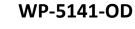
WinPAC-5000 User Manual (WinCE Based, eVC & .net)

Version 1.0.8, January 2014

Service and usage information for

WP-5141







WP-5151



WP-5151-OD



Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

Warning

ICP DAS assumes no liability for any damage resulting from the use of this product.ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, not for any infringements of patents or other rights of third parties resulting from its use.

Copyright

Copyright @ 2014 by ICP DAS Co., Ltd. All rights are reserved.

Trademark

The names used for identification only may be registered trademarks of their respective companies.

Contact US

If you have any problem, please feel free to contact us.

You can count on us for quick response.

Email: service@icpdas.com

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Table of Contents

1. Introduction	6
1.1. WinPAC-5000 Family	7
1.1.1. WinPAC-5000 Naming Convention	7
1.1.2. WinPAC-5000 Comparison	8
1.2. Features	9
1.3. Specifications	12
1.4. Overview	14
1.5. Dimension	21
1.6. Companion CD	25
2. Getting Started	26
2.1. Mounting the Hardware	
2.2. Configuring the Boot Mode	30
2.3. Changing the Language of the User Interface	32
2.4. Using WinPAC Utility to Configure WinPAC Basic Functionality	34
2.5. Using Backup Utility to Back up the Settings and Files	35
3. Tools and Tasks	37
3.1. Backup Utility	40
3.2. Dconmcnfg	42
3.3. Napopc_ce5	43
3.4. SendToCOM	44
3.5. VCEP	45
3.6. WinPAC_Utility	46
3.6.1. Menu Bar	47
3.6.2. Property Tabs	52
4. Your First Program	63

4.1. Preparing the Development Tools	64
4.2. Installing WinPAC-5000 SDK	
4.3. Your First Program in C#	67
4.3.1. Creating a New Project	
4.3.2. Adding the WinPAC-5000 Reference	70
4.3.3. Adding the Control to the Form	71
4.3.4. Adding the Event Handling to the Control	73
4.3.5. Upload the Application to WinPAC-5000	75
4.3.6. Executing the Application on WinPAC-5000	77
4.4. Your First Program in VB.net	
4.4.1. Creating a New Project	79
4.4.2. Adding the WinPAC-5000 Reference	
4.4.3. Adding the Control to the Form	
4.4.4. Adding the Event Handling to the Control	
4.4.5. Upload the Application to WinPAC-5000	
4.4.6. Executing the Application on WinPAC-5000	
4.5. Your First Program in eMbedded Visual C++	
4.5.1. Creating a Forms-Based Project	89
4.5.2. Configuring the Platform	
4.5.3. Specifying the Path of the WinPAC-5000 Reference	e 94
4.5.4. Adding the Control to the Form	
4.5.5. Adding the Event Handling to the Control	
4.5.6. Upload the Application to WinPAC-5000	
4.5.7. Executing the Application on WinPAC-5000	
5. APIs and Demo Programs	105
5.1. Demo Programs with C#	
5.1.1. C# Demo Programs for WinPAC Standard API	
5.1.2. C# Demo Programs for PAC I/O API	
5.2. Demo Programs with eVC++	110
5.2.1. eVC++ Demo Programs for WinPAC Standard AP	I 110

5.2.2. eVC++ Demo Programs for PAC I/O API 112	2
6. I/O Modules and SDK Selection 114	1
7. WinPAC-5000 Updates 117	7
7.1. OS Updates 118	3
7.1.1. OS Updates Using Installation Package File	C
7.1.2. OS Updates Using Eshell via Ethernet	5
7.2. SDK Updates 129	Э
7.2.1. WinPAC SDK updates for C# or VB.net 130	C
7.2.2. WinPAC SDK updates for eVC++ 13	1
Appendix A. Tips-How to 132	2
A.1. How to add a User Account	3
A.1.1. How to Use telnet to remote login the WinPAC from PC	5
A.1.2. How to remove the user from the login list	7
A.2. How to online debug WinPAC 138	3
A.2.1. Debug WinPAC programs in EVC++ 138	3
A.2.2. Debug WinPAC programs in Visual Studio 2005/2008 147	7
A.3. How to use the printer156	6
A.3.1. How to use network printer 157	7
A.3.2. How to use printer via USB159	9
A.4. How to use services tool 160	С
A.5. How to use ActiveSync through USB port	3
A.6. How to automatically synchronize the WinPAC clock with an Internet Time Server	C
Appendix B. XW-board Modules172	2
Appendix C. Revision History173	3

1. Introduction



WinPAC-5000 Series is the new generation PAC (Programmable Automation Controller). It is equipped with a PXA270 CPU (520 MHz) running a Windows CE.NET 5.0 operating system, various connectivity (VGA, USB, Ethernet, RS-232/485) and I/O expansion bus.

