

# JetBox 8210 User Manual

# WinCE 5.0

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# **Table of Content**

Copyright Notice		
Acknowledgments		
Content	t	3
apter 1 Overview		
2 Soft	ware Specification	6
Арр	lications—End User	6
Арр	lications and Services Development	7
Con	nmunication Services and Networking	9
Cor	e OS Services	13
Dev	ice Management	14
File	System and Data Store	14
Gra	phics and Multimedia Technologies	15
Sec	urity	16
She	II and User Interface	17
) Plat	form Manager	18
3 Soft	ware Feature	
Cus	tomized Device's Application Programming Interfaces	18
3-1-1	Overview	18
3-1-2	Digital Input and Digital Output	19
3-1-3	RS485 Direction Control	19
3-1-4	Battery Backup SRAM (Optional)	20
3-1-5	I2C EEPROM	20
3-1-6	Security Device	21
3-1-7	DIP Switches	22
3-1-8	Serial Port Configuration	22
Cus	tomized Control Applets	23
3-2-1	Overview	23
3-2-2	Digital Input and Digital Output	23
3-2-3	Serial Port Throughput	25
3-2-4	Battery Backup SRAM (NVRAM)—Optional	26
3-2-5	I2C EEPROM	26
3-2-6	Security Device	27
3-2-7	DIP Switches	27
	Copyri Ackno Content 1 Ove 2 Soft App Con Cor 5 Cor 6 Cor 7 Cor 7 Cor 7 Cor 8 Cor 8 Cor 7 Cor 7 Cor 7 Cor 8 Cor 8 Cor 8 Cor 8 Cor 7 Cor 7 Cor 8	Copyright Notice     Acknowledgments.     Content     1   Overview     2   Software Specification     Applications—End User     Applications and Services Development.     Communication Services and Networking.     Core OS Services     Device Management     File System and Data Store     Graphics and Multimedia Technologies.     Security     Shell and User Interface.     0   Platform Manager     3   Software Feature.     Customized Device's Application Programming Interfaces     3-1-1   Overview     3-1-2   Digital Input and Digital Output     3-1-3   RS485 Direction Control     3-1-4   Battery Backup SRAM (Optional)     3-1-5   I2C EEPROM     3-1-6   Security Device.     3-1-7   DIP Switches     3-1-8   Serial Port Configuration     Customized Control Applets.     3-2-1   Overview     3-2-2   Digital Input and Digital Output     3-2-3   Serial Port Throughput     3-2-4   Battery Backup SRAM (NVRAM)—Optional

	3-2-8	Serial Port Configuration	28
3-3	B Custor	mized System Utilities	28
	3-3-1	Overview	28
	3-3-2	User Management Utility	29
	3-3-3	Registry Flush Utility	30
	3-3-4	Auto Run Utility	31
3-4	I Telnet	Server	32
	3-4-1	Overview	32
	3-4-2	Default Registry Settings	33
	3-4-3	Security Notes	33
	3-4-4	Recommendations	34
3-5	5 FTP Se	erver	34
	3-5-1	Overview	34
	3-5-2	Default Registry Settings	35
	3-5-3	Security Notes	36
	3-5-4	Recommendations	37
3-6	5 Web S	erver	37
	3-6-1	Overview	37
	3-6-2	Default Registry Settings	38
	3-6-3	Security Notes	41
	3-6-4	Recommendations	42
3-7	7 File Se	rver	42
	3-7-1	Overview	42
	3-7-2	Default Registry Settings	43
	3-7-3	Security Notes	44
	3-7-4	Recommendations	44
Chapter	4 Web-b	based Network Configuration	45
4-1	L Overvi	iew	45
4-2	2 Remot	te Administration Page	45
	4-2-1	Introduction	45
	4-2-2	First Use SetUp Wizard	46
	4-2-3	RemoteAdmin Home Page	48
	4-2-4	Device Management Pages	50
	4-2-5	Local Area Network Page	58
	4-2-6	Wide Area Network Page	59
	4-2-7	Security Pages	60
	4-2-8	Add/Del Users Page	63
	4-2-9	Add/Del Share Page	64

		4-2-1	0 Printer Pages	66
		4-2-1	2-11 EventLog Pages	
	4-3	We	eb Administration Page	69
		4-3-1	Introduction	69
		4-3-2	WebAdmin Home Page	69
		4-3-3	Instructions Page	71
		4-3-4	Logging Page	72
		4-3-5	SSL Configuration Page	74
		4-3-6	Restart Web Server Page	75
	4-4	Sys	stem Administration Page	75
		4-4-1	Introduction	75
		4-4-2	SysAdmin Home Page	76
		4-4-3	System Tools Page	76
		4-4-4	File Browser Page	78
		4-4-5	Registry Editor Page	79
Chap	oter 5	5 Co	nnectivity Features	80
	5-1	Ov	erview	80
	5-2	Ac	tiveSync Connection	81
		5-2-1	Introduction	81
		5-2-2	Connection via COM port	81
		5-2-3	Explore JetBox 8210	89
	5-3	Ma	anual Server Connection via Ethernet	90
		5-3-1	Overview	90
		5-3-2	Configure Platform Manager	91
		5-3-3	Telnet with JetBox 8210	93
		5-3-4	Remote Tools via Manual Server Connection	95
Chap	oter 6	5 Ар	plication Development	97
6-1 Overview			97	
	6-2 Install JetBox SDK		98	
	6-3 Hello World Application with eVC++4.01			
	6-4 Hello World Application with VS2005			
	6-5 eVC++4.0 Sample Codes for Hardware Accessing			
Chap	oter 7	7 Ар	pendix	115
	7-1 Chart Index1		115	
	7-2	Cu	stomer Service	

# **Chapter 1 Overview**

The advantage of adopting Korenix JetBox series is ready-to-use. Korenix is devoted to improve the usability of embedded computer in industrial domain. Besides operating system (Linux/WinCE), Korenix provides device drivers, protocol stacks, system utilities, supporting services and daemons in one Compact Flash card to make system integration simple. Further, Korenix provides application development toolkits for users to build up their own applications easily.

JetBox 8210 is a high performance, compact and rugged embedded computer. All-in-one device with small volume, fanless design and a capability to withstand a wide range of temperatures is suitable for industrial severe environment. It is equipped with Intel Xscale PXA270 RISC processor and 128MB SDRAM (256MB optional) and supports Linux and WinCE5.0 to meet requirements of industrial PC applications. For better expansibility, it carries 4 USB ports, 2 RS-232 ports and 2 RS-232/422/485 ports for versatile peripheral and interfaces and one Compact Flash slot for system integration. It also supports VGA (640\*480) and audio to give users much flexibility in industrial applications. In addition, it is equipped with 2 RJ-45 ports and supports daemons and web server to accommodate to the network communication environment today.

With complete software solution and excellent hardware design, JetBox series is the best choice of embedded computer.

# **Chapter 2 Software Specification**

#### 2-1 Applications—End User

Applications – End User	Description
ActiveSync	This item provides support for
	synchronizing data between a
	Windows-based desktop computer and

	Microsoft® Windows® CE-based devices.
CAB File	This item includes an application that
Installer/Uninstaller	enables installing and uninstalling CAB
	files. This application is for use with
	devices that include a display.

Chart 1 Application—end user

# 2-2 Applications and Services Development

Applications and Services	Description
Development	
.NET Compact	The Microsoft® .NET Compact Framework
Framework 1.0	1.0 is a hardware-independent program
	execution environment for applications
	that target resource-constrained
	computing devices. This environment
	offers a choice of languages, Microsoft
	Visual Basic® and Microsoft Visual C#®,
	and lessens problems with language
	interoperability.
.NET Compact	The Microsoft® .NET Compact Framework
Framework 2.0 SP2	2.0 is a hardware-independent program
	execution environment for applications
	that target resource-constrained
	computing devices. This environment
	offers a choice of languages, Microsoft
	Visual Basic® and Microsoft Visual C#®,
	and lessens problems with language
	interoperability.
Active Template Library	Includes support for Active Template
(ATL)	Library for Windows CE.
Microsoft Foundation	MFC for Windows CE is a comprehensive
Classes (MFC)	class library and complete object-oriented
	application framework designed to help
	build applications, COM components, and
	controls. You can create anything from a
	simple dialog box-based application to a

Applications and Services	Description
Development	
	sophisticated application that uses the full
	MFC document or view architecture.
C libraries and Runtimes	Supports full ANSI C run time, compiler
	C++ exception handling equivalent to the
	desktop C++ compilers, compiler Run-Time
	Type Information (RTTI) equivalent to the
	desktop C++ compilers, the standard
	input/output library, the standard
	input/output ASCII library and the
	standard ASCII string functions.
Component Object Model	The Component Object Model (COM) is a
(COM & DCOM)	platform-independent, object-oriented
	system for creating binary software
	components that can interact with other
	COM-based components in the same
	process space, in other processes, or on
	remote devices.
Message Queuing	The Message Queuing implementation in
(MSMQ)	Microsoft® Windows® CE makes it
	possible for applications to communicate
	with other applications across networks
	and systems that might be temporarily
	offline.
Object Exchange Protocol	The Object Exchange Protocol (OBEX)
(OBEX)	technology for Microsoft® Windows® CE
	provides an efficient, compact binary
	protocol that enables a wide range of
	devices to exchange data spontaneously in
	a simple, efficient manner.
SOAP Toolkit	The client-side SOAP Toolkit functionality
	in Microsoft® Windows® CE allows an
	application to invoke Web service
	operations, while the server-side
	functionality maps invoked Web service
	operations to Component Object Model

Applications and Services	Description
Development	
	(COM) object method calls.
SQL Server CE2.0	SQL Server CE extends Microsoft SQL
	Server to Microsoft Windows CE-based
	mobile devices. SQL Server CE delivers
	relational database functionality, including
	a data store, a query processor, and
	scalable connectivity capabilities, all in a
	small footprint.
XML	Extensible Markup Language (XML) is the
	universal format for data on the Web. XML
	allows developers to describe and deliver
	rich, structured data from any application
	in a standard, consistent way. XML does not
	replace HTML; rather, it is a
	complementary format.

Chart 2 Applications and services development

Communication Services and Networking	Description
Wired Local Area	This item provides support for wired local
Network (802.3, 802.5)	area networks that use 802.3 and 802.5.
Wireless LAN (802.11)	This item includes support for 802.11
STA - Automatic	wireless LAN automatic configuration and
Configuration and 802.1x	802.1x.
Dial Up Networking	This item provides support for accessing
(RAS/PPP)	network resources on a remote computer.
Point-to-Point Protocol	This item includes the ability to connect
over Ethernet (PPPoE)	hosts to a Remote Access Concentrator.
Telephony API (TAPI 2.0)	This item includes an API that simplifies
	and abstracts the details of making
	telephony connections between two or
	more devices.
Virtual Private	This Item includes a Layer Two Tunneling

# 2-3 Communication Services and Networking

Communication Services	Description
and Networking	
Networking (VPN)	Protocol (L2TP)/IP Security Protocol
	(IPSec) implementation that enable a more
	secure virtual private network (VPN)
	connection to a server computer. This item
	includes a Point-to-Point Tunneling
	Protocol (PPTP) implementation that
	enables a virtual private network
	connection a server computer.
Domain Discovery	Domain Discovery for Microsoft®
	Windows® CE 5.0 enables a Windows CE
	device to discover an Active Directory
	server to query.
Extensible Authentication	The Extensible Authentication Protocol
Protocol	implementation in Microsoft® Windows®
	CE allows third-party authentication code
	to interact with the implementation of the
	Point-to-Point Protocol (PPP) included in
	the Windows CE-based Remote Access
	Service (RAS). The Extensible
	Authentication Protocol (EAP) is also used
	with 802.1x and EAP over LAN (EAPOL)
	authentication.
Firewall	The IP firewall is typically used on an
	Internet gateway device. It can also be used
	as a host firewall. The firewall protects the
	device on which it runs and protects
	devices on the private side of the gateway.
	The firewall blocks IP traffic at the IP and
	transport layers.
Internet Connection	Internet Connection Sharing (ICS) for
Sharing (ICS)	Microsoft® Windows® CE consists of a
	collection of technologies and services that
	make it possible to connect multiple
	computing and information devices on a
	network located in a home, a small

Communication Services	Description
and Networking	
	business, or a corporate branch office to the Internet through a single Internet connection
IPSec v4 NDIS Packet Capturing	IPSec v4 enables two client devices on a network to establish peer-to-peer communication using the IP Security (IPSec) protocol. This technology enables Windows CE-based devices to participate in networks that are secured by IPSec. NDIS Packet Capturing captures network traffic so that it can be read by the
	Microsoft Windows Network Monitor (NetMon).
Network Utilities	The Network Utilities includes IPConfig, IPv6tun, NetStat, Ping, Route and Tracert that you can use to troubleshoot network connections in your Windows CE-based device.
TCP/IP	TCP/IP for Microsoft® Windows® CE allows devices to participate as peers and servers on local area networks (LANs) and remote networks.
Windows Networking API/Redirector	The Windows Networking API/Redirector (SMB/CIFS) implementation in Microsoft® Windows® CE provides functions to establish and terminate network connections and to access files on servers supporting the Common Internet File System (CIFS). Access to this data is made possible by way of the networking API (WNet).
Winsock	Windows Sockets (Winsock) for Microsoft® Windows® CE specifies a programming interface based on the familiar socket interface from the

Communication Services	Description
and Networking	
	University of California at Berkeley. It
	includes a set of extensions designed to
	take advantage of the message-driven
	nature of Windows CE. Windows CE .NET
	4.1 and later supports Winsock 2.2, which
	provides easier access to multiple
	transport protocols.
File Server	The File Server functionality in Microsoft®
	Windows® CE enables clients to access
	files and other resources over the network.
Ftp Server	The FTP Server implementation in
	Microsoft® Windows® CE can copy files to
	and from remote computer systems over a
	network using TCP/IP. The source code is
	provided to you as is, so that you can
	customize the implementation for your
	specific requirements.
SNTP Client and Server	Windows CE supports the Simple Network
	Time Protocol (SNTP) technology.
Telnet Server	The Telnet Server functionality in
	Microsoft® Windows® CE provides a
	sample Telnet server can be installed on a
	device to allow remote administration
	through a standard Telnet client. Using the
	Telnet sample, the current device can be
	manipulated as if it is running the
	command prompt on the device itself.
Web Server	The Web Server (HTTPD) implementation
	in Microsoft® Windows® CE enables you
	to monitor, configure, and remotely control
	a device or computer through the use of a
	Hypertext Transfer Protocol (HTTP) server.
	The Web server provides this service for
	network printers, scanners, and other
	shared equipment.

Chart 3 Communication services and networking

# 2-4 Core OS Services

Core OS Services	Description
Kernel Features	This item includes Fiber API, FormatMessage API,
	Memory Mapped Files, and Message Queue
	Point-to-Point.
Device Drivers	This item includes display, serial port, USB host,
	etc drivers
Device Manager	Tracks all loaded device drivers and their
	interfaces, and issues notifications when
	device interfaces are added or removed.
	The Device Manager registers special file
	names with the kernel that do the following
	tasks:
	• Map the stream interface functions
	• Load and track drivers by reading and
	writing registry values
	Unload drivers when their devices are
	no longer needed
PNP Notifications	A functionality of the "AdvertiseInterface"
	system. This functionality is automatically
	included if either Storage Manager or
	Device Manager is selected.
Power Management	A fully implemented Power Manager
	framework, including all APIs and features.
	Power Manager applications and drivers
	can do the following tasks:
	Suspend the system
	Control device power levels
	Register for notifications of
	power-related activities such as

Core OS Services	Description
	suspend, absence of user/system
	activity, and change in battery level.
	Drivers can intelligently self-manage
	power.
USB Human Input Device	A sample USB class driver that supports
(HID) Class Driver	HID-compatible USB devices on a run-time
	image.
USB Printer Class Driver	A sample USB class driver that supports
	USB printer-class-compatible devices on a
	run-time image.
USB Remote NDIS Class	A sample USB class driver that supports
Driver	Remote NDIS-compatible Ethernet
	adapters.
USB Storage Class Driver	A sample USB class driver that supports
	USB Storage-class compatible devices.

Chart 4 Core OS Service

# 2-5 Device Management

Device Management	Description
Device Management	Provides support for the Device
Client	Management Client in the run-time image.
Simple Network	Provides support for the Simple Network
Management Protocol	Management Protocol (SNMP) in the
	run-time image.

Chart 5 Device management

# 2-6 File System and Data Store

File System and Data Store	Description
Bit-based	Provides support for the Device
	Management Client in the run-time image.
Compression	Provides support for the Simple Network
	Management Protocol (SNMP) in the
	run-time image.
Database support	An API that provides built-in CEDB

14 Software Specification | Korenix

File System and Data Store	Description
	database support.
Hive-based Registry	A registry system that stores data inside
	files, or hives, which can be kept on any file
	system
RAM and ROM File	A file system driver capable of reading data
System	from the ROM file system and the RAM file
	system in the object store.
Storage Manager	The Storage Manager is responsible for all
	external storage items, such as file systems,
	file system filters, and partitioning
System Password	An API that provides support for
	authentication on a device to prevent
	unauthorized access.

Chart 6 File system and data store

# 2-7 Graphics and Multimedia Technologies

Graphics and Multimedia	
Technologies	Description
Audio	Supports Waveform audio.
Graphics	Supports Alphablend API, Direct3D Mobile, Direct
	Draw, and Gradient Fill.
Imaging	Support image decoders and encoders for BMP, GIF,
	ICO, JPG and PNG formats.
Audio Codecs and	Includes G.711 Audio Codec, GSM 6.10 Audio Codec,
Renderers	IMA ADPCM Audio Codec, MP3 Codec, MPEG-1
	Layer 1 and 2 Audio Codec, MS ADPCM Audio Codec,
	Wave/AIFF/au/snd File Parser, Waveform Audio
	Renderer, WMA Codec and WMA Voice Codec.
DirectShow	Includes ACM Wrapper Filter, DirectShow
	Core, DirectShow Display, DirectShow
	Error Messages and DMO Wrapper Filter.
Media Formats	Includes AVI Filter and MPEG-1 Parser/Splitter.
Video Codecs and	Includes DirectShow Video Renderer, MPEG-1 Video
Renderers	Codes, MS RLE Video Codec, Overlay Mixer,

#### **Graphics and Multimedia**

Graphics and Multimedia	
Technologies	Description
	Video/Image Compression Manager and
	WMV/MPEG-4 Video Codec.
WMA and MP3 Local	This item provides support for playing
Playback	Windows Media Audio (.wma) or MP3 files
	from local storage such as system memory
	or Compact Flash memory. This is an
	audio-only item and does not provide any
	video playback capabilities

Chart 7 Graphics and multimedia technologies

# 2-8 Security

Security	Description
Authentication Services	This catalog item includes support for a
(SSPI)	programming interface for user
	authentication, and message protection.
	Available authentication providers include
	NTLM, Kerberos, and Secure Sockets Layer
	(SSL). Each provider contains different
	authentication and cryptographic schemes.
Credential Manager	This item includes a service for caching
	credentials, and enabling the sharing of
	common credentials.
Cryptography Services	This item includes a set of cryptographic
(CryptoAPI 1.0)	services that provide basic cryptography
	support for hashing, encrypting, and
	decrypting data.
Local Authentication	This item includes support for the Local
Sub-System	Authentication subsystem (LASS)
	infrastructure that will enable application
	independent user authentication, provide
	consistent authentication regardless of the
	mechanism used, and enable policy-based
	authentication.

