windows 2000 OS

For the device recognition process, specify the USB driver, **wceusbsh.sys**, deployed by installing the **LMWIN** and the driver configuration file, **wceusbsh.inf**, in which Vender ID and Product ID for the device are written.

In Windows 8/8.1 (64bit) and Windows 7 (64bit), Windows Server 2008 (64bit) OS, Windows Server 2012 (64bit)

For the device recognition process, specify the **LMWUSB64.inf** deployed by installing the **LMWIN**, in which Vender ID and Product ID for the device are written.

Device Recognition

Check the setting of USB connection in the terminal.

1. Start **USB Connection** from 🍀 → **Settings** → **Control Panel** in case Windows CE terminal, ▥ → **Settings** → **System** in case Windows Mobile terminal.
2. Select "Connect Utility "tab, check "LMWIN/FLCE" radio box is selected in case "LMWIN/FLCE" radio box is displayed.
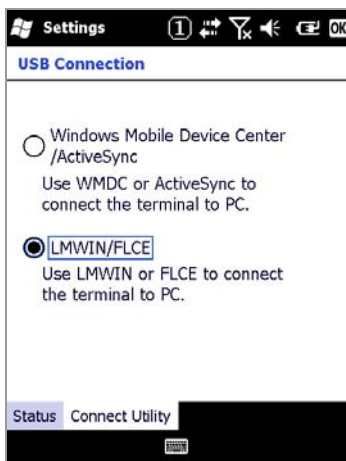
Figure 3.70

3. Connect USB cable into USB client port of the cradle and USB port of PC.
4. Turn on the power switch of the cradle
   Note: Skip this step in case to use the cradle which does not equip with the power switch.
5. Switch the toggle switch of the cradle to USB client (USB B).
   Note: Skip this step in case to use the cradle which does not equip with the toggle switch.
6. Put the device on the cradle.

The following explanation describes the procedure for device recognition run under Windows 2000 OS, Windows XP / Windows Server 2003 / Windows Vista / Windows Server 2008 / Windows 8 and Windows 7. Note: however that for the first time only the device recognition procedure run on your PC is slightly different from those in other OS.

In Windows 2000

1. When connecting the device to the PC, the "Found New Hardware Wizard" screen appears. Click **Next >** button to continue the process.

Figure 3.71

2. Choose **Search for a suitable driver for my device [recommended]** radio button and click **Next >** button.

Figure 3.72

3. Check **Specify a location** box and click **Next >** button.

Figure 3.73

4. Specify the path where **wceusbsh.inf** file has been deployed when installing the LMWIN, and then click **OK** button.

Figure 3.74

5.   For the rest of the process, follow instruction guide appeared in the wizard screen and complete the device recognition process. Click **Next >** button.

Figure 3.75

6.   Click **Finish** button.

Figure 3.76

Windows Server 2003 and Windows XP

1. When the device is connected to the PC, the "Found New Hardware Wizard" screen starts up. Choose **Install from a list of specific location [Advanced]** radio button, and then click **Next >** button.

Figure 3.77

2. Choose **Search for the best driver in these locations** radio button and check on **Include this location in the search**. Click **Browse** button to select a path where the **wceusbsh.inf** has been deployed when installing the LMWIN. Click **Next >** button.
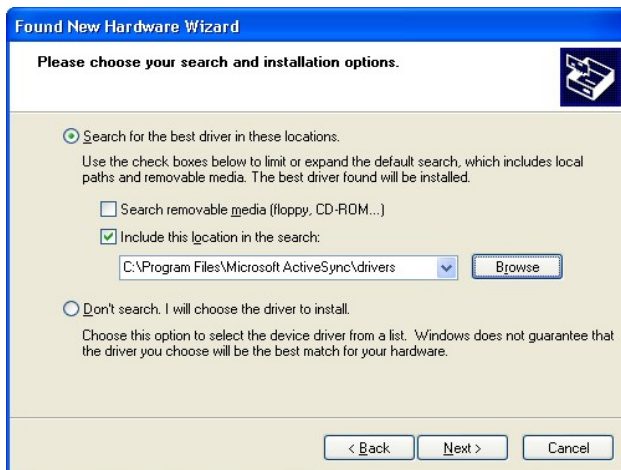
Figure 3.78

3. For the rest of the process, follow instruction guide appeared in the wizard screen and complete the device recognition process. Click **Continue Anyway** button.

Figure 3.79

4. Click **Finish** button.

Figure 3.80

In Windows Server 2008 (32bit)

1.　When the device is connected to the PC, the "Found New Hardware" screen starts up. This indicates the connected device is recognized by the PC. Choose **Locate and install driver software (recommended)**.

Figure 3.81

2.　Click **Don't search online** button to continue the rest of the process.
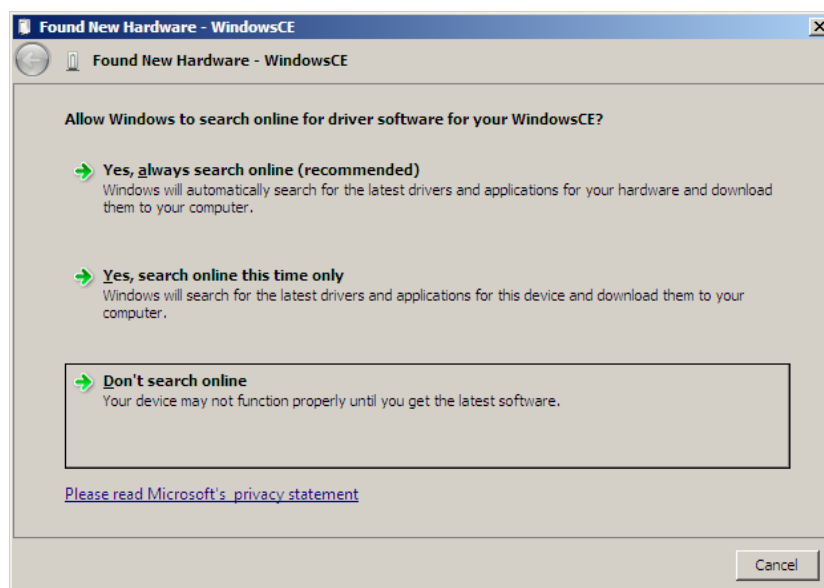
Figure 3.82

3.　Click **I don't have the disc. Show me other options** button to continue the rest of the process.
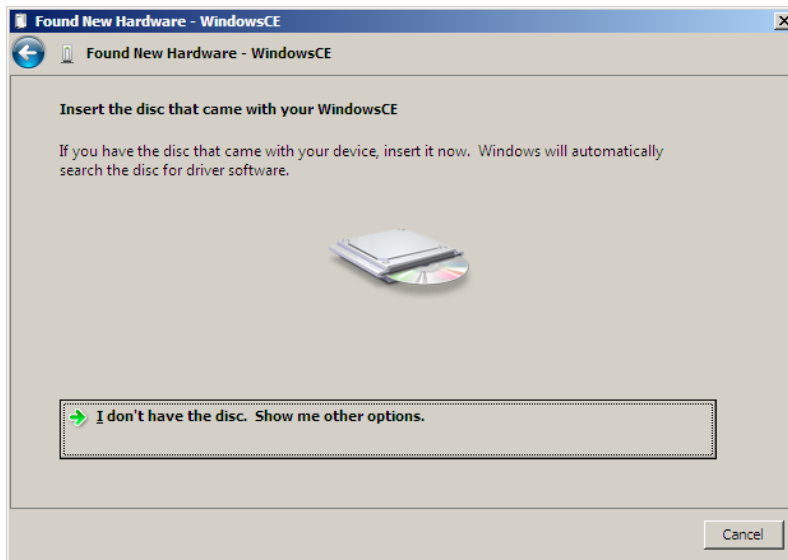
Figure 3.83

4. Click **Browse my computer for driver software (advanced)** button to continue the rest of the process.
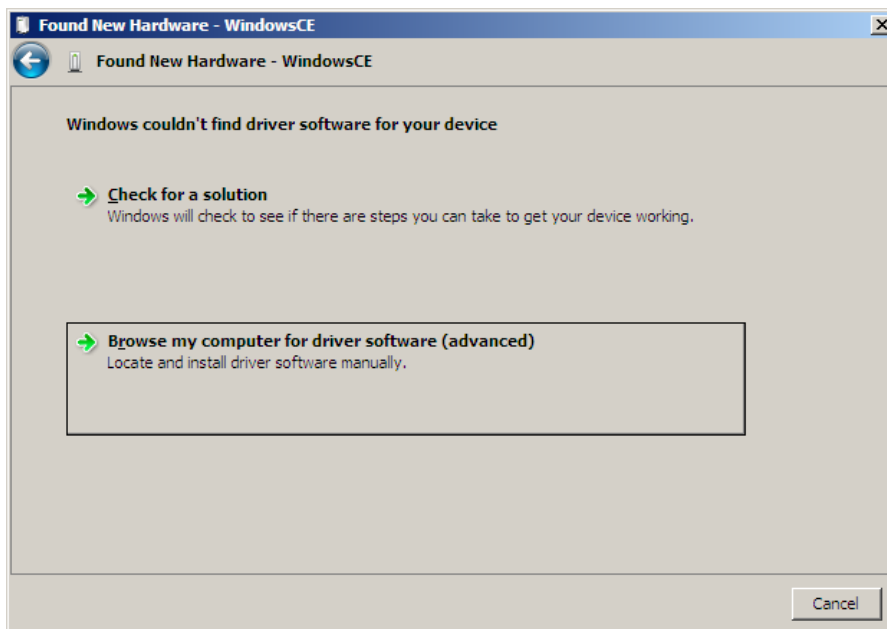
Figure 3.84

5. Click **Install this driver software anyway** button to continue the rest of the process.
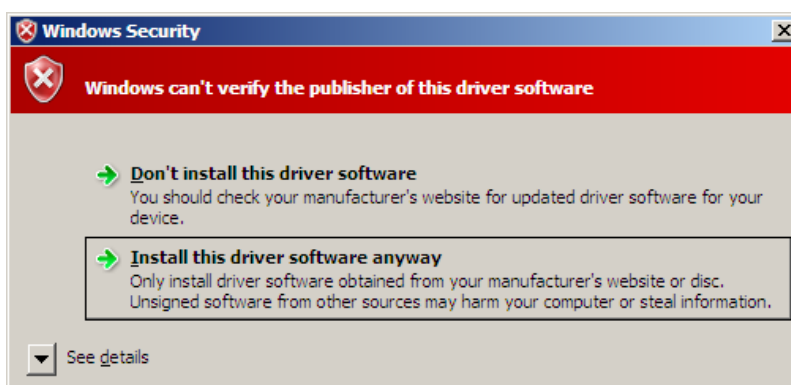
Figure 3.85

6. Click **Close** button.
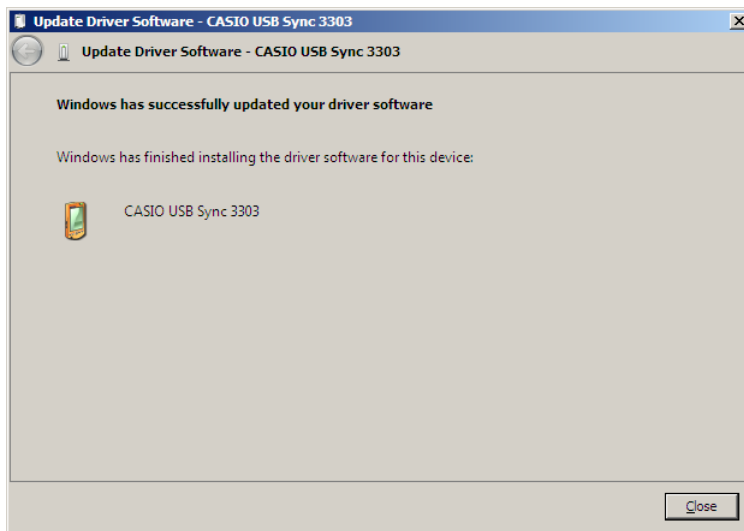
Figure 3.86

In Windows Vista

1.   When the device is connected to the PC, the "Found New Hardware" screen starts up. This indicates the connected device is recognized by the PC. Choose **Locate and install driver software (recommended)**.
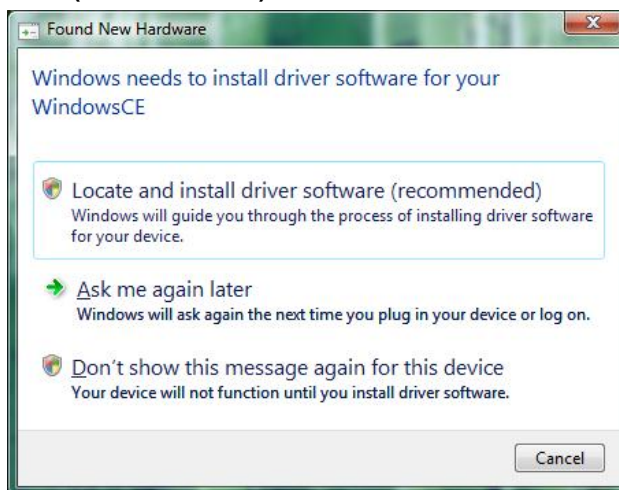
 Figure 3.87

2.   Click **Continue** button to continue the rest of the process.
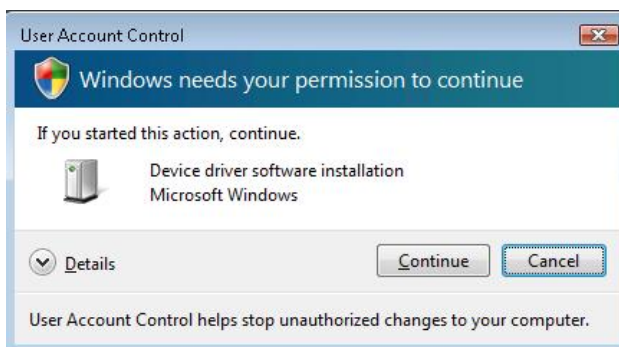
Figure 3.88

3.   Choose **Don't search online**.
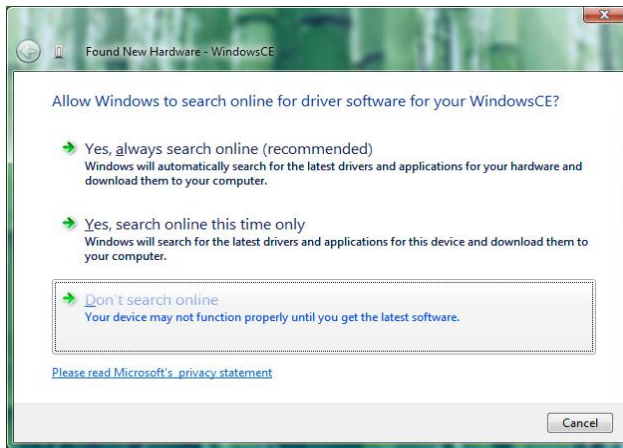
Figure 3.89

4. Click **I don't have the disc. Show me other options**.
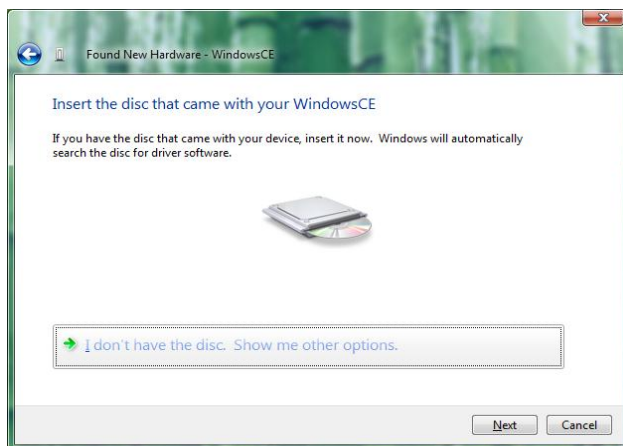
Figure 3.90

5. Choose **Browse my computer for driver software (advanced)**.
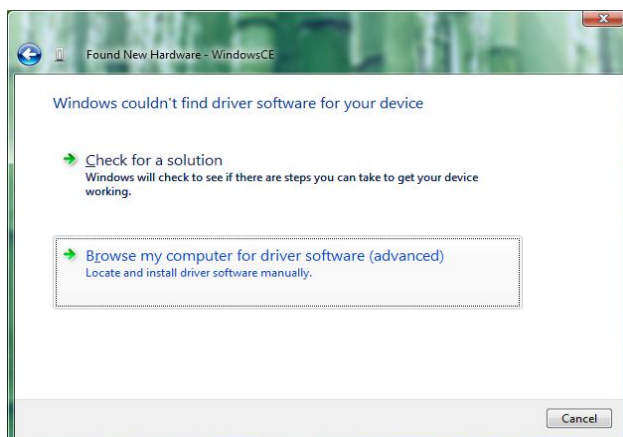
Figure 3.91

6. Select a path in **Search for driver software in this location** where the USB driver, **wceusbsh.sys**, deployed when installing the LMWIN is stored and the driver configuration file, **wceusbsh.inf**, in which the Vender ID and Product ID for the device are written.
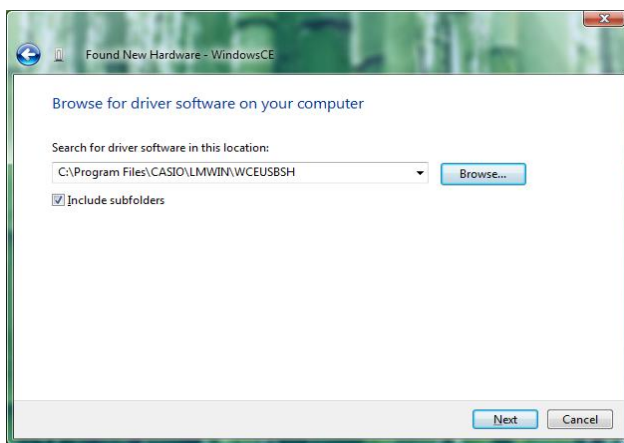
Figure 3.92

7.   Choose **Install this driver software anyway**.
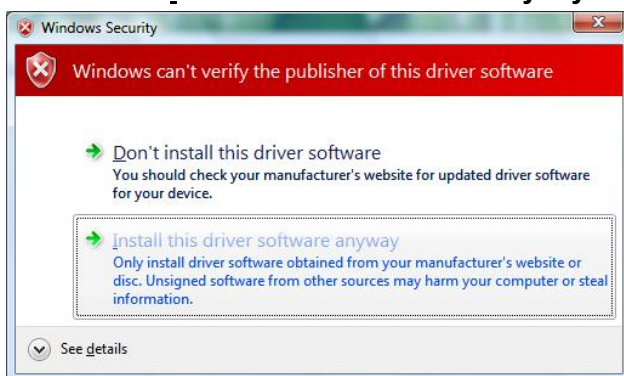
Figure 3.93

8.   Click **Close** to exit the wizard screen.
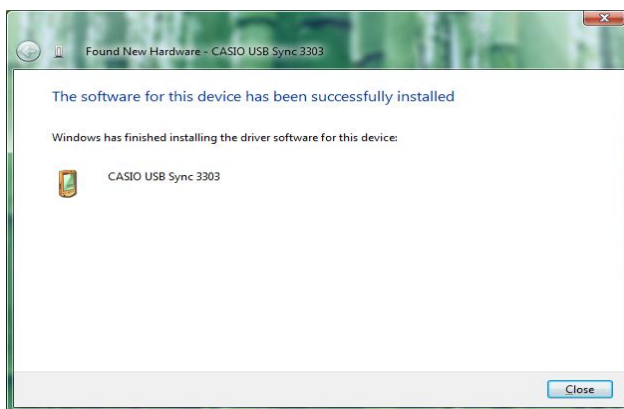
Figure 3.94

In Windows 8/8.1 (32bit) and Windows 7 (32bit)

1.   Starts up the **Device Manager** from the **Control Panel**, and connect the device to the PC.
2.   Right click the "WindowsCE" or "Microsoft USB Sync" or "PocketPC" shown in the **Device Manager**, and choose **Update Driver Software…** menu.
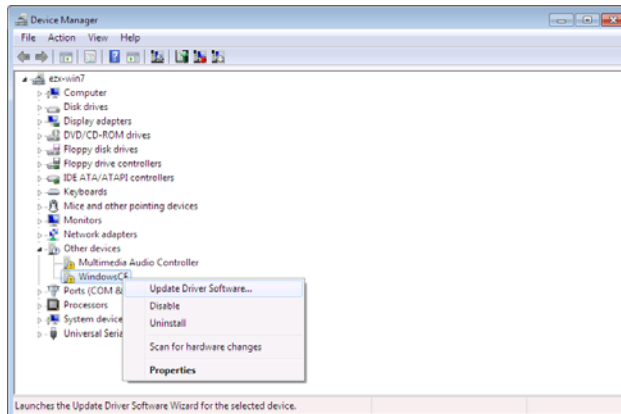
Figure 3.95

3.   Choose **Browse my computer for driver software** button.
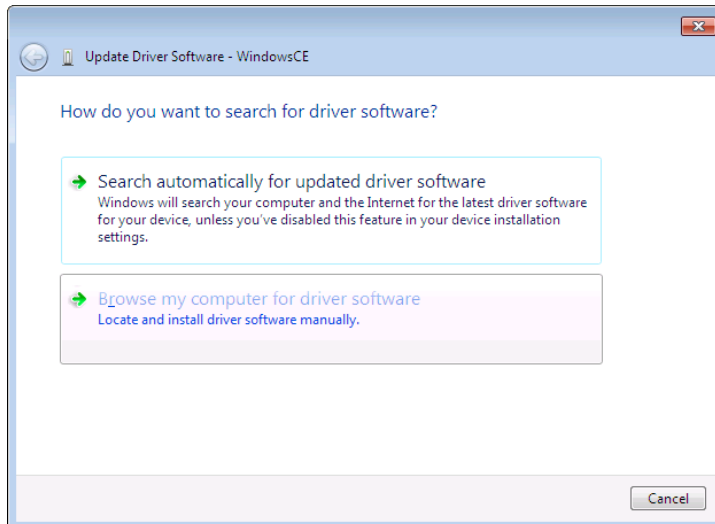
 Figure 3.96

4.   Click **Browse** button to select a path where the **wceusbsh.inf** has been deployed when installing the LMWIN Click **Next** > button.
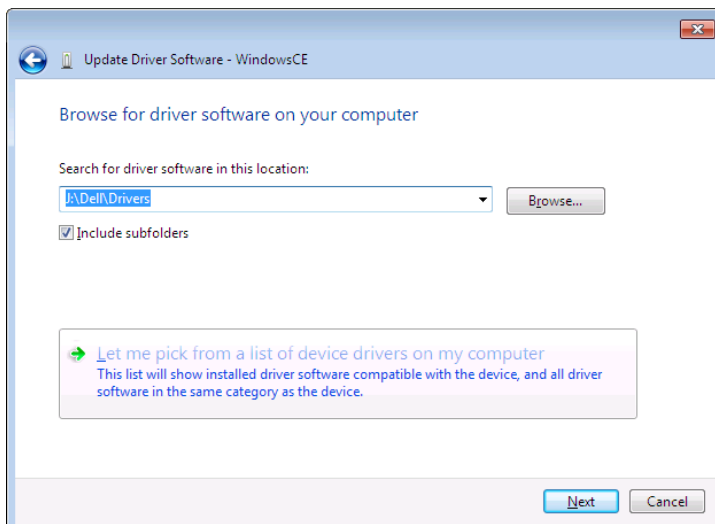
Figure 3.97

5.   Click **Install this driver software anyway** button.
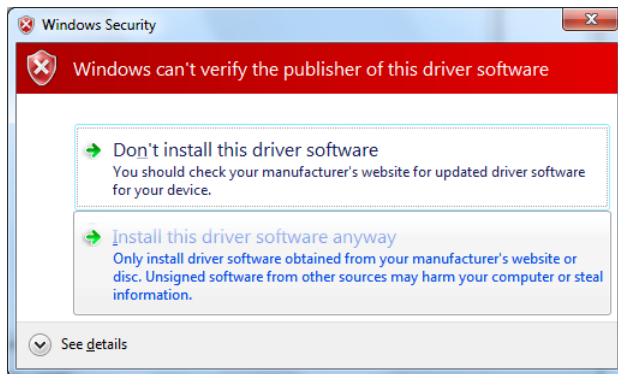
Figure 3.98

Note: In case "**Update Driver Warning**" screen appears, Click **Yes** button.