The WinPAC-5000 series has many advantages, including hard real-time capability, small core size, and fast boot speed, interrupt handling at a deeper level, achievable deterministic control and low cost. Using Windows CE.NET 5.0 gives it the ability to run PC-based control software such as Visual Basic.NET, Visual C#, Embedded Visual C++, SCADA software, SoftPLC. It gives users all of the best features of both traditional PLCs and Windows capable PCs.

For hardware expansion, it also supports an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as D/I, D/O, A/D, D/A, Timer/Counter, UART, and other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. But the bus can support only one board. There are more than 10 boards available for WinPAC-5000 series which users can choose one of them to expand hardware features.

1.1. WinPAC-5000 Family

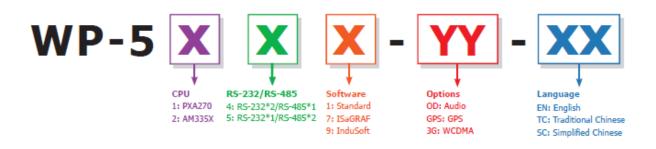
The WinPAC-5000 family is divided into two main types according to Audio port.

- WP-5141 (without Audio port)
- WP-5141-OD (with Audio port)
- WP-5151 (without Audio port)
- WP-5151-OD (with Audio port)

1.1.1. WinPAC-5000 Naming Convention

As you examine this manual, you'll notice there are many different models available. Sometimes it is difficult to remember the specifications for any given model.

However, if you take a few minutes to understand the module naming conventions, it may save you some time and confusion. The figure below shows how the module naming conventions work for each WinPAC-5000 model.



1.1.2. WinPAC-5000 Comparison

Model	os	CPU	Flash	SDRAM	Ethernet	VGA Resolution	RS-232/ RS-485	I/O Expansion Bus	Audio Port	
WP-5141									-	
WP-5141-OD		PXA270		2/1	Yes	Yes				
WP-5151	CE5.0	520 MHz	0 MHz 64 MB 128 MB 2 800 x 600	``	(for XW-board only)	-				
WP-5151-OD								1/2		Yes

The following table shows the comparison in all the features of WinPAC-5000 family.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

1.2. Features

The key features of WinPAC-5000 include:

➤ Windows CE.Net 5.0



- Supports PC based software: eVC and VS.NET
- Web server, FTP server, Telnet server
- ISaGRAF version for IEC 61131-3 programming
- InduSoft version for SCADA solution

► Local I/O and Communication Expansion Board

WinPAC-5000 series equip an I/O expansion bus to support one optional expansion



board, called XW-board. It can be used to implement various I/O functions such as DI, DO, A/D, D/A, Timer/Counter and various communication interface, such as RS-232/422/485, CAN, FRnet, etc.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

> Various Memory Expansions

WinPAC-5000 provides various memory storage options, such as EEPROM and microSD. Customers can choose the memory based on their characteristics.

- 16 KB EEPROM: to store not frequently changed parameters.
- microSD/microSDHC: to implement portable data logging applications.

> Unique 64-bit Hardware Serial Number to Protect Your Program

A unique 64-bit serial number is assigned to each hardware device to protect your software against piracy.

