BlueSoleil CE Configuration Guide

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HISTORY

REVISION	AMENDMENT DETAIL	DATE	AUTHOR
0.10	First Edition	2008.5.26	Li li
0.11	Modify USB Driver， Transport layer configuration description.	2008.5.27	Jue Zhu
0.2	Change the name and architecture	200805.30	Li li
0.21	Add SPP driver configuration description.	2008.08.29	Jue Zhu
0.22	Add AEC HFP configuration description.	2009.06.12	Wenqing Qiu

Contents

1 INSTRUCTION

This document guides you how to configure BlueSoleil CE to launch it and port profiles.

2 BLUESOLEIL CE HCI

2.1 SUPPORT HCI

Currently, HCI BlueSoleil CE supports are USB|UART|SDIO, SDIO mentioned here specially fit for SPECTEC CO.LTD SDIO Bluetooth Dongle.

The driver supports USB transport layer are IVT_USB.dll applied to HCI transport layer and BTHUSB.dll applied to USB dongle driver.

The driver supports UART transport layer are IVT_UART.dll supports H4 protocol and IVT_BCSP.dll supports CSR BCSP Protocol.

The driver supports SDIO transport layer is SDIO_UART.dll, which is JUST used for the SPECTEC'S SDIO dongle. The interface of SDIO is only supported in Microsoft CE 5.0, there are two version drivers, one is applied to CE is or below CE4.2, and another is applied to CE5.0.

2.2 HCI DRIVER CONFIGURATION

2.2.1 USB CONFIGURATION

1. Import registry keys below

[HKEY_LOCAL_MACHINE\Drivers\USB\ClientDrivers\Bluetooth_USB_Driver]
"FriendlyName"="IVT BlueTooth Usb Driver"

"Prefix"="BTH"
"Dll"="BTHUSB.dll"
"Index"=dword:00000001

[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\Default\224_1_1\Default\Bluetooth_USB_Driver]
"DLL"="BTHUSB.dll"

2. Copy the driver BTHUSB.dll to the directory \windows of WinCE device, and copy IVT_USB.dll to the directory \windows or anywhere.

3. Modify the transport layer located in DEFAULT section to TL=USB in configuration file bttl.ini, and set DLL to the absolute path of IVT_USB.dll in USB section. see section 8.2 USB SECTION.

2.2.2 SDIO CONFIGURATION

1. Import register items below
[HKEY_LOCAL_MACHINE\Drivers\SDCARD\ClientDrivers\Custom\MANF-0296-CARDID-5347-FUNC-1]
"FriendlyName"="SPECTEC BT Driver"
"Dll"="ARASANSDIO-UART.dll"
"Prefix"="COM"

2. Copy driver file SDIO-UART.dll to the directory \windows of the WinCE device.
Note: The special drivers which support MS CE 4.2 version are needed if the MS CE version is or below CE 4.2.

3. Copy driver file IVT_BCSP.dll to the directory \windows of the WinCE device or anywhere.

Note: SPECTEC SDIO dongle supports BCSP protocol.

4. Modify the name of transport layer located in DEFAULT section to TL=BCSP_COM in configuration file bttl.ini. And set DLL to the absolute path of IVT_BCSP.dll in BCSP_COM section. Meanwhile BCSP_COM section are also necessary to be modified, see section 8.3 BCSP_COM SECTION

2.2.3 UART CONFIGURATION

UART transport layer states the Bluetooth dongle communicate with system through the UART interface. H4 and BCSP protocol are supported.

1. H4 PROTOCAL

1) Copy driver file IVT_UART.dll to the directory \windows of WinCE device or anywhere.

2) Modify the transport layer located in DEFAULT section to TL= H4_COM in configuration file bttl.ini. Set DLL to the absolute path of IVT_UART.dll in H4_COM section. And H4_COM section are also necessary to be modified, see section 8.4 H4_COM SECTION

2. BCSP PROTOCAL

1） Copy driver file IVT_BCSP.dll to the directory \windows of WINCE device or anywhere.

2) Modify the transport layer located in DEFAULT section to TL= BCSP_COM in configuration file bttl.ini. Set DLL to the absolute path of IVT_BCSP.dll in BCSP_COM section. And BCSP_COM section are also necessary to be modified, see section 8.3 BCSP_COM SECTION.