6.   Click **Close** button.
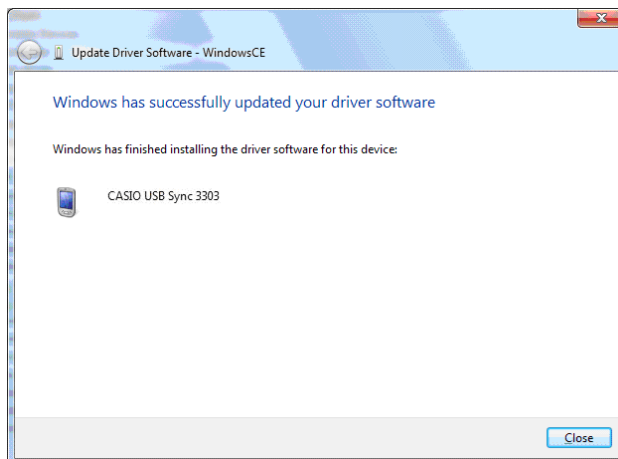
Figure 3.99

In Windows Server 2012 (64bit) Windows Server 2008 (64bit) and Windows 8/8.1 (64bit) and Windows 7 (64bit)

Note: Screen shots shown in following explanation are captured on Windows 7 (64bit).

1. Starts up the **Device Manager** from the **Control Panel**, and connect the device to the PC.
2. Right click the "WindowsCE" or "MicroSoft USB Sync" or "PocketPC" shown in the **Device Manager**, and choose **Update Driver Software…** menu.
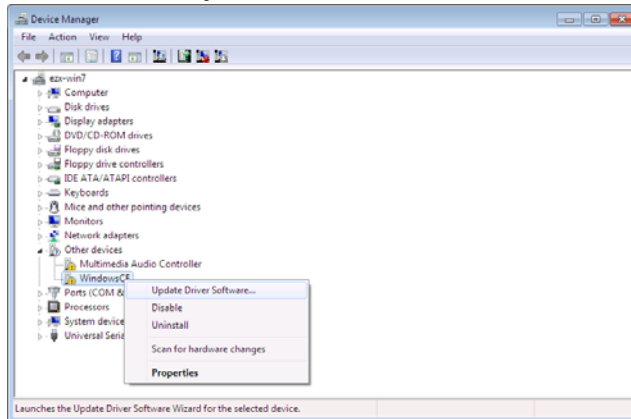
Figure 3.100

3. Choose **Browse my computer for driver software** button.
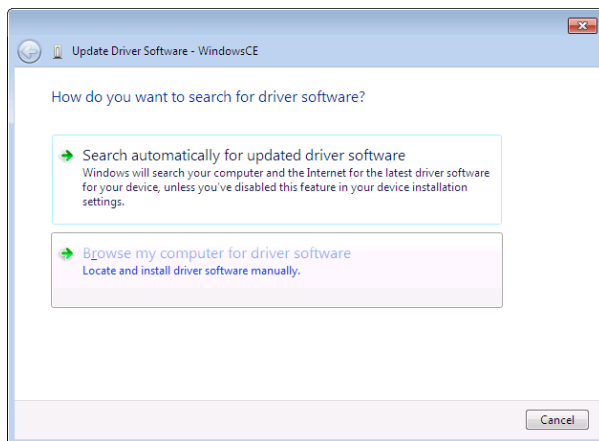
Figure 3.101

4. Choose **Let me pick from a list of device drivers on my computer** button.
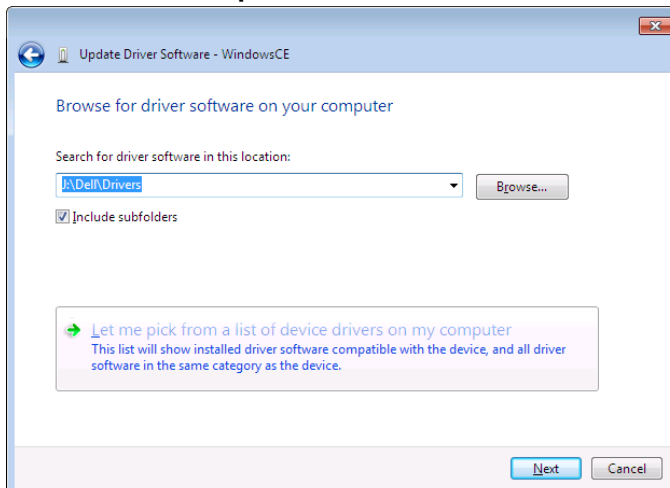
Figure 3.102

5.   Choose "Mobile devices". Click **Next** button.
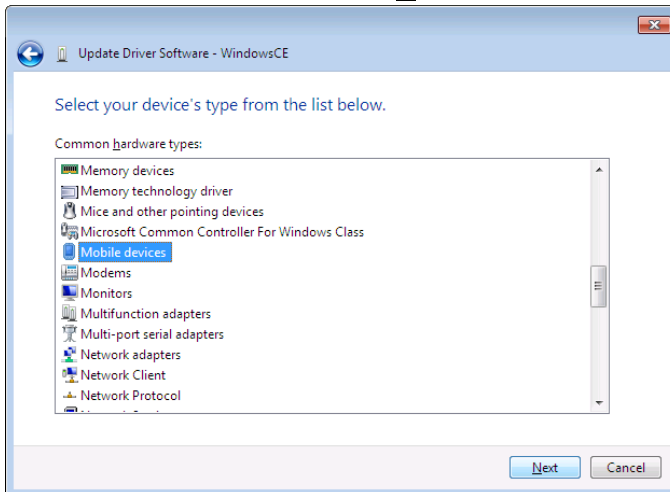
Figure 3.103

6.   Choose **Have Disk…** button. Set a path where the **LMWUSB64.inf** has been deployed when installing the LMWIN.
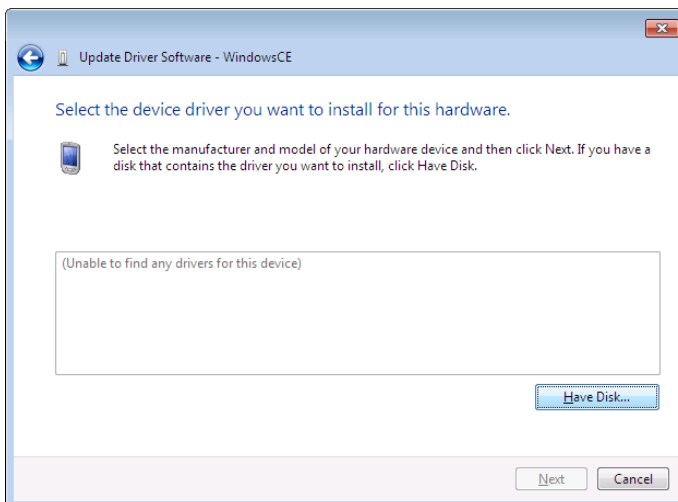
Figure 3.104

7.   Choose "CASIO USB Sync (latest number)". Click **Next** button.
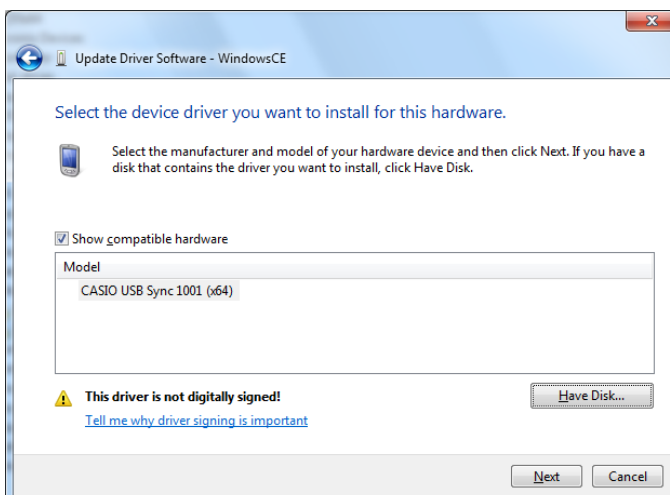
Figure 3.105

8.   Click **Install this driver software anyway** button.
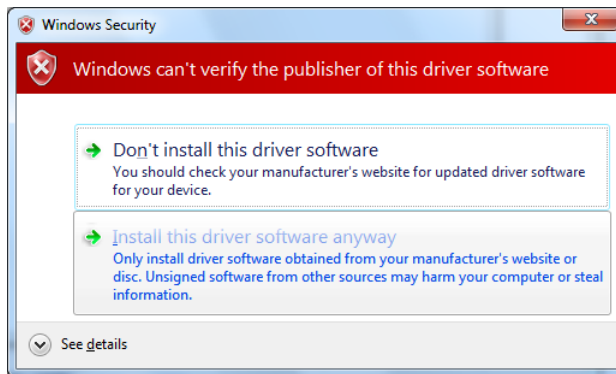
Figure 3.106

Note: In case "**Update Driver Warning**" screen appears, Click **Yes** button.

9.   Click **Close** button.
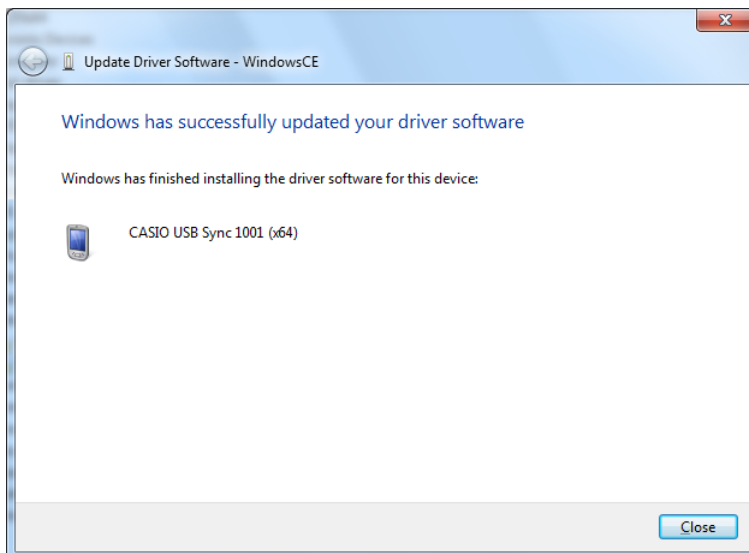
Figure 3.107

Update the driver for USB cradle

In case **ActiveSync** is installed or old LMWIN is installed, old driver for USB cradle may be installed.
In this case, update the driver for USB cradle.

The following explanation describes the checking the version of the driver and updating the driver.
1.   Put the terminal on the cradle and turn on the power of the cradle.
2.   Right click the "CASIO USB Sync" or "MicroSoft USB Sync" or "PocketPC" shown in the **Device Manager**, and choose **Update Driver Software…** menu.
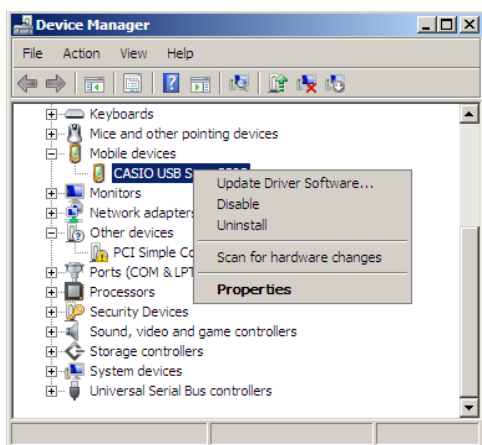
Figure 3.108

3. Check **Driver Version** in **Driver** tab.
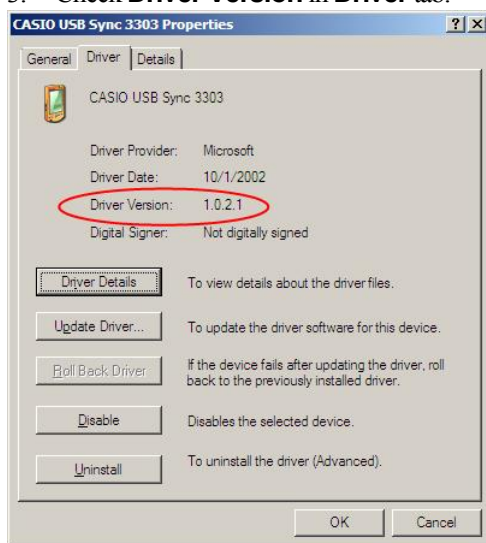
Figure 3.109

If **Driver Version** is lower than **4.0.4232.0**, update the driver for USB cradle.

In case to update the driver, See the step described below.

4. Click **Update Driver** button to start updating.
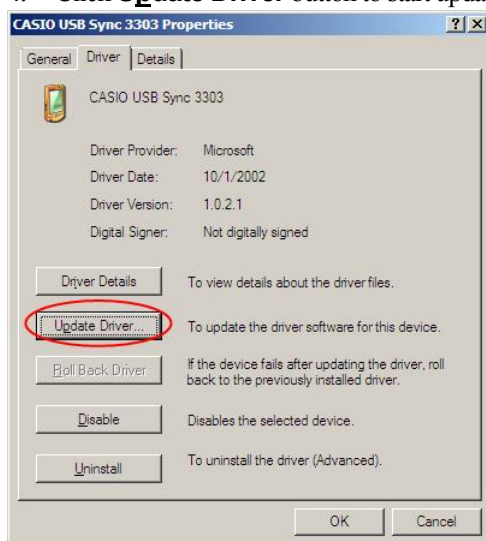
Figure 3.110

The following explanation describes the procedure for updating the driver for USB cradle.
Note: however that the procedure run for updating is slightly different from those in other OSs.

In Windows 2000

1. Click **Next >** button to continue the process.

Figure 3.111

2. Choose **Display a lot of the known drivers for this device so that I can choose a specific driver** radio button and click **Next >** button.

Figure 3.112

3. Click **Have Disk ...** button.
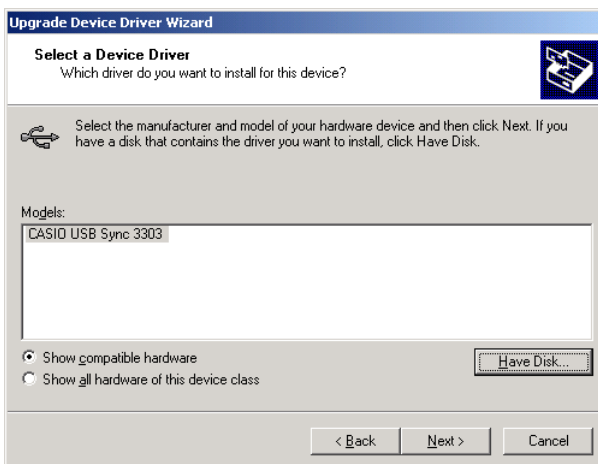
4.	Specify the path where **wceusbsh.inf** file has been deployed when installing the LMWIN, and then click **OK** button.
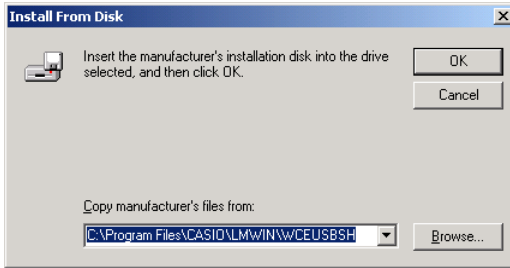
Figure 3.113

5.	Click **Next >** button
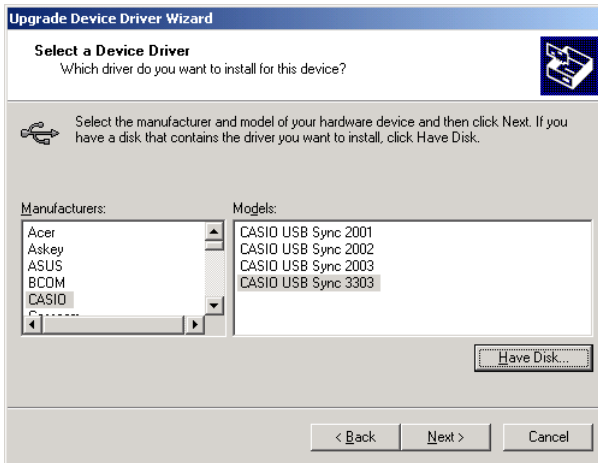
Figure 3.114

6.	Click **Next >** button
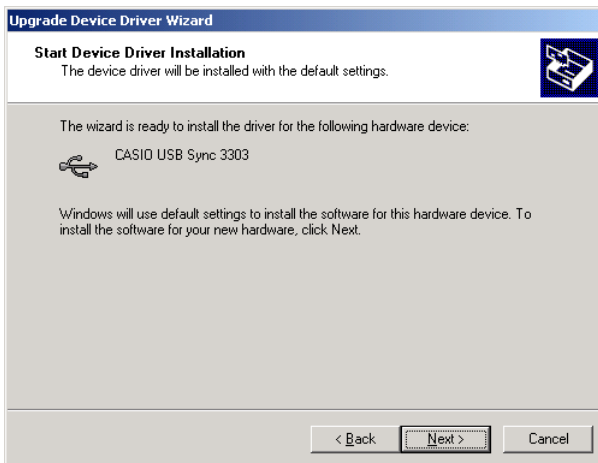
Figure 3.115

7.	Click **Next >** button

Figure 3.116

Windows Server 2003 and Windows XP

1.   When the device is connected to the PC, the "Found New Hardware Wizard" screen starts up. Choose **Install from a list of specific location [Advanced]** radio button, and then click **Next >** button.

Figure 3.117

2.   Choose **Search for the best driver in these locations** radio button and check on **Include this location in the search**. Click **Browse** button to select a path where the **wceusbsh.inf** has been deployed when installing the LMWIN. Click **Next >** button.

Figure 3.118

3.   Click **Finish** button.

Figure 3.119

In Windows Server 2008 (32bit)

1. Click **Browse my computer for driver software (advanced)** button to continue the rest of the process.
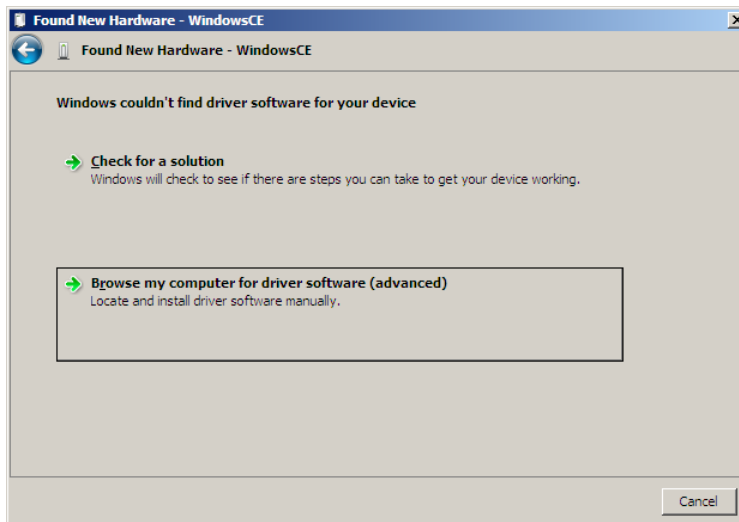
Figure 3.120

2. Select a path in **Search for driver software in this location** where the USB driver, **wceusbsh.inf**, deployed when installing the LMWIN is stored and the driver configuration file,
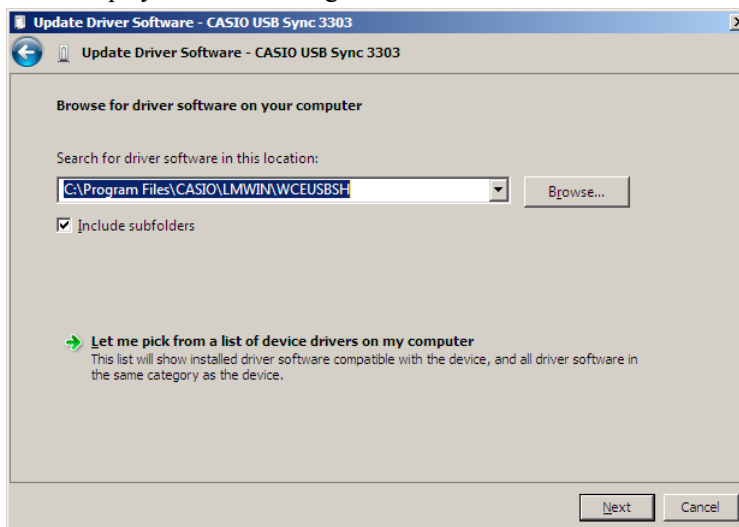
Figure 3.121

3. Click **Install this driver software anyway** button to continue the rest of the process.

Figure 3.122

4. Click **Close** button.
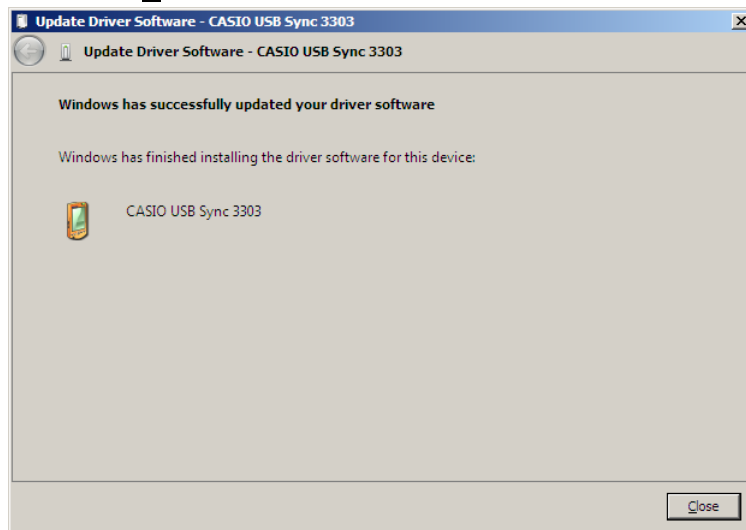
Figure 3.123

In Windows Vista

1. Choose **Browse my computer for driver software (advanced)**.
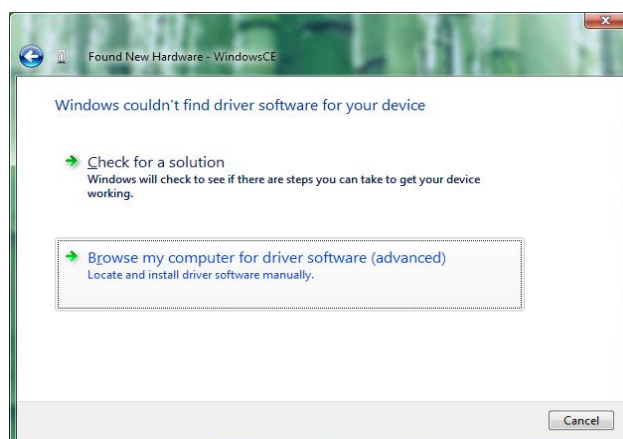
Figure 3.124

2. Select a path in **Search for driver software in this location** where the USB driver, **wceusbsh.inf**,, deployed when installing the LMWIN is stored and the driver configuration file.