Remote I/O Module and Expansion Unit With the built-in RS-485 and Ethernet port, the WinPAC-5000 GPS 5000 series can connect RS-485/Ethernet remote I/O units (RU-87Pn/ET-87Pn) or modules GSM/GPRS (I-7000/M-7000/ET-7000). With an XW-board, the 5000 series can have more communication ports or different interface to connect to other type of devices, for example: CANOpen devices, DeviceNet devices, or FRnet I/O modules. Internet > Plastic and Metal Casing The default case is plastic material, Cell Phone customers can choose metal case if they want.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

5.000 Meg

> Multi-Communication Interface

There are several of communication interfaces to expand I/O and connect to external devices:

> Small and Easy Installation

WinPAC-5000 Series have a palm-size shape (91 mm x 132 mm x 52 mm) to be installed in a narrow space with DIN-Rail.



> Highly Reliable Under Harsh Environment

Our WinPACs operate in a wide range of temperature and humidity.

- Operating Temperature: -25 ~ +75 °C
- Storage Temperature: -30 ~ +80 °C
- Humidity: 10% ~ 90% RH, non-condensing



1.3. Specifications

Models	WP-5141	WP-5141-OD	WP-5151	WP-5151-OD		
System Software						
OS	Windows CE 5.0					
.Net Compact Framework	2.0/3.5					
Embedded Service	FTP server, We	FTP server, Web server (supports VB script, JAVA script), Embedded				
	SQL server	SQL server				
SDK provided	DII for eVC, DII	for Visual Studio.Ne	et 2003/2005/2008			
CPU Module						
CPU	PXA270 or com	patible (32-bit and s	520 MHz)			
SDRAM	128 MB					
Flash	64 MB (32 MB f	or OS, 32 MB for S	ystem_Disk and Sys	stem Registry)		
EEPROM	16 KB Data Ret	ention: 40 Years; 1,	000,000 erase/write	e cycles		
Expansion Flash Memory	microSD socket	with a microSD car	d (support up to 16	GB microSD card)		
RTC (Real Time Clock)	Provide second	, minute, hour, date	, day of week, mont	h, year		
64-bit Hardware Serial	Yes					
Number						
Dual Watchdog Timers	Yes	Yes				
LED Indicator	3 LEDs (RUN/P	3 LEDs (RUN/PWR, L1 ~ L2; RUN/PWR for status indications, L1 ~ L2				
	for user programmable)					
Rotary Switch	Yes (0 ~ 9)					
VGA & Communication Port	s					
VGA	640 x 480 or 80	0 x 600				
Ethernet	RJ-45 x 2, 10/10	00 Base-TX (Auto-n	egotiating, Auto MD	DI/MDI-X, LED		
	indicators)					
USB 1.1 (client)	1					
USB 1.1 (host)	1					
Audio Port	-	Yes	-	Yes		
(Microphone-In and						
Earphone-Out)						
COM1	RS-232 (RxD, T	xD and GND); Non	-isolated			
COM2	RS-485 (D2+, D	02-); 2500 V _{DC} ; isola	ited			
COM3	RS-232 (RxD, T	xD and GND);	RS-485 (D3+, D3	8-); 2500 VDC;		
	Non-isolated		isolated			

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Models	WP-5141	WP-5141-OD	WP-5151	WP-5151-OD	
I/O Expansion					
I/O Expansion Bus	Yes, to mount on	Yes, to mount one optional XW-board			
Mechanical					
Dimensions (W x L x H)	91 mm x 132 mn	91 mm x 132 mm x 52 mm			
Installation	DIN-Rail Mountir	ng			
Environmental					
Operating Temperature	-25 ~ +75 °C				
Storage Temperature	-30 ~ +80 °C				
Ambient Relative Humidity	10 ~ 90% (non-condensing)				
Power	Power				
Input Range	+10 ~ +30 V _{DC}				
Isolation	1 kV				
Consumption	4.8 W(0.2 A @	6 W (0.25 A @	4.8 W (0.2 A	6 W (0.25 A @	
	24 V _{DC})	24 V _{DC})	@ 24 V _{DC})	24 V _{DC})	

1.4. Overview

Here is a brief overview of the components and its descriptions for module status.

Front Panel

The front panel includes programmable LED indicators.



➤ LED Indicators

LED indicators provide a very convenient way of status indications for faster, easier diagnostics.

LED Name	Color (ON State)	Meaning
RUN/PWR	Green	Power is on
	Orange	Power on and OS is running
L1	Green	User programmable control LED
L2	Green	User programmable control LED

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



The LED indicators can be programmed with WinPAC API. If not necessary, do not use RUN that is assigned to the OS-status indicators.