# 2-9 Shell and User Interface

Shell and User Interface	Description
Graphics, Windowing and Events	Microsoft® Windows® CE combines the Microsoft Win32® application programming interface (API), user interface (UI), and graphics device interface (GDI) libraries into the Graphics, Windowing, and Events Subsystem (GWES) module (Gwes.exe). GWES is the interface between the user, your application, and the operating system (OS).
	GWES supports all the windows, dialog boxes, controls, menus, and resources that make up the Windows CE user interface (UI), which enables users to control applications. GWES also provides information to the user in the form of bitmaps, carets, cursors, text, and icons.
Command Shell	Command-line shell
Standard Shell	Similar to the Windows Explorer shell on Windows-based desktop operating systems.
User Interface	Includes Common Controls, Common Dialog, Control Panel Applets, Menu Tool Tip, Mouse, Network User Interface, Software Input and Panel.

Chart 9 Shell and user interface

# 2-10 Platform Manager

Platform Manager	Description
Platform Manager	This item is a communications technology
	that manages the communications between
	a development workstation and a
	Microsoft® Windows® CE-based device. It
	allows development tools to download and
	connect to a target device in a
	media-independent manner. Remote tools,
	Microsoft eMbedded Visual C++® 4.0 and
	later, and the Microsoft .NET Compact
	Framework use Platform Manager to
	download files such as applications,
	Microsoft ActiveX® controls, run times,
	and remote-tool clients to a target device.

Chart 10 Platform manager

# **Chapter 3 Software Feature**

## 3-1 Customized Device's Application

## **Programming Interfaces**

#### 3-1-1 Overview

Most of the customized device's APIs are implemented as the standard stream interface drivers. The standard Win32 **CreateFile, CloseHandle, ReadFile, WriteFile, SetFilePointer,** and **DeviceIoControl** functions are used to operate the customized devices of JetBox 8210. Refer the application notes of JetBox 8210 SDK for details.

## 3-1-2 Digital Input and Digital Output

JetBox 8210 names the DIO device as "DIO1:". The change of state event of the DI channels is supported for advanced programming.

Device Name: _T("DI01:")	
Win32 Functions	Description
CreateFile	Opens DIO1 device.
CloseHandle	Closes DIO1 device.
CreateThread (optional)	Creates an event thread.
TerminateThread (optional)	Terminates an event thread.
OpenEvent (optional)	Opens a named event.
WaitForSingleObject (optional)	Waits an event.
DeviceIoControl	Calls a customized IOCTL function.

Chart 11 Related Win32 APIs to operate DIO1

Io Control Codes	Description
DIO_IOCTL_READ_DI	This IOCTL is used to get the DI
	states of all the 16 DI channels.
DIO_IOCTL_READ_DO	This IOCTL is used to get the last
	write DO states of all the 16 DO
	channels.
DIO_IOCTL_WRITE_DO	This IOCTL is used to set the DO
	states of all the 16 channels.
DIO_IOCTL_WRITE_CHANNEL	This IOCTL is used to set the DO
	state of one channel.
DIO_IOCTL_SET_DI_INTERRUP	This IOCTL is used to set the DI
Т	interrupt condition of one channel.

Chart 12 Control codes for DIO1

#### 3-1-3 RS485 Direction Control

The "COM1:" and "COM2:" of JetBox 8210 are RS232/RS422/RS485 configurable. After configuring the serial port as RS485 mode, it's important to control the direction of the transmitting data to make the application work around. RTS line is used to control the direction of the transmitting data. Configure the flag **fRtsControl** of **DCB** as **RTS\_CONTROL\_TOGGLE** to enable the serial driver of JetBox 8210 to switch the direction of transmit data automatically. The steps to configure the serial port driver switching the direction of transmitting data is listed as below,

Step	Description
1	Initialize the DCBlength member of the DCB structure to the
	size of the structure. This is required before passing the
	member as a variable to a function.
2	Call the GetCommState function to retrieve the default settings
	for the port opened with the CreateFile function.
	To identify the port, specify in the <i>hPort</i> parameter the handle
	that CreateFile returns.
3	Configure the flag fRtsControl of DCB as
	RTS_CONTROL_TOGGLE.
4	Call the SetCommState function to set the port settings.

Chart 13 Steps to configure a RS485 port

#### 3-1-4 Battery Backup SRAM (Optional)

JetBox 8210 names the NVRAM device as "NVR1:". The NVRAM device is operated as a file, and only the standard Win32 File APIs are necessary.

Device Name: _T("NVR1:")		
Win32 Functions	Description	
CreateFile	Opens NVR1 device.	
CloseHandle	Closes NVR1 device.	
ReadFile	Reads data from NVR1.	
WriteFile	Writes data from NVR1.	
SetFilePointer	Sets file pointer position	

Chart 14 Related Win32 APIs to operate NVR1

## **3-1-5 I2C EEPROM**

JetBox 8210 names the I2C EEPROM device as "EPR1:". The I2C EEPROM device is operated as a file, and only the standard Win32 File APIs are necessary.

Device Name: _T("EPR1:")		
Win32 Functions	Description	
CreateFile	Opens EPR1 device.	
CloseHandle	Closes EPR1 device.	
ReadFile	Reads data from EPR1.	
WriteFile	Writes data from EPR1.	
SetFilePointer	Sets file pointer position	

Chart 15 Related Win32 APIs to operate EPR1

#### 3-1-6 Security Device

JetBox 8210 names the security device as "SEC1:". The security device contains a hardware unique serial number and an EEPROM storage space.

The EEPROM is operated as a file, and only the standard Win32 File APIs are necessary. **Note the security EEPROM can only be accessed in block of 8 bytes with 8 bytes alignment.** 

Device Name: _T("SEC1:")	
Win32 Functions	Description
CreateFile	Opens SEC1 device.
CloseHandle	Closes SEC1 device.
ReadFile	Reads data from SEC1.
WriteFile	Writes data from SEC1.
SetFilePointer	Sets file pointer position
DeviceIoControl	Calls a customized IOCTL function.

Chart 16 Related Win32 APIs to operate SEC1

Io Control Codes	Description
SEC_IOCTL_GET_FAMILY_CODE	This IOCTL is used to get the
	unique 8 bits family code of
	the security device.
SEC_IOCTL_GET_SERIAL_CODE	This IOCTL is used to get the
	unique 48 bits serial number
	of the security device.

Chart 17 Io Control codes for SEC1

### 3-1-7 DIP Switches

The state of the DIP switches is stored into the registry during the system boot up phase. **Note the state of the DIP switches will not be updated dynamically after system boot up**.

HKEY_LOCAL_MACHINE\IDENT\JetBox	
Value	Description
DIPSwitch : DWORD	The bit mask 1 means the switch is ON,
	and 0 means the switch is OFF.

Chart 18 DIP switches registry key and named value

Win32 Functions	Description
RegOpenKeyEx	Opens the specified key
RegQueryValueEx	Retrieves the type and data for a specified value name associated with an open registry key.
RegCloseKey	Releases the handle of the specified key.

Chart 19 Related Win32 APIs to get the state of DIP switches

#### 3-1-8 Serial Port Configuration

JetBox 8210 names the serial ports as "COMx:" **Note the** 

COM\_IOCTL\_SET\_OPERATION\_MODE call will be returned with error if trying to configure a non-configurable port.

Device Name: _T("COMx:")		
Win32 Functions	Description	
CreateFile	Opens COMx device.	
CloseHandle	Closes COMx device.	
DeviceIoControl	Calls a customized IOCTL function.	

Chart 20 Related Win32 APIs to configure COMx

Io Control Codes	Description
COM_IOCTL_GET_OPERATION_MODE	This IOCTL is used to get
	the operation mode.

Io Control Codes	Description
COM_IOCTL_SET_OPERATION_MODE	This IOCTL is used to set the
	operation mode.

Chart 21 Io Control codes for COMx

# 3-2 Customized Control Applets

#### 3-2-1 Overview

Most of the customized device's control utilities are implemented as the applets of the control panel. These utilities could help user to diagnostic the hardware functionalities.



Chart 22 Snapshot of the control panel of JetBox 8210

## 3-2-2 Digital Input and Digital Output

The control applet named "DIO Tester" provides a simple user interface to diagnostic the functionality of the digital input and digital output channels.

DIO Tester	×
Event: DIO change to HI	

Chart 23 Snapshot of "DIO Tester" control applet

Applet Name: DIO Tester	
User Interface	Description
D00	The check box is used to control the state digital
	output channel. Check the box means setting the
	specified DO channel to high state. Uncheck the box
	means setting the specified DO channel to low state.
	The check boxes represent the D07, D06, D05, D04,
	D03, D02, D01 and D00 from left to right.
D08	The check box is used to control the state digital
	output channel. Check the box means setting the
	specified DO channel to high state. Uncheck the box
	means setting the specified DO channel to low state.
	The check boxes represent the D015, D014, D013,
	D012, D011, D010, D09 and D08 from left to right.
DIO	The check box is used to represent the digital
	output channel state. The checked box means
	setting the specified DI channel is in the high state.
	Unchecked box means the specified DI channel is in
	the low state. The check boxes represent the DI7,
	DI6, DI5, DI4, DI3, DI2, DI1 and DI0 from left to
	right.
DI8	The check box is used to represent the digital
	output channel state. The checked box means
	setting the specified DI channel is in the high state.

Applet Name: DIO Tester	
User Interface	Description
	Unchecked box means the specified DI channel is in
	the low state. The check boxes represent the DI15,
	DI14, DI13, DI12, DI11, DI10, DI9 and DI8 from left
	to right.
Event	Indicates the event status of the DI channels.
X	Exits.

Chart 24 Description of the user interface of "DIO Tester"

#### 3-2-3 Serial Port Throughput

The control applet named "SerPerf" provides a simple user interface to test throughput of the serial ports. Loopback adapters or cables are necessary to perform this test. **Note the layout of the serial ports is platform dependent**. **Your system may be different with the following snapshot. In addition**, **COM9 is a virtual COM port for USB ActiveSync connection, so it can't be tested**.

Serial Perfo	mace			ок 🔀
COM1	🔽 СОМ9	Communications	parameters	
🔽 сом2		<u>Bi</u> ts per second:	115200	<b>~</b>
🗹 сомз		<u>D</u> ata bits:	8	×
🗹 СОМ4		<u>P</u> arity:	None	×
🔽 СОМ7		<u>S</u> top bits:	1	<b>~</b>
🔽 СОМВ		Elow control:	None	~

Chart 25 Configuration snapshot of "SerPerf" control applet

Performace Analyzer	
COM1 7247 Bytes/S COM2 7246 Bytes/S COM3 7247 Bytes/S COM4 7246 Bytes/S	
Total Average: 7246	Bytes/S

Chart 26 Run time snapshot of "SerPerf" control applet

#### 3-2-4 Battery Backup SRAM (NVRAM)—Optional

JetBox 8210 names the NVRAM device as "NVR1:". The NVRAM device is operated as a file, and only the standard Win32 File APIs are necessary.

Device Name: _T("NVR1:")	
Win32 Functions	Description
CreateFile	Opens NVR1 device.
CloseHandle	Closes NVR1 device.
ReadFile	Reads data from NVR1.
WriteFile	Writes data from NVR1.
SetFilePointer	Sets file pointer position

Chart 27 Related Win32 APIs to operate NVR1

#### **3-2-5 I2C EEPROM**

JetBox 8210 names the I2C EEPROM device as "EPR1:". The I2C EEPROM device is operated as a file, and only the standard Win32 File APIs are necessary.

Device Name: _T("EPR1:")	
Win32 Functions	Description
CreateFile	Opens EPR1 device.
CloseHandle	Closes EPR1 device.
ReadFile	Reads data from EPR1.
WriteFile	Writes data from EPR1.

Device Name: _T("EPR1:")	
Win32 Functions	Description
SetFilePointer	Sets file pointer position

Chart 28 Related Win32 APIs to operate EPR1

#### 3-2-6 Security Device

JetBox 8210 names the security device as "SEC1:". The security device contains a hardware unique serial number and an EEPROM storage space.

The EEPROM is operated as a file, and only the standard Win32 File APIs are necessary. Note the security EEPROM can only be accessed in block of 8 bytes with 8 bytes alignment.

Device Name: _T("SEC1:")	
Win32 Functions	Description
CreateFile	Opens SEC1 device.
CloseHandle	Closes SEC1 device.
ReadFile	Reads data from SEC1.
WriteFile	Writes data from SEC1.
SetFilePointer	Sets file pointer position
DeviceIoControl	Calls a customized IOCTL function.

Chart 29 Related Win32 APIs to operate SEC1

Io Control Codes	Description
SEC_IOCTL_GET_FAMILY_CODE	This IOCTL is used to get the
	unique 8 bits family code of
	the security device.
SEC_IOCTL_GET_SERIAL_CODE	This IOCTL is used to get the
	unique 48 bits serial number
	of the security device.

Chart 30 Io control codes for SEC1

#### **3-2-7 DIP Switches**

The state of the DIP switches is stored into the registry during the system boot up phase.

HKEY_LOCAL_MACHINE\IDENT\JetBox		
Value	Description	
DIPSwitch : DWORD	The bit mask 1 means the switch is ON,	
	and 0 means the switch is OFF.	

Chart 31 DIP switches registry key and named value

### 3-2-8 Serial Port Configuration

JetBox 8210 names the serial ports as "COMx:". Note the

COM\_IOCTL\_SET\_OPERATION\_MODE call will be returned with error if trying to configure a non-configurable port.

Device Name: _T("COMx:")	
Win32 Functions	Description
CreateFile	Opens COMx device.
CloseHandle	Closes COMx device.
DeviceIoControl	Calls a customized IOCTL function.

Chart 32 Related Win32 APIs to Configure COMx

Io Control Codes	Description
COM_IOCTL_GET_OPERATION_MODE	This IOCTL is used to
	get the operation
	mode.
COM_IOCTL_SET_OPERATION_MODE	This IOCTL is used to
	set the operation
	mode.

Chart 33 Io control codes for COMx

# 3-3 Customized System Utilities

#### 3-3-1 Overview

Lots of system utilities are provides to make using JetBox 8210 more convenient.

### 3-3-2 User Management Utility

#### 3-3-2-1 Introduction

Microsoft® Windows® CE 5.0 provides authentication services that can be used by application developers to authenticate clients. Services supported by Windows CE include security services for user authentication, credential management, and message protection through a programming interface called the Security Support Provider Interface (SSPI). Within SSPI, different security providers are available, such as the NTLM security support provider (SSP) and Kerberos SSP: each one contains different

support provider (SSP) and Kerberos SSP; each one contains different authentication and cryptographic schemes.

Windows CE uses the Windows NT® LAN Manager protocol (RPC\_C\_AUTHN\_WINNT), which is also known as NTLM, to authenticate callers. This is the default authentication service for communications on Windows NT. You can set the domain variable in the **DefaultDomain** registry value, which is located under the **HKEY\_LOCAL\_MACHINE\Comm\Redir** registry key. If the **DefaultDomain** registry value is not set, Windows CE uses the local user database to set the domain variable.

3-3-2-2 "UsrMgr.exe" Utility

By Default, JetBox 8210 doesn't set the **DefaultDomain** registry value under the **HKEY\_LOCAL\_MACHINE\Comm\Redir** registry key. Therefore, one command line utility named "UsrMgr.exe" is provides for the user to add, delete and list users and groups that are local to JetBox 8210.

<u>File E</u> dit <u>H</u> elp	×
Pocket CMD v 5.0	~
<pre>\&gt; usrmgr</pre>	
Usage: usrmgr [-a -d -1] [ <user name=""> [<password>]]</password></user>	
Usage: usrmgr [-gn -gd -gl -gm] [ <group name="">]</group>	
Usage: usrmgr [-gat -grf] [ <user name="">] [<group name="">]</group></user>	
-a <user name=""> <password> : Add or update a user</password></user>	_
-d <user name=""> : Remove a user</user>	
-1 : List all users	
-gn <group name=""> : Create a new group</group>	
-gd <group name=""> : Delete a group</group>	
-gl : List all groups	
-gm <group name=""> : List members in a group</group>	
-gat <user name=""> <group name=""> : Add a user to a group</group></user>	
-grf <user name=""> <group name=""> : Remove a user from a group</group></user>	
/>	

Chart 34 Snapshot of "UsrMgr.exe"

Utility Name: UsrMgr	
Arguments	Description
-a <user name=""> <password></password></user>	Adds or updates a user.
-d <user name=""></user>	Removes a user.
-l	Lists all users.
-gn <group name=""></group>	Creates a new group.
-gd <group name=""></group>	Deletes a group.
-gl	Lists all groups.
-gm <group name=""></group>	Lists members in a group.
-gat <user name=""> <group name=""></group></user>	Adds a user to a group.
-grf <user name=""> <group name=""></group></user>	Removes a user from a group.

Chart 35 Arguments description of "UsrMgr.exe"

## 3-3-3 Registry Flush Utility

#### 3-3-3-1 Introduction

The hive-based registry stores registry data inside files, or hives, which can be kept on any file system. This removes the need to perform backup and restore on power off. Removing this work during boot and power off makes the cold boot process faster.

Outstanding registry data will be flushed on a suspend/resume cycle and any time the system goes through a software shutdown. However, data may be lost if power is suddenly removed. Because a software shutdown is not an UI option of JetBox 8210, so to ensure that data is not lost, call **RegFlushKey** API in your

application. It will flush any unsaved changes in the hive to the persistent file.

To save the system resource, JetBox 8210 doesn't implement a daemon to flush registry data periodically. A utility named "rFlush.exe" is provided to flush the changed registry data.



Chart 36 Snapshot of "rFlush.exe"

#### 3-3-4 Auto Run Utility

#### 3-3-4-1 Introduction

When Windows CE begins loading, the kernel starts the file system and examines the **HKEY\_LOCAL\_MACHINE\Init** registry key to identify what applications to run. To control which applications run at system startup, create launch registry values. Launch registry values do not need to be sorted in the registry, although you can specify dependencies. You can specify up to 32 applications.