3 SPP Driver Configuration

3.1 DRIVER(s)

IVT_BTSerial.dll

BTMgr.dll

3.2 FUNCTION

Bluetooth SPP provides wireless connections by enabling links between two devices. It emulates COM Port. You could operate the virtual COM port like one real COM Port.

3.3 OS DEPENDENCIES

Normal.

3.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTMgr]

"Index"=dword:00000000

"Order"=dword:00000000

"Dll"="BTMgr.Dll"

"Prefix"="BMG"

"DeviceArrayIndex"=dword:00000000

```
[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTSerial1]
"FriendlyName"="IVT Virtual COM7:"
"Index"=dword:00000007
"Order"=dword:00000000
"Dll"="IVT_BTSerial.Dll"
"Prefix"="COM"
"DeviceArrayIndex"=dword:00000000
"Tsp"="Unimodem.dll"

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTSerial2]
"FriendlyName"="IVT Virtual COM8:"
"Index"=dword:00000008
"Order"=dword:00000000
"Dll"="IVT_BTSerial.Dll"
"Prefix"="COM"
"DeviceArrayIndex"=dword:00000000
"Tsp"="Unimodem.dll"

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTSerial3]
"FriendlyName"="IVT Virtual COM9:"
"Index"=dword:00000009
"Order"=dword:00000000
```

"Dll"="IVT_BTSerial.Dll"

"Prefix"="COM"

"DeviceArrayIndex"=dword:00000000

"Tsp"="Unimodem.dll"

3.5 INSTALL

1. Import the registry in the section 3.4 REGISTRY SETTINGS.
2. Soft reset to let the system to load virtual COM port in boot.

4 A2DP DRIVER CONFIGURATION

4.1 DRIVER(s)

BTWavSniff.dll

IVT_wavBSF.dll

4.2 FUNCTION

The Advanced Audio Distribution Profile (A2DP) defines the protocols and procedures that realize distribution of audio content of high-quality in mono or stereo on ACL channels. A typical usage case is the streaming of music content from a stereo music player to headphones or speakers.

4.3 OS DEPENDENCIES

Virtual Audio driver is dependent on the waveapi module. It would use the software mixer(that is, kernel mixer) in waveapi module.

4.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BSF]

"Prefix"="BSF"

"Dll"="IVT_WavBSF.dll"
"Order"=dword:00000000
"Index"=dword:00000000
"DeviceArrayIndex"=dword:00000000

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Audio]
"lowerDll"="s3c2440a_wavedev.dll"
"Dll"="BTWavSniff.dll"

NOTE: LowerDll is the name of local audio driver, so lowerDll must be set to the local audio driver name.
Local audio driver registry key may be kept in BuiltIn\Audio folder or in BuiltIn\WaveDev. Please confirm the registry path according to your system.

For example: in Uniden device, the local audio driver registry path is "BuiltIn\Audio". And local audio driver is s3c2440a_wavedev.dll. So we should set the audio registry as follows.

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Audio]
"lowerDll"="s3c2440a_wavedev.dll"
"Dll"="BTWavSniff.dll"

4.5 INSTALL

1. Copy the necessary files to the directory \windows of WinCE device.

2. Import registry keys in the section 4.4 REGISTRY SETTINGS

3. Soft reset to let the system loads the two drivers in boot.

5 PAN DRIVER CONFIGURATION

5.1 DRIVER(s)

BTNic.dll

5.2 FUNCTION

Bluetooth PAN provides wireless connections by enabling links between mobile computers, mobile phones, portable handheld devices, and connectivity to the Internet.
BTNic.dll is a miniport driver in Windows CE-based communications architecture, it is used to transfer data between Bluetooth link and upper layers (PPP,TCP/IP).