Figure 3.125

3.   Choose **Install this driver software anyway**.
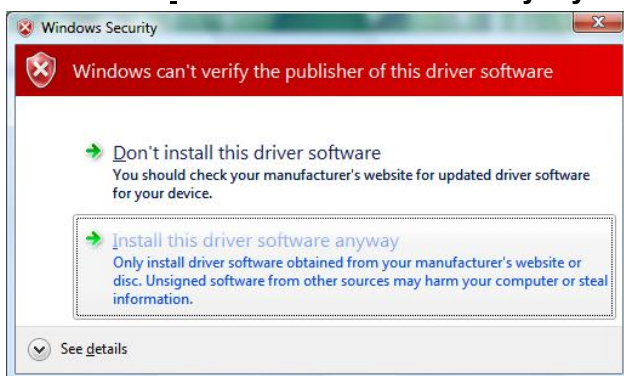
Figure 3.126

4.   Click **Close** to exit the wizard screen.
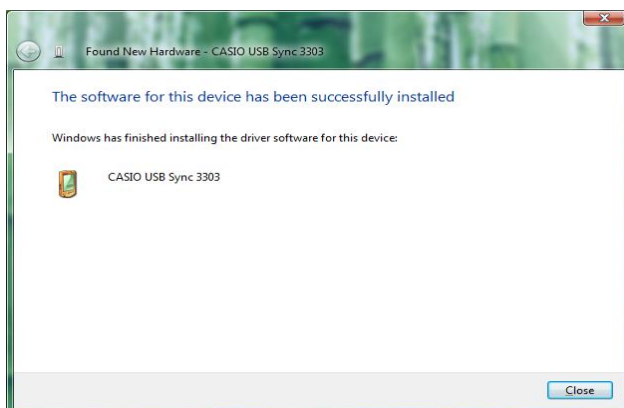
Figure 3.127

In Windows 8/8.1 (32bit) and Windows 7 (32bit)

1. Choose **Browse my computer for driver software** button.

Figure 3.128

2. Click **Browse** button to select a path where the **wceusbsh.inf** has been deployed when installing the LMWIN. Click **Next** > button.

Figure 3.129

3. Click **Install this driver software anyway** button.
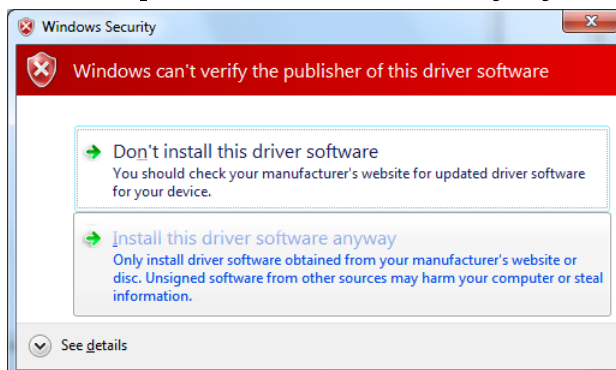
Figure 3.130

4. Click **Close** button.
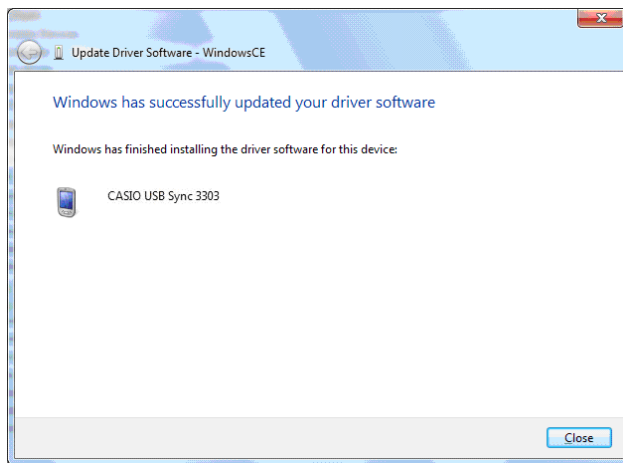
Figure 3.131

In Windows Server 2012 (64bit), Windows Server 2008 (64bit), Windows 8/8.1 (64bit) and Windows 7 (64bit)

It is not necessary to update the driver for USB cradle for 64bit OS, because only version **1.0.0.0** is available.

3.4.4 Installing the Driver for USB Cradle (USB-SERIAL)

Device Recognition

<In case of DT-970>

1. Turn on the power switch of the cradle.

    Note: Skip this step in case to use the cradle which does not equip with the power switch.

2. Switch the toggle switch of the cradle to USB client (USB B).

    Note: Skip this step in case to use the cradle which does not equip with the toggle switch.

3. Connect USB cable into USB client port of the cradle and USB port of PC.

4. Operate system menu of the device as below.

    <A> Navigate to **2: TRANSMIT** -> **3: COMM. I/F**, and select **3:USB** as communication I/F.

    <B> Navigate to **2: TRANSMIT** -> **1: TRANS FILE**.

5. Put the device on the cradle

The following explanation describes the procedure for device recognition run under, Windows XP / Windows Server 2003 / Windows Vista / Windows Server 2008 / Windows 8 and Windows 7.

Note: however that for the first time only the device recognition procedure run on your PC is slightly different from those in other OS.

Windows Server 2003 and Windows XP

1. When the device is connected to the PC, the **Found New Hardware Wizard** screen starts up. Choose **No, not this time** radio button, and then click **Next >** button.

Figure 3.132

2. Choose **Install from a list of specific location [Advanced]** radio button, and then click **Next >** button.
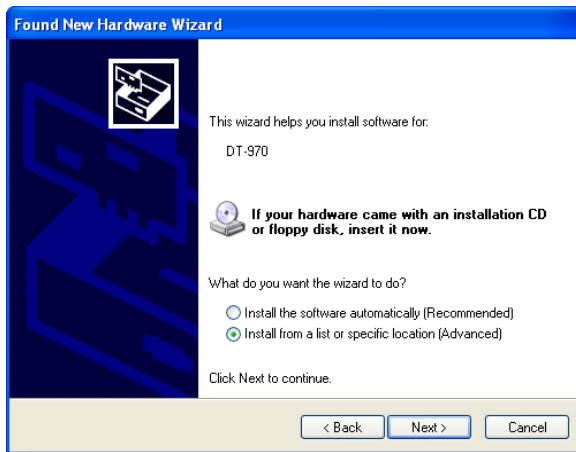
Figure 3.133

3. Choose **Search for the best driver in these locations** radio button and check on **Include this location in the search**. Click **Browse** button to select a path where the **usbser.inf** has been deployed when installing the LMWIN. Click **Next >** button.
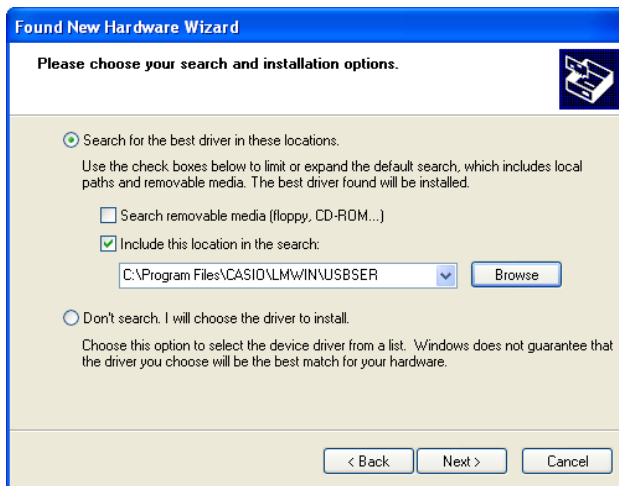
Figure 3.134

4. For the rest of the process, follow instruction guide appeared in the wizard screen and complete the device recognition process. Click **Continue Anyway** button

Figure 3.135

5. Click **Finish** button.
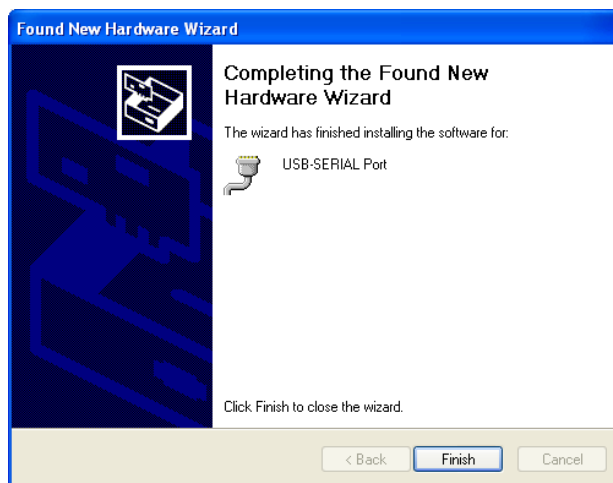
Figure 3.136

In Windows Server 2008 (32bit)

1. Starts up the **Device Manager** from the **Control Panel**, and connect the device to the PC.
2. Right click the "DT-970" (in case of DT-970) shown in the **Device Manager**, and choose **Update Driver Software…** menu.
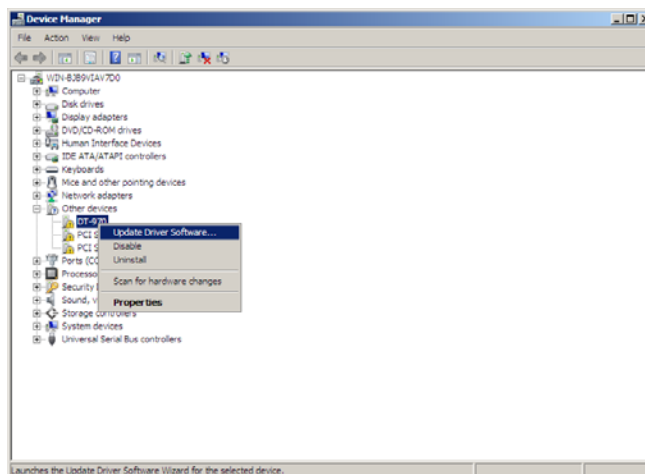
Figure 3.137

3. Click **Browse my computer for driver software (advanced)** button to continue the rest of the process.
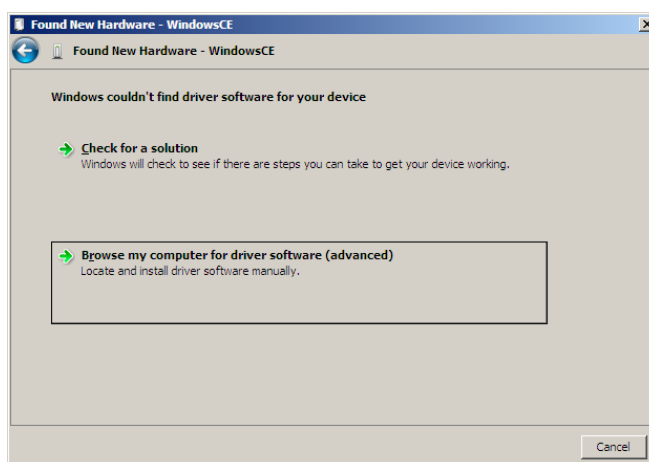
Figure 3.138

4. Choose **Search for the best driver in these locations** radio button and check on **Include this**

location in the search. Click **Browse** button to select a path where the **usbser.inf** has been deployed when installing the LMWIN. Click **Next >** button.
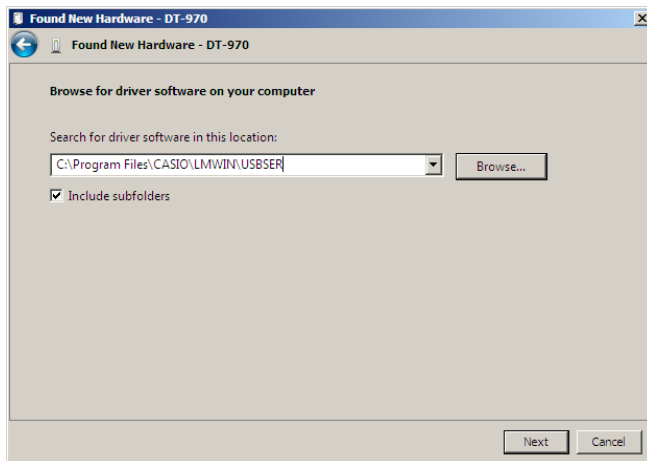
Figure 3.139

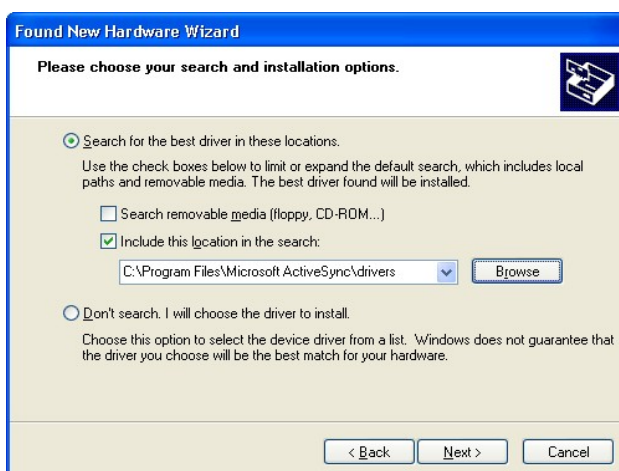5.   Click **Install this driver software anyway** button to continue the rest of the process.

Figure 3.140

6.   Click **Close** button.
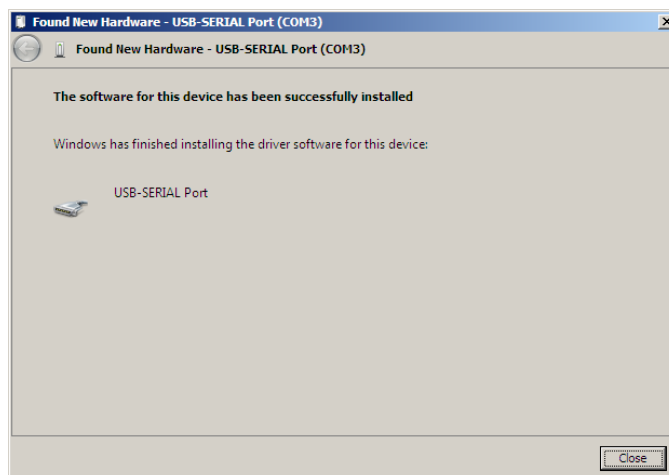
Figure 3.141

In Windows Vista

1.   When the device is connected to the PC, the "Found New Hardware" screen starts up. This indicates the connected device is recognized by the PC. Choose **Locate and install driver software (recommended)**.
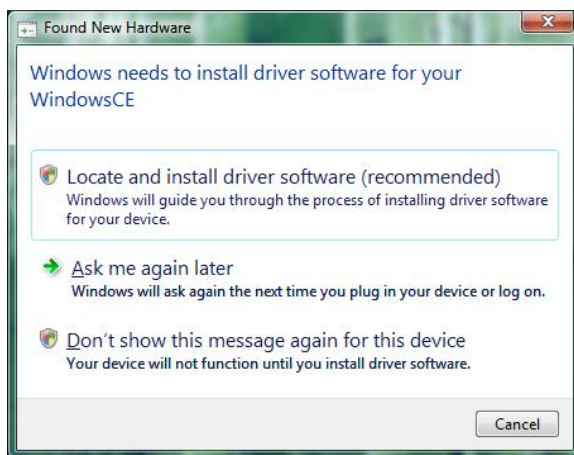
Figure 3.142

2. Click **Continue** button to continue the rest of the process.
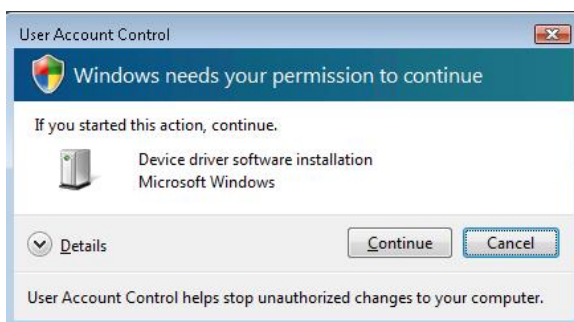
Figure 3.143

3. Choose **Don't search online**.
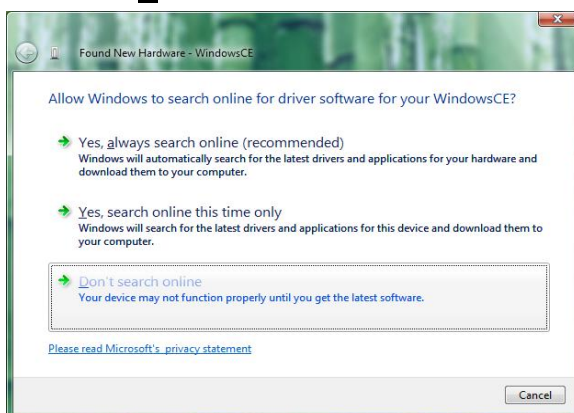
Figure 3.144

4. Click **I don't have the disc. Show me other options**.
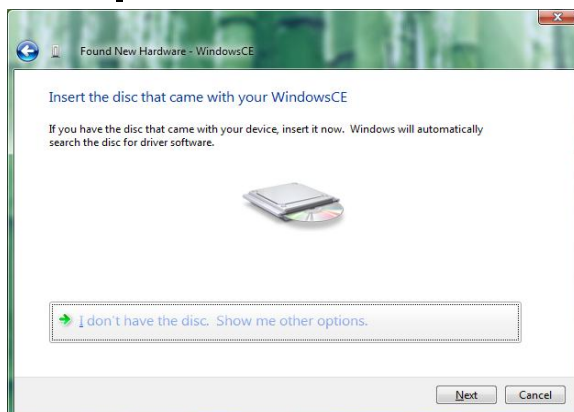
Figure 3.145

5. Choose **Browse my computer for driver software (advanced)**.
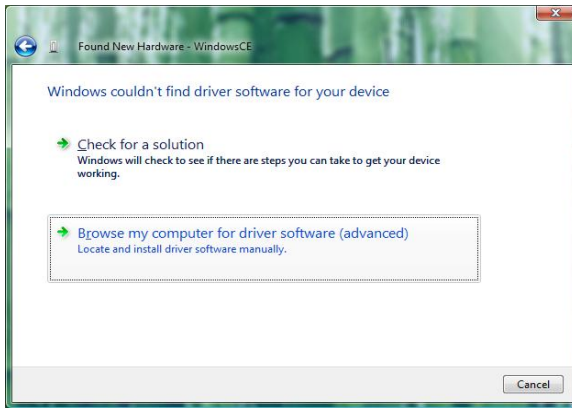
Figure 3.146

6. Select a path in **Search for driver software in this location** where the driver configuration file, **usbser.inf**, in which the Vender ID and Product ID for the device are written.
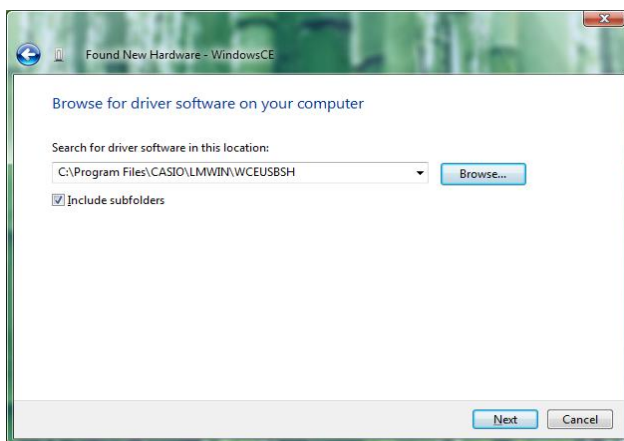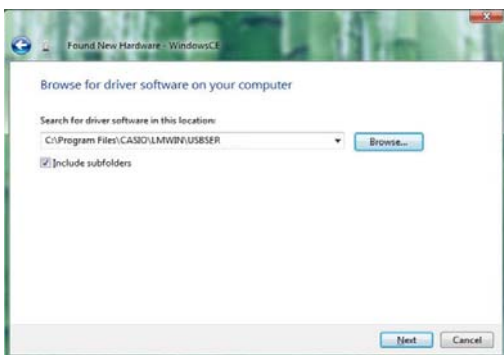

Figure 3.147

7. Choose **Install this driver software anyway**.
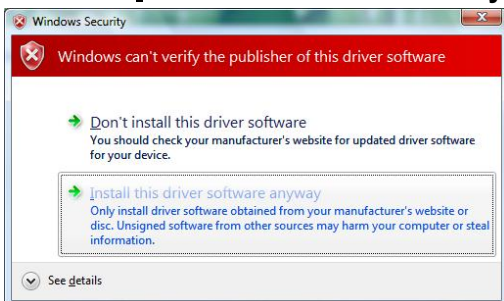
Figure 3.148

8. Click **Close** to exit the wizard screen.

Figure 3.149

In Windows 8/8.1 (32bit) and Windows 7 (32bit)

1. Starts up the **Device Manager** from the **Control Panel**, and connect the device to the PC.
2. Right click the "DT-970" (in case of DT-970) shown in the **Device Manager**, and choose **Update Driver Software…** menu.
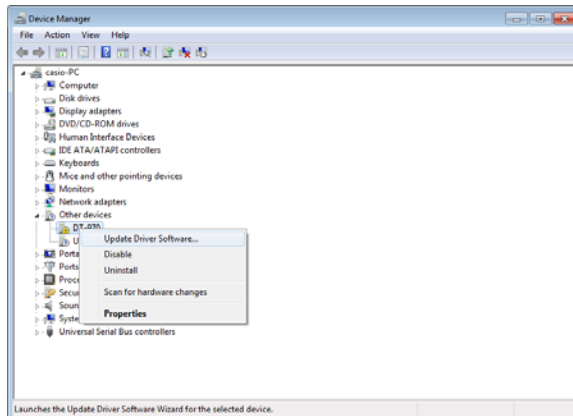
Figure 3.150

3. Choose **Browse my computer for driver software** button
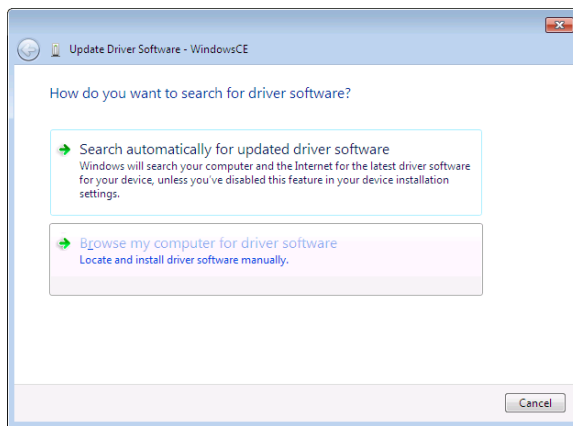
Figure 3.151

4. Click **Browse** button to select a path where the **usbser.inf** has been deployed when installing the LMWIN Click **Next** > button.
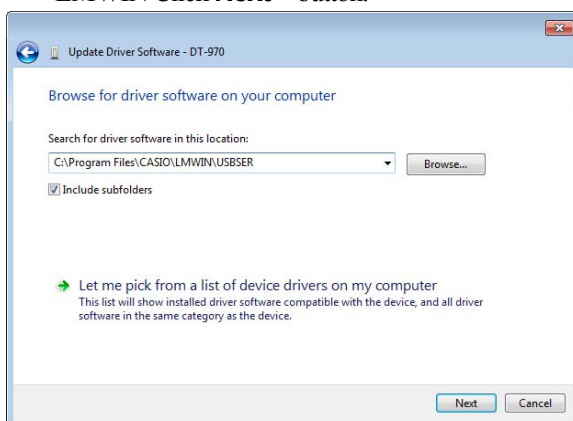
Figure 3.152

5. Click **Install** button
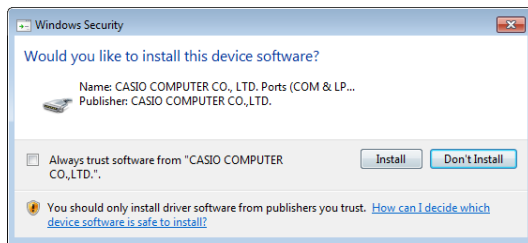
Figure 3.153

       Note: In case "**Update Driver Warning**" screen appears, Click **<u>Yes</u>** button.

6.   Click **Close** button.
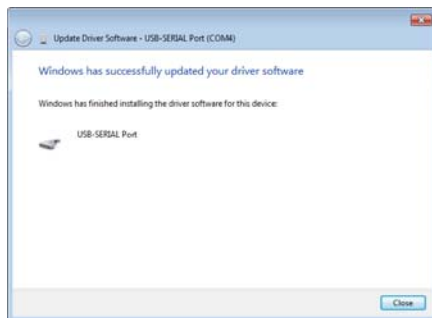
Figure 3.154

In Windows Server 2012 (64bit) and Windows Server 2008 (64bit) and Windows 8/8.1 (64bit) and Windows 7 (64bit)

Note: Screen shots shown in following explanation are captured on Windows 7 (64bit).