HKEY_LOCAL_MACHINE\Init	
Value	Description
Launch <i>nn</i> : String	Specifies the application to launch in order "nn".
Depned <i>nn</i> : Binary	Launchnn registry values have optional
	dependencies as denoted by the Depend <i>nn</i>
	registry value.

Chart 37 Named values of HKEY\_LOCAL\_MACHINE\Init key

**Depend***nn* registry values specify applications that Windows CE must be running before the **Launch***nn* applications run.

**Depend***nn* registry values begin with the keyword **Depend**, followed by the same decimal number as the **Launch***nn* registry value.

The **Depend***nn* registry values define an order in which Windows CE launches applications. One or more dependent applications can be specified per

**Depend***nn* value. Dependent applications are specified as a series of Words in hexadecimal notation.

HKEY_LOCAL_MACHINE\Init		
Value Name	Value	
Launch10	shell.exe	
Launch20	device.exe	
Launch30	gwes.exe	
Depend30	hex:14,00	
Launch50	taskman.exe	
Depend50	hex:14,00, 1e,00	

Chart 38 a Typical Init Registry Entry Using Dependencies

#### 3-3-4-2 "AutoRun.exe" Utility

If your applications have dependencies with other applications, use the Remote Registry Editor to setup your applications manually. After finishing the registry setup, run "rFlush.exe" utility to flush the changed registry data to hive. Otherwise, JetBox 8210 comes with an application launcher utility named "AutoRun.exe" to complete the setup.

#### 3-4 Telnet Server

#### 3-4-1 Overview

JetBox 8210 provides a Telnet server to allow remote administration through a standard Telnet client. Using the Telnet server, the JetBox 8210 can be manipulated as if it is running the command prompt on the device itself. The Telnet server is also useful for device bring-up and debugging.

# NOTE JetBox 8210 enables Telnet server without user authentication by default.

#### 3-4-2 Default Registry Settings

It's necessary to be aware of the registry settings that impact security. The Telnet server settings are located under the

**HKEY\_LOCAL\_MACHINE\Comm\TELNETD** registry key. The Telnet server reads the values in the registry before servicing each request. Therefore, changes made to the registry take affect immediately and do not require the Telnet server to be restarted.

HKEY_LOCAL_MACHINE\Comm\TELNETD		
Value	Description	
IsEnabled : DWORD	To disable the Telnet server, set this value to 0; otherwise, set it to nonzero. If the Telnet server is started and this value is not present, this value defaults to accepting connections.	
UseAuthentication : DWORD	To require a password check on the user, set this value to 1; otherwise, set it to 0. By default, the value 0 is set to disable the authentication.	
UserList : String	Provides a comma-separated list of allowed users. Requires UseAuthentication to be enabled. By default, the "asterisk" or the "at sign" and the asterisk (* or @*) is set to allow all users.	

Chart 39 Telnet Server Registry Key and Named Values

#### 3-4-3 Security Notes

The security on the Telnet server is very light and vulnerable to security attacks. Even if the Telnet server is configured to require password authentication, the password is sent in plain text across the network and is therefore vulnerable to packet sniffing. A malicious user could obtain the password to JetBox 8210 by watching packets sent back and forth between the Telnet server and the client during the authentication stage. If a malicious user could log on to JetBox 8210, they would have complete control over it. This could involve deleting or modifying key system files and the registry.

Because of these serious security risks, it is strongly recommended you only run the Telnet server for development and debugging purposes, on a controlled, private network where you trust the users. It is strongly recommended that you do not deploy this Telnet server on a public network such as the Internet.

#### 3-4-4 Recommendations

# NOTE: Set the User List and Domain variables to prevent hacker attacks on your device

If Telnet server is used without appropriate values set for the User List and Domain variables, your Telnet server will be vulnerable to hacker attacks. These variables are not set by default. A hacker must only guess the device's password, the way it is set in Control Panel, to obtain access to the server.

To prevent such an attack, the user name in the **UserList** registry value must be set for each of the servers that are currently running. The user will then need to log in with the specified user name and appropriate password to use the server. You can also set the domain variable in the **DefaultDomain** registry value, which is located under the **HKEY\_LOCAL\_MACHINE\Comm\Redir** registry key. **Refer with Section 3-3-2** User Management Utility **to learn how to add user information to the local database if no domain controller is available in the network.** 

# 3-5 FTP Server

#### 3-5-1 Overview

JetBox 8210 implementation of FTP server enables you to transfer files from a desktop computer using a TCP/IP connection. The implementation of FTP server in JetBox 8210 is based on RFC 959. The included FTP server supports the minimum implementation of the FTP protocol defined in RFC 959. This minimum implementation includes configuration values, transfer parameters, and ASCII and Image data types, and allows FTP to operate with a minimum of error messages.

NOTE JetBox 8210 disables FTP server by default.

#### **Default Registry Settings** 3-5-2

It's necessary to be aware of the registry settings that impact security. The FTP server settings are located under the **HKEY\_LOCAL\_MACHINE\Comm\FTPD** registry key.

HKEY_LOCAL_MACHINE\Comm\FTPD		
Value	Description	
AllowAnonymous : DWORD	Default set to 1. Possible values are 0 (false) or 1 (true). Determines whether the server will allow anonymous access.	
AllowAnonymousUpload : DWORD	Default set to zero (0). Possible values are 0 (false) or 1 (true). Determines whether authorization is required to upload files to the server, delete files from the server, and rename files.	
AllowAnonymousVroots : DWORD	Default set to zero (0). Possible values are 0 (false) or 1 (true). Specifies whether access to virtual roots is granted or denied to anonymous users.	
AllowLowPortValues : DWORD	Default set to false (0). Possible values are 0 (false) or 1 (true). If this value is set to false, all PORT commands requesting a port equal to or lesser than 1023 will be rejected. If this key is set to true, low ports will be allowed.	
DefaultDir : String	Default root directory. Directory and subdirectories of this key are accessible remotely. If this value is not set in the registry, the default is \Temp.	
IsEnabled : DWORD	To disable the FTP server, set this value to 0; otherwise, set it to nonzero. If the FTP server is started and this value is not present, This value is typically used to	

HKEY_LOCAL_MACHINE\Comm\FTPD		
Value	Description	
	keep the server disabled at boot time.	
UseAuthentication : DWORD	To require a password check on the user, set this value to 1; otherwise, set it to 0. By default, the value 0 is set to disable the authentication.	
UserList : String	Provides a comma-separated list of allowed users. Requires UseAuthentication to be enabled. By default, the "asterisk" or the "at sign" and the asterisk (* or @*) is set to allow all users.	

Chart 40 FTP Server Registry Key and Named Values

#### 3-5-3 Security Notes

If **AllowAnonymous** is set to true, it will allow users to connect to the server without providing verifiable credentials. Anyone can log in using the username "anonymous" and any password to gain access. It is recommended that you set this value to false and use the **UserList** registry setting to specify all allowed users.

If **AllowAnonymousUpload** is set to true, unauthenticated users will be able to copy files to, and delete files from, your server. This can be very dangerous because attackers might upload dangerous applications and documents, or they might delete important system files. It is not recommended to allow upload permission for anonymous users.

If **AllowAnonymousVroots** is set to false, anonymous users will only be able to access the main FTP share. If this value is set to true, unauthenticated users will also be able to access VROOTs as well as the main share. Therefore you should use this setting with caution.

Setting **UseAuthentication** to false enables clients to connect to the server without providing credentials. It is therefore strongly recommended that you do not set this value to false. Change this setting only if you have anonymous clients that must access the server but cannot or will not send USER and PASS credentials.
It is recommended that you set this value to a list of all users who should have access to the server and its member VROOTs. Specifying the allowed users in **UserList** and setting **AllowAnonymous** to false will help protect the device from most attackers and keep your files available only to those users who need to see them.

## **3-5-4 Recommendations**

# NOTE: Set the User List and Domain variables to prevent hacker attacks on your device

If the FTP Server functionality is used without appropriate values set for the User List and Domain variables, the FTP server will be vulnerable to hacker attacks. These variables are not set by default. A hacker must only guess the device's password, the way it is set in Control Panel, to obtain access to the server.

To prevent such an attack, the user name in the **UserList** registry value must be set for each of the servers that are currently running. The user will then need to log in with the specified user name and appropriate password to use the server.

You can set the domain variable in the **DefaultDomain** registry value, which is located under the **HKEY\_LOCAL\_MACHINE\Comm\Redir** registry key. Setting the **DefaultDomain** registry value will require FTP clients to have valid domain credentials to log in.

Refer with Section 3-3-2 User Management Utility to learn how to add user information to the local database if no domain controller is available in the network.

# 3-6 Web Server

## 3-6-1 Overview

Web server facilitates the use of the Internet for communication between JetBox 8210 and network printers, scanners, and other shared equipment. The Web server applications send Hypertext Markup Language (HTML) pages to a requesting browser. Users only need to have an Internet connection and a

browser to be able to make use of the Web server functionality. The Web server supports IPv6 and also supports the use of Active Server Pages (ASP).

## 3-6-2 Default Registry Settings

It's necessary to be aware of the registry settings that impact security. The Web server settings are located under the **HKEY\_LOCAL\_MACHINE\Comm\HTTPD** registry key. If you make changes to the Web server registry settings, it is necessary to stop the Web server and restart it to make the changes take effect. The **IsEnabled** registry value is checked only when the Web server is initially loaded. If the registry value is set to zero (0), the Web server does not start. Changing this value to zero (0) while the Web server is running has no effect. You also must stop the Web server to make it stop accepting connections.

HKEY_LOCAL_MACHINE\Comm\HTTPD	
Value	Description
BasicRealm :	Specifies the string that the Web server will send
STRING	to clients as its Basic realm when performing
	basic authentication. If this registry value is not
	set, the Web server will default to using the string
	"Microsoft-WinCE".
IsEnabled :	If the value is not set in the registry, the Web
DWORD	server is enabled. If the value is set to zero (0), the
	Web server does not accept connections from the
	network, even from the local host.
Port :	Default setting is 80. This port receives HTTP
DWORD	connections. Do not set the port to zero (0).
Basic :	Default setting is zero (0). If this value is nonzero,
DWORD	the Web server uses Basic authentication for
	client connections.
NTLM :	Default setting is 1. If this value is set to nonzero.
DWORD	the Web server uses NTLM authentication for
	client browser connections. Also, if this value is

HKEY_LOCAL_MACHINE\Comm\HTTPD		
Value	Description	
	nonzero, the failure of Basic authentication forces NTLM authentication.	
	If the value is not set in the registry, NTLM is not used.	
DirBrowse : DWORD	Default setting is zero (0). If this value is set to nonzero, directory browsing is allowed. If this value is not set in the registry, directory browsing is turned off.	
Filter DLLs : String	Default not set in the registry. List of DLL names, separated by commas that specifies the filters to use.	
DefaultPage : String	Default not set in the registry. If the value is not present in the registry, the Web server will use "default.htm;index.htm". List of page names, separated by semicolons that specifies file names interpreted by the Web server to be default pages. When browsing a directory, the Web server traverses this list searching for a file of the same name in the directory. If the file exists, it is sent to the client. If no matching file exists, the Web server sends a directory listing or returns an error, depending on whether directory browsing is enabled. If more than one DefaultPage file name is matched, the Web server uses the first matching file name.	
AdminUsers : String	Default not set in the registry. List of user names, separated by semicolons. A user who has gained user access must be listed in this key to gain Administrator access.	
LogFileDirect ory : String	Default setting is "\windows\www" directory. If the name is not set or if the specified directory is inaccessible, no logging is performed. Name of the	

HKEY_LOCAL_MACHINE\Comm\HTTPD		
Value	Description	
	directory where the logging files are created.	
PostReadSize : DWORD	If the value is not set in the registry, PostReadSize will default to 48 KB. The Web server uses a minimum value of 8192 bytes (8 KB). If the value in the registry is less than 8 KB, the value is ignored and the Web server will use 8 KB. Specifies the maximum number of bytes that the Web server reads when receiving POST data. To read more data, you must use a raw data filter or call ReadClient in an ISAPI extension.	
MaxLogSize : DWORD	Default setting is 32 KB. If this value is not set in the registry, or if it is set to zero (0), no logging is performed. Maximum size, in bytes, that a log file can become before it is rolled over.	
MaxHeaderSi ze : DWORD	Default setting is 48 KB in the registry. Maximum number of bytes that the Web server will read of HTTP headers. If the header size exceeds this value, the Web server will terminate the session and return a message to the client: 400 - Bad Request.	
MaxConnecti ons : DWORD	Default is not set in the registry. If the value is not set in the registry, MaxConnections will default to 10. Specifies the maximum number of simultaneous connections to the Web site. After the maximum number of connections is established, additional client requests will be sent a message: 503 – Server Too Busy.	
ServerID : String	Default is not set in the registry. If the value is not set in the registry, ServerID will default to "Microsoft-WinCE/X.Y", where X is the major version and Y is the minor version of Windows CE-based device. If ServerID is set, the Web server	

HKEY_LOCAL_MACHINE\Comm\HTTPD		
Value	Description	
	returns the specified server name in the response	
	header. Identifies the server name that is included	
	when the Web server generates HTTP response	
	headers. The response header includes a field	
	name "Server: ". Optionally, you can include the	
	software version number or any similar	
	information in the string.	

Chart 41 Web server registry key and named values

## 3-6-3 Security Notes

When using Basic authentication, the client browser sends the user identifier and password to the server in clear text. In addition, all data sent between the client and the browser is in clear text and therefore vulnerable to packet sniffing. You should consider using SSL to help protect sensitive information. Although the client browser sends the password to the server in encrypted format, all data sent between the client and the browser is in clear text and therefore vulnerable to packet sniffing. You should consider using SSL to help protect sensitive information.

**DirBrowse** turns on the Web server's ability to provide local directory browsing. This exposes the local file system to a remote browser through HTTP. Users can view file lists and download files depending on virtual root and authentication registry settings. Enabling directory browsing increases the potential attack surfaces, therefore you should enable directory browsing only when necessary. User names in this list identify the administrators of the site who have access to all virtual roots hosted on this Web site, including the restricted sites. Choose these users carefully and ensure that they set proper password, otherwise their accounts could be used to gain access to restricted sites.

Setting the value too small can block user access to the site. However, if the value is too large the Web server will consume more system resources. Based on your deployment model, choose this number appropriately.

To avoid revealing the server software information to malicious users, you may want to create a custom server name that obfuscates the Web server and operating system versions.

## 3-6-4 Recommendations

A typical deployment uses a Web server in a private network to provide a remote user interface to configure a headless device. The registry defines the number of connections and when the **MaxConnections** registry value is not set, the registry limits the number to 10.

A typical deployment uses the Web server to display status information or to host a family or community Web site. You should not use the Web Server to perform critical operations, such as machine control or financial processing.

Use NTLM and/or Basic authentication mechanism to limit access to known users only. You can set the option in the **HKEY\_LOCAL\_MACHINE\COMM\HTTPD** registry key.

SSL protocol helps to protect data from packet sniffing by anyone with physical access to the network.

Carefully choose your virtual roots and limit access to the appropriate files by providing appropriate user access lists. Anonymous users with access to the virtual root may be able to access files and directories within that virtual root. You can set the options in **HKEY\_LOCAL\_MACHINE\Comm\HTTPD\VROOTS** registry key.

# 3-7 File Server

## 3-7-1 Overview

The File Server technology enables clients to access files and other resources, such as printer, from a server over a network using TCP/IP. File Server uses the Common Internet File System (CIFS). This is an extension of the Server Message Block (SMB) file sharing protocol. CIFS enables a network-enabled application to access and manipulate files and directories on a remote server in the same way that it the application accesses and manipulates files and directories on the local

## 3-7-2 Default Registry Settings

The registry stores information necessary to configure the system for applications and hardware devices. The registry also contains information that the operating system continually references during operation. JetBox 8210 enables you to create virtual file server directories. To users who access your file server share, virtual directories appear as subdirectories of the file server share, although these directories may be located in a different folder. You can create a virtual root directory called "myCF" by specifying the following registry key: HKEY\_LOCAL\_MACHINE\Services\SMBServer\Shares\myCF. Note the maximum length of the virtual root directory is 12 characters.

HKEY_LOCAL_MACHINE\Services\SMBserver\Shares	
Value	Description
UseAuthentication : DWORD	No default set. Setting this value to 0 will disable the authentication on the file server. The file server will be accessible to all users on the network.

Chart 42 Named values of HKEY\_LOCAL\_MACHINE\Services\SMBServer\Shares Key

HKEY_LOCAL_ Value	MACHINE\Services\SMBserver\Shares\myCF Description
Varue	
Path : String	Specifies the path to be shared.
Type : DWORD	Setting this value to 1 designates this as a print server share, setting this value to 0 (zero) designates this as a file server share.
UserList : String	Specifies a comma-separated list of allowed users.

Chart 43 Named values of HKEY\_LOCAL\_MACHINE\Services\SMBServer\Shares\myCF Key

## 3-7-3 Security Notes

It is not recommended that you disable authentication on the file server and you share the \Windows or root directory.

You can specify a list of folders that cannot be shared. You can use any name for each folder you specify in the exclusion list. Setting the

**HKEY\_LOCAL\_MACHINE\Services\Smbserver\Shares\ExcludePaths** registry key prevents the configuration functions from creating the specified shares, so that they cannot be accessed by an un-trusted application.

HKEY_LOCAL_MACHINE\Services\Smbserver\Shares\ExcludePaths		
Value Name	Value	
"Windows"	"\\Windows"	
"My Documents"	"\\Documents and Settings"	
"My Documents"	"\\Documents and Settings"	

Chart 44 An example to exclude the folders to be shared

## **3-7-4 Recommendations**

After you have configured your share folders by editing the registry manually or using the remote configuration tool, you can access and browse the folders you created in the following steps.

- 1. On the development workstation, from the **Start** menu, chooses **Run**.
- 2. In the **Open** box, type \\**JetBox8210**, and then choose **OK**. The **Connect to JetBox8210 dialog box appears**.
- 3. In the **Connect to JetBox8210** dialog box, type the user name you created and the corresponding password, and then choose **OK**. A window appears that shows the two root directories you created.

You can now browse the folders you created and access specific files in these folders.

The **net use** command can also to be used in the DOS command prompt tool.



Chart 45 Snapshot of share a folder via "net use" command

# **Chapter 4 Web-based Network Configuration**

## 4-1 Overview

JetBox8210 can also run without displays (think an industrial controller or a protocol gateway). In this case, a web server running on JetBox8210 itself can dynamically generate HTML and send it back to a remote web browser, which in turn can configure the device remotely.