Top Panel

The top panel includes a microSD socket, VGA port, USB client and rotary switch.



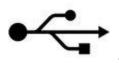
microSD socket

The microSD socket provides an easy way to expand the available storage with a microSD card up to 16 GB maximum.

➤ VGA port

External VGA port provides an easy connection to a monitor or touch panel.

➤ USB Client



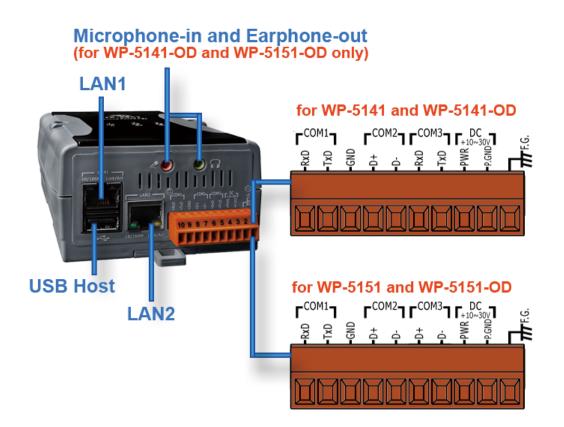
USB Client is used to for ActiveSync application. An accessory USB cable is available to connect the client port with USB mini-B type to USB. Type A plug on a PC for ActiveSync application.

Rotary Switch

The rotary switch is used to select the operating mode. For more information about the operating mode, please refer to section **2.2. Configuring the Boot Mode**.

Bottom Panel

The bottom panel includes a microphone, an earphone, a USB host, a connector and two Ethernet ports



> Microphone-in and Earphone-out (for WP-5141-OD/WP-5151-OD only)

The microphone and an earphone jack to allow the input and the output of the audio system.

> Ethernet Port (LAN1 and LAN2)

The Ethernet ports are the opening on WinPAC-5000 network equipment that Ethernet cables plug into. Ethernet ports accept cables with RJ-45 connectors.

➤ USB Host



A USB host controller is a machine with a root hub which allows several input devices to be connected to it, such as mice and keyboards.

Connector

The pin assignments of the connector are as follows:

WP-5141/WP-5141-OD

Pin		Signal	Description
	1	F.G	Frame Ground
	2	GND	Dower Input
	3	PWR	Power Input
	4	TxD	
	5	RxD	COIVI3: R5-232
	6	D-	COM2: RS-485
	7	D+	COIVI2: K3-485
	8	GND	
	9	TxD	COM1: RS-232
I	10	RxD	

WP-5151/WP-5151-OD

Pin			Signal	Description
		1	F.G	Frame Ground
		2	GND	Doworlpput
		3	PWR	Power Input
		4	D-	COM3: RS-485
		5	D+	COIVIS. N3-485
		6	D-	COM2: RS-485
		7	D+	COIVIZ. NJ-485
		8	GND	
Ĭ		9	TxD	COM1: RS-232
I	1	10	RxD	

COM1 (3-Pins, RS-232)

Note: CPU internal UART Baud Rate: 15200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps Data Bits: 7, 8 Parity: None, Even, Odd Stop Bits: 1 FIFO: 1 byte

COM2 (2-Pins, RS-485)

Note: 16C550 compatible Baud Rate: 15200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps Data Bits: 7, 8 Parity: None, Even, Odd, Mark (Always 1), Space (Always 0) Stop Bits: 1, 2 FIFO: 16 bytes

COM3 (3-Pins, RS-232 for WP-5141/WP-5141-OD)

Note: 16C550 compatible Baud Rate: 15200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps Data Bits: 7, 8 Parity: None, Even, Odd, Mark (Always 1), Space (Always 0) Stop Bits: 1, 2 FIFO: 16 bytes

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

COM3 (3-Pins, RS-485 for WP-5151/WP-5151-OD)