1.   Starts up the **Device Manager** from the **Control Panel**, and connect the device to the PC.

2.   Right click the "DT-970"(in case of DT-970) shown in the **Device Manager**, and choose **Update Driver Software…** menu.
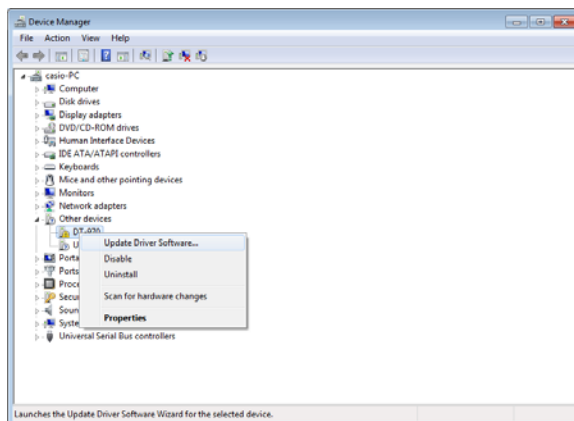
Figure 3.155

3.   Choose **Browse my computer for driver software** button
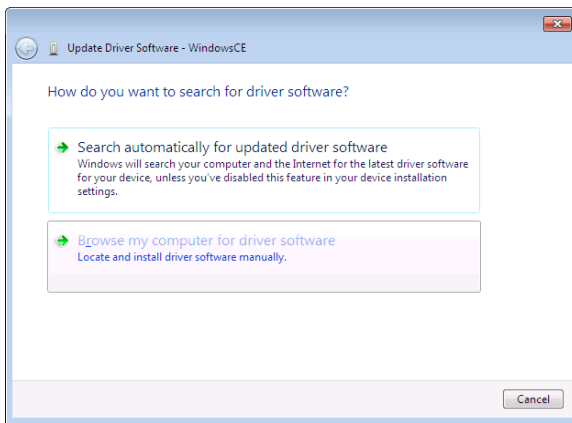
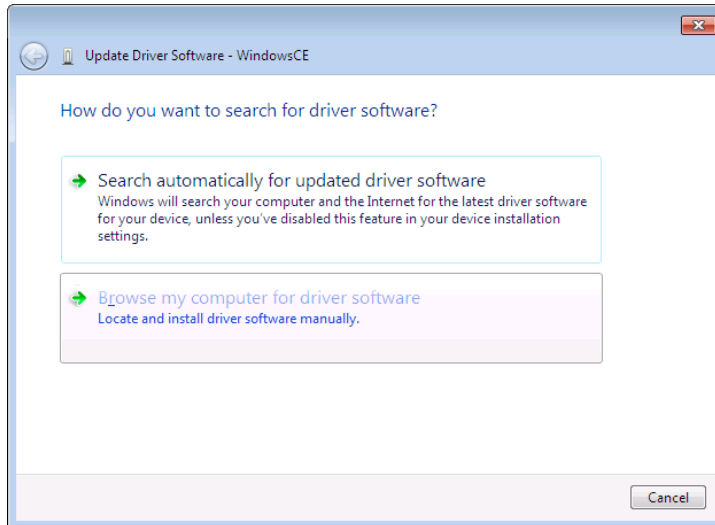Figure 3.156

4.   Click **Browse** button to select a path where the **usbser.inf** has been deployed when installing the LMWIN Click **Next** > button.
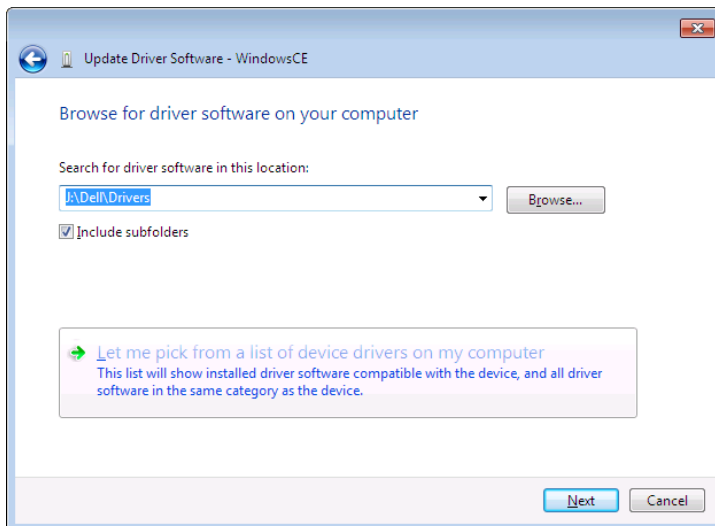

Figure 3.157

5.   Click **Install** button
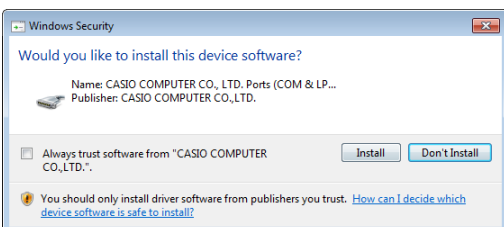
Figure 3.158

Note: In case "**Update Driver Warning**" screen appears, Click **Yes** button.

6.   Click **Close** button
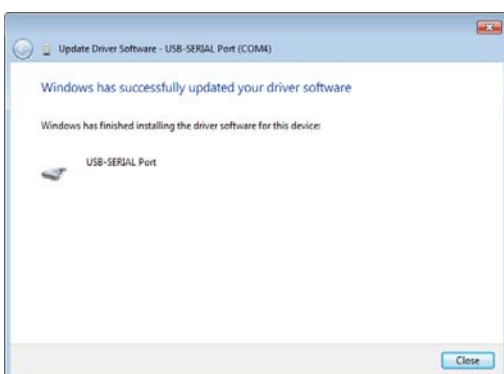
Figure 3.159

3.4.5 USB Driver for Concurrent Communication

Installation

To operate the concurrent communication by multiple terminals, install the USB driver, **IRXpressUSBIrDA.exe**. Only the USB mode supports the concurrent communication. To install it, follow the instruction available for single and chain configurations. The installation is required only one time at the beginning.

Device Recognition

1. After the installation and initiation on the PC, install cradles with a USB cable to the USB port on the PC. And, turn on the power on each cradle.
2. In Windows XP OS, the device recognition is carried out for the same number of times with the number of cradles connected (and the power on each cradle must be turned on prior to the device recognition) to the PC for only once.
3. Click **Next >** button in the window to exit the device recognition.
4. In Windows 2000 OS, the device recognition is carried out automatically for the same number of times with the number of cradles connected (and the power on each cradle must be turned on prior to the device recognition) to the PC. It does not require any operation during the recognition.
5. If the USB port is changed to another USB port on the PC, the device recognition is carried out automatically as well.
6. After the installation of USB driver and then the device recognition is complete, the confirmation window appears in the **Device Manager** screen. See following figure.
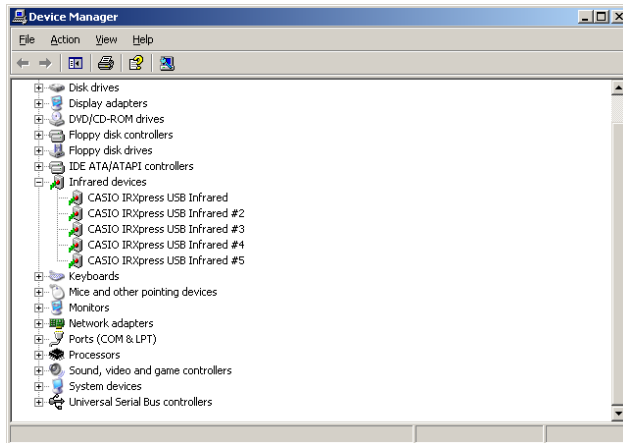
Figure 3.160

Setting Communication Speed

1. Click **Infrared devices** icon in the Device Manager screen and the properties of **IRXpress USB Infrared Properties** to open, and select either 4 Mbps or 115.2 Kbps in the **Value** pull-down menu (see following figure) in **Advanced** tab according to your configuration.
2. Click **OK** button to make the setting effect.
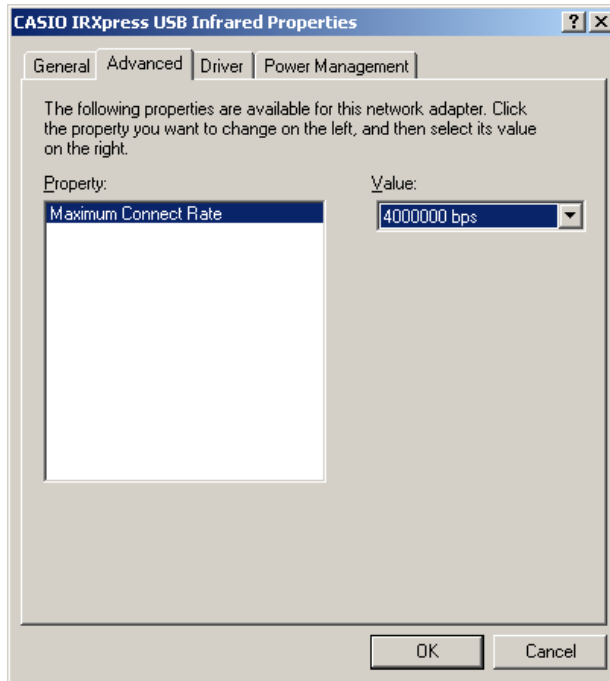
Figure 3.161

Select a communication speed following the guide below.
-   Single configuration (only one terminal)   : 4 Mbps or 115.2 Kbps only.
-   Chain configuration (multiple terminals)   : 115.2 Kbps only.
-   Concurrent communication (by multiple terminals)   : 4 Mbps or 115.2 Kbps. Select the same baud rate on all the connected cradles.

Notes:
-   The screen in above figure appears only if all cradles are connected to the PC and the power on each cradle is turned on.
-   To change the communication speed, close the LMWIN (or ActiveSync) first.

3.5　Startup and Exit

3.5.1　Starting up the LMWIN

1.　Click the **CASIO LMWIN32** icon to start up by navigating to **Start → Program**, or click the **LMWIN32.EXE** file in the directory installed.
2.　Setting for command options and environment parameters is not necessary.

Notes:

➢　"1 SHOT" mode
　　If the LMWIN starts up by "1 SHOT" mode, the LMWIN terminates the connection after a single execution and terminates its own process.
　　For detailed information about the setting for "1 SHOT" mode refer to Chapter 3.9.2 "Default Configuration File (LMWIN.INI)".
　　In case of the "1SHOT" mode, the LMWIN 's exit code indicates "0" if no error occurs, the LMWIN 's exit code indicates "1" if an error occurs.

If the starting up is not successful, one of the causes below may occur;

Duplicate initiation	→	If the LMWIN is already running, an attempt to initiate the **LMWIN32.EXE** is ignored.
Insufficient memory space	→	A Windows error appears. Quit other running applications before initiating again.
Lack of DLL files	→	A Windows error appears. Perform the setup again.
Lack of INI files	→	An LMWIN error appears. Perform the setup again after quitting the LMWIN.

Starting up the LMWIN

➢　Start up with either command line with a command and several options or a script file attached
　　The LMWIN can start up with command line with a command and several options or a script file attached to the command. This new way to start up makes the LMWIN running without operation entered by the user possible. The new way is suitable for a configuration with one PC and one terminal.
　　✧Starting up the LMWIN with command line: specify an option in similar way with the command line.
　　　See examples below.
　　　Example
　　　　Send　　　：　LMWIN32.exe /S c:\test.dat \FlashDisk\
　　　　Receive　：　LMWIN32.exe /R \FlashDisk\test.dat c:\temp\
　　✧Starting up the LMWIN with script file: specify a script file with "/E" attachment
　　　Example
　　　　　　　　　　LWMIN32.exe /E test.scr
　　Notes:
　　●　Specifying two or more commands or script files in the command line at a time is not allowed.
　　●　The "1 SHOT" mode is not supported.
　　●　Script file must be kept in the same working folder for the LMWIN.

➢　Running control over the LMWIN operations with the icon appeared in Tasktray
　　When starting up the LMWIN, the icon appears in Tasktray. Right-clicking this icon, you have a choice of the various operational controls including, **Start Link Manager** to initiate the Server Mode which is effect when the Link Manager is in standstill state, **Stop Link Manager** to stop the Link Manager which is effect when the Link Manager is in running state, **About …** to display a version of the LMWIN, and **Exit**

to close the LMWIN with no message appeared. See Table 3.3.
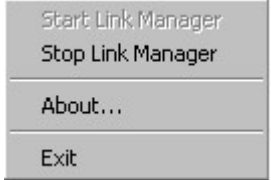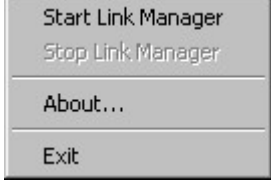
Specifying the running control mode can be set for "Enable" or "Disable" in the **lmwin.ini** file. See examples below.

- Enable the icon in Tasktray
  Set "TASK_TRAY=ON" in the lmwin.ini file.
- Disable the icon in Tasktray
  Set "TASK_TRAY=OFF" (default) or "TASK_TRAY=   (nothing to write)"

Note:
Setting the communication mode is carried out either by manually changing the content in the DEVICE.INI file, or starting up the LMWIN once with "TASK_TRAY=OFF" set in the lmwin.ini file for one time only. After starting up the LMWIN, change the relevant parameters and close the LMWIN. Now, start up the LMWIN again clicking the icon appeared in Tasktray.

Table 3.3

State of the Link Manager	Appearance of the icon in Tasktray	The menus available in Tasktray
While running		
While standstill		

3.5.2　Exit

Navigate to **Script** → **Exit** in the main menu screen. When the confirmation screen for exit appears, click **YES** button to exit the LMWIN.

3.6 Menus

3.6.1 Main Menu

A screen with four menus available in the Tasktray as shown below appears.

Script   : Displays the script menu.

Configure : Displays the environment configuration menu.

Execute   : Displays the communication menu.

Help   : Displays the help window.
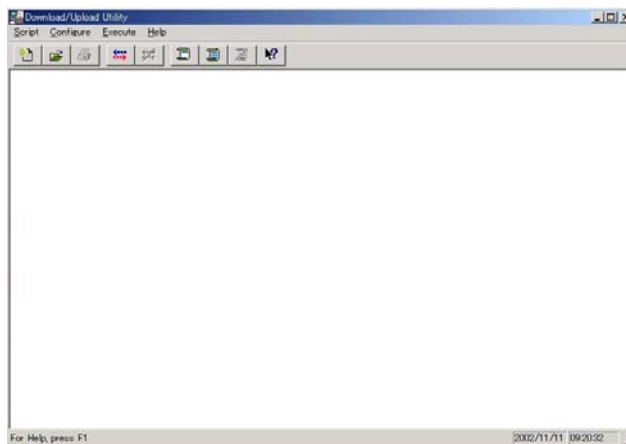
Figure 3.162

3.6.2 Script Menu

The **Script** screen contains the following sub-menus in the pull-down menu:

New   Ctrl-N   : Creates a new script file.
Open   Ctrl-O   : Opens and edits an existing script file.
Print   Ctrl-P   : Prints the script file. This is not accessible at present.
Exit   Esc   : Exits the LMWIN utility.
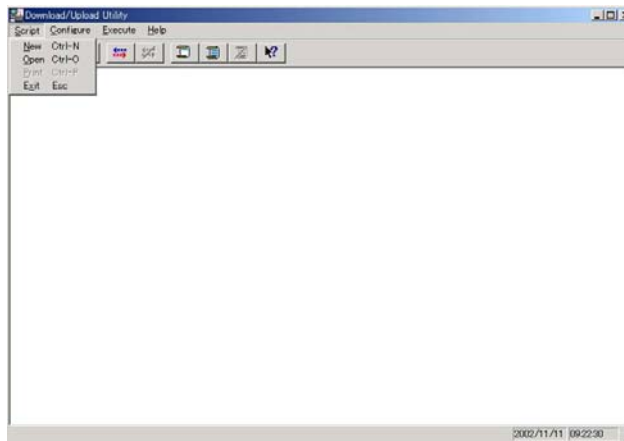
Figure 3.163

3.6.3 New Script File

When **New** submenu in the script menu is selected, the following New Script File editor screen appears.
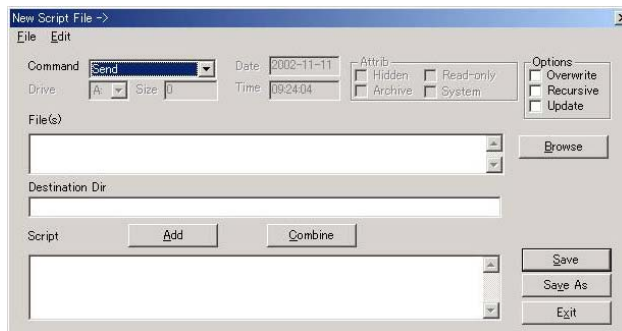
 Figure 3.164

The screen in Figure 3.67 shows that before clicking **Add** button a command in the command pull-down menu and an option in the options field are selected.

In this screen the user can select a command to execute from the command box. When a command is selected, the user is further requested to enter/select an option matching the selected command. If, for example, the selected command is **Send**, enter in **File(s)** and **Destination Dir** fields, and select any "Options" items, as required. Subsequently, when **Add** button is clicked, the created command line is added to the script file.

Buttons in the New Script File screen and the descriptions.

    Add   : Adds the command to the script file.
    Combine   : Merges with the existing script command.
    Exit   : Returns to the main window. The script file being edited is not saved.
    Save   : Overwrites the current script file with the existing file name.
    Save As   : Saves the file under a new file name.
    Browse   : Select a file to forward it to the terminal.

3.6.4 Open

If **Open** submenu in the script menu is selected, the Select Script File screen appears.

Figure 3.165

If a script file is selected in the screen, and then the following screen (see Figure 3.69) appears. The path of the selected script file is displayed in the script field.
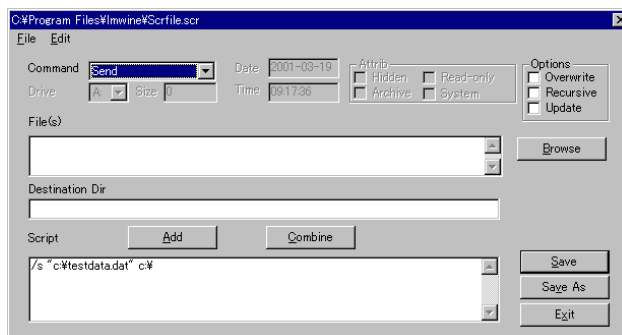
Figure 3.166

3.6.5 Configuration Menu

The **<u>Configure</u>** menu contains the following sub-menus in the pull-down menu.

<u>R</u>S-232C	: Performs communication via RS-232C interface.
<u>S</u>CSI	: Perform communication via SCSI interface.
<u>T</u>CP/IP	: Performs communication via TCP/IP interface. See note.
TCP/IP (New)	: Performs communication via TCP/IP interface.
B.S/B.B(IOBOX)	: Performs communication via B.S or B.B cradle.
<u>U</u>SB	: Performs communication via USB interface.
USB(USB-SERIAL)	: Performs communication via USB interface.
Set As Default	: Above the settings are saved as default in the environment configuration file.
Settings	: Displays a window of the selected interface for setting the parameters.

B.B. ; Bridge Basic Cradle, B.S. ; Bridge Satellite Cradle
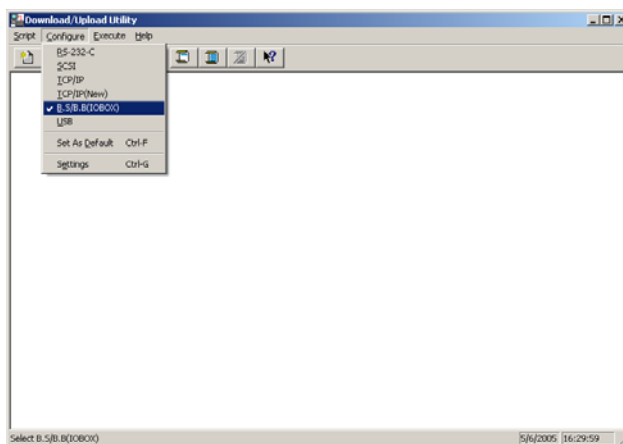
Figure 3.167

Note:

The LMWIN utility does not support SCSI interface.

3.6.6 Communication Configuration

In this screen, the selected interface in the Configure menu can be set up. After each field in the screen is properly set and then **OK** button is clicked, the settings are saved in the configuration file.

When **Save As Default** button is clicked, the interface that has the defined settings is saved as default interface.

Click **Cancel** button to cancel every selection/change made and to restore the previous settings.

The window shows in the case that B.S/B.B (IOBOX) interface is selected.
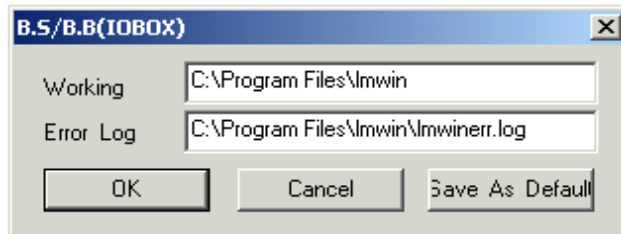
Figure 3.168

The B.S/B.B (IOBOX) interface does not require any parameter to set for communication.

Fields and the descriptions

Working　　　: Specify the directory at where the script file is saved.
Error Log　　: Specify the LMWIN error log file name in full path.

3.6.7 Execute Menu

The **Execute** menu has the following sub-menus in the pull-down menu.

<u>L</u>ink Manager → Star<u>t</u> Link Manager   : Enters the state of ready-to-accept command from the
        terminal.

<u>C</u>ommand   : Displays the Execute Command window.

<u>S</u>cript File   : Displays the Select Execution Script window.

<u>A</u>bort   : Interrupts communication. This menu can be selected while
        the communication takes place.
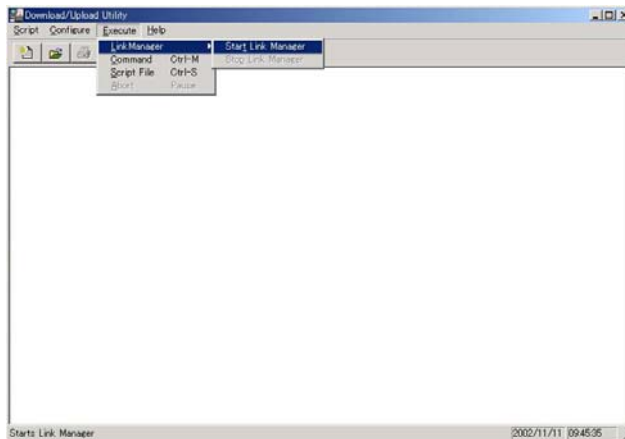
Figure 3.169

During communication,

- **<u>C</u>onfigure** menu cannot be accessed. Thus, no communication setup operation is permitted during communication.
- Both **New** and **Open** sub-menus in **<u>S</u>cript** menu cannot be accessed. This means that a script file can neither be created nor edited during communication.