## 4-2 Remote Administration Page

#### 4-2-1 Introduction

The Remote Configuration (RemoteAdmin) page for the Web Server enables you to remotely administer JetBox 8210 using your Web browser. The functionality of the RemoteAdmin includes a wizard that assists users with the initial JetBox8210 setup and other common tasks. Use your Internet browser and go to *http://<JetBox8210 IP Address>* to launch RemoteAdmin.

Note the RemoteAdmin page is set as the default home page of JetBox 8210.

#### 4-2-2 First Use SetUp Wizard

On first use, the application requires a password. In addition, the application requires authentication—you must use the default username **ADMIN** and the same password that you typed on first use.



Chart 46 First use setup wizard

🕘 Windows CE Remote Man	agement Tool - Microsoft Internet Explorer	_ 🗆 🗙
File Edit View Favorites T	iools Help	1
🚱 Back 🔻 🛞 👻 😰 1	🏠 🔎 Search   👷 Favorites  🧭 😓 🖉 🔻 🧾 🛸 🎎 🚺 🚢 🕉	
Address 🗃 http://192.168.10.6	6/RemoteAdmin/Wizard.htm 📃 🗗 Go	Links »
Windows CE Remote M	lanagement Tool	
1. Set the password for your Gateway	Set the password for your Gateway	
2. Configure your Internet connection	Type password:	
	< Prev Next >	>
🙆 Done	📄 👘 👘 İnternet	1

Chart 47 Input password and re-type to confirm

🕘 Windows CE Remote Mana	agement Tool - Microsoft Internix Explorer	
File Edit View Favorites T	ools Help	2
Ġ Back 🔻 🕥 👻 🛃 🛃	🏠 🔎 Search 🤺 Favorites  😥 🕶 🌭 🔟 🔻 🧾 👫 🏭 🦀	
Address 🗃 http://192.168.10.6	6/RemoteAdmin/Wizard.htm 🗾 🔁 Go 🛛 Lir	nks »
Google G-WNetOpenEnum	🔽 開始 🖗 💋 🗸 🟠 書籤 🛛 🕸 93 已攔截 🖤 拼字檢査 🔻 👫 翻譯 🔻 🎾 🥥 1	没定▼
Windows CE Remote M	anagement Tool	
1. Set the password for your	Configure your Internet connection	
Gateway	Identify the type of Internet connection and settings your Internet service provider (ISP) requires.	
2. Configure your Internet connection	Internet connection type         Select the type of Internet connection your ISP requires. <sup>(A)</sup> My ISP sets the IP address automatically (DHCP or dynamic IP address setting). <sup>(A)</sup> My ISP has assigned me a fixed (static) IP address, and has provided me with other required information. <sup>(A)</sup> My ISP requires a Point to Point over Ethernet (PPPoE) connection. This is most often the case if your ISP requires you to sign in with a user name and password. <sup>(A)</sup> I do not want to set up an Internet connection now. <b>Disabled connection</b> When you select this option, the computers in your local network cannot connect to the Internet through this Gateway.	
1 Dans	<< Prev Finish	-
Cone Cone		

Chart 48 Choose "I do not want to setup an Internet connection now"

🚰 Gateway is Resetting - Microsoft Internet Explorer	_ 🗆 ×
File Edit View Favorites Tools Help	<b></b>
Address 🕘 http://192.168.10.66/remoteadmin/RestartNetwork.htm?delay=30&Redirect=http://192.168.10.66/🗾 🔁	Go Links »
Windows CE Remote Management Tool	
Gateway is Resetting	
Please wait a moment, your Gateway is resetting. Once completed you may be asked for a username and password. *********	
🗃 Done	1.

Chart 49 JetBox 8210 is resetting

Connect to 192.16	8.10.66 <b>? ×</b>
Connecting to 192.16	8.10.66
User name:	🖸 admin 💌 💷
Password:	•••••
	Remember my password
	OK Cancel

Chart 50 Authentication for remote configuration

# 4-2-3 RemoteAdmin Home Page

JetBox8210 remote administration page also provides support for user tasks such as configuring user and share and security settings. Additionally, the UI provides advanced gateway features, such as port forwarding.

Page Name: Home	
User Interface	Description
Wide Area Network	Displays a summary of the WAN
(WAN) settings	network settings.
Release	Releases the dynamically assigned IP
	address on the WAN network.

Page Name: Home	
User Interface	Description
Renew	Obtains a new IP address on the WAN
	network.
Local Area Network	Displays a summary of the LAN network
(LAN) settings	settings.
DHCP client List	Displays the clients on the LAN
	network.

Chart 51 Description of the user interface of the reset base

🕘 Current settings - Micro	soft Internet Explorer	_ 🗆 🗙
File Edit View Favorites	Tools Help	<b>1</b>
Address 🗃 http://192.168.1	0.87/RemoteAdmin/	Go Links »
Windows CE Remote	Management Tool	
Home	Current settings	
▶ Device Management	This page provides a summary of your Gateway settings.	
Local Area Network		
Wide Area Network	wide Area Network (WAN) settings	
Add/Del lisers	inis section displays a summary of your WAN network settings. These settings indicate the current configuration of your Internet connection.	
Add/Del Share	Broadband connection:	
▶ Printer	WAN IP address: 0.0.0.0	
▶ EventLog	Subnet mask: 0.0.0.0	
	Default gateway:	
	Prefered DNS server:	
	Alternate DNS server:	
	Select Release to release the dynamically assigned IP address on your WAN network. Select	
	Kenew to obtain a new IP address on your WAN network.	
	Delase Daras	
	Release Renew	
	Local Area Network (LAN) settings	
	This section displays a summary of your LAN network settings. These settings indicate the	
	current configuration of your internal network.	
	Local IP Address: 192.168.10.87	
	Subnet mask: 255.255.0	
	DHCP server: Enabled	
	DHCP client list	
	The DHCP client list displays the clients on your network. Note: If you reset your Gateway, each	
	client on your network many need to renew its IP address in order for port mappings or other	
	Gateway features to operate correctly.	
	IP address: Host name MAC address	
	Octoment Tafe mustice	
	Gateway Information	
	Windows CE Version: 5.0	
	Windows CE Build Version: 1400	-
Dana		
Done	j j j j j j j j	11

Chart 52 Snapshot of the RemoteAdmin Home Page

#### 4-2-4 Device Management Pages

#### 4-2-4-1 Reset Base Station Page

Page Name: Reset Base Station		
User Interface	Description	
Reset	Reset the JetBox8210 (Gateway).	

Chart 53 Description of the user interface of the reset base



Chart 54 Click the reset button

Microsoft	Internet Explorer
?	Are you sure you want to reset the Gateway?
7	Resetting the Gateway will not affect your settings.
	OK Cancel

Chart 55 Click "OK" to confirm

🚰 Gateway is Resetting - Microsoft Internet Explorer	_ 🗆 🗙
File Edit View Favorites Tools Help	
Address 🕘 http://192.168.10.66/remoteadmin/RestartNetwork.htm?delay=30&Redirect=http://192.168.10.66/ 🗾 🔁 Go	Links »
Windows CE Remote Management Tool	
Gateway is Resetting	
Please wait a moment, your Gateway is resetting. Once completed you may be asked for a username and password. ********	
🙆 Done 対 👘 Internet	

Chart 56 JetBox 8210 is resetting

## 4-2-4-2 Set Time Page

Page Name: Set Time	
User Interface	Description
Time synchronization	<b>Options for time synchronization:</b>
method	Synchronize to Internet time server <b>or</b> Set
	time manually.
Internet time server	Specifies the time server name.
Set time manually	Specifies the time settings.
Base station time	Sets time zone.
zone	
Apply	Applies the settings.
Cancel	Cancels the settings.

Chart 57 Description of the user interface of the set time page

🐔 Set Time Method - Micro	soft Internet Explorer	<u>_ 🗆 ×</u>
File Edit View Favorites	Tools Help	2
Address 🙆 http://192.168.10	.66/remoteadmin/SetTime.htm	Links »
Windows CE Remote	Management Tool	
Home	Set Time Method	
Device Management Reset Base Station	To maintain the system time automatically, select Synchronize to Internet time server.	
Set Time	To set time manually, select Set time manually.	
Application Port Forwarding Back Up / Restore Settings Port Forwarding Virtual DMZ Add/Del Network Adapter SMB Server Statistics Local Area Network Wide Area Network Wide Area Network <b>&gt; Security</b> Add/Del Users Add/Del Users Add/Del Share <b>&gt; Printer</b> <b>&gt; EventLog</b>	Time synchronization method            Synchronize to Internet time server            S set time manually         Internet time server            To synchronize the Gateway system clock with a public time server, specify the name of a single Network Time Protocol (SNTP) server. You can obtain a time server name from your ISP.            Time server name:             (GMT+08:00) Taipei	-
	Apply Cancel	-
pening page http://192.1	68.10.66/remoteadmin/SetTime.htm	//.

Chart 58 Snapshot of the set time page for synchronize to Internet time server

🕘 Set Time Method - Microsoft Internet Explorer	×
File Edit View Favorites Tools Help	7
Address 🙆 http://192.168.10.66/remoteadmin/SetTime.htm	»
Windows CE Remote Management Tool	•
Home Set Time Method	
Device Management Reset Base Station     To maintain the system time automatically, select Synchronize to Internet time server.	
Set time       To set time manually, select Set time manually.         Application Port Forwarding       Time synchronization method         Set Forwarding       © Synchronize to Internet time server         Add/Del Network       © Set time manually         Security       Select the date and time for your Gateway.         Add/Del Users       Add/Del Users         Add/Del Users       Add/Del Share         ▶ Printer       Base station time zone         Establish the time zone for the base station system clock.         Set time zone:       [(GMT+08:00) Taipei	
🙆 Done 📄 👘 Internet	

Chart 59 Snapshot of the set time page for set time manually

#### 4-2-4-3 Application Port Forwarding Page

Page Name: Application Port Forwarding		
User Interface	Description	
Description	Description of the port forwarding	
	settings.	
Outbound port	Specifies outbound port number.	
Trigger protocol	Specifies the trigger protocol.	
Inbound TCP ports	Specifies inbound TCP port numbers.	
Inbound UDP ports	.Specifies outbound UDP port numbers.	
Add	Adds the current settings.	
Clear	Clears the current settings	
Enable	Enables the specified settings.	
Edit	Edits the specified settings.	
Delete	Deletes the specified settings.	

#### Note Add, Enable, Edit, Delete will cause the related services been reset.

Chart 60 Description of the user interface of the application port forwarding page

Application-Triggered Po File Edit View Favorites Address Address Http://192.168.10	ort fierwarding - Microsoft Internet Explorer	⊐ × ∦ ks »
Windows CE Remote Home Device Management Reset Base Station Set Time Application Port Forwarding Back Up / Restore Settings Port Forwarding Virtual DMZ Add/Del Network Adapter SMB Server Statistics Local Area Network Wide Area Network	Application-Triggered Port Forwarding         Some applications require that ports are opened dynamically to allow return traffic through the         Gateway. You can specify the outbound port, and the protocol to use, to initiate the port mapping. You         can also specify the inbound TCP and UDP ports to open when the trigger is seen. The inbound TCP and UDP port values may include multiple ports. Use the '-' character to designate the ranges, or the ',' character to separate entries.         Description       Outbound port Trigger protocol Inbound TCP port(s) Inbound UDP port(s)         TCP	
Add/Del Users Add/Del Share > Printer > EventLog	Enable Description Outbound Trigger Inbound Inbound Edit Delete port protocol TCP port(s) UDP port(s) myGame 8210 TCP 8211 Edit Delete	

Chart 61 Snapshot of the application port forwarding page

#### 4-2-4-4 Backup/ Restore Setting Page

Page Name: Back Up/Restoring Settings		
User Interface	Description	
Back Up Settings	Back ups the current settings to a file.	
Browse	Browses and selects a back up settings	
	file.	
Restore Settings	Restores the settings from a file.	

Chart 62 Description of the user interface of the back up/restoring settings page

File Edit View Pavorites Tools Help     Address   Inttp://192.168.10.66/remoteadmin/BackupRestore.htm    Windows CE Remote Management Tool   Home   Device Management   Reset Base Station   Set Time   Application Port Forwarding   Back Up And Restore Settings   Port Forwarding   Virtual DMZ   Add/Del Network   SMB Server Statistics   Local Area Network   > Security   Add/Del Users   Add/Del Share   Printer   > Printer   > Printer   > Printer   > Printer   > Restore Settings   Add/Del Share Printer	🕘 Back Up and Restore Se	ttings – Microsoft Internet Explorer	_ 🗆 🗙
Address Addres	File Edit View Favorites	Tools Help	
Windows CE Remote Management Tool     Home     > Device Management   Rest Base Station   Set Time   Application Port Forwarding   Back Up A Restore Settings   Pot Forwarding   Virtual DMZ   Add/Del Network   Add/Del Network   > Security   Add/Del Share   > Printer   > EventLog   Restore Settings   Image: Content of the path and name of the backup file, or browse to the file, and then click Restore ettings.   Browse   Printer   > Printer   Printer   > Restore Settings   Printer   > Printer   Printer   > Restore Settings   Printer   > Printer   Printer > Restore Settings   > Printer   Printer > Restore Settings Printer > Printer > Restore Settings Printer >	Address 🙋 http://192.168.10	).66/remoteadmin/BackupRestore.htm 🗾 💽 Go	Links »
Home  Device Management Reset Base Station Set Time Application Port Forwarding Uritual DMZ Add/Del Network Adapter SMB Server Statistics Local Area Network Wide Area Network Security Add/Del Ishare Printer Perinter Perinter Restore Settings  Add/Del Share Printer Perinter	Windows CE Remote	Management Tool	
<ul> <li>Device Management Reset Base Station Set Time Application Port Forwarding Back Up / Restore Settings</li> <li>Data Up / Restore Settings</li> <li>Data Virtual DMZ Add/Del Network Adapter SMB Server Statistics</li> <li>Local Area Network</li> <li>Security Add/Del Share</li> <li>Printer</li> <li>Printer</li> <li>Printer</li> <li>Restore Settings</li> <li>Browse</li> </ul>	Home	Back Up and Restore Settings	
Local Area Network Wide Area Network P Security Add/Del Users Add/Del Share P Printer EventLog Restore Settings	Device Management     Reset Base Station     Set Time     Application Port Forwarding     Back Up / Restore Settings     Port Forwarding     Virtual DMZ     Add/Del Network Adapter     SMB Server Statistics	Back up Gateway settings To save the urrent Gateway settings to a file by this computer, click Back Up Settings. Back Up Settings	-
Add/Der Share  P Printer  EventLog  Restore Settings	Local Area Network Wide Area Network D Security Add/Del Users	Restore Gateway settings from a backup         Type the path and name of the backup file, or browse to the file, and then click Restore ettings.         Browse	
	AddyDerShare ▶ Printer ▶ EventLog	Restore Settings	
			<b>_</b>

Chart 63 Snapshot of the back up/restoring settings page

File Downl	oad			×
Do you v	vant to open or sa Name: g. Type: U From: 1º	ave this file? ateway_settingsidat nknown File Type, 2 92.168.10.66	.91 KB	
🔽 Alwaj	ys ask before op	Open ening this type of file	Save	Cancel
0	While files from your computer.	the Internet can be If you do not trust th	useful, some files e source, do not c	s can potentially harm open or save this file.

Chart 64 Snapshot of download the back up settings file

#### 4-2-4-5 Port Forwarding Page

#### Note Add, Enable, Edit, Delete will cause the related services been reset.

Page Name: Port Forwarding			
User Interface	Description		
Description	Description of the port forwarding		
	settings.		
Inbound port	Specifies Inbound port number.		
Туре	Specifies the protocol type.		
Private IP address	Specifies the private mapped IP		
	address.		
Private port	Specifies the private mapped port		
	number.		
Add	Adds the current settings.		
Clear	Clears the current settings		
Enable	Enables the specified settings.		
Edit	Edits the specified settings.		
Delete	Deletes the specified settings.		

Chart 65 Description of the user interface of the port forwarding page

🚰 Persistent Port Forwardi	ng - Microsoft Internet Explorer	_ 🗆 🗙
File Edit View Favorites	Tools Help	<b>.</b>
Address 🕘 http://192.168.10	1.85/RemoteAdmin/persistent_port_forwarding.htm 🗾 💽 Go 🖉	Links »
Windows CE Remote I	Management Tool	
Home	Persistent Port Forwarding	
<ul> <li>Device Management Reset Base Station Set Time Application Port Forwarding Back Up / Restore Settings</li> </ul>	To host a server on a client connected to your private LAN, configure your Gateway to perform persistent port forwarding. Specify the inbound port(s) you want to open and the IP address of the computer on your network that will act as a server. The Gateway will automatically send all data requests from the port(s) you specify to the server.	
Port Forwarding Virtual DMZ Add/Del Network Adapter SMB Server Statistics Local Area Network	Description Inbound port Type Private IP address Private port           Image: TCP Ima	
Wide Area Network      Security      Add/Del Users      Add/Del Share	Add Clear	
▶ Printer ▶ EventLog	Enabled Description Inbound Type Private IP Private port Edit Delete address	
	▼ myPort 8010 TCP 192.168.10.65 8010 Edit Delete	
Done	📄 📄 👘 Internet	

Chart 66 Snapshot of the port forwarding page

#### 4-2-4-6 Virtual DMZ Page

Page Name: Virtual DMZ			
User Interface	Description		
Enable:	Enables virtual DMZ functionality.		
Virtual DMZ at IP	Specifies the virtual DMZ host IP		
address:	address.		
Apply	Applies the current settings.		
Cancel	Cancels the current settings.		

Chart 67 Description of the user interface of the virtual DMZ page

🚈 Virtual DMZ - Microsoft I	Internet Explorer	×
File Edit View Favorites	Tools Help	,
Address 🗿 http://192.168.10	).85/RemoteAdmin/DMZ.htm	»
Windows CE Remote	Management Tool	•
Home	Virtual DMZ	
<ul> <li>Device Management Reset Base Station</li> <li>Set Time</li> <li>Application Port Forwarding</li> <li>Back Up / Restore Settings</li> <li>Port Forwarding</li> </ul>	Specify the IP address of the client on your network that you want to set up as a virtual DMZ (externally exposed) host. When you set up a computer as a virtual DMZ host, the Gateway will forward all data packets not otherwise handled by port forwarding rules to that computer. <b>Caution:</b> ?Enabling this feature makes the virtual DMZ host externally accessible and increases security risks to all the clients on your network.	
Virtual DMZ Add/Del Network Adapter SMB Server Statistics Local Area Network	Enable:  Virtual DMZ at IP address: 192 .168 .10 .65	
Wide Area Network	Apply Cancel	<b>•</b>
4		-
<u>الا</u>	internet	

Chart 68 Snapshot of the virtual DMZ page

## 4-2-4-7 Add/Del Network Adapter Page

Page Name: Add/Del Network Adapter			
User Interface	Interface Description		
	Enables/Disables the specified network		
	adapter for file server.		
Submit Query	Applies the current settings.		