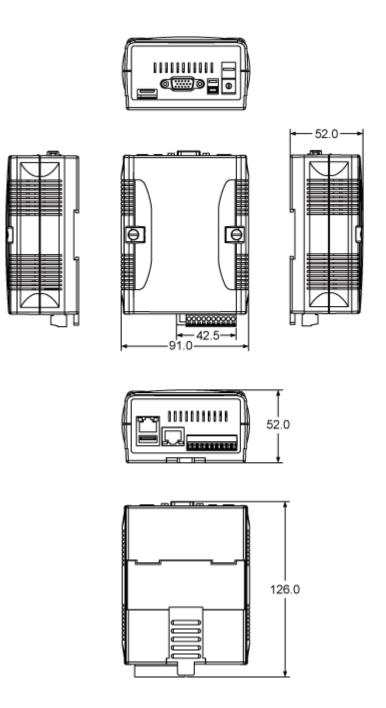
Note: 16C550 compatible Baud Rate: 15200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps Data Bits: 7, 8 Parity: None, Even, Odd, Mark (Always 1), Space (Always 0) Stop Bits: 1, 2 FIFO: 16 bytes

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

1.5. Dimension

All dimensions are in millimeters.

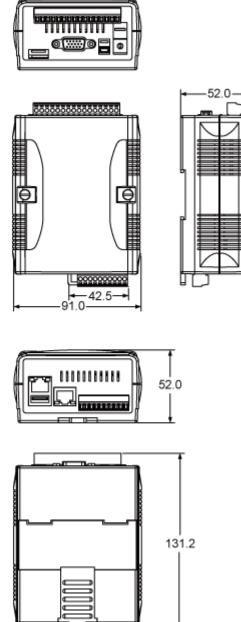
> WP-5141/WP-5151



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

> WP-5141/WP-5151 with XW-board

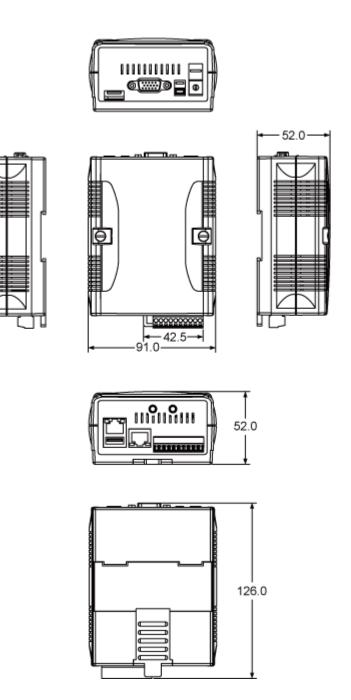




Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 22

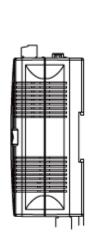


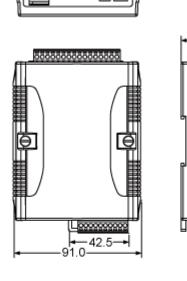
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 23

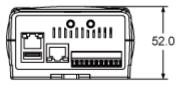
> WP-5141-OD/WP-5151-OD with XW-board

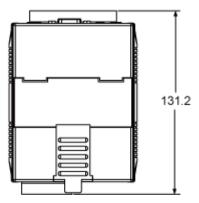




œ

-52.0-





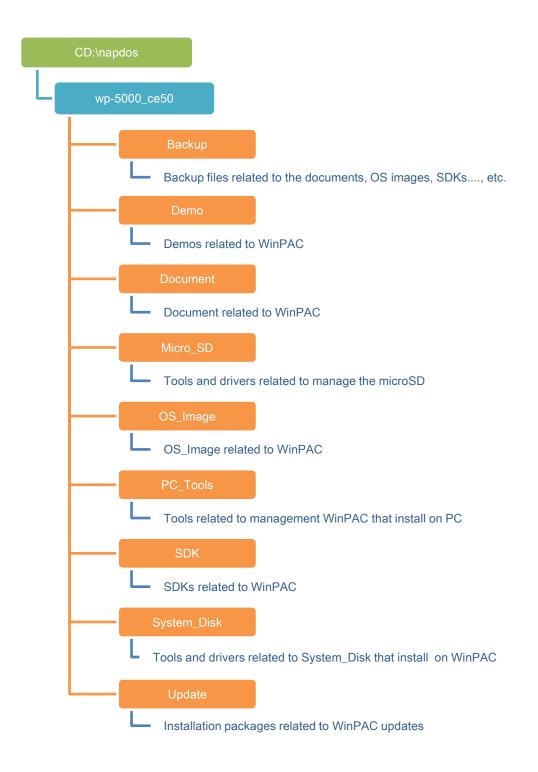
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 24

1.6. Companion CD

This package comes with a CD that provides drivers, software utility, all of the required documentations..., etc. All of them are listed below.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

2. Getting Started

If you are a new user, begin with this chapter, it includes a guided tour for basic overview of installation and configuration.