3.6.8 Initiating Server Mode

Navigating to **Link Manager** → **Start Link Manager** submenus initializes the communication environment and move this communication utility to the state of ready-to-accept a session request from the terminal. This mode is implemented after the command/script is received from the terminal.
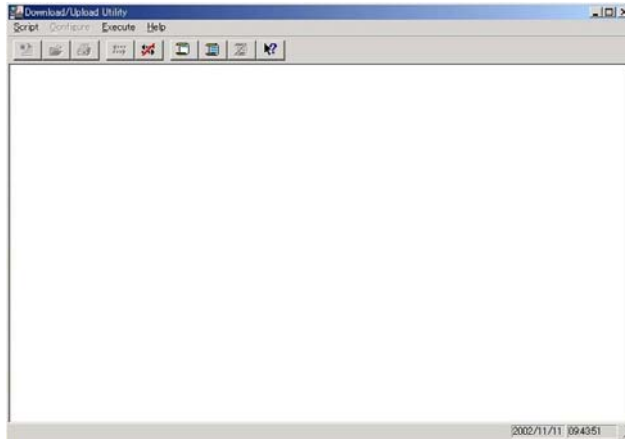
Figure 3.170

3.6.9 Executing Command

In this screen only one kind of command can be selected for execution. The user can select either one of the modes; Single (single shot) or Batch (continuous). The default is the Batch mode.
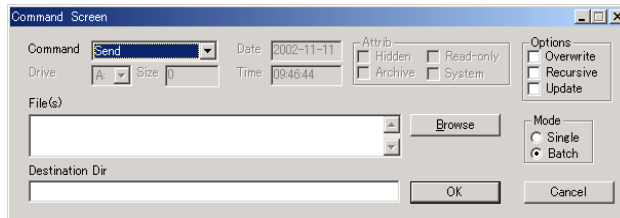
Figure 3.171

3.6.10 Executing Script

In this screen only one kind of script can be specified for execution. However, the user can select either one of the two modes; Single (single shot) or Batch (continuous). The default is the Batch mode.
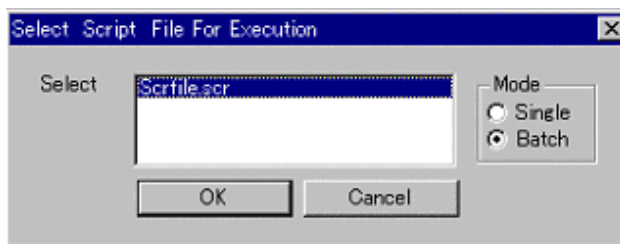
Figure 3.172

3.6.11 Abort

When **Abort** sub-menu is selected, the communication currently being established is interrupted immediately so that the script file can be created or modified and the environment configuration can be set.

3.6.12 Help

This is a communication utility menu-driven help function. The current version of the utility can also be confirmed in this menu. See the step described below.
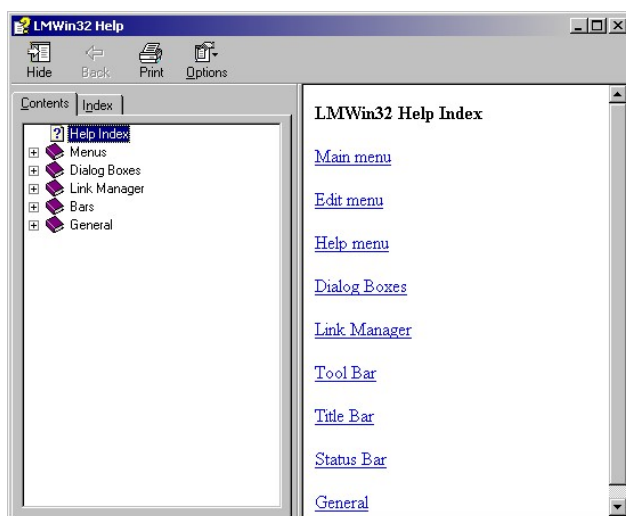
Figure 3.173

Navigating to **Help** → **About …,** the screen below appears to show the version information.
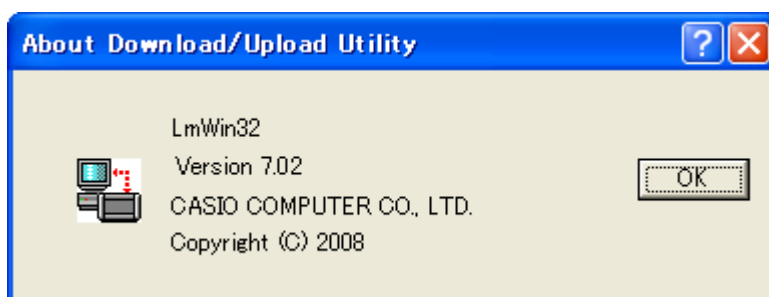
Figure 3.174

3.7 Status Windows

3.7.1 Indicating Status

The graphical progress bar is displayed during file transmission/reception. If four or more statuses are to be displayed, a scroll bar on the right side of the screen appears so that any of the communication statuses can be viewed by moving it up or down. Information appeared in the screen of the concurrent communication by multiple terminals in the B.S/B.B(IOBOX) interface mode are as follows.

- Cradle no. (Terminal management number)
- Session no.
- Terminal name (possible only if the terminal names are registered in the environment configuration file.)
- Communication status Tx/Rx (Send/Receive)
- File name in full path
- Progress bar
- Percentage of transmission/reception completed (in the range of 0 to 100 %)
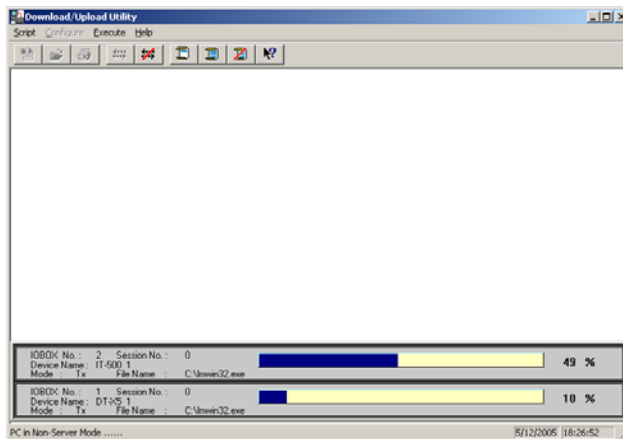
Figure 3.175

3.7.2 Indicating Error Message

In the error dialog an error message can be displayed.
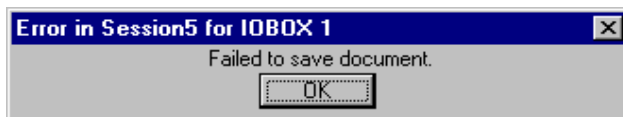
Figure 3.176

3.8 Commands

The following 15 commands can be issued from the utility. They can also be executed through a script file.

- Transmission (Send)   Refer to Chapter 3.8.1 .
- Reception (Receive)   Refer to Chapter 3.8.2 .
- File append transmission (Append Send)   Refer to Chapter 3.8.3 .
- File append reception (Append Recv)   Refer to Chapter 3.8.4 .
- Delete file/directory (Delete)   Refer to Chapter 3.8.5 .
- Move/rename file (Move)   Refer to Chapter 3.8.6 .
- Sound buzzer (Buzzer)   Refer to Chapter 3.8.7 .
- Set the date and time (SetTimeDate)   Refer to Chapter 3.8.8 .
- Display character string (Display Str)   Refer to Chapter 3.8.9 .
- Terminate session (End Session)   Refer to Chapter 3.8.10 .
- Execute child process (Exec)   Refer to Chapter 3.8.11 .
- Retrieve drive information (GetDiskInfo)   Refer to Chapter 3.8.12 .
- Retrieve file information (GetFileInfo)   Refer to Chapter 3.8.13 .
- Set file information (SetFileInfo)   Refer to Chapter 3.8.14 .
- Format (Format)   Refer to Chapter 3.8.15 .

Single-shot (single) and Batch (continuous) modes
In the Execute Command or Select Script File For Execution screen the user can select either one of the modes; Single (single-shot) or Batch (continuous).

Single-shot mode
- If a command or script file has been specified, only the first session of the specified command or script file is carried out.
- Even if the specified command or script file has been completely executed, the session is still retained established until the abort menu of Execute is carried out. To establish the session again, specify the command or script file.

Batch mode (Default)
- The user-specified command or script file is carried out only in the first session.
- The session establishment is kept alive until when **Abort** submenu in the Execute Command screen is selected. To establish the session again, specify the same command or script file. It is not necessary to abort or terminate the connection to specify the command or script file.

Table 3.4

	Batch mode	Single-shot mode
Validity range of command or script file	Until when the command or script file is terminated or aborted.	The command or script file is valid during the first session only.
Timing of the session establishment to be broken off	The session establishment is automatically terminated after the end of one session.	Until the session is aborted.
Timing of specifying command or script file again	Specify the command or script file again after the session establishment is terminated or aborted,	Specify the command or script file after the session is complete. (Terminate/abort operations are not required.)

3.8.1 Transmission (Send)

This operation transfers a file on the PC to the terminal. If the directory on the partner terminal specified in the destination directory field does not exist, a new directory is automatically created.

How to describe in script file;

```
/S[O|U|R] <file> <storage directory>
```
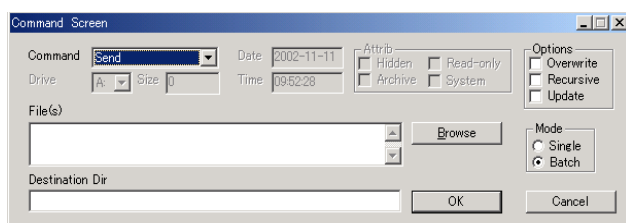

 Figure 3.177

File(s)

Specify a file in full path in this field to send out. It is also possible to select a file from a list that is displayed by clicking **Browse** button.

Destination Dir

Specify the directory on the terminal designated in the destination directory field.

Options

Overwrite	•	Specifies forcible overwrite of the read-only file.
	•	If this option is specified read-only files are also overwritten.
Recursive	•	The target of this operation includes all files under the directory specified by the transmission path file name. If the specified directory is followed by sub-directories, they are also included.
	•	If this option is selected, specify transmission path file name in full path.
	•	If this option is not selected, the target of processing includes only files that are specified by each transmission path file name.
Update	•	Specification of this option omits an overwrite action, if a latest-version file exists in the storage destination directory.

3.8.2 Receive

This operation receives a file that exists on the partner terminal by specifying with pathname. If the directory specified in the destination directory field does not exist on the PC side, a new directory is automatically created.

How to describe in script file;

```
/R[O|U|R] <file> <storage directory>
```
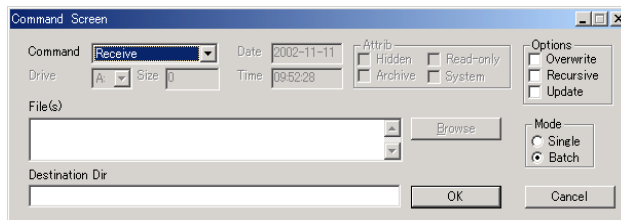

 Figure 3.178

File(s)
Specify file in full path in this field to receive.

Destination Dir (storage destination directory)
Specify directory on the PC in this field to store a file received.

Options

Overwrite
- Specifies forcible overwrite of the read-only file.
- If this option is specified read-only files are also overwritten.

Recursive
- The target of this operation includes all files under the directory specified by the request path file name. If the specified directory is followed by sub-directories, they are also included.
- If this option is selected, specify request path file name in full path.

Update
- Specification of this option omits an overwrite action, if a latest-version file exists in the storage destination directory.

3.8.3 File Append Transmission (Append Send)

This operation appends the contents of a file on the PC specified in the source file field to the file on the terminal specified in the destination file field. For this operation wild card designation is not permitted. File is appended in binary code. (This means that the data is appended after the EOF code, even if the code exists). If the operation is carried out to the terminal with a slow access medium, timeout error occurs.

How to describe in script file;

```
/AS <source file> <storage file>
```
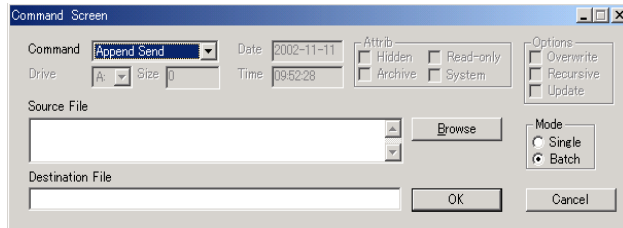

 Figure 3.179

Source File
Specify file in full path on the PC in this field to append.

Destination File
Specify file on the terminal in full path in this field to which the file on the PC is to be appended.

3.8.4 File Append Reception (Append Recv)

This operation appends the contents of a file on the terminal specified in the source file field to the file on the PC specified in destination file field. For this operation wild card designation is not permitted. File is appended in binary code (This means that the data is appended after the EOF code, if the code exists).

How to describe in script file;

```
/AR <source file> <storage file>
```
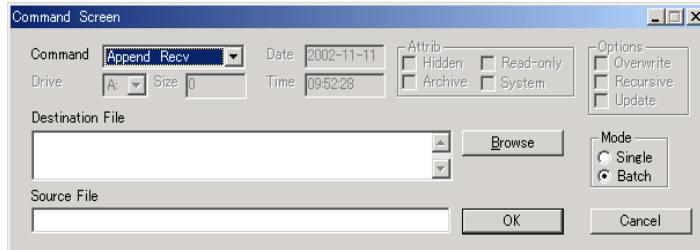

 Figure 3.180

Destination File
Specify file in full path on the PC in this field to which the file on the terminal is to be appended.

Source File
Specify file in full path on the terminal in this field.

3.8.5 Deleting File/Directory (Delete)

This operation deletes a file or directory on the terminal specified in the enter file field.

How to describe in script file;

```
/D[O|R] <file>
```
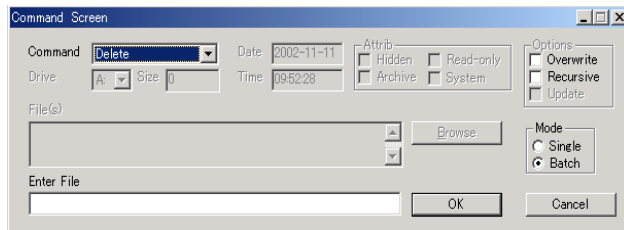

Figure 3.181

Enter File

Specify file in full path in this field to be deleted on the terminal.

Options

Overwrite	• Deletes forcibly the read-only file.
	• If this option is selected read-only files are also deleted.
Recursive	• The target of this operation includes all files under the directory specified in the enter file field. If the specified directory is followed by sub-directories, they are also deleted.

3.8.6 Move/Rename File (Move)

This operation moves the file at the partner terminal specified in the source file field to the storage area specified in the destination directory field. The operation is effect only for files that co-exist in the same drive of the terminal. If the operation is carried out to the terminal with a slow access medium, timeout error occurs.

How to describe in script file;

```
/N <source file> <destination file>
```
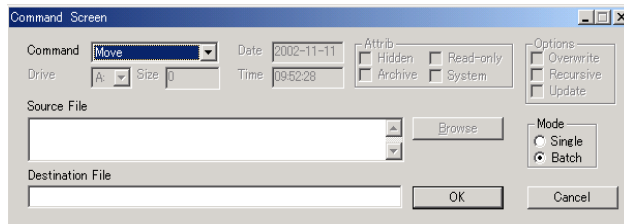

 Figure 3.182

Source File
Specify file name in full path in this field to be moved.

Destination File
Specify destination file name in full path in this field.

3.8.7 Buzzer

This is an operation for sounding the buzzer.

How to describe in script file;

```
/B
```
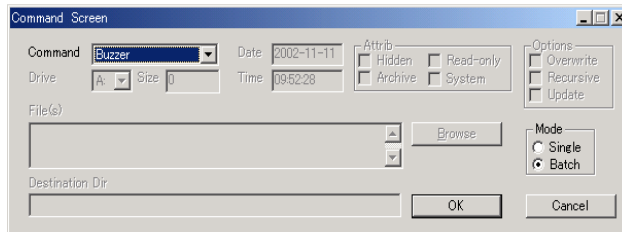

Figure 3.183

3.8.8 Setting Date and Time (SetTimeDate)

This operation sets date and time on the terminal. If the date and time are not specified by an appropriate script file, the date and time on the PC are transmitted.

How to describe in script file;

```
/T <date time>
```
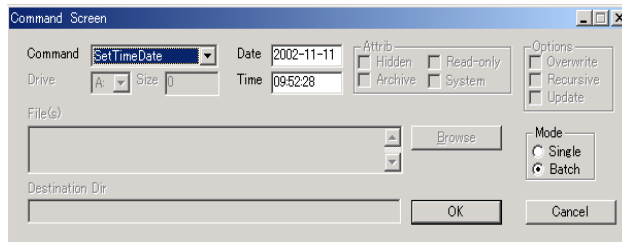

Figure 3.184

3.8.9 Displaying String (Disp Str)

This operation displays a character string (only characters supported on the terminal) on the terminal screen. To do this, enclose the string in a pair of double quotation marks.

How to describe in script file;

```
/P <character string to be displayed>
```
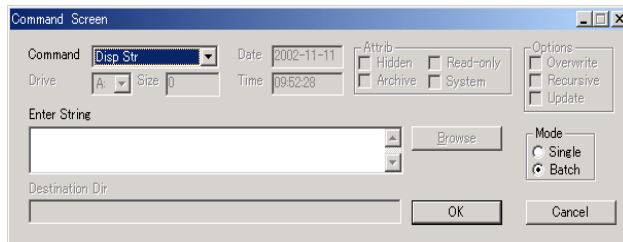

Figure 3.185

Enter String

Write a character string in this field to be displayed on the terminal screen.

3.8.10 Breaking Session (End Session)

This operation breaks the connection session with the terminal.

How to describe in script file;

```
// <termination code>
```
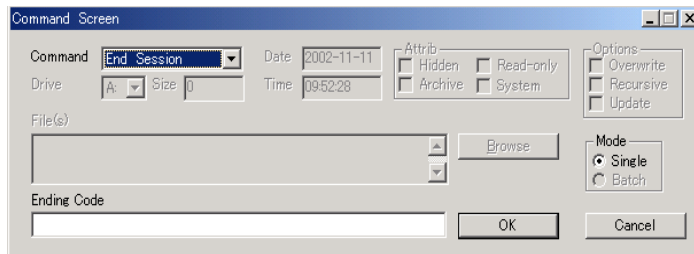

Figure 3.186

Ending Code

The following termination codes are available:

    0: Normal termination

 220: Notification of formatting Drive: A

   |

 245: Notification of formatting Drive: Z

Note:

Whether the termination code can be used depends on the specifications of the terminal to be mounted on the cradle.

3.8.11 Executing Child Process (Exec)

With this function a file specified by <execution file pathname> can be executed. Arguments can also be described.

How to describe in script file;

```
/C <execution file pathname> [<argument> …]
```
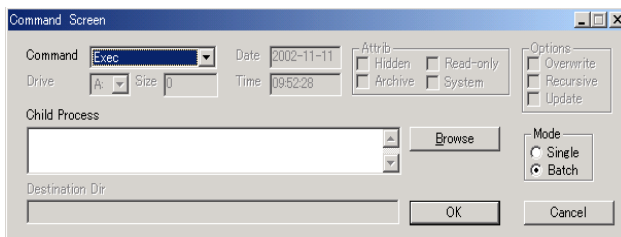

Figure 3.187

Child Process
Describe <execution file pathname> and <argument> in this field.

Restrictions
- One command line including "/C", execution file pathname and argument(s) must be 128 bytes or less.
- Do not use two consecutive slashes ("//") at the end of the argument section. Doing so prevents proper communication which subsequently takes place.
- Do not specify more than one LMWIN communication command in a single line. (Specifically, concatenation of commands is not permitted.)
- Only 32-bit application files can be initiated.

Continue/Terminate communication with return value from the child process
A useful function is provided to select whether current communication is to be continued or terminated depending on the return value from the child process.
The function is enabled if;
[CODE]
- 1=F501

has been specified in **lmwin.ini** file. If no specification has been made, communication continues irrespective of the return value. The process details are as follows:
- If the return value from the child process is in the range of -1 to -10, the script file execution is aborted and the current communication is terminated.
- A termination code in the range of 0xF501 to 0xF50A is returned to the terminal side. (0xF501 for a return code of -1, and 0xF50A for a return code of -10.)
- If the return value is one other than that above, script execution continues.

3.8.12 Retrieving Drive Information (GetDiskInfo)

With this command the accessed information is append-saved to **diskinfo.clp**.

How to describe in script file;

```
/I <drive name>
```
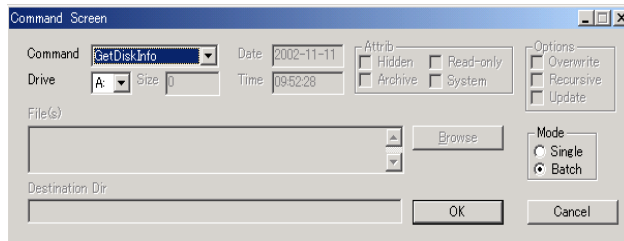

Figure 3.188

Drive

Select a drive in the drive pull-down menu to retrieve the information from.

3.8.13 Retrieving File Information (GetFileInfo)

With this command the accessed information is append-saved to **fileinfo.clp**.

How to describe in script file;

```
/I <file>
```
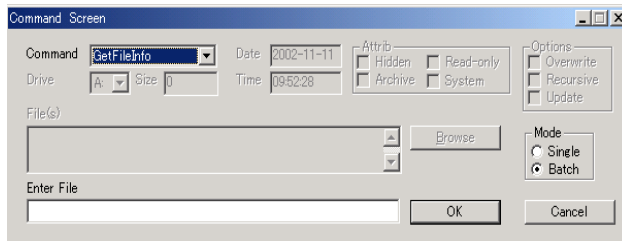

 Figure 3.189

Enter File

Specify the file in full path in this field for which information is to be retrieved.

3.8.14 Setting File Information (SetFileInfo)

With this command set information about the file specified at <name of file to be updated> on the terminal.

How to describe in script file;

```
/X[R|H|S|A] <name of file to be updated> <size> <YY-MM-DD> <hh:mm:ss>
```
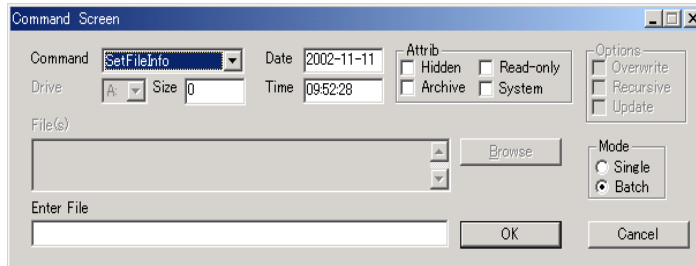
Figure 3.190

Size

Specify a file size in the size pull-down menu. Specifying 0 means no update. The FLCE for WindowsCE does not support the file size change.

Attrib

The following attributes can be set or modified.

Hidden   : Hidden file
Archive   : Archive file
Read-only   : Read only file
System   : System file

Date/Time

Specify date and time for the file.

Enter File

Specify file in full path on the terminal in this field to be set.

3.8.15 Formatting (Format)

This operation formats the drive specified by <drive name> on the terminal. Whether formatting is possible depends on the specifications of the terminal mounted on the cradle. When this command is executed, the communication session being established with the terminal is broken.

How to describe in script file;

```
/F <drive name>
```
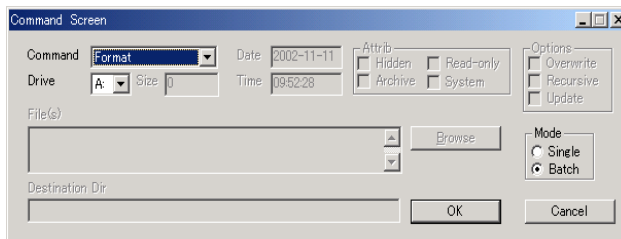

 Figure 3.191

Drive
Select a drive on the terminal in this pull-down menu to be formatted.

3.9 Configuration File

3.9.1 Environment Configuration File (DEVICE.INI)

This chapter describes the settings required for each integrated interface on the terminal. Because the settings are read in when the LMWIN is initiated, update the values of the parameters before the initiation. The default parameters of the configuration file ("**DEVICE.INI"**) are as follows.

```
IF=USB
ErrorFile=
WorkFile=
INFORMATION=0000000100
[RS232C]
Port=COM1
Baud=115200
Parity=NONE
Stop=1
Data=8
[SCSI]
Scantime=3
[ETHERNET]
PORTNO=50021
MAX_IO=100
TCP_TIMEOUT=60
SELECT_TIMEOUT=60
[BS/BB]
MAX_DEVICE=1
MultipleWaitTime=15000
ChainReset=OFF
IRDA_TIMEOUTT=60
SELECT_TIMEOUT=60
[USE_IP]
1=192.168.1.1
[USE_DEVICE]
1=WindowsCE1
[USB2]
USB2_TIMEOUT=60
COMM_TIMEOUT=1
```

See the next page for explanation of the parameters.