Chart 69 Description of the user interface of the Add/Del network adapter page

🚰 NAS Admin - Microsoft I	nternet Explorer				_ 🗆 🗙
File Edit View Favorites	Tools Help				2
Address 🙆 http://192.168.10	.85/RemoteAdmin/SMBBasic	htm		💌 🔁 Go	Links »
Windows CE Remote	Management Tool				
Home	Use this page to ac	d and remove	e shares		
<ul> <li>Device Management</li> <li>Reset Base Station</li> <li>Set Time</li> <li>Application Port Forwarding</li> </ul>	Adapters enabled f	for File Server:	192.168.55.101)		
Back Up / Restore Settings Port Forwarding Virtual DMZ	DM9CE1	(	192.168.10.85) 192.168.10.86)		
Add/Del Network Adapter SMB Server Statistics	Submit Query				
Local Area Network Wide Area Network					
Security     Add/Del Users					
Add/Del Share					
▶ EventLog					
•					▼ ▶
🙆 Done				internet	//.

Chart 70 Snapshot of the Add/Del network adapter page

#### 4-2-4-8 SMB Server Statistics Page

Page Name: SMB Server Statistics			
User Interface	Description		
Active Users	Indicates the active users for file server.		
Total Bytes Read	Indicates the total bytes read from file		
	server.		
Total Bytes Writes	Indicates the total bytes written to file		
	server.		

Chart 71 Description of the user interface of the SMB server statistics page

🚰 NAS Admin - Microsoft I	nternet Explorer			
File Edit View Favorites	Tools Help			
Address 🕘 http://192.168.10	).85/RemoteAdmin/SMBst	tatus.htm		💌 🔁 Go 🛛 Links
Windows CE Remote	Management Too	)		-
Home	Use this page to	o view SML∂Serve	r Status.	
Device Management     Reset Base Station     Set Time     Application Port Forwarding     Back Up / Restore Settings	Active Users 1.	ADMIN		
Port Forwarding Virtual DMZ Add/Del Network Adapter SMB Server Statistics	General Statistic Total Bytes Read Total Bytes Written	CS	1165824 0	
Local Area Network Wide Area Network				
Security Add/Del Users				
Add/Del Share				
D Printer				
PEventLog				
•				•
🔄 Done				Internet

Chart 72 Snapshot of the SMB server statistics page

## 4-2-5 Local Area Network Page

Note the IP address can't be modified if the adapter was configured as "Obtain an IP address via DHCP".

Page Name: Local Area Network			
User Interface Description			
Gateway name:	Specifies the name.		
IP address:	Specifies the IP address.		
Subnet mask:	Specifies the subnet mask.		

Page Name: Local Area Network			
User Interface	Description		
DHCP Server:	Enables/Disables the DHCP server		
	functionality.		
DHCP starting address:	Specifies the starting IP address the		
	DHCP server assigns to DHCP client.		
DHCP ending address:	Specifies the ending IP address the		
	DHCP server assigns to DHCP client.		
Lease time for assigned	Specifies the lease time for assigned IP		
IP address:	address.		
Local domain name:	Specifies the local domain name.		

Chart 73 Description of the user interface of the local area network page

🕘 Local Area Network (LAN	א) settings - Microsoft Internet Explo	rer	_   _   2
File Edit View Favorites	Tools Help		
Address 🛃 http://192.168.10	.87/RemoteAdmin/local_network.htm		💌 🄁 Go 🛛 Links
Windows CE Remote	Management Tool Local Area Network (LAN) s	ettings	
Device Management Local Area Network Wide Area Network	Gateway name:	JetBox8210	
▶ Security Add/Del Users	IP address:	192 168 10 87	
Add/Del Share  Printer	Subnet mask:	255 255 0	
▶ EventLog	Dynamic Host Configuration Protoc When you enable the DHCP server, the network.	ol (DHCP) settings Gateway assigns IP addresses to each client on y	our
	DHCP server:	Disabled 💌	
	DHCP starting address (optional):	192.168.10.0	
	DHCP ending address (optional):	192.168.10.255	
	Lease time for assigned IP address:	15 Minutes 💌	
	Local domain name (optional):		
	Apply Cancel		
🕑 Done			ernet

Chart 74 Snapshot of the local area network page

## 4-2-6 Wide Area Network Page

Page Name: Wide Area Network			
User Interface Description			
Internet Connection Type	Options for Internet connection type:		
	Dynamic <b>or</b> Static <b>or</b> PPPoE <b>or</b> Disabled.		

Page Name: Wide Area Network		
User Interface	Description	
Apply	Applies the current settings.	
Cancel	Cancels the current settings.	

Chart 75 Description of the user interface of the wide area network page



Chart 76 Snapshot of the wide area network page

## 4-2-7 Security Pages

#### 4-2-7-1 Change Password Page

#### Note the password is applied for the user: ADMIN.

Page Name: Change Password			
User Interface	Description		
Current password:	Specifies the current password.		
New Password (3-16	Specifies the new password.		
characters):			
Confirm new	Specifies the new password again.		
password:			

Chart 77 Description of the user interface of the change password page

🚰 Change Password - Micr	osoft Internet Explorer		_ 🗆 ×
File Edit View Favorites	Tools Help		2
Address 🙆 http://192.168.10	.85/RemoteAdmin/ChangePassword.htm	-	≥Go Links »
Windows CE Remote	Management Tool		
Home	Change Password		
Device Management Local Area Network	The password is used to restrict access to the W change the 'ADMIN' user account password.	indows CE Remote Managment Tool. This pa	age will
Wide Area Network  Security  Change Password  Firewall  Client Filtering	Current password: New password (3-16 characters):		
Add/Del Users Add/Del Share <b>Printer</b>	Confirm new password:		
▶ EventLog	Apply Cancel		<b>•</b>
🙆 Done		📄 📄 📄 👘 Internet	

Chart 78 Snapshot of the change password page

#### 4-2-7-2 Firewall Page

#### Note the firewall is disabled by default.

Page Name: Firewall	
User Interface	Description
Block ping and other	Blocks ping and other ICMP commands.
ICMP commands	
Apply	Applies the current settings.
Cancel	Cancels the current settings.

Chart 79 Description of the user interface of the firewall page

🕘 Firewall - Microsoft Inte	rnet Explorer	⊐ ×			
File Edit View Favorites	Tools Help 🔓	2			
Ġ Back 🔻 💮 👻 🛃	) 🏠 🔎 Search 📌 Favorites 🤣 🔗 🌭 🔟 🔻 🛄 👫 🌋 🥚				
Address 🙆 http://192.168.1	0.85/RemoteAdmin/hacker_protection.htm 📃 🔁 Go 🛛 Lir	ks "			
Windows CE Remote	Management Tool	<b>^</b>			
Home	Firewall				
▶ Device Management	The integrated firewall discards suspicious data packets transmitted to your network from the Internet.				
Local Area Network	While you cannot completly disable the firewall, you can disable the firewall rule that blocks ping and				
Wide Area Network	other ICMP commands.				
Security     Change Password	Plack ping and other ICMD commands				
Firewall	Block ping and other TCMP commands Blockies TCMP commands balance and the second others from location using a twenty Direction				
Client Filtering	this rule only when you want parties outside of your Local Area Network, such as your ISP, to be				
Add/Del Users	able to locate your network.				
Add/Del Share	Block ping and other ICMP commands				
▶ Printer					
▶ EventLog					
	Apply Cancel				
		-			
🕘 Done	📔 📄 📄 👘 Internet	//			

Chart 80 Snapshot of the firewall page

#### 4-2-7-3 Client Filtering Page

#### Note the firewall is disabled by default.

Page Name: Firewall	
User Interface	Description
IP Address/host name	Specifies the IP address.
Outbound ports	Specifies the outbound ports.
Protocol	Specifies the protocol.
Duration	Options for duration: Always or
	Customized duration.
Add	Adds a specified filter.
Clear	Clear the current filter settings.
Block	Enables/Disables the filter.
<u>Edit</u>	Edits the filter settings.
<u>Delete</u>	Deletes the filter.

Chart 81 Description of the user interface of the client filtering page

🚰 Client Filtering - Microsof	ft Internet Explorer	_ 🗆 🗙
File Edit View Favorites	Tools Help 🔓	<b>1</b>
🚱 Back 🔻 🕤 👻 📓	🏠 🔎 Search   👷 Favorites 🚱 🔗 🕏 💹 🔻 🧾 🐘 🎎 📓 🚢 🚳	
Address 🕘 http://192.168.10	).85/RemoteAdmin/ClientFiltering.htm 🗾 🕤 Go	Links »
Windows CE Remote Windows CE Remote Home Device Management Local Area Network Wide Area Network Vide Area Network Change Password Firewall Chent Filtering Add/Del Users Add/Del Users Devinter Perinter EventLog	Management Tool  Client Filtering To block a client on your network from accessing specific data over the Internet, type the IP address of the client in the box below, and then enter the outbound port(s) and select the protocol for the type of data you want to block. Optionally, enter the days and times when you want to prevent that client from accessing the Internet. To enable the filter, select the Block check box.  Note: Be sure to set the Gateway system time before creating any time-based filters.  IP address/hostname Outbound port(s) Protocol C Always C some Sunday To Sunda	
	12:00 AM       Add       Clear       Block     IP       outbound     protocol       Filter     Edit       Delete       Iv     192.168.10.65       8210     TCP       Always     Edit       Delete	
🕘 Done	📄 📄 👘 Internet	

Chart 82 Snapshot of the client filtering page

## 4-2-8 Add/Del Users Page

Page Name: Add/Del Users	
User Interface	Description
User	Specifies the user.
Password	Specifies the password.
Password verify	Specifies the password to verify.
Add New	Adds a new user.
Delete	Deletes the specified user.

Chart 83 Description of the user interface of the add/del users page

NAS Admin - Microsoft I File Edit View Favorites Address Address http://192.168.10	Internet Explorer	Links »
Windows CE Remote	Management Tool	4
Home Device Management Local Area Network Wide Area Network D Security Add/Del Users Add/Del Share D Printer D EventLog	Add/Modify User       User       Password       Password Verify       Add New         Delete Users       ADMIN       Tester	
🙆 Done	📄 📄 📄 👘 Internet	//

Chart 84 Snapshot of the add/del users page

## 4-2-9 Add/Del Share Page

Page Name: Add/Del Share	
User Interface	Description
Available Shares	Indicates the available shares (i.e.
	\Storage Card).
Share name	Specifies share name.
Add	Adds the specified share.
Remove	Removes the specified share.
Permissions	Specifies the permissions for the
	specified share.

Chart 85 Description of the user interface of the add/del share page

NAS Admin - Microsoft I File Edit View Favorites Address http://192.168.10	nternet Explorer Tools Help ).85/RemoteAdmin/Sha	areManager.htm		▼ ∋ Go	Links »
Windows CE Remote	Management To	ool			
Home  Device Management Local Area Network	Use this page	to add and remove sh	nares		
Wide Area Network	\Windows		Add		
Add/Del Share ▶ Printer ▶ EventLog	∖Temp ∖Program Files	 	Add		
	\My Documents		Add Add		
	\Recycled		Add		
	\Network \Storage Card	myCF	Add Remove	Permissions	
Duri					

Chart 86 Snapshot of the add/del share page

Page Name: Share Permissions	
User Interface	Description
Share name	Indicates the share name (i.e. myCF).
User	Specifies user.
Allow	Allows the specified user to access.
Deny	Denies the specified user to access.
Update	Updates the current settings.
Done	Finishes the share permissions settings.

Chart 87 Description of the user interface of the share permissions page

🙆 NAS Admin - Microsoft I	nternet Explorer	_	. 🗆 🗙
File Edit View Favorites	Tools Help	7	<b>1</b>
Address 🙋 http://192.168.10	.85/RemoteAdmin/File	eConfig.htm?Path=myCF 🗾 🖸 🛛	Links »
Windows CE Remote	Management To	ool	
Home	Use this page	to configure user access to shares.	
<ul> <li>Device Management</li> <li>Local Area Network</li> <li>Wide Area Network</li> <li>Security</li> <li>Add/Del Users</li> <li>Add/Del Share</li> <li>Printer</li> </ul>	myCF ADMIN Tester Update De	© Allow ⊂ Deny ⊂ Allow © Deny Done	
▶ EventLog			-
🙆 Done		📄 📄 📄 👘 Internet	

Chart 88 Snapshot of the share permissions page

## 4-2-10 Printer Pages

#### 4-2-10-1 Add/Del Printer Page

Page Name: Add/Del Printer	
User Interface	Description
Available Printers	Indicates the available Printers (i.e.
	Kyocera Mita FS-1020D(LPT1:)).
Printer name	Specifies printer name.
Add	Adds the specified printer.
Remove	Removes the specified printer.
Permissions	Specifies the permissions for the specified
	printer.

Chart 89 Description of the user interface of the add/del printer page

💣 NAS Admin - Microso	oft Internet Explorer	- 🗆 ×
File Edit View Favorit	tes Tools Help	2
Address 🙆 http://192.168	i8.10.85/RemoteAdmin/PrintServer.htm	Links »
Windows CE Remo	ote Management Tool	
Home	Use this page to add and remove printers	
Device Management Local Area Network Wide Area Network     Security Add/Del Users	Available Printers           Kyocera Mita FS-1020D(LPT1:)         myPrinter         Remove         Permissions	
Add/Del Share  Printer Add/Del Printer  EventLog		
, 🙆 Done	🔋 👘 Internet	

Chart 90 Snapshot of the add/del printer page

Page Name: Printer Permissions		
User Interface	Description	
Printer name	Indicates the share name (i.e.	
	myPrinter).	
User	Specifies user.	
Allow	Allows the specified user to access.	
Deny	Denies the specified user to access.	
Update	Updates the current settings.	
Done	Finishes the printer permissions	
	settings.	

Chart 91 Description of the user interface of the printer permissions page

🙆 NAS Admin - Microsoft II	nternet Explorer		_ 🗆 🗙
File Edit View Favorites	Tools Help		ala 🕂
Address 🙆 http://192.168.10	.85/RemoteAdmin/FileConfig.htm?Pat	h=myPrinter 🔽 🛃	Go Links »
Windows CE Remote I	Management Tool		
Home	Use this page to configur	e user access to shares.	
Device Management Local Area Network Wide Area Network Security Add/Del Users Add/Del Share Printer EventLog	myPrinter ADMIN Tester Update Done	€ Allow ⊂ Deny ⊂ Allow € Deny	
Done		internet	<b>•</b>

Chart 92 Snapshot of the printer permissions page

#### 4-2-11 EventLog Pages

#### 4-2-11-1 System Page

These events include the following:

- 1. Potential attacks by client computers over the Internet
- 2. The initiation and status of Point-to-Point Protocol over Ethernet (PPPoE) connections
- 3. The public Gateway interface requesting, receiving, and releasing its Dynamic Host Configuration Protocol (DHCP) address
- 4. The Simple Network Time Protocol (SNTP) service retrieving the current time from a time server

Page Name: System	
User Interface	Description
Select to clear this	Clears the event log.
<u>event log</u>	
Туре	Indicates the event type.
Date	Indicates the event date.
Time	Indicates the event time.
Source	Indicates the event source.
EventID	Indicates the event ID.

Chart 93 Description of the user interface of the system page

🚰 Event Log - Microsoft	Internet Explorer	N		
File Edit View Favorite	es Tools Help	N.		
Address 🙆 http://192.168	3.10.85/RemoteAdmin/	MODULE_EventLog?Log	Name=System	💌 🄁 Go 🛛 Links 🎽
Windows CE Remo	te Management	Tool		<u> </u>
Home <b>Device Management</b> Local Area Network Wide Area Network	Event Log Information from the Select to clear this e	event log: System vent log Date Time	Source	EventID
▶ Security Add/Del Users Add/Del Share				
Printer     EventLog     System	-			
🙆 Done				🌍 Internet

Chart 94 Snapshot of the system page

# 4-3 Web Administration Page

#### 4-3-1 Introduction

The Web Server Administration (WebAdmin) page for the Web server enables you to remotely administer your Web server using your Web browser. Use WebAdmin to manage the accessibility, security, and file sharing features of your Web server. Include configure which files are shared and how they are accessed and which users have access to which files, and the authentication protocols the Web server will use and configure the Web server log. Use your Internet browser and go to *http://<JetBox8210 IP Address>/WebAdmin* to launch WebAdmin. **Refer with 4-3-3** Instructions Page Instructions Page for details before starting configuring the Web server.

#### 4-3-2 WebAdmin Home Page

Page Name: Home	
User Interface	Description
<u>Help topics</u>	For more information about
	WebAdmin.
Configuring Web Sites	For more information about
	configuring Web sites.

69

Page Name: Home	
User Interface	Description
Default Web Site: Modify	Modifies the default Web site.
Public Web Site: Modify	Modifies the public Web site.
Public Web Site: Delete	Deletes the public Web site.
CreateNew	Creates a new Web site.

Chart 95 Description of the user interface of the WebAdmin home page



Chart 96 Snapshot of the WebAdmin home page



Chart 97 Snapshot of the WebAdmin home page

## 4-3-3 Instructions Page

The Help topics provide information about configuring, securing, and managing the Web server on your JetBox 8210 device.

🔮 Web Server Instructions - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address a http://192.168.10.66/WebAdmin/instructions/
Home   Instructions   Logging   SSL Configuration   Restart Web Server
Web Server Instructions
The following Help topics provide information about configuring, securing, and managing the Web
server on your Windows CE device.
, , , , , , , , , , , , , , , , , , ,
Basic Configuration Issues
<u>What is a Web server?</u>
What is WebAdmin?
What is a Web site?
• What is a virtual directory?
Verrate Tember d Cleante and device 2
How do I upload files to my device?
<ul> <li>What is directory browsing and what is the default document?</li> </ul>
<u>What is web logging?</u>
The physical paths on some virtual directories cannot be changed. Why?
Security Configuration
How do I configure Web server security?
What are security access levels?
What types of authentication protocols are supported?
How do I set access permissions for virtual directories?
What are Permissions settings?
• What is SSL?
A The second sec

Chart 98 Snapshot of the instructions page

# 4-3-4 Logging Page

Page Name: Logging	
User Interface	Description
<u>Here</u>	For more information about Logging.
View the Current Web	Views the current Web server log file
<u>server log file</u>	
Log File Location:	Specifies the log file location.
Maximum Log File Size:	Specifies the maximum log file size in
	bytes.
Update Settings	Updates the settings.