5.3 OS DEPENDENCIES

Personal Area Network (PAN)

5.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\Comm\BTNIC]
"ImagePath"="BTNic.dll"
"Group"="NDIS"
"DisplayName"="BT network adapter"

```
[HKEY_LOCAL_MACHINE\Comm\BTNIC\Linkage]
"Route"=hex(7):\
    42,00,54,00,4e,00,49,00,43,00,31,00,00,00,00,00

[HKEY_LOCAL_MACHINE\Comm\BTNIC1]
"ImagePath"="BTNic.dll"
"Group"="NDIS"
"DisplayName"="BT network adapter"

[HKEY_LOCAL_MACHINE\Comm\BTNIC1\Parms]
"NetworkAddress"="666666666666"
 "CardType"=dword:00000000
 "Transceiver"=dword:00000003
 "IoBaseAddress"=dword:00000000
 "InterruptNumber"=dword:00000000
 "BusType"=dword:00000000
 "BusNumber"=dword:00000000

[HKEY_LOCAL_MACHINE\Comm\BTNIC1\Parms\TcpIp]
"IpAddress"=hex(7):\
    30,00,2e,00,30,00,2e,00,30,00,2e,00,30,00,00,00,00,00
 "Subnetmask"=hex(7):\
    30,00,2e,00,30,00,2e,00,30,00,2e,00,30,00,00,00,00,00
```

```
"UseZeroBroadcast"=dword:00000000
"DefaultGateway"=hex(7):\
    30,00,2e,00,30,00,2e,00,30,00,2e,00,30,00,00,00,00,00
"EnableDHCP"=dword:00000001
```

5.5 INSTALL

1. Import the registry keys in section 5.4 Registry Settings.
2. Copy BTNic.dll to the directory \windows
3. Soft reset to let the system to load BTNic.dll in boot

6 DUN DRIVER CONFIGURATION

6.1 DRIVER (s)

NULL

6.2 FUNCTION

Bluetooth dial-up networking (DUN) refers to getting wireless Internet connectivity on a Bluetooth device by using a Bluetooth-enabled cell phone. And it should depend on the SPP driver.

6.3 OS DEPENDENCIES

Remote Access Service (RAS)
Point-to-Point Protocol (PPP)

6.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\ExtModems]

[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm1]
"ExtDevCfg"=hex:\
75,34,8a,22,40,25,9c,61,6c,c8,a2,63,dc,83,88,8c
"DevConfig"=hex:\

```
    20,00,00,00,78,00,00,00,10,01,00,00,00,4b,00,00,00,00,08,00,00,00,00,00,00
"FriendlyName"="IVT BT Modem VCOM7:"
"DeviceType"=dword:00000001
"Port"="COM7:"

[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm2]
"DevConfig"=hex:\
    20,00,00,00,78,00,00,00,10,01,00,00,00,4b,00,00,00,00,08,00,00,00,00,00,00
"FriendlyName"="IVT BT Modem VCOM8:"
"DeviceType"=dword:00000001
"Port"="COM8:"

[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm3]
"DevConfig"=hex:\
    20,00,00,00,78,00,00,00,10,01,00,00,00,4b,00,00,00,00,08,00,00,00,00,00,00
"FriendlyName"="IVT BT Modem VCOM9:"
"DeviceType"=dword:00000001
"Port"="COM9:"

[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm4]
"FriendlyName"="IVT NULL Modem VCOM7:"
"DeviceType"=dword:00000000
"Port"="COM7:"
```

```
[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm5]
"FriendlyName"="IVT NULL Modem VCOM8:"
"DeviceType"=dword:00000000
"Port"="COM8:"

[HKEY_LOCAL_MACHINE\ExtModems\IVTBlueletMdm6]
"FriendlyName"="IVT NULL Modem VCOM9:"
"DeviceType"=dword:00000000
"Port"="COM9:"
```

6.5 INSTALL

1. Import the registry in the section 6.4 REGISTRY SETTINGS.
2. It depends on the SPP driver. And the registry of SPP driver should add the unimodem items.
3. Soft reset to let the system to load modem in boot

7 HID DRIVER CONFIGURATION

7.1 DRIVER(s)

HID Class Driver (BTHid.dll)

HID Client Drivers (Such as KBDhid.dll used for Keyboard, MOUHid.dll used for mouse.)

7.2 FUNCTION

The Bluetooth Human Interface Devices (Bluetooth HID) protocol defines a set of services that can be used between a host capable of supporting HID devices and a BT-HID device.

HID Class Driver receives HID packets from Bluetooth and dispatches them to HID Client Drivers. HID Client Drivers convert HID packets to system calls.