Explanation of the Parameters

Table 3.5

Parameter	Meaning	Description
Common to all devices		
IF =	Interface to be used	- This corresponds to the interface set with **Set As Standard** in the Configure menu. <table><tr><td>Interface</td><td>Description</td></tr><tr><td>RS-232C</td><td>RS232C</td></tr><tr><td>SCSI</td><td>SCSI</td></tr><tr><td>TCP/IP</td><td>ETHERNET</td></tr><tr><td>TCP/IP (New)</td><td>NEW_ETHERNET</td></tr><tr><td>B.S/B.B(IOBOX)</td><td>B.S/B.B</td></tr><tr><td>USB</td><td>USB</td></tr><tr><td>USB-SERIAL</td><td>USB2</td></tr></table>
ErrorFile =	Error log file name	- To be specified in full path. This corresponds to the one set in the communication setup screen.
WorkFile =	Work directory in which to place a script file	
INFORMATION =	Data to be sent to the terminal at the start of communication	- This parameter is used by some of the CASIO terminals to set the configuration. - Use this default value without modifying it.
[RS232C] (RS-232C interface parameters)		
Port =	Port number (1 to 127)	- This corresponds to the one that is set in the communication setup screen.
Baud =	Baud rate (110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200)	- Communication parameters for communication between PC and cradle via RS-232C interface port, or between PC and the terminal.
Parity =	Parity (None, Odd, Even)	
Stop =	Stop bit (1, 2)	
Data =	Data bit (6, 7, 8)	
[SCSI] (SCSI interface parameters) Se note.		
Scantime =	SCSI interface scan timing	- Use this default value without modifying it.
[ETHERNET] (TCP/IP, TCP/IP (new) interface parameters no. 1)		
PORTNO =	Port number to establish the session	- Use this default value without modifying it.
MAX_IO =	Max. no. of terminals that can concurrently communicate	- Change the value according to the conditions on the PC and on the communication line.
TCP_TIMEOUT=	Time-out period of one send/receive-transaction. (unit: seconds)	- Default value is 60. - Recommendation value for DT-970 is 600.
SELECT_TIMEOUT=	Time-out period to check if it is a state which can communicate. (unit: seconds)	- Default value is 60. - Recommendation value for DT-970 is 600.

Note:

The LMWIN utility does not support SCSI interface.

Continue.

[BS/BB] (B.S/B.B(IOBOX) interface parameters no. 1)		
MAX_DEVICE =	Max. no. of terminals that can concurrently communicate (1 to 8)	- The no. of terminals concurrently communicate is up to 8 (Max). Set this parameter to 4. - Set this parameter to 1 for communication by single terminal.
MultipleWaitTime =	Wait time for session establishment in concurrent communication by multiple terminals	- Use this default value without modifying it (unit; milliseconds).
ChainReset= (see note below.)	Enables or disables USB-IRXpress driver.	- Set this parameter to ON if you wish to enable or disable USB-IRXpress driver (effect only for daisy-chain connection via USB for CASIO DT-300 terminal). - Set this parameter to OFF if you wish to disable this parameter.
IRDA_TIMEOUTT=	Time-out period of one send/receive-transaction. (unit: seconds)	- Default value is 60. - Recommendation value for DT-970 is 600.
SELECT_TIMEOUT=	Time-out period to check if it is a state which can communicate. (unit: seconds)	- Default value is 60. - Recommendation value for DT-970 is 600.
[ETHERNET] (TCP/IP, TCP/IP (new) interface parameters no. 2)		
USE_IP	List of IP addresses for terminals to be connected	- Max. 254 IP addresses can be specified. - The no. of multiple terminals concurrently communicate is defined according to the value specified in MAX_IO parameter and the surrounding conditions (Network load, PC specifications, etc.).
[BS/BB] (B.S/B.B(IOBOX) interface parameters no. 2)		
USE_DEVICE	List of device names to be connected	- Max. 127 device names can be specified. - Max. no. of cradles can be connected for concurrent communication is 8.
[USB2] (USB2 interface parameters)		
USB2_TIMEOUT=	Time-out period of one send/receive-transaction. (unit: seconds)	- Default value is 60. - Recommendation value for DT-970 is 600.
COMM_TIMEOUT=	Time-out period to check if it is a state which can communicate. (unit: seconds)	- Default value is 1. - Recommendation value for DT-970 is 600.

3.9.2 Default Configuration File (LMWIN.INI)

The **LMWIN.INI** file contains parameters related to the startup on the LMWIN, etc. These parameters are deployed when the LMWIN is initiated. There is no specific screen or window provided for displaying the parameters. If this file is absent or damaged, the LMWIN starts up with the default values.

Table 3.6

Definition	Default	Selection range	Description
CODE			
-1	F501		Return value from the child process (fixed)
MODE			
MINIMIZE =	OFF	ON	Executes the LMWIN with its minima.
		OFF	Executes the LMWIN at the windows size.
SERVER =	OFF	ON	Enters the server mode after start-up.
		OFF	Does not enter the communication mode after start-up.
1SHOT =	OFF	ON	Terminates the connection after a single execution. (note3)
		OFF	Starts up with the batch mode.
DUPLICATE =	OFF	ON	Allows initiation of multiple EXEs.
		OFF	Does not allow initiation of multiple EXEs.
COMMAND_TIMEOUT (note 1)	30	0	Timeout applied during session is infinite.
		1 to 3600 (unit: second)	Timeout applied during session is in the range of 1 to 3,600 seconds (=1 hour). If a timeout interval exceeding this range is set, 3,600 is set automatically.
CHILD_THROUGH =	OFF	ON	Executes the script sentence before program initiated by the child process in the script file is finished. However, if "-1 =F501" in the CODE area (to retrieve the return value from the child process) has been set, executing the program waits for the child process to finish.
		OFF	Waits for program initiated by the child process is finished before executing the script sentence.
1ERROR_MESSAGE =	OFF	ON	Deletes error dialogs before session is established or other error dialogs appear on the screen. Display always one latest error dialog only.
		OFF	Displays maximum 8 dialogs at a time on the screen.
CLOSE_MESSAGE =	ON	ON	Closes the LMWIN, not omitting the closing dialog to appear right before the end.
		OFF	Closes the LMWIN omitting the closing dialog to appear right before the end.
1ERROR_LOG=	OFF	ON	Closes error dialogue before establishing session/displaying error. (the error dialogue is limited to one and the latest dialogue only.)
		OFF	Displays error dialogues up to 8 (maximum).
NORMAL_LOG=	OFF	ON	Outputs a log at the end of normal operation ("Normal End") to the log file.
		OFF	Does not output a log, if ending normal operation ("Normal End"), to the log file.

Continue.

LOG_FORMAT=	1	1	Use tabs to delimit log file data for between statuses, and between status and error name.
		2	Use spaces to delimit log file data.
TASK_TRAY (note 2)	OFF	ON	When initiating LMWIN, the icon is registered and its icon appears in the Tasktray.
		OFF	When initiating the LMWIN, the icon is not registered. It is initiated in ordinary mode.

Notes:

1. While the terminal is being connected in the idle mode (without specifying script) with the PC via the FLCE running on the terminal and in wait state for a command to be issued by the PC, a timeout occurs if the PC does not issue a command to the terminal within a period of time set in this parameter. This causes the session to end with "Command Timeout Error!!" appeared on the screen. The same timeout error occurs if session has been carried out in the "1SHOT" mode and subsequently no command was issued by the PC.

2. Execution mode is only the Server mode. Be sure to set "SERVER=ON" (see page 85). If the LMWIN is initiated with "SERVER=OFF (by default)", it appears to be ready for session. However, the session is not still ready to commence. If this is case, click the icon appeared in the Tasktray to commence the session via the LMWIN. To initiate the LMWIN with the icon, it is possible to start up with command execution specified in the Execute mode, not possible with script execution.
   To set communication parameters, either the DEVICE.INI file must be modified manually or the LMWIN is initiated in ordinary mode and then the relevant parameters including the parameter for the initiation of LMWIN by the icon and then close the utility. After that, the LMWIN can be initiated by clicking the icon in the Tasktray. This whole process is required for the first time only. Subsequent start up with the icon does not require the same process twice.

3. In case of the "1SHOT" mode, the LMWIN 's exit code indicates "0" if no error occurs, the LMWIN 's exit code indicates "1" if an error occurs.

3.9.3 Script File

The extension used for script file is **.SCR**, and the file is stored in the working directory defined through the environment configuration process. A script for one command must be described on one line, and multiple lines can be described for commands. The file size must be limited within 32 KB.
A script file with a total size in 1024 bytes or more for adding source file path and destination file path on one line (per command) causes an error when it runs.

Commands that can be described are as follows.
- Transmission (Send)   Refer to Chapter 3.8.1 .
- Reception (Receive)   Refer to Chapter 3.8.2 .
- File append transmission (Append Send)   Refer to Chapter 3.8.3 .
- File append reception (Append Recv)   Refer to Chapter 3.8.4 .
- Delete file/directory (Delete)   Refer to Chapter 3.8.5 .
- Move/rename file (Move)   Refer to Chapter 3.8.6 .
- Sound buzzer (Buzzer)   Refer to Chapter 3.8.7 .
- Set the date and time (SetTimeDate)   Refer to Chapter 3.8.8 .
- Display character string (Display Str)   Refer to Chapter 3.8.9 .
- Terminate session (End Session)   Refer to Chapter 3.8.10 .
- Execute child process (Exec)   Refer to Chapter 3.8.11 .
- Retrieve drive information (GetDiskInfo)   Refer to Chapter 3.8.12 .
- Retrieve file information (GetFileInfo)   Refer to Chapter 3.8.13 .
- Set file information (SetFileInfo)   Refer to Chapter 3.8.14 .
- Format (Format)   Refer to Chapter 3.8.15 .

For detailed information about described contents refer to Chapter 3.8 "Commands".

3.10 Error Information

An error message appears in the error message dialog box. A maximum of 8 dialog boxes can be displayed at a time on the screen. For detailed information refer to the error log. Also refer to this log for error information from the terminal.

When an error occurs, execute the same communication again. If the error persists after re-execution, either coordinate the connecting conditions (such as the baud rate for each interface) or restart the LMWIN.

Every error is recorded in the error log file located under the specified directory by the DEVICE.INI file (configuration file). This error log file contains the session number, date and time of occurrence, and detailed information about each error. Error log data is accumulated and appended sequentially.

Table 3.7   Error log file

Terminal No.	Session No.	Date	Time	Error code	Error content	Description
1	0	16-11-2002	17-44-46	0x00	0x01	Underline function code
1	0	16-11-2002	18-11-24	0x00	0x05	Communication error
1	0	18-11-2002	11-53-29	0x04	0x05	Command timeout error

Table 3.8   Error code detail

Error Code	Error Detail	Description
0x00	0xDC	Notification of formatting Drive A:
:	:	
0x00	0xF5	Notification of formatting Drive Z:
0x00	0xF6	Power OFF completed
0x00	0xF7	Reset completed
0x00	0xF8	User-break completed
0x00	0x01	Protocol error (function code)
0x01	0x01	Protocol error (sub-function code)
0x02	0x01	Could not execute command.
0x03	0x01	Checksum error
0x04	0x01	Command sequence error
0x05	0x01	Sequence number error
0x06	0x01	Illegal protocol
0x07	0x01	Parameter error
0x08	0x01	Timeout error
0x10	0x01	Protocol error (DATA LEN)
0x12	0x01	Inconsistent protocol versions
0x13	0x01	Could not secure memory space.
0x15	0x01	Protocol error (file size)
0x17	0x01	Protocol error (date)
0x18	0x01	Protocol error (time)
0x19	0x01	Protocol error (attribute)
0x1A	0x01	Protocol error (forcible overwrite)
0x1B	0x01	Protocol error (EOF)
0x02	0x02	File not found
0x03	0x02	Path not found

Continue.

Error Code	Error Detail	Description
0x0B	0x02	Not formatted
0x0F	0x02	Incorrect disk
0x10	0x02	Current directory is requested for deletion.
0x11	0x02	Wrong disk
0x12	0x02	File not existing
0x13	0x03	Protect error
0x14	0x03	Undefined unit
0x15	0x03	Drive not ready
0x17	0x03	Data error
0x19	0x03	Seek error
0x1A	0x03	Disk not formatted
0x1B	0x03	Sector not found
0x1D	0x03	Write error
0x1E	0x03	Read error
0x1F	0x03	Handheld terminal model-dependent error
0x20	0x03	File sharing error
0x21	0x03	File lock error
0x22	0x03	Illegal disk change
0x23	0x03	FCB full
0x53	0x03	Fatal error
0x00	0x04	Read-only file
0x00	0x05	Communication error
0x01	0x05	Termination request from terminal
0x02	0x05	Termination request from PC
0x03	0x05	Spawn error
0x04	0x05	Command timeout
0x05	0x05	Failed in opening the log file.
0x06	0x05	Option error
0x07	0x05	Start error
0x08	0x05	Open error
0x09	0x05	Listen error
0x0A	0x05	Accept error
0x0B	0x05	Insufficient memory
0x0C	0x05	Process too long
0x0D	0x05	Process illegally terminated
0x0E	0x05	Child process normally terminated
0x0F	0x05	Communication noise error
0x19	0x05	Bind error
0x1A	0x05	Script file too big
0x1B	0x05	File being accessed
0x1C	0x05	Connect error

Note:

After error has occurred, if send error occurs during the notification of termination packet sent from the PC to the terminal, the following two communication errors are logged at the same time.

- Ordinary communication error
- Communication (Send) error for the notification of termination packet

3.11 Features for Interfaces

This chapter describes about the features dedicated to each interface mode.

3.11.1 RS-232C Interface

This mode enables communication between the terminal on cradle and PC via RS-232C interface integrated, or directly between the terminal and PC. The no. of the terminals for communication via RS-232C interface is limited to one.

Selecting and Setting the Configuration

Click **Configure** menu and then select **RS-232-C** sub-menu in the pull-down menu. In this pull-down menu, click **Set As Default** to register the RS-232C interface as default in the DEVICE.INI file. This makes the interface automatically selected at a time when the LMWIN starts up. Or, if **Settings** menu is selected, the following screen appears.

In the screen (see Figure 3.95), parameters required for communication to the cradle (or the terminal if directly connected) via RS-232C interface are to be set. Each parameter must be set to the same with the one set on the cradle (or on the terminal if directly connected).
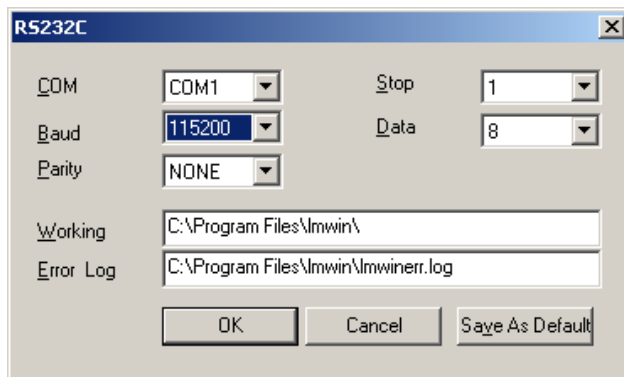
Figure 3.192

Working
Specify directory in this field to store the script file.

Error Log
Specify LMWIN error log file in this field.

3.11.2 TCP/IP Interface

In the TCP/IP mode, the same number of terminals with the connected cradles can concurrently communicate with the PC. The concurrent communication by multiple terminals is limited to within a range of the maximum number of the cradles that can be connected with the PC in the chain configuration. If a connection request is made by one of the connected terminals and the operating mode on the PC side is ready to accept the request, each connection status of the terminals listed in the configuration file is displayed. And, along with the progress graphic bars appeared for the terminals that are communicating, each control number and its IP address are displayed.

Difference between TCP/IP and TCP/IP (New) modes

TCP/IP   : A communication mode that allocates IP addresses fixed to connected cradles.
TCP/IP (New)   : A communication mode that allocates IP addresses to terminals instead of connected cradles.

Selecting and Setting the Configuration
Select **TCP/IP** or **TCP/IP (New)** in the pull-down menu of **Configure** menu to select TCP/IP interface. If **Save As Default** is selected at the same time, the selected menu is registered in the DEVICE.INI file as the default interface and the selected interface is automatically selected when the LMWIN invokes. Or, if **Settings** in the menu is selected, the following window appears for setting the TCP/IP interface.
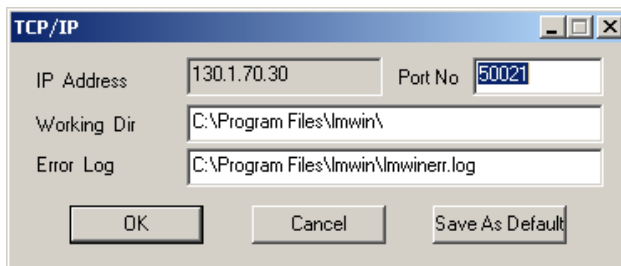
Figure 3.193   TCP/IP setting window

IP Address   : Display IP address being allocated to the PC.
Port No.   : Specify a port number in this field to accept a connection request from terminal. Specify always "50021".
Working Dir   : Specify a directory in this field to store the script file.
Error Log   : Specify LMWIN error log file in this field.

Specifying Command Execute/Script Execute

If **Command** or **Script File** is selected in the pull-down menu of **Execute** tab, the terminal selection window appears before **Command** window or **Script File** window appears. This window is used to specify **Command** or **Script File** execution to which a terminal of multiple terminals connected.
The window shows checkboxes in order of the management number of the terminals listed in the configuration file. Select appropriate checkbox (or checkboxes) that you wish to access. If the mouse-cursor is moved onto one of the terminal management numbers, IP address of the selected terminal appears as its tool-chip.

Individual specification on **Command** or **Script File** for each connected terminal can be issued. After specifying **Command** (or **Script File**) for a terminal, you can specify **Command** (or **Script File**) again for a next connected terminal. The operations, however, are disabled for terminals which are already selected by the PC. The terminal management numbers and their checkboxes are grayed.

Operation Flow of Command /Script File executions
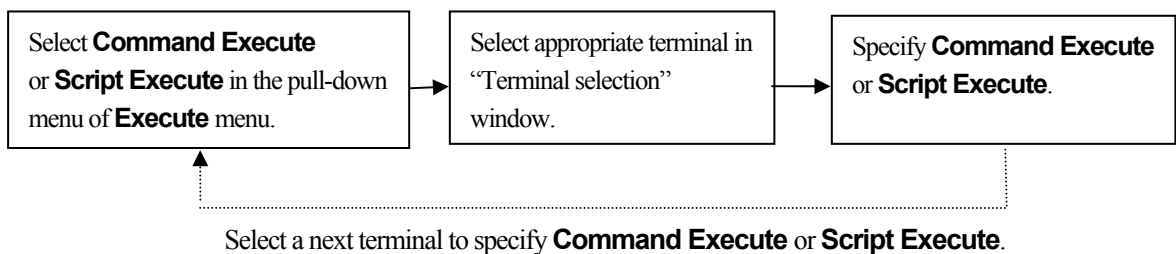
Figure 3.194
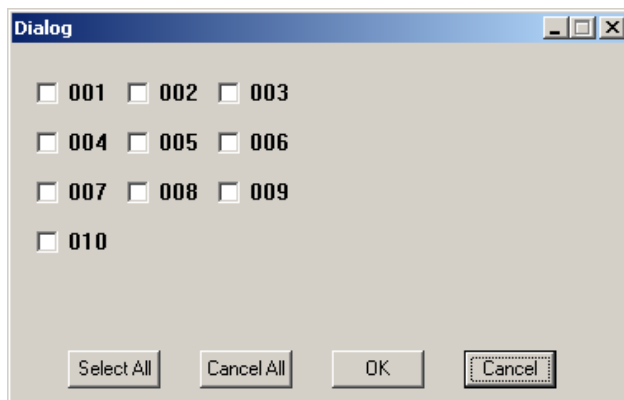
Figure 3.195   Terminal selection window

Select All	: All indicated terminals are selected.
Cancel All	: All checks in the checkboxes are cancelled.
OK	: Confirm on selected terminals and close the "Terminal selection" window.
	Command Execute or **Script Execute** window follows.
Cancel	: Cancel selected terminals and close the "Terminal selection" window.

Abort

If **Abort** is selected in the pull-down menu of **Execute** tab, "Terminal selection" window appears before the session is aborted. This window is to specify a terminal of the multiple connected terminals to abort. Just follow the same operating procedure described in "Specifying Command Execute/Script Execute" on the previous page. The operations can be possible for only accessible terminals. Other terminal management numbers and their checkboxes are grayed if disabled.

Select **Abort** in the pull-down menu.	Select appropriate terminal in the "Terminal selection" window.
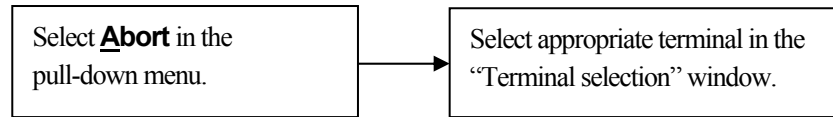
Figure 3.196

Accepting Session Request

A session request issued by the terminal is accepted following the steps described below and the terminal monitoring panel appears on the screen. The session once established is not aborted until the navigation to **Execute** → **Link Manager** → **Abort** is made. Specifying **Abort** only cannot abort the condition of accepting connection request.

1. When navigation to **Execute** → **Link Manager** → **Start Link Manager** is made in the pull-down menu → Server mode.
2. When **Command** or **Script File** menu is selected in the pull-down menu.

Terminal Monitoring Panel

When the LMWIN is ready to accept a session request from terminal, the status of each terminal of which its IP address is registered in the DEVICE.INI file is displayed. The status consists of management number and indicator in color to indicate the status. Status of all registered terminals appears.

Selection on particular terminal can be made by moving the mouse-cursor onto the checkbox.

Selected checkbox indicates the IP address as a tool-chip. When the terminal monitoring panel appears on the display, all the indicators become in black color and then gradually connection check status reflects each indicator on the display. This process begins from the smallest number first and the largest number as last. A "Pinging Stations …" message appears while the process continues. Click **PING** button to repeat the performance.
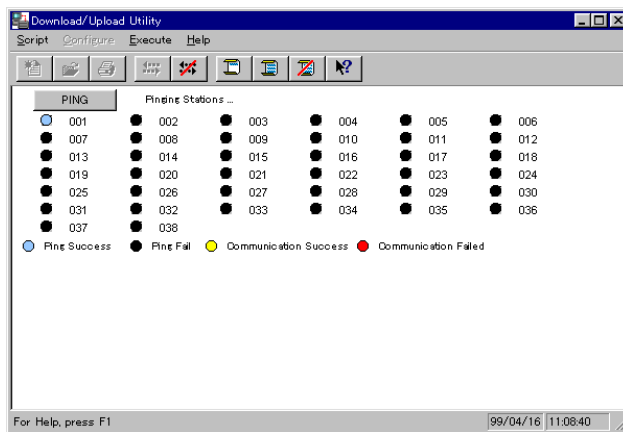
Figure 3.197

Table 3.9　Indications in the monitoring panel

Color	State	Display timing	
Blue	Ping success	Session check→ normal	Right after the terminal monitoring panel appeared and after clicking **PING** button, status of each terminal is displayed, excepting terminal indicated by flashing green.
Black	Ping failure	Session check→ abnormal	
Yellow	Session is complete.	After the session is complete.	
Green in flash	Session continues.	While the session continues with terminal.	
Red	Session is abnormal.	After the session is terminated anomaly.	

Note:

The session check checks a result of ICMP(echo) packet transmission to specified IP address and its response. For example, if a confirmation was not returned within one second after the ICMP (echo) was transferred to specified IP address, the check result indicates as "anomaly".

3.11.3 B.S/B.B(IOBOX) Interface

The LMWIN version 6.10 or a later version supports concurrent communication by multiple terminals with PC via cradles either Bridge Satellite ("B.S") or Bridge Basic ("B.B") for WindowsCE OS (max. 8 units, recommended 4 units) connected via USB-IrDA interface.
In the graphic progress bar, management number and device name of each terminal that is communicating currently with the PC are displayed. The device names appeared in the bars are those only listed in the configuration file.