Chart 99 Description of the user interface of the logging page


Chart 100 Snapshot of the current logging page

🕘 Log	iging	Con	figurat	ion - Micros	oft Internet Explorer
File E	dit	View	Favor	rites Tools	Help
Addres:	s 🙆	http:,	//192.1	68.10.66/We	ebAdmin/Logging/current-httpd.log 🛛 🔽 🕞 Go 🛛 Links 👌
Но		1	Trac	tructions	Logging   SSI Configuration   Destart Mak Server
	ille		THR	uucuons	Configuration   Restart web server
Wed,	22	Aug	2007	02:49:06	The web server is starting up.
Wed,	22	Aug	2007	02:49:37	192.168.10.65 GET /WebAdmin 401
Wed,	22	Aug	2007	02:49:40	192.168.10.65 GET /WebAdmin 302
Wed,	22	Aug	2007	02:49:40	192.168.10.65 GET /WebAdmin 401
Wed,	22	Aug	2007	02:49:42	192.168.10.65 GET /WebAdmin 200
Wed,	22	Aug	2007	02:50:20	192.168.10.65 POST /WebAdmin 200
Wed,	22	Aug	2007	02:50:58	- 192.168.10.65 GET /WebAdmin 200
Wed,	22	Aug	2007	02:51:10	192.168.10.65 GET /WebAdmin 200
Wed,	22	Aug	2007	02:51:20	192.168.10.65 GET /WebAdmin 200
Wed,	22	Aug	2007	02:51:22	192.168.10.65 GET /WebAsmin 200
Wed,	22	Aug	2007	02:51:22	The web server has begun shutdown sequence.
Wed,	22	Aug	2007	02:51:23	The web server has completed shutdown sequence.
Wed,	22	Aug	2007	02:51:23	The web server is starting up.
Wed,	22	Aug	2007	02:51:39	192.168.10.65 GET /WebAdmin 401
<b>e</b>					📄 📄 📄 👘 Internet

Chart 101 Snapshot of the log file

## 4-3-5 SSL Configuration Page

Page Name: SSL Configuration			
User Interface	Description		
<u>Here</u>	For more information about SSL		
	Configuration.		
Enable SSL:	Enables SSL on initialization of Web		
	server.		
Server Certificate Subject	Specifies the server certificate subject		
Line:	line.		
Update	Updates the settings.		

Chart 102 Description of the user interface of the SSL configuration page

🖉 SSL Configuration - Microsoft Internet Explorer				
File Edit View Favorites Tools Help				
Address 🙆 http://192.168.10.66/WebAdmin/SSL/				
Home   Instructions   Logging   SSL Configuration   Restart Web Server				
SSL Configuration				
Configure SSL connectivity for the Web server. For more information, click here				
Enable SSL				
Enable SSL on initialization of Web Server.				
Server Certificate Subject Line				
The subject of the server certificate used by the Web server when				
performing SSL operations.				
Undate				
Windows CE Version: (5.0) Build Version: (1400) SysVersion: (1400)				
2000-2002 Microsoft Corporation. All rights reserved.				
😇				

Chart 103 Snapshot of the SSL configuration page

## 4-3-6 Restart Web Server Page



Chart 104 Snapshot of the restart web server page

# 4-4 System Administration Page

#### 4-4-1 Introduction

The System Administration (SysAdmin) page for the JetBox8210 Web Server enables you to remotely administer JetBox 8210 using your Web browser. Use SysAdmin to manage the processes, files and registry of JetBox 8210. Include launch/kill a process, upload/download a file, create/remove a directory and edit the registry. Use your Internet browser and go to *http://<JetBox8210 IP Address>/SysAdmin* to launch SysAdmin. **Note the SysAdmin is discontinued in Windows CE 6.0.** 

## 4-4-2 SysAdmin Home Page



Chart 105 Snapshot of the SysAdmin Home Page

🛃 Windows CE Web-based Admir	istration - Microso	oft Internet Exp	lorer	<u>_ 🗆 ×</u>
File Edit View Favorites Tools	Help			<b>R</b>
Address 🙆 http://192.168.10.66/Sys	Admin/?Client=IE4		💌 🄁 Go	Links »
	System Tools	File Browser	Registry Editor	
	R			
🙆 Done			internet	

Chart 106 Snapshot of the SysAdmin Home Page

#### 4-4-3 System Tools Page

It shows the system information, includes version, number of processors, the CPU architecture, the memory and data store size, the network adapters and the system time.



User Interface

Description

<u>Refresh</u>

Refreshes the current page

Chart 107 Description of the user interface of the system info page

🕘 Windows CE Web-based Administration - Mic	rosoft Inter	rnet Explorer		
File Edit View Favorites Tools Help				
Address 🗃 http://192.168.10.66/SysAdmin/?Client=IE4 🔽 💽 Go 🛛 Links				
Windows CE System To	ols File Br	rowser Registry Editor		
System Info				
Processes				
Syste	m Info	rmation		
Versio	n	Windows CE 5.0		
Proces	ssors	1		
Archit	ecture	ARM 920		
Total	Memory	45528 KB		
Free M	lemory	35664 KB		
Total :	Store	45440 KB		
Free S	tore	45369 KB		
Adapt	ork ers	DM9000A Fast Ethernet Adapter		
		DM9000A Fast Ethernet Adapter 2		
		Remote-NDIS Host		
		NEZUUU Compatible Ethernet Driver		
		AsyncMac NDISWAN Miniport		
		PPTP NDISWAN Mininort		
		L2TP NDISWAN Miniport		
		Microsoft PPPoE driver		
		Winbond USB/Wireless LAN Adapter		
Machi	ne Time	8/21/2007 12:04 AM Pacific Standard Time		
a)		internet 🗸		

Chart 108 Snapshot of the system info page

Page Name: Processes			
User Interface	Description		
<u>Refresh</u>	Refreshes the current page.		
Launch processes:	Specifies the executable file path.		
Execute	Launches the specified executable file.		
PID	Specifies the process ID.		
Process Name	Specifies the process name.		
<u>Kill</u>	Kills the process.		

Chart 109 Description of the user interface of the processes page

Windows CE Web-based Adminis	tration - Microsoft Internet Explorer			
vddress ∰ http://192.168.10.66/SysAdmin/?Client=IE4				
Windows CE	System Tools File Browser Registry Editor			
System Info	Refrech			
Processes	<u>Refresh</u>			
	Process Management			
	Launch process: Execute			
	PID Process Name			
	Kill     1 filesys.exe       Kill     2 device.exe       Kill     3 gwes.exe			
	Kill     4 explorer.exe			
	Kill 5 services.exe			
	Kill 9 maapp.exe			

Chart 110 Snapshot of the processes page

#### 4-4-4 File Browser Page

Note you may consider looking at the SMB server to do upload and download as it will be way faster and probably a better user experience since it'll look like a remote file share.

Page Name: File Browser	
User Interface	Description
<u>Refresh</u>	Refreshes the working directory.
Directory Tree View	Selects the working directory.
JetBox8210	Indicates the working directory.
Upload File:	Specifies the upload file path.
Browse	Browses and selects the upload file.
Upload	Uploads the specified file.
Copy to:	Specifies the copy to file path.
New Directory Name:	Specifies the new directory name.
Create Directory	Creates a new directory under working
	directory.
Remove Directory	Removes the working directory.

Page Name: File Browser			
User Interface	Description		
Delete	Deletes the specified file.		
Сору	Copies the specified file to the specified copy		
	to path.		
File Name	Downloads the specified file.		

Chart 111 Description of the user interface of the file browser page

🗿 Windows CE Web-based Adm	nistration - Microsoft Internet Explorer	_ 🗆 🗙
File Edit View Favorites Tools	Help	🥂
Address ど http://192.168.10.66/Sy	sAdmin/?Client=IE4 💽 Go	Links »
Windows CE	System Tools File Browser Registry Editor	
-JetBox8210	Pofroch	
+Storage Card		
Network	JetBox8210	
Recycled		
Application Data	Upload File: Browse Upload	
My Documents		
+Program Files		
Temp		
+Windows	Сору То:	
	New Directory Name: Create Directory	
	Use with utmost caution Remove Directory Will recursively delete everything	/
	Filename Size Modified Creat	<b>ed</b> 2007
ê	Perete Copy Control Fanchink 25 b PM 2:14 l	PM

Chart 112 Snapshot of the file browser page

## 4-4-5 Registry Editor Page

Page Name: File Browser				
User Interface	Description			
<u>Refresh</u>	Refreshes the current key.			
Registry Key Tree View	Selects the working registry key.			
HKEY_LOCAL_MACHINE	Indicates the working registry key.			
New Value Name:	Specifies the new value name.			
New value Type:	Specifies the new value type.			
New Value	Creates a new value.			
Modified Value:	Specifies the modified value data.			

Page Name: File Browser			
User Interface	Description		
New Subkey Name:	Specified the new registry key.		
Create Key	Create a new registry key.		
Delete Key	Deletes the working registry key.		
Delete	Deletes the specified value.		
Modify	Modifies the value with specified		
	modified value.		

Chart 113 Description of the user interface of the registry editor page

🚰 Windows CE Web-based Admi	nistration - Myrosoft Internet Explorer
File Edit View Favorites Tools	Help 🧗
Address 🕘 http://192.168.10.66/Sy	sAdmin/?Client=IE4 💽 🗗 Go 🛛 Links »
Windows CE	System Tools File Browser Registry Editor
+HKEY_CLASSES_ROOT	Defresh
+HKEY_CURRENT_USER	HKEY LOCAL MACHINE
+HKEY_LOCAL_MACHINE	
HKEY_USERS	New Value Name:       New Value 001         New Value Type:       REG_SZ © REG_DWORD © REG_BINARY ©         New Value       Modified Value:         Modified Value:       Create Key         New Subkey Name:       Create Key         Use with caution       Delete Key         Will recursively delete everything         Type       Value Name
	Delete Modify REG_SZ Default (value not set)

Chart 114 Snapshot of the registry editor page

# **Chapter 5 Connectivity Features**

## 5-1 Overview

Microsoft<sup>®</sup> Windows<sup>®</sup> CE provides tools for testing and debugging a Windows CE–based device. Most tools for debugging and testing reside on the development workstation, and thus rely on a connectivity infrastructure that facilitates communication between the development workstation and a target device. Platform Manager supports application connectivity. Application connectivity is a communications framework that allows you to establish a connection between an application running on a development workstation and a target device. Remote Tools and eMbedded Visual C++ use the application connectivity support in Platform Manager to connect to a target device.

## 5-2 ActiveSync Connection

#### 5-2-1 Introduction

ActiveSync allows you to create a synchronization relationship between your mobile device and PC using a cable, cradle, Bluetooth, or infrared connection. ActiveSync can also make it possible for your device to connect to other resources through your PC. It's recommended to setup an ActiveSync connection during developing your application with Microsoft eVC++4.0 or Visual Studio 2005. You can use a serial cable to connect JetBox 8210 to your PC.

Note: Setup up Microsoft ActiveSync 4.5 or above before connecting the JetBox 8210 with your PC. Microsoft ActiveSync 4.5 can be downloaded from the following link:

http://www.microsoft.com/windowsmobile/activesync/activesync45.mspx

#### 5-2-2 Connection via COM port

The way to setup an ActiveSync connection with JetBox 8210 is using the RS232 port. Note: JetBox 8210 configure the default PC connection as USB, so it's necessary to change the PC connection before establish ActiveSync connection via RS232.

<u>File V</u> iew	<i>i</i>						<b>№?</b> ×
Ġ,	Ö	P		I			<u>s</u>
Accessibility	Certificates	Date/Time	Device Management	Dialing :	DIO Tester	DIP Reader	Display
MEM	9	÷	٢			<u>8</u> 2	<b>P</b>
EEPROM Editor	Input Panel	Keyboard	Mouse	Network and Dial-up	NVRAM Editor	Owner	Password
22	<b></b>	M	-	Connections	P	and the second s	
PC Connection	Regional Settings	RegViewer	Remove Programs	Security Editor	SerCon	SerPerf	Storage Manager
	50	20					
Stylus	System	Volume & Sounds					

Chart 115 Launch "Network and Dial-up Connections" control applet



ಶ Start	🚱 Control Panel	🗞 Network Connect	🎭 🕹 🌉	10:52 PM	1	7

Chart 116 Make a new connection

<u>File E</u> a	lit <u>V</u> iew	Advanced 🗙 👔 🖬 📰	<b>№</b> ×
-	ר אין		
Make Nev Connectio	w DM9C on	E2 DM9CE1	
		Make New Connection	
		Type a name for the connection:	
		My Connection	
		Select the connection type:	
		O Dial-Up Connection	
		Direct Connection	
		Virtual Private Network (PPTP)	
		Virtual Private Network (L2TP)	
		O PPP over Ethernet [PPPoE]	
		< <u>B</u> ack <u>N</u> ext >	

Chart 117 Choose "Direct Connection" option

<u>File E</u> dit <u>V</u> iew Adva <u>n</u>		<b>N?</b> ×
Eile     Edit     Yiew     Advan       Image: State of the state of t	Image:	<b>№?</b> ×
	< Back Finish	
🍂 Start 🔀 Control Panel	Network Connect	м 🞯 ጆ

Chart 118 Choose a RS232 COM port

<u>File E</u> dit	<u>V</u> iew Ac	lva <u>n</u> ced 🗙 📄 🗔 🔚	<b>№?</b> ×
<b>S</b>	21	2 <u>1</u>	
Make New Connection	DM9CE2	DM9CE1	
		Device 🔀	
		My Connection	
		Select a device:	
		Serial Cable on COM4:	
		[Configure]	
		TCP/IP Settings Security Settings	
		< <u>B</u> ack Finish	

🐉 Start 🛛 🔂 Control Panel	🜊 Network Connect	🎐 🕹 🌉 10:54 PM -	13 🔽
	1		

Chart 119 Configure the selected COM port

<u>File E</u> dit	<u>View Advan</u> ce	ed 🗙 🖬 🖬 🖬			<b>₩?</b> ×		
-	<u></u>	2					
Make New Connection	DM9CE2 DM	9CE1					
	I	Device		×			
	Device Proper	ties		ок 🔀			
	Port Settings	Call Options					
			Connection Prefe	erences			
	Manual Dial strings)	(user supplies dial	<u>B</u> aud Rate	19200 💌			
	Terminals –		<u>D</u> ata Bits	8 🔽			
	Use terr	minal window	<u>P</u> arity	None 🔽			
	b <u>e</u> fore o	dialing	<u>S</u> top Bits	1			
	Use terr dialing	minal window <u>a</u> fter	<u>El</u> ow Control	None			
			< <u>B</u> ack Finisł	Software Hardware			
	L			None			
Marine 🗖 a		A tatural C					
🌄 Start 🛛 🖉 G	ontroi Panel	Network Conne	CTI Device Properties	;   <b>&gt; 4 4</b> 10:54	+ PM 🗾 💆		
Chart 120 Flo	hart 120 Flow control as none						

<u>F</u> ile <u>E</u> dit	<u>V</u> iew Adva	anced 🕽	X 🛯 🖬 🖬 📰		<b>N?</b> >
-	<u></u>	21 L	97 1		
Make New Connection	My Connection	DM9CE2	DM9CE1		



Chart 121 Make "My Connection" is completed

<u>File Vi</u>	ew						ĸ	? ×
Ġ,	Ö	P	<b>P</b>				8	
Accessibilit	ty Certificates	Date/Time	Device Management	Dialing	DIO Tester	DIP Reader	Display	
MENA	9	1	٢		-	<u> </u>	°	
EEPROM Editor	Input Panel	Keyboard	Mouse Net Dia	twork and I-up Co	NVRAM Editor	Owner	Password	
	<b>P</b>	<b>M</b>	- 🐌		<b>P</b>		1	
PC Connectio	n Regional Settings	RegViewer	Remove 9 Programs	ecurity Editor	SerCon	SerPerf	Storage Manager	
		٢						
Stylus	System	Volume & Sounds						
鸄 Start	🚱 Control Pane	۱ 🥔 ۱	Network Connecti.			🌭 🕹	10:52 PM	3 🏴

Chart 122 Launch "PC connection" control applet



Chart 123 Select "Change..." to change PC connection

<u>File View</u>	,						<b>k?</b>	×
Ġ,	Ö	P	Ð				8	
Accessibility	Certificates	Date/Time	Device Management	Dialing	DIO Tester	DIP Reader	Display	
A STATE	9	1	٢		-	<u>8</u> 2	<u>P</u>	
EEPROM Editor PC Connection	PC Conne PC C Char Con Co	ction Proper nge Connect nect to deskto arning: Chang conne	ties itan op computer us ing this setting ict with your d	sing: <sup>°</sup> USB <sup>°</sup> USB My Co g may result esktop com	nnection In an inability 1 puter.		sword	
鸄 Start 😼	Control Pane	l 🍰 PC	Connection P	r		الله الح	11:05 PM ତ	

Chart 124 Change PC connection to "My Connection"



Chart 125 Change PC connection is completed

🚯 Microsoft ActiveSyr	nc X
File View Tools Help	·
Synchronize	' Explore
Mobile Device Delete Mobile Device Connection Settings	
Close	Hide Details 🗙
Information Type Stat.	IS

Chart 126 Configure ActiveSync Connection settings

③ Connection Settings
Waiting for device to connect
Show status icon in taskbar
Allow USB connections
Allow connections to one of the following:
This computer is connected to:
Automatic
✓ Open ActiveSync when my device connects
$\hfill \square$ Allow wireless connection on device when connected to the desktop
Help OK Cancel

Chart 127 Allow connections to COM1



Chart 128 ActiveSync is not connected



Chart 129 Connect JetBox 8210 with PC via RS232 Null Modem Cable



Chart 130 Choose "No" to skip setup a partnership

🔇 Microsoft ActiveSync 🛛 📐	_ 🗆 🗙
File View Tools Help	
💿 Sync 🕒 Schedule 🔯 Explore	
Guest	
Connected	
	Hide Details 🗙
Information Type Status	

Chart 131 ActiveSync is connected



Chart 132 ActiveSync is connected

#### 5-2-3 Explore JetBox 8210

After ActiveSync connection has been established, click the Explore button to

explore JetBox 8210. It's recommended to exchange the application data with JetBox 8210 via ActiveSync connection during developing your applications.