7.3 OS DEPENDENCIES

Kbdmouse Driver

7.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTHID]

"Dll"="BTHID.dll"

```
[HKEY_LOCAL_MACHINE\Drivers\BuiltIn\BTMgr6]
"Dll"="BTmgr.dll"
"Prefix"="BMG"
"Index"=dword:00000006
"Order"=dword:00000000

[HKEY_LOCAL_MACHINE\Drivers\HID]

[HKEY_LOCAL_MACHINE\Drivers\HID\ClientDrivers]

[HKEY_LOCAL_MACHINE\Drivers\HID\ClientDrivers\Keyboard]
"DLL"="KBDHID.DLL"
"Prefix"="KBD"
"IClass"="{CBE6DDF2-F5D4-4e16-9F61-4CCC0B6695F3}"
"RemoteWakeup"=dword:00000001

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients]

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default]

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default\Default]
```

```
[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default\Default\1_2]

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default\Default\1_2\Mouse]
"DLL"="MOUHID.DLL"

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default\Default\1_6]

[HKEY_LOCAL_MACHINE\Drivers\HID\LoadClients\Default\Default\1_6\Keyboard]
"DLL"="KBDHID.DLL"
```

7.5 INSTALL

1. Import the registry in the section 7.4 REGISTRY SETTINGS.
2. Copy the necessary drivers to the directory \windows of WinCE device.
3. Soft reset to let the system to load BTHid.dll in boot.

8 AEC HFP CONFIGURATION

8.1 DRIVER(s)

SoftAcousticVoiceEngineDLL.dll

8.2 FUNCTION

Echo Cancellation and Noise Suppression

8.3 OS DEPENDENCIES

NULL

8.4 REGISTRY SETTINGS

[HKEY_LOCAL_MACHINE\SOFTWARE\IVT Corporation\BlueSoleil\AECHFP]
"Enable"=dword:00000001

8.5 INSTALL

1.Import the registry in the section 8.4 REGISTRY SETTINGS.
2.Copy the necessary drivers to the directory \windows of WinCE device.
3.Soft reset.

9 CONFIGURATION FILE

Configuration file of BlueSoleil CE is bttl.ini. It maps a map file Btdynamicconfig.ini to the same folder once BlueSoleil is launched. Hereafter, BlueSoleil reads the configured items in Btdynamicconfig.ini, so if bttl.ini is needed to be modified, delete Btdynamicconfig.ini first is a mandatory effort in order to enable the modified items in bttl.ini.
Figure out the meaning of the each configuration section refer to the comments remarked in bttl.ini.

BlueSoleil CE Classic: copy the configuration file bttl.ini to the directory \windows of WinCE device.
BlueSoleil CE Standard: copy the file bttl.ini to the relative directory \BlueSoleil\Config of WinCE device.

9.1 DEFAULT SECTION

TL: Acronym for Transfer Layer, elaborate the transfer layer used currently. Based on transfer layer BlueSoleil CE supports, it can be USB, H4_COM and BCSP_COM

DEFAULT_DEVNAME：The name identified for the Bluetooth device used after BlueSoleil CE started.

Other areas refer to the comments remarked in bttl.ini

9.2 USB SECTION

DLL：Indicate the absolute path of the USB HCI transfer layer file IVT_USB.dll

9.3 BCSP_COM SECTION

[BCSP_COM]
COM=SCR1 // The name of COM port used, no colon needed
DLL=\windows\ivt_bcsp.dll // the absolute path of IVT_BCSP.dll

// UART configuration, including Baud rate, Parity Check, Stop bit, byte size, flow control
BAUD_RATE=921600 // Baud rate
PARITY=NONE // Odd/even check. NONE: no check used; ODD: odd parity check; EVEN: even parity check
STOP_BITS=1 // Stop bit. 1, 1.5, 2 respectively represent the stop bit is 1bit, 1.5bit, 2bit
BYTE_SIZE=8 // Byte size. 7, 8 respectively represent the byte size is 7bit or 8bit
FLOW_CONTROL=NONE // Flow control. Four options: RTS/CTS, DTR/DSR, XON/XOFF and NONE

9.4 H4_COM SECTION

Beside the dll path, the meanings of other sub-items are same as the above section.

COM=BRF6
DLL=\windows\ivt_uart.dll // The absolute path of IVT_UART.dll
BAUD_RATE=115200
PARITY=NONE
STOP_BITS=1
BYTE_SIZE=8

FLOW_CONTROL=RTS/CTS