It is recommended to configure the system with four cradles or less. Load applied to the IrDA protocol stack in the PC increases as the number of cradles connected becomes increased. This causes actual communication speed to be slow compared with that in single configuration. For this reason, the maximum number of terminals for concurrent communication by multiple terminals is four or less. The session process by the PC takes place for one terminal at a time.

Selecting and Setting the Configuration

Click **B.S/B.B** in the pull-down menu of **Configure** menu to select the B.S./B.B interface. However, since it has been registered as the default interface in the DEVICE.INI file, it is selected automatically when the LMWIN invokes. The following window appears when **Settings** is selected in the pull-down menu of **Configure** menu.
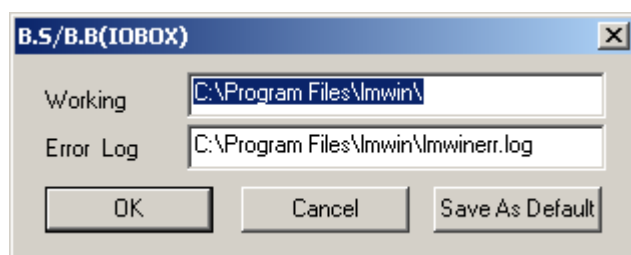
Figure 3.198

Working	: Specify directory in this field to store the script file.
Error Log	: Specify LMWIN error log file in this field.

Settings for Concurrent Communication

Rewrite the following settings in the configuration file ("DEVICE.INI") for concurrent communication by multiple terminals.

1. Concurrent communication
   Setting to the parameters of "B.S/B.B"
   Syntax - MAX_DEVICE = Max. number of terminals for the concurrent communication (in decimal)

                 Set "4" to enable the concurrent communication. (Maximum "8")
                 Set "1" to disable the concurrent communication. Setting "1" enables the single/chain operation mode.
                 (Default = "MAX_DEVICE=1")

   Notes:
   - Setting a value other than "8", "4" and "1" is not allowed.
   - To enable the single/chain operation mode, set "1" (MAX_DEVICE = 1) to disable the concurrent communication mode.

2. Wait time period for terminals during concurrent communication

   Setting to the parameter of "B.S/B.B"
   Syntax – MultipleWaitTime = Time period to wait for terminals (in decimal, in unit of milliseconds)

   After concurrent communication session is terminated, the IrDA icon and the terminal information remain alive for approximately 15 seconds (the maximum time period) after the communication session is terminated. During this time period, the system locks with the protocol function presuming that the communication session is still kept alive with the terminal even if a session request from other terminal is not made. This is due to the specification of IrDA protocol stack.
   The system does not support communication session with the same terminal again before the time period of 15 seconds elapses. After communication has been terminated and the LMWIN was closed, the system forces the LMWIN to invoke for the time period set in the parameter.
   Default = "MultipleWaitTime = 15000"

   It is not recommended to set other value in the parameter than the default value.

3. List of the terminals

   For the parameter of "USE_DEVICE"
   Syntax – Terminal management number = device name
   (Describe device names for the same number of terminals to be connected. Maximum no. is 127.)
   Default ; "1= WindowsCE1"

Notes:

- Write all device names of the terminals to be connected.
- The terminal management number at the left side is the number to be assigned for each terminal. Specify it in the range of 1 to 127 and avoid the same number to use twice.
- The terminal management number is assigned to each terminal in ascending order.
- The terminal management number is used to specify command or script file for each terminal in the LMWIN.
- A space at the front and the rear of the link specifiyer ("=") is allowed.
- To describe the device name follow the rule at the terminal side.
- Each terminal management number must be used as is, not placing "0" or "00" at the front of the number. It must be described in the same as the TCP/IP interface mode.
- Maximum 127 device names can be specified. However, the maximum number of cradles that can be connected to PC and for the concurrent communication is 8 (recommended 4).
- Do not specify the same terminal management number and device name on multiple lines.
- Specifying command/script file by the LMWIN in communication with terminal of which the device is not listed is not possible. In such the case, specify the command/script file from the terminal side. Since the internal array is assigned in priority for device names listed, the number of terminal with the unlisted device name that can communicate is as follows.

  127 - number of registered device names + 1

Example of setting for concurrent communication using B.S/B.B(IOBOX);

```
…    Until this line, other parameters for other settings    …
[BS/BB]
MAX_DEVICE=4              ← Max. no. of multiple terminals for concurrent communication (Maximum =
                           8, Recommended = 4)
MultipleWaitTime=15000    ← Time period for the terminal in the concurrent communication mode to
                           forcibly wait (in milliseconds)
[USE_IP]                  ← This line and under, the list of IP addresses used in TCP/IP mode.
1=192.168.1.1
2=192.168.1.2
[USE_DEVICE]              ← This line and under, the list of terminal management numbers used for
                           concurrent communication by multiple terminals in B.S/B.B(IOBOX) mode.
1=WindowsCE1
2=WindowsCE2
:
127=WindowsCE127
```

Specifying Command Execute/Script Execute

If **Command** or **Script File** is selected in the pull-down menu of **Execute** menu similar to the TCP/IP interface mode, the terminal selection window appears before **Command** window or **Script File** window appears. This window is used to specify **Command** or **Script File** execution to which a terminal of multiple terminals connected.

The window shows checkboxes in order of the terminal management number of the terminals registered in the configuration file. Select appropriate checkbox (or checkboxes) that you wish to access. If the mouse-cursor is moved onto one of the terminal management numbers, device name of the selected terminal appears as its tool-chip.

Individual specification on **Command** or **Script File** for each connected terminal can be issued. After specifying **Command** (or **Script File**) for a terminal, you can specify **Command** (or **Script File**) again for a next connected terminal. The operations, however, are disabled for terminals which are already selected by the PC. The terminal management numbers and their checkboxes are grayed.

Operation Flow of Command /Script File executions
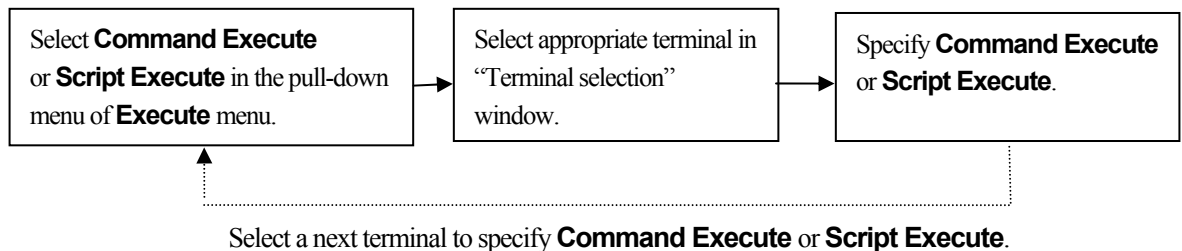
Figure 3.199
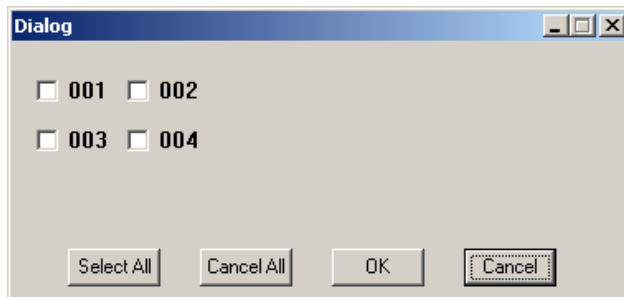
Figure 3.200   Terminal selection window

Select All	: All indicated terminals are selected.
Cancel All	: All checks in the checkboxes are cancelled.
OK	: Confirm on selected terminals and close the "Terminal selection" window.
	Command Execute or **Script Execute** window follows.
Cancel	: Cancel selected terminals and close the "Terminal selection" window.

Abort

If **Abort** is selected in the pull-down menu of **Execute** menu, "Terminal selection" window appears before the session is aborted. This window is to specify a terminal of the multiple connected terminals to abort. Just follow the same operating procedure described in "Specifying Command Execute/Script Execute" on the previous page. The operations can be possible for only accessible terminals. Other terminals' management numbers and their checkboxes are grayed if disabled.

```
┌─────────────────────────┐      ┌─────────────────────────────┐
│ Select Abort in the     │      │ Select appropriate terminal │
│ pull-down menu.         │ ───► │ in the "Terminal selection" │
│                         │      │ window.                     │
└─────────────────────────┘      └─────────────────────────────┘
```
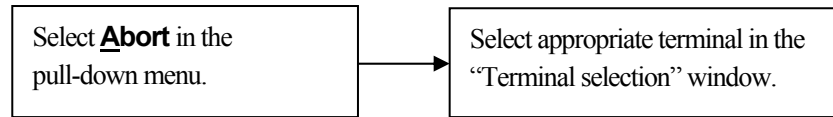
Figure 3.201

Accepting Session Request

A session request issued by terminal is accepted following the steps described below and the terminal monitoring panel appears on the screen. The session once established is not aborted until navigation to **Execute** → **Link Manager** → **Abort** is made. Specifying **Abort** only cannot abort the condition of accepting connection request.

- When navigation to **Execute**→ **Link Manager**→ **Start Link Manager** is made in the pull-down menu → Server mode.
- When **Command Execute** or **Script File** menu is selected in the pull-down menu.

Precautions

- Maximum 127 names can be logically specified for device names. However, the maximum number of cradles can be specified in concurrent communication by multiple terminals and a communication with PC is limited to 8 units (recommended 4 units). As the number of terminals in the concurrent communication by multiple terminals increases, load applied to the IrDA protocol stack of PC increases also. This causes the communication speed becomes a slow compared with the speed in single configuration. Thus, it is recommended that the maximum number of terminals is 4 units. The work process for the communication session by the PC is carried out one by one.

- All device names of the terminals to be configured in the same system configuration must be listed in the configuration file. Communication to terminals with the device names not listed in the file is processed as follows.

  - Device name(s) of the terminal(s) is not displayed in the graphical progress bar.
  - Specification of command execute/script file by the LMWIN is not possible. The specification by terminal is possible.
  - Since the internal array is processed in priority for the listed device names, the number of non-listed terminals that can communicate is calculated in the following equation.

    Equation
    127 – the number of terminals registered + 1

    Due to the specification, the number of terminals for the concurrent communication is limited to 8 units.

- Session request by multiple terminals with the same device name registered does not make concurrent communication possible. However, if communication by one terminal is complete, a next communication by terminal with the same device name with the previous terminal can be carried out. (the same operating process in communication under the chain system configuration) Concurrent communication by terminals with other device names registered can be carried out freely.

- Errors caused by concurrent communication are as follows.
  The following error may occur in concurrent communication similar to errors occurred in SCSI and TCP/IP communications.

  File Being Accessed (File sharing error)

  Causes of the error
  - The file currently being accessed is accessed.
  - Multiple files with the same file name are transferred into the same directory.
  - A file with the same file name of the file being transferred currently is transferred into the same directory.

  Access denied
  Multiple accesses to the same file in the PC

Transfer while transfer takes place	: OK
Receive, append receive while transfer takes place	: Error
Transfer while receive/append receive takes place	: Error
Receive while receive/append receive takes place	: Error
Append receive while append receive takes place	: OK
Append receive while receive takes place	: Error
While child process takes place	: OK

  Transfer;   PC → Terminal, Receive;   Terminal → PC

3.11.4 USB Interface

This mode makes communication possible between WindowsCE based terminal and PC either via USB interface directly or via cradle with integrated USB interface. Communication in the USB mode is allowed between one terminal (via cradle with integrated USB interface) and PC only, not communication by multiple terminals allowed. On the terminal side, FLCE (if the USB mode is specified) integrated in the terminal is used for connection establishment and communication.

To start communication in the USB mode, select USB in the pull-down menu of **Configure** menu.
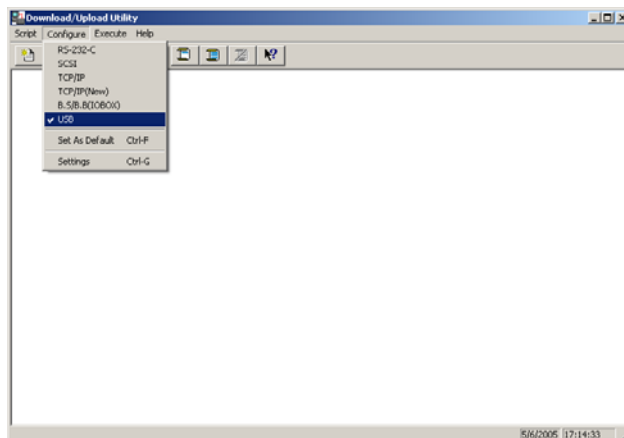
 Figure 3.202

3.11.5 USB(USB-SERIAL) Interface

This mode makes communication possible between terminal and PC either via USB interface directly or via cradle with integrated USB interface. Communication in the USB mode is allowed between one terminal (via cradle with integrated USB interface) and PC only, not communication by multiple terminals allowed. On the terminal side, FLCE (if the USB mode is specified) integrated in the terminal is used for connection establishment and communication.

To start communication in the USB(USB-SERIAL) mode, select USB (USB-SERIAL) in the pull-down menu of **Configure** menu.

4. FCHK/FCHKCE

The **FCHK/FCHKCE** is a file-checking utility for checking transfer results.

- The **FCHK** runs on PC.
- The **FCHKCE** runs on the terminal (a WindowsCE based device).

In the description below, the FCHK refers to both FCHK and FCHKCE, unless there is a difference between them.

4.1 Basic Features

When downloading files from the PC to the terminal, the **FCHK** checks that all files were transferred correctly.

The **FCHK** can be used to prevent the following:
- Missing application installations
- Incomplete installations due to transfer errors
- Failure to check updates

The features of the **FCHK** are as follows.
- Create list files
- Validate list file

4.2 List File Format

This chapter describes about list file creation, and the list files used in validation.
- The list file name is hard-wired to "FCHK.LOG".
- The list file format is as follows.

```
FILE_NO=<Number of files (decimal)>
FileName(FullPath) Size DateLastModified TimeLastModified
FileName(FullPath) Size DateLastModified TimeLastModified
:
FileName(FullPath) Size DateLastModified TimeLastModified
FILE_CHECKSUM=Checksum of all transferred files (hexadecimal)
LIST_CHECKSUM=Checksum of list file (hexadecimal)
```

Checksum of all transferred files
XOR of all data of files to transfer as a DWORD.

Checksum of list file
The DWORD value to add to the content of the list file to make the result 0.

Example

```
FILE_NO=3
C:\Windows\MENU.EXE 12345 19960728-0630
C:\Windows\Fonts\fontdata.dat 1000 19960308-2058
C:\Windows\Systemlib.dll 512 19960206-2340
FILE_CHECKSUM=XXXXXXXX
LIST_CHECKSUM=XXXXXXXX
```

4.3 Functions

This chapter describes about the functions of the FCHK.

4.3.1 Creating List File

This function specifies a target file list and creates a list file. Additionally, a history of the list files you have created is saved in the file "FCHKG.HIS", which is located in the same directory as your list files.

Calling Sequence

```
FCHK /G
    [</Option>]
    <file name list or Script file name>
    <Destination directory name>
    [<FCHK.LOG File output Directory name>]
```

Parameters

Options

/SC: Specification of script file name
The file that is specified by the parameter is the script file, with which FCHKCE.EXE analyzes the script file name to be transferred for creating a list file. (Optional)

/R: Specification of recursive call
All files under the directory having a pathname specified by the parameter become the target of list file creation. If the specified directory is followed by sub-directories, these directory names are added for creating the list file.   (Optional)

- The maximum directory depth with the **FCHKCE** is 16 levels.
- If this option is not specified, only the files specified in the file list are added to the list file.

/AO: Append output
If the FCHK.LOG file exists in the directory specified by [FCHK.LOG File output Directory name], a logging file is additionally created.   (Optional)

- If the above mentioned file does not exist, a new FCHK.LOG file is created. (However, the function is abnormally terminated if the specified directory does not exist.)
- With append output, another list file is simply added to the end of the existing list file. In order to modify part of the existing file contents, do not use append output, rather, create another list file.

File name list or Script file name

Describe the list of file names to be transferred (copied).   (Required)

- Specify files that exist on the transmission (copy) source side.
- If you are specifying multiple files for transfer in the FCHK, connect the full paths with double colons ('::').
- If you are specifying multiple files for transfer in the FCHKCE, connect the full paths with a space (' ') (use an ASCII space).
- Wild card specification can be applied to file names.
- When /SC has been specified as the option, specify the pathname to the location where the script file exists.

Destination directory name

Specify a directory name of the destination of transmission (copy).   (Required)

- For the directory name, observe the naming rule of the OS in the destination of transmission (copy).
- The terminator of the directory name should be "\".

FCHK.LOG File output Directory name

Specify the destination directory name of the FCHL.LOG log file.   (Optional)

- For the directory name, observe the naming rule of the OS in the user's terminal.
- The terminator of directory name should be "\".
- If this parameter specification is omitted, the FCHL.LOG log file is created in the current directory.

Exit Codes

0   : Exit success
Other than 0   : Creation error (see Table 4.1 for detail about errors.)

Notes:
- Up to 65,000 files can be logged.
- The maximum size of script file is 32,000 bytes.
- If an error occurs while creating a list file, the existing list file is deleted.
- If an error occurs while parsing the command parameters due to specifying "/SC" option, the existing list file is not deleted.
- If a file that cannot be copied is specified for transfer, it is deleted from the list file.

4.3.2 Validating List File

This function specifies names of files to be transferred from PC to the terminal, and create a list file from the list of transferred (copied) files and checksum data, which is calculated for all the files to be transferred. Both this list and the checksum generation process are displayed on the screen.

The name of this list file created with this function is fixed as **FCHK.LOG**, and the list file is created under the current directory, if the destination is not specified. The user is required to transfer (copy) the list file created with this function to the partner station (child terminal) when a subsequent file transfer (file copy) is attempted.

The following items are set in this list file for validation;
- File size
- Date and time of creation
- Path (file) name of the transfer (copy) destination
- Number of files to be transferred (copied)
- Checksum data of all the transferred files
- Checksum data of the list file

The checksum data of all files to be transferred (copied) should be the result of exclusively ORing every two consecutive words of data of all files to be transferred (copied). The checksum data of the list file should be such a value, which produces zero if it is added to the result of summing every two consecutive words of list file contents.

Calling Sequence

```
FCHK /C
    [</Option>]
    <FCHK.LOG file pass name>
```

Parameters

Options

/D: Does not validate the date of update. (Optional)
- This is used to prevent validation of the date of update, since it may be modified to the current date of the terminal if a file transfer is made with the terminal's Explorer. (However, the date of update is not modified by copying with the FLCE/PC card.)
- File transfers using an FLCE memory card does not change the file's last-modified date.

FCHK.LOG file pass name

- Specify pathname to the location of the list file (FCHK.LOG) using the naming rule of the OS.

Return Values

0   : Exit success
Other than 0   : Matching error (see Table 4.1 for detail about errors).

Notes:
- Up to 65,000 files can be validated.
- Due to the WindowsCE specifications, some files in \Windows\ folder cannot be copied. Accordingly, they cannot be written in the list file.

4.4 Error Information

See below for information about FCHK errors.

Table 4.1

Code	Message	Description	Remedy
00	File list creation was completed. List-file contents match.	The program exited successfully.	No problem.
01	Specified path not found.	A file specified for addition to list file does not exist.	Specify the name of an existing file.
02	List-file creation error	A physical error occurred while creating the list file.	Try running the program again.
03	FCHK.LOG not found	When checking the list file, the list file (FCHK.LOG) was not found.	Specify the directory where the list file is located.
04	List-file contents do not match (path names do not match).	The list-file validation did not find a match (path names do not match).	Run the file-checking tool again from the beginning.
05	List-file contents do not match (sizes do not match).	The list-file comparison did not find a match (sizes do not match).	Run the file-checking tool again from the beginning.
06	List-file contents do not match (dates/times do not match).	The list-file validation did not find a match (date/time do not match).	Run the file-checking tool again from the beginning.
07	List-file contents do not match (total file checksums do not match).	The list-file validation did not find a match (total file checksums do not match).	Run the file-checking tool again from the beginning.
08	List-file contents do not match (list file checksums do not match).	The list-file validation did not find a match (list file checksums do not match).	Run the file-checking tool again from the beginning.
09	Script file not found	The specified script file name was not found.	Specify the directory where the script file is located.
0A	Script file syntax error	The specified script file contains a syntax error.	Rewrite the script file correctly.
0B	List-file read error	When checking the list file, a physical error occurred while reading the list file (FCHK.LOG).	Run the program again.
0C	Illegal option	The startup option is illegal.	Revise the startup options.
0D	Parameter error	There is an error in the specified parameters.	Revise the specified parameters.

Continue.

Code	Message	Description	Remedy
10	Script-file read error.	A physical error occurred while reading the script file.	Run the program again.
11	Script file size over limit	The size of the specified script file is greater than 32,000 bytes.	Make the script file 32,000 bytes or smaller.
12	Maximum number of logging files exceeded	There are more than 65,000 logging files.	Make the total number of logging files no more than 65,000.
13	Specified list-file path name not found	The specified output location for the FCHK.LOG file was not found.	Specify an existing directory.

5. FLCE

The **FLCE** is a program for not only communicating between two terminals but also communicating with the LMWIN utility running on PC via Bridge Satellite Cradle. File transfer can be executed by specifying each path on the source side and destination side. On the **FLCE**, all parameters for designating the operation, files to be transmitted/received, storage destination, etc., are specified as argument.

Operation Procedure
The **FLCE** is an executable program that can be operated in one of two ways;
- Stand-alone
- Child process to be called from user application

When the **FLCE** is used as a stand-alone program, a dialog for entering parameters appears when it starts up. Enter necessary parameters in the dialog, and then click **OK** button. However, if this program is to be operated in the idle-start mode, click **Cancel** button or **OK** button without entering anything. In order to perform file transfer from user application, initiate the **FLCE** as a child process with the specified arguments. After communication is completed, the application receives a termination code as return value in the process.

Input parameters
Operation parameter   : Communication command, communication option, transfer pathname, I/O interface to be used, baud rate, and mode

Registry   : Set up the registry only if the default value of the following items need to be modified. I/O interface (IrDA or RS-232C), baud rate, and assignment of single character to drive name

Output parameter
Return value of Winmain   : Termination code

5.1   Specifying Communication Functions

Operational designation to the **FLCE** should be made either by entering the following command in the dialog that appears at start-up or by starting the **FLCE** with the additional arguments. More than one operation command (maximum 20) can be specified at a time. In this case, the order of execution is from left to right. The operation of commands to the right of the command that caused the error is not processed. If the environment setup command is not specified, its default value is used.

Table 5.1

Type	Function	Command	Special option	Remark
Setup command	Communication environment setup	/Y={device baud rate / address, mode}	None	Device = COM1/IrDA/LAN/USB Baud rate = 9,600 to 115,200 Address = IP address of the server Mode = h: 1 minute of timeout i: Infinite timeout
Operation command	File send	/S	O, R	
	File receive	/R	O, R	
	File send (append)	/A	None	
	File delete	/D	O, R	
	File move	/N	None	
	Clock send	/T	None	Valid only for HT-to-HT transfer
	Idle start	None	Script file name	

Options

O (Overwrite): Specifying forcible overwrite of read-only file
- Specification of this option results in that read-only files are also overwritten.
- If this option is not specified, an attempt to write in a read-only file causes abnormal termination.
- The file attribute after overwrite is that of the source file.

R (Recursive call):
- The target of this operation includes all files under specified directory. If the specified directory is followed by sub-directories, they are also included.
- The directory should have no more than a maximum of 16 levels.
- If this option is not specified, the target of processing includes only files that are specified by each pathname.

5.2 Commands and Options

The following describes the method of specifying the start-up parameters and their definitions.
The total length of the start-up parameters including the **FLCE** should be 255 characters or less. If there are any incorrect scripts, incorrect commands, options that cannot be set for the command, or incorrect parameters, communication is not commenced and immediately terminated in error.

Rules of writing parameters;

- Separate parameters with a single-byte space.
- The /Y command can be specified at the top of the command line only once (can be omitted).
- A maximum of 20 commands can be specified continuously after the required parameters.
- Both uppercase and lowercase characters can be used for commands and options.
- The order in which options are specified is not important.
- Each option must be specified so that it directly follows the command, with no space between a command and an option.
- In order to specify more than one option, specify them without inserting a space after each.