Chart 133 Microsoft ActiveSync

🔋 Mobile Device							
File Edit Vie	ew Favorites	Tools Help		n			2
🕞 Back 🔻 🤆	D 🔻 🎓 🔎	Search 💫	Folders	b 🗙 🍤	▼		
Address 🔋 Mo	bile Device						💌 🄁 Go
	$\supset$		$\supset$		$\supset$		<b>&gt;</b>
Application Data	My Documents	Network	Program Files	Recycled	Storage Card	Temp	Windows
Control Panel							

Chart 134 Explore the JetBox 8210 via ActiveSync

# 5-3 Manual Server Connection via Ethernet

#### 5-3-1 Overview

If ActiveSync connectivity is not available, a Manual Server connection should be possible. Manual Server uses TCP/IP communications between host PC and device and supports most of the functions of ActiveSync. It does not support file or outlook synchronization and takes more steps to initiate.

Both ActiveSync and Manual Server are used by the Platform Manager component of eVC++. Platform Manager provides communication support for application debugging and add-on tools. **You may need to install Microsoft eVC++ 4.0 before establishing a manual server connection with JetBox 8210**.

👷 Microsoft eMbedded Visual C++	+
Eile Edit View Insert Project Build	t <u>T</u> ools <u>W</u> indow <u>H</u> elp
	<ul> <li>Frror Lookup</li> <li>Remote Call Profiler (WCE500)</li> <li>Remote Ele Viewer (WCE500)</li> <li>Remote Heap Walker (WCE500)</li> <li>Remote Kernel Tracker (WCE500)</li> <li>Remote Performance Monitor (WCE500)</li> <li>Remote Process Viewer (WCE500)</li> <li>Remote Registry Editor (WCE500)</li> <li>Remote Spy++ (WCE500)</li> <li>Remote System Information (WCE500)</li> </ul>
	Remote Zoomin (WCE500)         Sglect Remote Tools         Qustomize         Qptions         Macro         Record Quick Macro         Ctrl+Shift+R         Play Quick Macro         Ctrl+Shift+R
	Configure Platform Manager

**5-3-2** Configure Platform Manager

Chart 135 Configure platform manager

Select a platform or device to configure					
P-@ ArmEmuWebpad P-@ MediaX MadiaX Davida	Add Device				
	Delete				
Windows CE Default Platform	Properties				
<ul> <li>ActiveSync Device</li> <li>Default Device</li> </ul>	About				
ОК					

Chart 136 Setup the properties of the default device

Device Properties	
Device Name:	
Default Device	
Select a transport and a startup server. Choose Test to verify that	you can establish
a connection to your target device with the selected transport and	startup server
И	
Transport:	
TCP/IP Transport for Windows CE	Configure
Startup Server:	
Microsoft ActiveSync	Configure
OK Cancel Test	

Chart 137 Select "TCP/IP Transport for Windows CE" for transport

Device Properties	
Device Name:	
Select a transport and a startup server. Choose Test to verify that y a connection to your target device with the selected transport and s	vou can establish startup server
Transport:	
TCP/IP Transport for Windows CE	Configure
Startup Server:	
Manual Server	Configure
OK Cancel Test	

Chart 138 Select "Manual Server" for startup server, then click test

Manual Server - Action	×
U*	
Disconstruction the following files are on the device.	
Please make sure the following lifes are on the device	_
WINDOWS\tcpipc.dll	
\WINDOWS\cemgrc.exe	
And launch CEMGRC.EXE with the following cmd line	
CEMGRC.EXE /T:TCPIPC.DLL /Q /D:192.168.10.65:37087	-
UK Cancel	

Chart 139 Manual server—Action

## 5-3-3 Telnet with JetBox 8210

It's recommended to Telnet with JetBox 8210 and launch CEMGRC.EXE remotely.



Chart 140 Double click the network icon

<u>File E</u> dit	<u>V</u> iew A	dva <u>n</u> ced 🗙 🛃 🗉 🖼	<b>№?</b> ×
-	<u></u>	<u></u>	
Make New Connection	My Connection	DM9CE2 DM9CE1	
		DM9CE1 OK 🔀	
		IP Information	
		Internet Protocol (TCP/IP)	
		Address Type: Static	
		IP Address: 192.168.10.87	
		Subnet Mask: 255.255.255.0	
		Default Gateway: 192.168.10.3	
		Details	
		<u>R</u> enew	

鸄 Start 🛛 [	🛿 My Device	🚱 Control Panel	Network Co	DM9CE1	🎭 🕹 粪 12:16 AM	12
-------------	-------------	-----------------	------------	--------	----------------	----

Chart 141 IP address of the DM9CE1 network adapter



Chart 142 Start a Telnet Session of JetBox 8210



Chart 143 Success to telnet JetBox 8210



Chart 144 Launch "Manual Server—Action" command

Testing Device Connection
Device Name: Default Device
Connection to device established
TCP/IP Transport for Windows CE
ОК

Chart 145 Success to establish the manual server connection

## 5-3-4 Remote Tools via Manual Server

## Connection

🔀 Microsoft eMbedded Visual C++	• • • • • • • • • • • • • • • • • • • •	
Eile Edit View Insert Project Build	Tools Window Help	
		▼ <mark>%  </mark>
	<u>⊪ M</u> acro Record Quick Macro Ctrl+Shift+R Play Quick Macro Ctrl+Shift+P	
x -	Configure Platform Manager	
Build Debug Find in File	es 1 ) Find in Files 2 /	
Activates user-defined tool 11		

Chart 146 Launch remote zoom in tool

Select a platform or device to configure	
erwer Armemuweepaa	Add Device
MediaX Device	Delete
⊕-@@ MediaXCore ⊕-@@ STANDARDSDK_500	Proportion
🗄 👼 Windows CE Default Platform	-ropenes
- Territoria Sync Device	About
ОК	

Chart 147 Select "default device"

Manual Server - Action	×
Please make sure the following files are on the device	
	-
\WINDOWS\cemgrc.exe \WINDOWS\cetlstub.dll	
And launch CEMGRC.EXE with the following cmd line	
CEMGRC.EXE /T:TCPIPC.DLL /Q /D:192.168.10.65:37087	
OK Cancel	

Chart 148 Manual server—action



Chart 149 Launch "Manual Server—Action" command



Chart 150 Success to launch remote zoomin

# **Chapter 6 Application Development**

## 6-1 Overview

You can import JetBox 8210 SDK eMbedded Visual C++ 4.0 or Visual Studio .NET 2003. An application developer can then use the SDK to create applications that run on JetBox 8210 run-time image.

# 6-2 Install JetBox SDK



Chart 151 Launch JetBox SDK setup file to start installing SDK



Chart 152 JetBox 8210 SDK setup wizard

16	JetBox 8210 Core SDK License Agreement	(			
	End-User License Agreement Be sure to carefully read and understand the following end-user license agreement, and then indicate whether you accept or do not accept the terms of the agreement.				
	This software will not set up on your computer unless you accept the terms of the agreement. For your future reference, you may print the text of the agreement now using the PRINT button or obtain the text from the 'MSFT_SDK_EULA_1033.rtf' file after installation. You may also receive a copy of this agreement by contacting the Microsoft subsidiary serving your country, or write: Microsoft Sales Information Center, One Microsoft Way, Redmond WA 98052-6399.				
	END-USER LICENSE AGREEMENT FOR				
	MICROSOFT SOFT WARE				
	MICROSOFT CUSTOM SOFTWARE DEVELOPMENT KIT FOR WINDOWS CE 5.0 (Referred to as the "Microsoft Custom SDK")				
	Press the PAGE DOWN key to see more text.				
	Accept C Decline				
	Print < Back Next Cancel				

Chart 153 Accept end-user license agreement

🕞 JetBox 8210 Core SDK Setup		×
Customer Information		
Please enter your customer information		S
Liser Name		
Your Name		
, Organization:		
Your Company		
	< Back Next	> . Cancel

Chart 154 Enter customer information

🞼 JetBox 8210 Core SDI	< Setup
Choose Setup Type Choose the setup type t	hat best suits your needs
	<b>Custom</b> Allows users to choose which program features will be installed and where they will be installed. Recommended for advanced users. <b>Complete</b> All program features will be installed. (Requires most disk space)
	< Back Next > Cancel

Chart 155 Choose "Complete" setup type

🎼 JetBox 8	3210 Core SDK - Destinatior	n Folders			x
Destinati	on Folders				
Click Ne	xt to install to this folder, or click	Change to install to a	a different folder.		
<u> </u>	Install JetBox 8210 Core SDK to	):			
	C:\Program Files\Windows CE	Tools\wce500\JetBo	x8210Core\	Change	
		< Back	Next >	Cancel	
			- W		

Chart 156 Choose the destination folder

🞼 JetBox 8210 Core SDK Setup	×
<b>Ready to Install</b> The Setup Wizard is ready to begin the Comp	olete installation
Click Install to begin the installation. If you w settings, click Back. Click Cancel to exit the v	rant to review or change any of your installation vizard.
	< Back Install Cancel

Chart 157 Ready to install

🎼 JetBox 8210 Core SDK Setup	×
Installing JetBox 8210 Core SDK	Ð
Please wait while the Setup Wizard instal several minutes.	lls JetBox 8210 Core SDK. This may take
Status:	
	< Back Next > Cancel

Chart 158 Install JetBox 8210 SDK



Chart 159 Completing JetBox 8210 SDK setup wizard

# 6-3 Hello World Application with eVC++4.0

Note it's necessary to establish a connection between JetBox 8210 with your PC before downloading and executing the application from eVC++4.0.

🔀 Microsoft eMbedded Vis	isual C + +	×
	iect <u>B</u> uild <u>T</u> ools <u>W</u> indow <u>H</u> elp	
🗋 <u>N</u> ew Ctrl+N	🖸 🗠 🖉 🕞 🛱 🙀 set_address 💽 🙀	
⊇ ⊇pen Ctrl+O		
Open <u>W</u> orkspace		
Save Workspace		
Save As		
🗊 Save All		
Page Set <u>u</u> p		
🖨 Print Ctrl+P		
Recent <u>Fi</u> les •		
Recent Wo <u>r</u> kspaces 🔸		
E⊻it		
×		
Build Debug ) F	Find in Files 1 \ Find in Files 2 /	-
Creates a new docume	ent, project or workspace	

Chart 160 New a project with eVC++4.0

New	<u>? ×</u>
Files Projects Workspaces	
国WCE Application 過WCE ATL COM AppWizard のWOE Demonia Link Links	Project <u>n</u> ame: HelloWorld
Subject By Control With Clorary Subject WCE MFC ActiveX ControlWith Clorary WCE MFC AppWith Clorary WCE MFC AppWith Clorary Subject By WCE Static Library	Location:
	Create new workspace     Add to current workspace     Dependency of:
	CPUs: □Win32 (WCE ARMV4) ■Win32 (WCE ARMV4I) □Win32 (WCE ARMV4T) □Win32 (WCE MIPS16) □Win32 (WCE MIPSII) ■Win32 (WCE MIPSII_FP)
	OK Cancel

Chart 161 Hello world application with Win32 (WCE ARMV4I)

WCE Application - Step 1 of 1		? ×
		<ul> <li>What kind of windows application would you like to create ?</li> <li>An empty project.</li> <li>A simple Windows CE application.</li> <li>A typical "Hello World!" application.</li> </ul>
	< Back	Next > Finish Cancel

Chart 162 A typical "Hello World" application

New Project Information	×
WCE Application will create a new skeleton project with the following specifications:	
A standard "Hello World" application will be created for you targeting: Win32 (WCE ARMV4I) Win32 (WCE emulator) Win32 (WCE x86)	
Main: HelloWorld.cpp Pre Compiled Header: Stdafx.h and Stdafx.cpp. Resources: HelloWorld.rc, resource.h, and HelloWorld.ico	
Project Directory: I:\TEST\HelloWorld	
OK Cancel	

Chart 163 Complete to create the "Hello World" Project

🔂 HelloWorld - Microsoft eMbedded Visual C++
Elle Edit View Insert Project Build Tools Window Help
👔 😅 🖩 🕼 🔍 🖪 🖪 😤 🥦 set_address 💿 🙀
(Globals) ▼ (All global memi ▼ ♦ About ▼ <
HelloWorl 🗸 STANDARDS 🗸 Win32 (WCE emulator) Del 🗸 STANDARDSDK_500 Emula 🗸 🕸 🖽 📥 其 🗉 🖑
STANDARDSDK
Build (Debug ) Find in Files 1 ) Find in Files 2 /       Ready

Chart 164 Select the active configuration for customized WCE OS devices

🙀 HelloWorld - Microsoft eMbedded Visual C++	_ 🗆 🗙
Ele Edit View Insert Project Build Iools Window Help	
Image: Complete Ctrl+F7       S       Image: Ctrl+F7       S<	
Start Debug Update Remote Output File(s) Execute HelloWorld.exe Ctrl+F5 Set Active Configuration Configurations Set Active Platform	
	* *
Rebuilds Active Project and all project dependencies	

Chart 165 Rebuild active project and all project dependencies

Connecting to th	e device	2
Server is started.		v
Cancel		

Chart 166 Connecting to the JetBox 8210

Downloading			
From: i:\test\hel	loworld\arm∨4idk	og\helloworld.exe	
Cancel			 

Chart 167 Downloading hello world application to JetBox 8210



Chart 168 Finish downloading hello world application to JetBox 8210

📴 HelloWorld - Microsoft eMbedd	ed Visual C++ - [HelloWorld.cpp]		
🗈 Eile Edit View Insert Project E	<u>B</u> uild <u>T</u> ools <u>W</u> indow <u>H</u> elp		_ & ×
Globals) (All glob HelloWorl JetBox8210C) Workspace 'HelloWorld': HelloWorld files HelloWorld files HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp HelloWorld.cpp	Curl+F7  Build HelloWorld.cpp Ctrl+F7  Build HelloWorld.exe F7  Rebuild All Batch Build Clgan  Start Debug Update Remote Output File(s)  Execute HelloWorld.exe Ctrl+F5 Set Active Configuration Configurations Set Active Platform	▼     ★       ■     ★       Box8210Core Device     ▼       Defines the entry point for the       .h"       .G 100	application.
ReadMe.txt	HINSTANCE	hInst; // The current	instance
Clas SReso FileV.			
Build (Debug ) Find in Fi	les 1 $\lambda$ Find in Files 2 /	Ln 1, Col 1 REC	

Chart 169 Execute hello world application

<u>F</u> ile <u>H</u> elp	×

Hello World!

🐉 Start 🛛 HelloWorld

🎭 🕹 🏨 3:54 AM 🛛 📝 🏴

Chart 170 Snapshot of the hello world application

# 6-4 Hello World Application with VS2005



Chart 171 New an application project with VS2005
New Project			? ×
Project types:		Templates:	000
Visual C++ATLCLRGeneralMFCSmart DevTestWin32Other LanguagVisual BasiVisual BasiVisual C#WindovOfficeSmart IPodSmart IPodSmart ISmart I -	ice ges c vs – Device ket PC 2003 artphone 2003 dows CE 5.0	<ul> <li>Visual Studio installed templates</li> <li>Class Library</li> <li>Control Library</li> <li>Console Application</li> <li>My Templates</li> <li>Search Online Templates</li> </ul>	
A project for crea	Helloworld	ct Framework 2.0 forms application for Windows CE 5.0 and later	
Location:	i:\Temp	-	Browse
Solution Name:	HelloWorld	Create directory for solution	
		ОК	Cancel

Chart 172 Create a hello world application for windows CE 5.0 smart device using visual C#

🕫 Helloworld - Microsoft Visual Studio		_ 8 ×
File Edit View Project Build Debug Data Tools Test Window Community Help		
🔁 🕶 🐨 🖝 🚰 👗 🖏 🐔 🥙 🕶 🖓 🗮 🕨 🔜 🕨 Debug 🔹 Any CPU 🔹 💋 ATOMIC_GPIO_CLR 🔹 🚱 🦉	* 🔝 🛠 💽 🗉	
: [부] [E] 추 팩 [패 후 프] [그 텐 전 뷰 [패 않 않 않 ] 할 것 와 타 [편 편 ] 팩 팩 프] 프 Pocket PC 2003 SE Emulator	- 1 1929 - 1920 - 1920 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930 - 1930	. 📼
Solution Explorer - HeloWorld - 7 X Form1.cs [Design]* Start Page - X	Properties	- ‡ × 🚺
	Form1 System.Wr	ndows.Forms.Form
Solution HeloWorld' (1 project)	21 0 7 1	di
🖻 🖉 Helloworld	E Appearance	▲ ¥
🖲 🔛 Properties	BackColor	Control
🖲 🔤 References	Font	Arial, 10pt
e- I Form 1.cs	ForeColor	ControlText
- S Form1.Designer.cs	FormBorderStyle	FixedSingle
- W Form1.resx	Text	Hello World! 🚶 🕺
🗆 🔮 Program.cs	Behavior	
	AutoValidate	EnablePreventFoo
	ContextMenu	(none)
	Enabled	True
•	TooBar	(none)
	Data	
	(DataBindings)	
	Tag	
	Design	Found
	(Name)	Formi
	FormFactor	(Defailt)
	Localizable	Eske
	Locked	False
	Skin	False
19: manMenul	□ Lavout	
	AutoScaleMode	Dpi
RgSolution [☆Class View  ]Property	AutoScroll	True
Cutput 🗸 🕂 🗙	AutoScrollMargin	0,0
Show output from:	Location	0,0
	Size	640, 480
	WindowState	Normal
	B Misc	
	KeyPreview	False
	B Window Style	-
	LontroBox	(rue
	MaximizeRev	To a
	Maximi2ebox	mainMenut
	A faissies Dave	Tous
	Text	
	The text contained	d in the control.
Gacode Definition Window 2□Call Browser 🔲 Output 🙀 Find Results 1		
Ready		

Chart 173 Edit the appearance text to hello world

📽 HelloWorld - Microsoft Visual Studio			III - 7 🗙
File Edit View Project Build Debug Target Data Format Tools Test Window Community Help			
🔚 🕶 🗃 🖌 🚰 😹 🐁 🖎 🥙 🕶 🖓 🖛 🖓 🖛 🖓 🖛 🖓	· 💀 🕾 🗉	3 🛠 🗈 🗉 📲	
(株) 12 今 創 寺 や 血 1号 初 怒 禁 (*) 次 な な ) き だ お の 1日	CE 5.0 Device 🔹 🚦	h 🎮 🕰 🏭	
Device: - 🖓 🖓 🖾 📸 - Pocket PC	2003 Device		
Solution Explorer 4 × Form Lcs [Design]* Start Page Pocket PC	2003 SE Emulator 2003 SE Samue Emulator	ies	<b>-</b> ₽×
Pocket PC Pocket PC	2003 SE Square VGA Em	ulator System.Win	dows.Forms.Form -
Colution "Hello World" (1 proje	CE 5.0 Device		1
😑 🧟 Hello World	1	E Appearance	
B- M Properties		BackColor	Control
B- B FormLes		E Font	Arial, 10pt
- S Form1.Designer.cs		ForeColor	ControlText
Dermilierx		FormBorderStyle	FixedSingle
Togram.cs		Text	Hello World!
		Behavior	
		AutoValidate	EnableAllowFoc
S mainManul		ContextMenu	(none)
		Enabled	1100
Solut. Call. There		Data	(none)
	- 1 -	(DataBindings)	
	• ÷ ×	Tag	
Show output from: Build		E Design	
		(Name)	Form1
		FormFactor	WebPad
		Language	(Default)
		Localizable	False
		Locked	False
		Skin	False 🗸
	~	AutoValidate	
	>	Indicates whether co	strols in the container
Code Definition Window 🞾 Call Browser 💷 Output		will be automatically	validated when the
Ready			

Chart 174 Configure the target device as windows CE5.0 device

🔗 Hello World - Microsoft Visual Studio		III _ 7 🔀
File Edit View Project Build Debug Target Data Format Tools Test Window Community Help		
🛐 🕶 🖅 🚰 🛃 🎒 🖄 🗈 🖭 🤊 🕶 🖓 – 🖓 – 🖏 🕨 Debag 🔹 Aay CPU 🔹 🦉	🛠 🗈 🗆 📲	
尊臣 수 레 코 소 실 弓 한 路 尊 ==> 알 유 을 찾 않 수: 田 臣 및 명 圖 말, Windows CE 5.0 Device 🔹	A 24 14	
Device - Sa Sa 🖾 🕼 =	Connect to Device	
Solution Explorer • 4 × Form Les [Design]* Start Page • ×	Properties	<b>-</b> ₽×
	Form1 System.Wind	lows.Forms.Form -
Solution Hello World ( ) and		
🖨 🚰 Hello World	Annostanco	
- Ba Properties	BackColor	Control
e an references → an Fermics	E Font	Arial, 10pt
- 1 Form 1. Designer.cs	ForeColor	ControlText
- S FormLiesx	FormBorderStyle	FixedSingle
- · · · · · · · · · · · · · · · · · · ·	Text	Hello World
	Behavior	
×	AutoValidate	EnableAllowFoc
Security Manual	ContextMenu	(none)
	Enabled	True
Salat Catal Portage	ToolBar	(none)
	Data (Data Distinguistics)	_
	E (Latabindings)	
Show output from: Build - 🖓 💭 🛼 💌	Design	
	(Name)	Form1
	FormFactor	WebPad
	Language	(Default)
	Localizable	False
	Locked	False
	Skin	False 🗸
v	AntoValidate	
	Indicates whether cor	trols in the container
Code Definition Window 20 Call Browser O Output	will be automatically	validated when the
Pas In		

Chart 175 connect to device



Chart 176 Connect to windows CE5.0 device succeeded



Chart 177 Rebuild solution

🏶 HelloWorld - Microsoft Visual S	Stadio	
File Edit View Project Build	Debug Target Data Tools Test Window Community Help	
🔚 🕶 🖬 🕶 🖬 💋 🐰 🔍	Windows Any CPU . 🙆 .	2 🐨 🖄 🛠 🖬 🗉 🗸 🖕
\$15 & d 77 ~ a	Start Debugging F5 St. of FP F9 Ga P3 F3 Windows CE 5.0 Device	• 🐘 🕅 🚓 🏔 –
Dening Den Den 18	Start Without Debagging Ctrl+F5	
Chaine Parkers	强 Attach to Process	
Solution Explorer • 4 X	Exceptions Ctrl+Alt+E	✓ X Properties ✓ 4 X
	Step Into F11	Form I System. Windows -
Solution 'Hello World' (1 pros	Step Over F10	2 <u>2</u> 4 3
🕫 - 📴 Properties	Tanda Bendariat ED	B Appearance
- Bar References	New Development Po	E Font Arial, 10pt
- S Form1.Designer.cs	New Breakpoint	ForeColor Contro
S FormLresx	Delete All Breakpoints Ctrl+Shift+F9	FormBord FixedSingh
Program.cs		Text Hello Wo
		Behavior
		ContextM (none)
	🖹 mainMenu1	Enabled True
< >		ToolBar (none)
≈JSolut 🕑 Catal 🗷gClass		🗆 Data
Output		↓ X
Show output from: Build	· 🖗 🕸 🛸 式 🗉	Design
Rebuild All started: C:WINDOWS\Wicrosoft.WET\Fra	Project: WelloWorld, Configuration: Debug Any CPU mework\v2.0.50727\Csc.exe /noconfig /novarn:1701.1702 /nostdlibt /errorreport:prompt /war	n:4 /define:DERNG (Name) Form1
	A contraction of the contraction	FormFacts WebPad
Compile complete 0 errors HelloWorld -> C:\Documents a	, O warnings nd Settings\brad chen\Wy Documents\Vismal Studio 2005\Projects\NelloWorld\WelloWorld\bin\	Debug \HelloWorld Language (Default)
Rebuild All: 1 su	cceeded, 0 failed, 0 skipped =========	Localizabl False
		Loczed False Skin Falsa
4		AutoValidate
Code Definition Window Zall Brow	wser 🔝 Output	in the container will be a
Ready	Ln 6	Col 68 Ch 68 INS

Chart 178 Start debugging

Deploy HelloWorld	? 🗙
Choose where to deploy your application.	Deploy
Device:	Cancel
Pocket PC 2003 Device Pocket PC 2003 SE Emulator Pocket PC 2003 SE Square Emulator Pocket PC 2003 SE Square VGA Emulator Pocket PC 2003 SE VGA Emulator Windows CE 5.0 Device	
Show me this dialog each time I deploy the application	

Chart 179 Deploy hello world application to Windows CE5.0 Device

🏶 HelloWorld (Running)	- Microsoft Visual Studio	III _ 🗗 🔀
File Edit View Refacto	or Project Build Debug Target Tools Test Window Community Help	
i 🛐 🛪 🛅 🛪 💕 🛃 🏈	- A B B	
🕨 n n n 🖬 🔶 🔊	11 🖓 😭 Hex 🗔 🗸 🖕 Windows CE 5.0 Device 💿 🚯 🔊 🕰 🕰 🖕 🕄 🕵 🐂 👘 🖉 😫 🛄 🖓 🖓 🖉 🥵 🦉	2 📮
Device: - 💡		
Solution Explor 4 ×	Form I. Designer. cs Form I. cs [Design]	+ ×
🔚 🚱 🗉 🖻 🖧	#HelloWorld_Form1	~
Solution HelloWorld' (1 HelloWorld FieldWorld Forosties ForonLes ForonLes ForonLes Program.cs	<pre>masspace KelloVerld ( partial class Form) ( /// commany&gt; //  commany&gt; // commany&gt; /</pre>	× • • • •
Solution SClass View		>
Autos		<b>-</b> ₽ ×
Name	Value Type 🔿 Name	Lan; 🔿
	×	V
🖶 Autos 💹 Locals 🛃 Thread	ds 📾 Modules 🚚 Watch 1 🖓 Call Stack 🗔 Breakpoints 💷 Output	
Ready	Ln 10 Col 9 Ch 9	INS

Chart 180 Hello world (running)

Hello World!			
🎝 Start 🗁 HelloWorld	Hello World!	🎐 🕹 🌉 4:25 AM	<b>B</b>

Chart 181 Snapshot of the hello world application on JetBox 8210

## 6-5 eVC++4.0 Sample Codes for Hardware

#### Accessing

A rich set of sample codes are provided for demo how to access the hardware peripherals. After installing SDK, the eVC++ 4.0 sample codes are located under C:\Program Files\Windows CE Tools\wce500\JetBox8210Core\Sdk folder.

eVC++ 4.0 Sample Codes		
Folder	Description	
Battery	Demo how to query the voltage of the battery.	
DI_Event	Demo how to query DI status by waiting events.	
DI_Poll	Demo how to query DI status by polling.	
DIPSwitch	Demo how to query DIP switches status.	
DO	Demo how to operate DO channels.	
EEPROM	Demo how to read/write data from/to EEPROM.	
NVRAM	Demo how to read/write data from/to NVRAM.	
Security	Demo how to query security serial code and	
	read/write data from/to security ROM.	
Serial_	Demo how to get/set the operation mode of the	
OperationMode	serial ports.	
WatchDogTimer	Demo how to operate the watch dog timer	
	normally.	
WatchDogTimer_	Demo how the hardware watch dog timer works	
CrashSystem	by halting the OS.	
WatchDogTimer_	Demo how the watch dog timer works in a	
KillProcess	timeout situation.	

Chart 182 Description of the eVC++4.0 Sample Codes

# **Chapter 7 Appendix**

## 7-1 Chart Index

Chart 1 Application—end user	7
Chart 2 Applications and services development	9
Chart 3 Communication services and networking	12
Chart 4 Core OS Service	14
Chart 5 Device management	14
Chart 6 File system and data store	15
Chart 7 Graphics and multimedia technologies	16
Chart 8 Security	17
Chart 9 Shell and user interface	17
Chart 10 Platform manager	18
Chart 11 Related Win32 APIs to operate DI01	19
Chart 12 Control codes for DIO1	19
Chart 13 Steps to configure a RS485 port	20
Chart 14 Related Win32 APIs to operate NVR1	20
Chart 15 Related Win32 APIs to operate EPR1	21
Chart 16 Related Win32 APIs to operate SEC1	21
Chart 17 Io Control codes for SEC1	21
Chart 18 DIP switches registry key and named value	22
Chart 19 Related Win32 APIs to get the state of DIP switches	22
Chart 20 Related Win32 APIs to configure COMx	22
Chart 21 Io Control codes for COMx	23
Chart 22 Snapshot of the control panel of JetBox 8210	23
Chart 23 Snapshot of "DIO Tester" control applet	24
Chart 24 Description of the user interface of "DIO Tester"	25
Chart 25 Configuration snapshot of "SerPerf" control applet	25
Chart 26 Run time snapshot of "SerPerf" control applet	26
Chart 27 Related Win32 APIs to operate NVR1	26
Chart 28 Related Win32 APIs to operate EPR1	27
Chart 29 Related Win32 APIs to operate SEC1	27
Chart 30 Io control codes for SEC1	27
Chart 31 DIP switches registry key and named value	28

Chart 32 Related Win32 APIs to Configure COMx	.28
Chart 33 Io control codes for COMx	.28
Chart 34 Snapshot of "UsrMgr.exe"	.30
Chart 35 Arguments description of "UsrMgr.exe"	.30
Chart 36 Snapshot of "rFlush.exe"	.31
Chart 37 Named values of HKEY_LOCAL_MACHINE\Init key	.31
Chart 38 a Typical Init Registry Entry Using Dependencies	.32
Chart 39 Telnet Server Registry Key and Named Values	.33
Chart 40 FTP Server Registry Key and Named Values	.36
Chart 41 Web server registry key and named values	.41
Chart 42 Named values of	
HKEY_LOCAL_MACHINE\Services\SMBServer\Shares Key	.43
Chart 43 Named values of	
HKEY_LOCAL_MACHINE\Services\SMBServer\Shares\myCF Key	.43
Chart 44 An example to exclude the folders to be shared	.44
Chart 45 Snapshot of share a folder via "net use" command	.45
Chart 46 First use setup wizard	.46
Chart 47 Input password and re-type to confirm	.47
Chart 48 Choose "I do not want to setup an Internet connection now"	47
Chart 49 JetBox 8210 is resetting	.48
Chart 50 Authentication for remote configuration	.48
Chart 51 Description of the user interface of the reset base	.49
Chart 52 Snapshot of the RemoteAdmin Home Page	.49
Chart 53 Description of the user interface of the reset base	.50
Chart 54 Click the reset button	.50
Chart 55 Click "OK" to confirm	.50
Chart 56 JetBox 8210 is resetting	.51
Chart 57 Description of the user interface of the set time page	.51
Chart 58 Snapshot of the set time page for synchronize to Internet time	ne
server	.52
Chart 59 Snapshot of the set time page for set time manually	.52
Chart 60 Description of the user interface of the application port	
forwarding page	.53
Chart 61 Snapshot of the application port forwarding page	.53
Chart 62 Description of the user interface of the back up/restoring	
settings page	.54
Chart 63 Snapshot of the back up/restoring settings page	.54
Chart 64 Snapshot of download the back up settings file	.55

Chart 65 Description of the user interface of the port forwarding page55
Chart 66 Snapshot of the port forwarding page
Chart 67 Description of the user interface of the virtual DMZ page
Chart 68 Snapshot of the virtual DMZ page57
Chart 69 Description of the user interface of the Add/Del network adapter
page
Chart 70 Snapshot of the Add/Del network adapter page57
Chart 71 Description of the user interface of the SMB server statistics page
Chart 72 Snapshot of the SMB server statistics page58
Chart 73 Description of the user interface of the local area network page 59
Chart 74 Snapshot of the local area network page59
Chart 75 Description of the user interface of the wide area network page 60
Chart 76 Snapshot of the wide area network page60
Chart 77 Description of the user interface of the change password page61
Chart 78 Snapshot of the change password page61
Chart 79 Description of the user interface of the firewall page61
Chart 80 Snapshot of the firewall page62
Chart 81 Description of the user interface of the client filtering page62
Chart 82 Snapshot of the client filtering page63
Chart 83 Description of the user interface of the add/del users page63
Chart 84 Snapshot of the add/del users page64
Chart 85 Description of the user interface of the add/del share page64
Chart 86 Snapshot of the add/del share page65
Chart 87 Description of the user interface of the share permissions page.65
Chart 88 Snapshot of the share permissions page
Chart 89 Description of the user interface of the add/del printer page66
Chart 90 Snapshot of the add/del printer page67
Chart 91 Description of the user interface of the printer permissions page
Chart 92 Snapshot of the printer permissions page67
Chart 93 Description of the user interface of the system page68
Chart 94 Snapshot of the system page69
Chart 95 Description of the user interface of the WebAdmin home page70
Chart 96 Snapshot of the WebAdmin home page70
Chart 97 Snapshot of the WebAdmin home page71
Chart 98 Snapshot of the instructions page72
Chart 99 Description of the user interface of the logging page72

Chart 100 Snapshot of the current logging page	.73
Chart 101 Snapshot of the log file	73
Chart 102 Description of the user interface of the SSL configuration page	74
Chart 103 Snapshot of the SSL configuration page	.74
Chart 104 Snapshot of the restart web server page	.75
Chart 105 Snapshot of the SysAdmin Home Page	.76
Chart 106 Snapshot of the SysAdmin Home Page	.76
Chart 107 Description of the user interface of the system info page	.77
Chart 108 Snapshot of the system info page	.77
Chart 109 Description of the user interface of the processes page	.77
Chart 110 Snapshot of the processes page	.78
Chart 111 Description of the user interface of the file browser page	.79
Chart 112 Snapshot of the file browser page	.79
Chart 113 Description of the user interface of the registry editor page	.80
Chart 114 Snapshot of the registry editor page	.80
Chart 115 Launch "Network and Dial-up Connections" control applet	.82
Chart 116 Make a new connection	.82
Chart 117 Choose "Direct Connection" option	.83
Chart 118 Choose a RS232 COM port	83
Chart 119 Configure the selected COM port	.84
Chart 120 Flow control as none	.84
Chart 121 Make "My Connection" is completed	.85
Chart 122 Launch "PC connection" control applet	.85
Chart 123 Select "Change" to change PC connection	.86
Chart 124 Change PC connection to "My Connection"	.86
Chart 125 Change PC connection is completed	.87
Chart 126 Configure ActiveSync Connection settings	.87
Chart 127 Allow connections to COM1	88
Chart 128 ActiveSync is not connected	.88
Chart 129 Connect JetBox 8210 with PC via RS232 Null Modem Cable	.88
Chart 130 Choose "No" to skip setup a partnership	.89
Chart 131 ActiveSync is connected	.89
Chart 132 ActiveSync is connected	.89
Chart 133 Microsoft ActiveSync	.90
Chart 134 Explore the JetBox 8210 via ActiveSync	.90
Chart 135 Configure platform manager	91
Chart 136 Setup the properties of the default device	.92
Chart 137 Select "TCP/IP Transport for Windows CE" for transport	.92

Chart 138 Select "Manual Server" for startup server, then click test	93
Chart 139 Manual server—Action	93
Chart 140 Double click the network icon	93
Chart 141 IP address of the DM9CE1 network adapter	94
Chart 142 Start a Telnet Session of JetBox 8210	94
Chart 143 Success to telnet JetBox 8210	94
Chart 144 Launch "Manual Server—Action" command	94
Chart 145 Success to establish the manual server connection	95
Chart 146 Launch remote zoom in tool	95
Chart 147 Select "default device"	96
Chart 148 Manual server—action	96
Chart 149 Launch "Manual Server—Action" command	97
Chart 150 Success to launch remote zoomin	97
Chart 151 Launch JetBox SDK setup file to start installing SDK	98
Chart 152 JetBox 8210 SDK setup wizard	98
Chart 153 Accept end-user license agreement	99
Chart 154 Enter customer information	99
Chart 155 Choose "Complete" setup type	100
Chart 156 Choose the destination folder	100
Chart 157 Ready to install	101
Chart 158 Install JetBox 8210 SDK	101
Chart 159 Completing JetBox 8210 SDK setup wizard	102
Chart 160 New a project with eVC++4.0	103
Chart 161 Hello world application with Win32 (WCE ARMV4I)	103
Chart 162 A typical "Hello World" application	104
Chart 163 Complete to create the "Hello World" Project	104
Chart 164 Select the active configuration for customized WCE OS devi	ces
	105
Chart 165 Rebuild active project and all project dependencies	105
Chart 166 Connecting to the JetBox 8210	106
Chart 167 Downloading hello world application to JetBox 8210	106
Chart 168 Finish downloading hello world application to JetBox 8210	106
Chart 169 Execute hello world application	107
Chart 170 Snapshot of the hello world application	107
Chart 171 New an application project with VS2005	108
Chart 172 Create a hello world application for windows CE 5.0 smart of	levice
using visual C#	109
Chart 173 Edit the appearance text to hello world	109

Korenix | Appendix

Chart 174 Configure the target device as windows CE5.0 device	110
Chart 175 connect to device	110
Chart 176 Connect to windows CE5.0 device succeeded	111
Chart 177 Rebuild solution	111
Chart 178 Start debugging	112
Chart 179 Deploy hello world application to Windows CE5.0 Device	112
Chart 180 Hello world (running)	113
Chart 181 Snapshot of the hello world application on JetBox 8210	113
Chart 182 Description of the eVC++4.0 Sample Codes	114

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