In the following explanations "[   ]" means a parameter that can be specified optionally, whilst other parameters cannot be omitted.

5.2.1 Communication Environment Setup

Calling Sequence

```
/Y={ [device],[baud rate/address],[mode] }
```

Functions

- Specify device, baud rate, and communication mode used for communication.
- If this command is omitted, the default value of {IrDA or USB} is be used.
- Each of the parameters can be omitted. However, if this is done, the default value of the omitted parameter is used.
- Be sure to make the description immediately after the **FLCE**. A specification made in other locations causes a parameter error.

Parameters

Command

/Y={ [device],[baud rate / address],[mode] }

- Device
  Specify either "IrDA" or "COM1" or "LAN" or "USB".
- Baud rate
  If "IrDA" or "LAN" or "USB" is specified: Cannot be specified.
  If "COM1" is specified: One of the following baud rates can be specified as the RS-232C communication speed.
      9600, 19200, 38400, 57600, 115200
- Address
  Specify IP address of the server.
  If "IrDA" or "COM1" or "USB" is specified: Cannot be specified.
- Mode
  "H"; HT-to-HT command specification mode
  Always specify this option at one HT that is assigned the role of specifying the operation command for performing communications between two terminals (the **FLCE** on the partner side should be executed by idle-start).
  "I"; Connection wait timeout is set to infinite.
  The connection wait time is one minute if no parameter is specified or if "H" is specified.
  Only "H" or "I" can be specified.

Note:
Parameter combinations other than those given above cannot be specified. They cause a parameter error.

Table 5.2

Start-up	Communication partner	Connection wait timeout	
		1 minute	Infinite
Idle (including script)	PC (Cradle)	No mode specification	Mode specification I
	HT		
Specification of operation command	PC (Cradle)		
	HT	Mode specification H	Specification not possible

5.2.2 File Transmission

Calling Sequence

```
/S[Option] Transmission file pathname [Transmission file pathname] [···]
Destination directory pathname
```

Functions

- Transfers a file that exists on the user's terminal to communication partner.
- Overwrites a file with the identical file name, if the file name already exists in the destination directory of the communication partner.
- If a directory specified as the destination directory does not exist in the communication partner, that directory automatically is created there.
- The transmission file pathname is checked first. If any of the transmission file pathnames that do not exist on the user's terminal is specified, the FLCE is immediately terminated with error. (In this case, even files existing on the user's terminal is not transmitted.)
- Displays progress as percentage.

Parameters

Command

/S=(Sending): Transmitting file

Options

O (Overwrite): Specifying forcible overwrite of a read-only file
- Specification of this option results in that read-only files are overwritten.
- If this option is not specified, an attempt to write over a read-only file results in abnormal termination.
R (Recursive call):
- The target of file transmission includes all files under the directory specified by the transmission file pathname. If the specified directory is followed by sub-directories, they are also included in the targets of file transmission.
- The directory should have no more than a maximum of 16 sub-menus.
- Even if this option is specified, specify the transmission file by its full pathname.
- If this option is not specified, the target of file transmission includes only files that are specified by the file pathname.
- Transmission file pathname
- Always specify files in full pathname that exist on the user's terminal.
- To specify all files, enter "*.*" as the file name.
- Wild card specification can be applied to file names.
- Double-byte characters can be used for directory names and files names.
- Destination directory pathname
- As the last parameter for this command, specify the destination directory pathname on the communication partner.
- If the specified directory does not exist on the destination, a directory that has the specified name is automatically created.
- Enter "\" as the terminator of the directory name. Otherwise, a parameter error results.
- Double-byte characters can be used for directory names.
- For destination directory pathnames, follow the naming rule of the OS on the communication partner side.

5.2.3 File Reception

Calling Sequence

```
/R[Option] Request file pathname [Request file pathname] [···] Reception
directory pathname
```

Functions

- Specifies a file that exists on the communication partner side using request file pathname, then receives the file.
- Overwrites a file with the identical file name, if it already exists under the reception directory on the side of the user's terminal.
- If a directory specified as the reception directory does not exist, that directory is automatically created.
- For information about the operation that depends on the communication partner.
- Displays progress as percentage.

Parameters

Command

/R (Receive): Handling a file reception request

Options

O (Overwrite): Specifying forcible overwrite of read-only file
- Specification of this option causes read-only files to be overwritten.
- If this option is not specified, an attempt to write in a read-only file causes an abnormal termination.

R (Recursive call):
- The target of file transmission includes all files under the directory specified by the request file pathname. If the specified directory is followed by sub-directories, they are also included in the targets of file transmission.
- If this option is not specified, the target of file transmission includes only files that are specified by the request file pathname.
- Even when this option is specified, specify the request file in full pathname.
- Request file pathname
- Always specify files in full pathname existing on the communication partner side.
- Wild card specification can be applied to file names.
- To specify all files, enter "*.*" as the file name.
- Double-byte characters can be used for directory names and file names.
- For request file pathnames follow the naming rule of OS on the communication partner side.
- Reception directory pathname
- As the last parameter for this command, specify reception directory pathname.
- For the reception directory, specify destination directory name to store the received file.
- If the specified directory does not exist, directory that has the specified name is automatically created.
- Enter "\" as terminator of the directory name. Otherwise, a parameter error results.
- Double-byte characters can be used for directory names.

5.2.4 File Transmission (Append)

Calling Sequence

```
/A  Appended file pathname  Target file pathname
```

Functions

- Transfers the contents of file, which exists on the user's terminal and is specified by the target file pathname, to the communication partner, and append it to the end of file in the communication partner.
- If a file specified by the target file pathname does not exist on the communication partner, that file is automatically created.
- Date and time of the target file corresponds to the system date and time of the terminal in which the target file exists when this append operation is performed.
- If file transmission fails in mid-course, the target file maintains the settings it had before communication was started.
- File append is made by units of binary data. (This means that the data is appended after EOF code, if one exists).
- Displays progress in percentage.

Parameters

Command

/A=(Append):　Handling a file append request

Appended file pathname

- Specify a desired file in full pathname that exists on the side of the user's terminal.
- Wild card specification is not permitted for file names.
- Double-byte characters can be used for directory names and files names.

Target file pathname

- Specify a file in full pathname that exists on the communication partner to be appended.
- If the specified file does not exist, it is created with the specified file name.
- Wild card specification is not permitted for file names.
- Double-byte characters can be used for directory names and files names.
- For target file pathnames follow the naming rule of OS on the communication partner side.

5.2.5 File Deletion

Calling Sequence

```
/D[Option] Deleted file name [Deleted file name] [···]
```

Functions

- Specifies a file or directory that exists on the communication partner side, and deletes it.
- For information about the operation that depends on the communication partner.
- Does not display progress in percentage.

Parameters

Command

/D: Deletes the target file or directory that is specified by the deletion pathname.

Options

O (Overwrite): Specifying forcible deletion of read-only file
- Specification of this option results in that read-only files are also deleted.
- If this option is not specified, an attempt to delete a read-only file causes abnormal termination.
R (Recursive call):
- The target of file deletion includes the directory specified by the deletion file pathname, and all files and directories under the directory.
- If the specified directory is followed by sub-directories, they are also deleted.
- The directory should have no more than a maximum of 16 sub-menus.
- When this option is specified, specify a directory name as the deletion pathname using the full pathname.
- If this option is not specified, only files that are specified by the deletion file pathname are deleted.

Deleting pathname

In case without "R" option
- Specify a file that actually exists on the communication partner side and is to be deleted. Wild card specification can also be used.
- To specify all files, enter "*.*" as the file name.
In case with "R" option
- Specify a directory in full pathname that actually exists on the communication partner side and is to be deleted.
- Enter "\" as the terminator of the directory name.
- Double-byte characters can be used for directory names and file names.
- For request file pathnames follow the naming rule of OS on the communication partner side.

5.2.6 File Move or Rename

Calling Sequence

```
/N Move source pathname  Move destination pathname
```

Functions

- Moves the specified file (move source pathname) that exists on the communication partner side to the move destination pathname.
- If the move destination pathname is a directory name, the file name at the move source pathname is used without modification. If the move destination pathname is a file name, the moved file uses the file name at the move destination.
- For information about the operation that depends on the communication partner.
- Does not display progress in percentage.

Parameters

Command

/N: Moves the objective file specified by the move source pathname to the move destination pathname.

Move source pathname

- Specify a file that actually exists on the communication partner side and is to be moved.
- Wild card specification cannot be used.
- Double-byte characters can be used for directory names and file names.
- For move source pathnames follow the naming rule of OS on the communication partner side.

Move destination pathname

- Specify the destination of the move on the communication partner side in full pathname.
- If a file with the identical name exists on the destination side, an error code is returned.
- When specifying a directory, enter "\" as terminator.
- If a file name is specified, the moved file uses that file name.
- If a directory with specified pathname does not exist, a directly with the specified name is automatically created.
- Wild card specification cannot be used.
- Double-byte characters can be used for directory names and file names.
- For move destination pathnames follow the naming rule of OS on the communication partner side.

5.2.7 Time Transmission

Calling Sequence

```
/T
```

Functions

- Transmits the system date and time of the user's terminal to set date and time of the communication partner side.
- Transmitted date and time are the local date and time.
- Depending on the conditions of communication line, there may be a difference of several seconds.
- This function is effect for HT-to-HT connection.

5.2.8 Idle Start

Calling Sequence

Only the /Y command can be specified.

```
FLCE [/Y={[device],[baud rate/address],[mode]} [Script file name]
```

Functions

- Assigns the right of request to the communication partner side, and operates in accordance with function requested by the partner side.
- To initiate the system in this mode, only the /Y command can be specified. (If another command is specified, the normal start-up mode, rather than the idle start-up mode, is used. If script file name is specified, this function causes a parameter error and terminates as an error.)
- If /Y is specified, do not specify "H" for the mode parameter (otherwise, a parameter error occurs and the function is terminated as an error).
- This function is terminated when it receives termination order, except when it is abnormally terminated.
- If script file name is specified, communication is performed according to the contents of script file that exists on the communication partner.
- The specification of script file is valid only when communicating with PC.
- If script file name that does not exist on the communication partner is specified, an error code is returned. (In the case of HT-to-HT communication, the script file is ignored since it cannot be processed.)

Parameter

- Script file name
  Specify script file name that actually exists on the communication partner side. Enclose the script file name in a pair of double quotation marks.

5.3   Describing Pathname

- Always enclose the pathname in a pair of double quotation marks. Also, one pathname should not be more than a maximum of 256 characters, including two double quotation marks. A two-byte character is counted as one character.
- Pathnames should be described in accordance with the naming rule of OS of the PC, in which the path to be specified is located.
- In the description of a pathname, drive symbols should conform to the following rules.
  1. Describe the pathname on the terminal so that it begins with the root directory and without using a drive symbol letter. (The same rule also applies when the LMWIN utility for PC specifies a file or directory path on the terminal.)
  2. A drive symbol letter, if specified by the communication partner, is ignored by the **FLCE** on the terminal side (i.e. the pathname is treated in the same way it is specified so as to begin with the root directory, and without using a drive symbol letter).
  3. In order for a terminal to describe the path to a file or directory on the communication partner (PC, etc.) that operates OS that requires a drive symbol letter, always place the drive symbol letter as specified.

However, as exception to the rule 2 above, let the drive symbol letters have the following effect (see Table 5.3), when the communication partner side specifies a device on the terminal and performs formatting or issues instruction to retrieve the disk information. These settings, however, can be modified by specifying the appropriate registry.

Table 5.3

Model no. Drive	IT-500/ DT-X5	IT-3000/ IT-3100	IT-10/ IT-600	DT-X10/ DT-X11	DT-X7	DT-X30
C:	\Windows	\Windows	\Windows	\Windows	\Windows	\Windows
D:	\	\Storage Card	\CF Card	\Storage Card	\USBStorage	\USBStorage
E:	\	\SD Card	\SD Card	\Storage Card2	\USBStorage	\SD Card
F:	\FlashDisk	\FlashDisk	\FlashDisk	\FlashDisk	\FlashDisk	\FlashDisk

Model no. Drive	IT-800	IT-300	DT-X8	IT-9000
C:	\Windows	\Windows	\Windows	\Windows
D:	\USBStorage	\USBStorage	\USBStorage	\USBStorage
E:	\ SD Card	\ SD Card	\ SD Card	\ SD Card
F:	\FlashDisk	\FlashDisk	\FlashDisk	\FlashDisk

5.4　Specifying Non-existing File

If the pathname of a file or directory that does not exist on the communication partner is specified, it is processed as follows:

Table 5.4

Reception	Deletion	Move	Transmission, Transmission (append)
A	C	B	D

Alphabets in the table denote;

- A)　If any one of the specified pathnames does not exist, an abnormal termination results. (The actually existing files are also not transmitted.)
- B)　If the specified pathname does not exist, an abnormal termination results. (In this case the transmission process is not executed.)
- C)　If the specified pathnames contain a pathname that does not actually exist, that pathname is ignored. (All the pathnames that actually exist is successfully processed.)
- D)　A new file(s) is created.

5.5 Functions and Displays

Table 5.5

Function (command on protocol)	Display type		Remark
	Specified from FLCE	Requested from communication partner	
File transmission	C	C	
File reception	C	C	
File append	C	C	
File or directory deletion	A	B	
File move or rename	A	B	
Directory creation	--	B	
Time setting	A	A	
Time request	--	A	
Message display	--	D	
Buzzer sound	--	A	
Retrieve file information	--	A	
Set file information	--	A	
Retrieve disk information	--	A	
Retrieve session ID and system information			Not necessary to display, since they are internal protocol commands.
Idle notification			
Designation of termination			

Alphabets in the table denote;

A)   Displays currently executed command or the one that issued the request.

B)   In addition to A, displays the file or directory currently processed in the user's terminal.

C)   In addition to A, displays the file being transferred and the progress.

D)   Displays text message sent from the communication partner.

5.6 Setting Registry

By writing a value in the registry it is possible to modify the communication environment default parameters, etc. Use the setup command (/Y) to specify the line or baud rate during normal use, and set the registry only if the default parameters need to be modified. Also, if modifying the assignment of drive symbol letters, create keys of each symbol letter and specify the pathname of corresponding device. If the registry has been set, it continues to be valid until the setting is modified or the system is cold booted. Items (keys) that are not set in the registry or items (keys) that were incorrectly set use their default parameters.

Parameters

Location of the registry   : \HKEY_CURRENT_USER\Software\CASIO\FLCE\

Contents

Key name	Type	Value
BAUD	DWORD	Baud rate
DEVNM	STRING	Communication line (I/O device)
DRIVE\A	STRING	Path to a device that is assigned as Drive A.
DRIVE\B	STRING	Path to a device that is assigned as Drive B.
DRIVE\C	STRING	Path to a device that is assigned as Drive C.

DRIVE\Z	STRING	Path to a device that is assigned as Drive Z.
RECVWAIT	DWORD	Time period (in seconds) of reception timeout
CONWAIT	DWORD	Time period (in seconds) of session establishment timeout

5.7 Exit Codes

When communication is closed, the **FLCE** returns a code as described in Table 5.6. Upper-level programs should refer to this value and take appropriate follow-up action. The exit code is returned as the return value of Winmain. Upper-level programs should refer to this return value with **GetExitCodeProcess** function. In the following table the category code (upper bytes) shows error category, and the detail code (lower bytes) shows its error detail.

Table 5.6

Ending Code		Meaning	Cause	Remedy
Category code	Details code			
00H	00H	Exit success	Success.	-
DCH to F5H	00H	Exit success	The other device specified that drive A through Z is to be formatted.	
F6H	00H	Exit success	The other device gave a power-down instruction.	Turn off the power.
F7H	00H	Exit success	The other device issued a reset order.	
F8H	00H	Abort exit	Communication ended when the Abort key on other device was pressed.	Run it again as needed.
01H	00H	Protocol error	Abnormal data (a data error occurred on the communication line.)	Check the communication line and the connection.
02H	80H	File not found	A non-existed file was specified.	Check the specified file or directory.
02H	81H	Current directory delete error	Tried to delete the current directory.	Check the directory to delete.
02H	82H	File write error	Failed to write to the file for some reason.	Make sure that the file can be written to.
02H	83H	File read error	Failed to read from the file for some reason.	Make sure that the file can be read from.
02H	84H	Read-only access error	Tried to overwrite or delete a read-only file.	Specify a different file name or delete the read-only attribute of the file.
02H	01H	Parameter error	The parameter syntax is incorrect.	Check the parameters.
0FH	02H	Parameters too long	The parameters are too long.	Make sure to limit the length of parameters within 255 characters (maximum).
A0H	10H	Communication port open error	Other program is using COM1 or IrDA port, or the **FLCE** is already running.	Quit the program using COM1 or IrDA port.

Continue.

| Ending Code | | Meaning | Cause | Remedy |
Category code	Details code			
A0H	20H	Disconnection error	The cable was disconnected or the IrDA connection establishment was cut off during communication (e.g. the terminal was demounted from the cradle).	Make sure that the cable is securely connected and the terminal is correctly mounted on the cradle.
A0H	30H	Connection standby timeout error	Failed to complete connection within one minute after startup.	Check the cable connection or the condition where the IrDA port is ready for communication.

Note:

Refer also to Chapter 3.10 "Error Information" for any error code not listed in this table. An error code of the LMWIN may be returned. If that is the case, note that "Error Detail" as referred to in Table 3.8 means "Category code" in Table 5.1 while "Error Code" as referred to in Table 3.8 means "Details code" in Table 5.1.

5.8 Log File

The **FLCE** creates a log file to keep log of communication starting when a session with the communication partner is established until when it is ended.

- Log file name is fixed to "\Windows\FLCE.LOG" which is not allowed to change.
- If log file is already existed, it is overwritten by a new log file to save new log data (new log data is not appended to the existing log file.)
- If a log file cannot be created for some reason, it is not created.
- If command parameter includes any error, the log file cannot be created.

Format

The format of a log file consists of nine lines as shown below. In lines 2 to 4, information obtained from the communication partner is output. For log file created in the emulated PC mode in HT-to-HT (between terminals) communication, blank is output.

1st line	: Outputs version information of the FLCE.EXE.
2nd line	: Outputs version information (1 byte) of the protocol. The initial version is "1".
3rd line	: Outputs a communication partner machine code in 3 bytes (maximum) or less. AT ... IBM-PC AT compatible machine
4th line	: Outputs session ID in hexadecimal number. (Ex. 0x0000)
5th line	: Outputs information about the final event in hexadecimal number. (Ex. 0x0000)
6th line	: Outputs information about the final phase in hexadecimal number. (Ex. 0x0000)
7th line	: Outputs information about the completion status in hexadecimal number. (Ex. 0x0000)
8th line	: Outputs the final transmission file name in 65 bytes (maximum) or less. Any portion of the file name exceeding over 65 bytes is automatically cut off.
9th line	: Outputs the final reception file name in 65 bytes (maximum) or less. Any portion of the file name exceeding over 65 bytes is automatically cut off.

6. Limitations and Precautions

The limitations and precautions for the LMWIN described in other pages in this reference manual are wrapped up once again in this chapter.

B.S/B.B Mode

- Prior to installing the USB/RS-232C drivers in the PC, be sure that there is sufficient memory space available for the storage and working area.
- After installing the drivers or uninstalling, be sure to start up the PC again. Before uninstalling the drivers, turn off the power on all connected cradles.
- Turning on the power on cradle connected with the PC via USB interface makes the USB device icon appears in IR devices at the Control Panel.
- To change the DIP switch setting on cradle, first turn off the power on the cradle and then change the setting while paying your attention not to make any incorrect setting.
- While a session with the PC is in progress, never turn off the power on the cradle or pull of the cable connected with the PC.
- If you start up "ActiveSync" on multiple terminals connected in chain mode at same time, an error occurs. "ActiveSync" on the terminal must be started up one by one, not all at the same time.
- On multiple terminals with FLCE or FLINK connected in chain mode, if you try to establish a concurrent session via the LMWIN with multiple terminals by the PC, the session with the multiple terminals is carried out one by one. It is not possible for concurrent session by the PC.
- To change baud rate at the Control Panel after the installation is complete, be sure to close "ActiveSync" or other application running.
- If you wish to establish a session with the PC via Bridge Satellite Cradle, use USB interface or RS-232C interface.
- After installing the USB driver, choose a baud rate listed below for your configuration.
    - ✧ For single configuration (with one terminal)　　　: 4 Mbps or 115.2 Kbps
    - ✧ For chain configuration (with multiple terminals)　: 115.2 Kbps
- The USB chain mode ("CHAIN_RESET" mode) does not support communications listed below. Set to "ChainReset=OFF" in the DEVICE.INI file.
    - ✧ Communication in single configuration or in chain configuration via USB interface /in concurrent operation mode via USB interface.
    - ✧ Communication via RS-232C interface.
    - ✧ Communication with a WindowsCE device

    In Windows 8/8.1, Windows 7 ,Windows Server 2012 and Windows Server 2008 and Windows Vista, this setting can be effect only if the LMWIN is initiated by Administrator Privileges. Administrator Authorization does not support the initiation.

- Recognition on all connected cradles must be carried out one by one. Recognition until the lastly connected cradle may not be correctly carried out if it is done concurrently. For example, on 2 of 4 cradles chain- connected the recognition was carried out correctly, but the rest were not recognized. If this is case, start up the PC again.
- To dismount cradle from the PC, use "Safety remove hardware" process of the OS. If you use other irregular method such as pulling out cable or turning off the power on the cradles to remove multiple cradles chain-connected, a subsequent infrared communication does not run. If this is case, start up the PC again.

- It is recommended that the number of cradles connected in chain configuration is 4 (no. of cradles for concurrent communication is also 4) or less. Burden sustained by the IrDA protocol stuck of the PC increases causing actual communication speed, compared with that in single configuration, to deteriorate. The process at the beginning of session establishment is carried out for one cradle at a time.

USB Mode
- The no. of USB cradles connected with the PC is 1. Communication with the PC by multiple USB cradles is not allowed.
- Concurrent USB connection via the LMWIN and ActiveSync/Windows Mobile Device Center is not allowed.
  To communicate via the LMWIN ;

  On the PC   : In case **ActiveSync** is installed, navigate to **ActiveSync → File → Connection Settings,** check off **Allow USB connection with this desktop computer.**
  In case **Windows Mobile Device Center** is installed, navigate to **Control Panel → Administrative Tools → Services,** stop **Windows Mobile-based device connectivity.**

  On the Terminal   : In case Windows CE terminal, navigate to 🍄 → **Settings → Control Panel → PC Connection,** check off **Enable direct connections to the desktop computer.**
  In case Windows Mobile terminal, navigate to ⊞ → **ActiveSync,** select "Menu"→ "Connections", check off **Synchronize all PCs using this connection**.

- First, mount the terminal on USB cradle to carry out device recognition before communication session starts.
- Never demount the terminal from cradle or pull out cable often in a short period. This may cause the PC to loose the device recognition established in the Windows OS. If this is happens, start up the PC again.
- Communication session via USB-IrDA/USB by the PC with USB controller of the OHCI system integrated may not be supported. It is recommended to use the PC with USB controller of the UHCI system (produced by INTEL).
- After establishment of session in chain configuration via IrDA interface (or RS-232C or USB interface) and then breaking off, it takes a while to shut down the session completely. Thus, the interfaces are suitable for session in single configuration and limited use, not in chain configuration (with multiple terminals connected).
- In Windows 8 and Windows 7 and Windows Vista, set the file permission control setting to "Full control" with the Users (Users or Vista\Users) icon for the LMWIN folder, log file folder, user applications folder, and folder to receive files. See the process below to change the access control in Windows Vista.

  1. Right-click a file or folder where you wish to set "Permission", and navigate to **Properties → Security** tab.
  2. Navigate to **Edit …** button → **Permissions for** "file or folder name".
  3. Click **Users (VMWareVista\Users)** icon in the "Group or user names" box.
  4. Check the **Allow** box of **Full control** in the "Permissions for TrustedInstaller" box.
  5. Click **OK** button to complete the process.

  For detail about the Access Control, refer to Help.