In addition to Quick Start Guide, the package includes the following items, if any items are damaged or missing, please contact us.









WinPAC Module	A microSD Card and	Software Utility CD	Screw Driver
WP-5141	a microSD/SD Adapter		(1C016)
WP-5141-OD			2.4 mm
WP-5151			
WP-5151-OD			

2.1. Mounting the Hardware

Before installing the hardware, you should have a basic understanding of hardware specification, such as the size of hard drive, the usable input-voltage range of the power supply, and the type of communication interfaces.

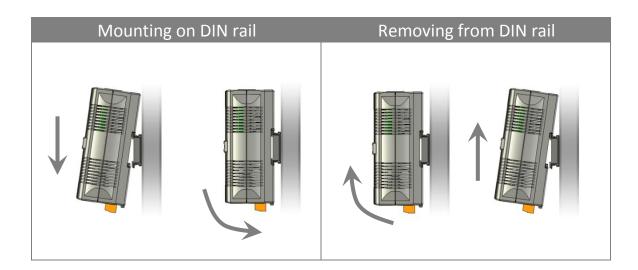
For complete hardware details, please refer to section "1.3. Specifications" You also need to know the expansion capacities in order to choose the best expansion module for achieving maximal efficiency.

For more information about expansion module that are compatible with the unit, please refer to

http://www.icpdas.com.tw/product/solutions/pac/upac/xw-board_selection.html

Step 1: Mounting WinPAC-5000

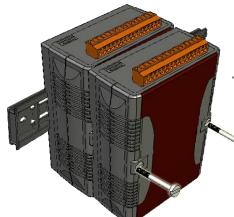
- The WinPAC-5000 can be mounted with the bottom of the chassis on the DIN rail, the wall or piggyback.
- To clean the unit, wipe it with a clean, dry cloth.
- Maintain the following conditions:
 - Operating Temperature: -25 °C to +75 °C
 - Storage Temperature: -30 °C to +80 °C
 - Relative Humidity: 10% to 90%, non-condensing



> DIN rail mounting

The WinPAC-5000 has simple rail clips for mounting reliably on a standard 35 mm DIN rail.





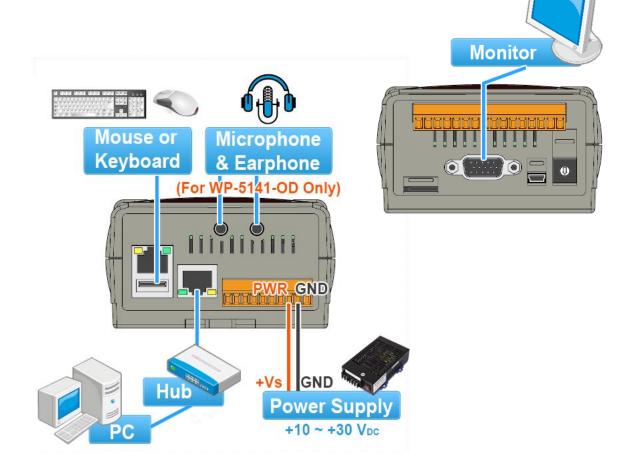
> Piggyback mounting

The WinPAC-5000 has two holes on both sides for piggyback mounting.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 2: Connecting to a microphone, an audio, a PC, the USB device, and the power supply

- i. Connect the mouse or keyboard to the USB port.
- ii. Connect the microphone and earphone to the microphone-in and earphone-out (for WP-5141-OD/WP-5151-OD only)
- iii. Connect PC to the Ethernet port through a hub.
- iv. Connect the power supply (10 ~ 30 V_{DC}) to PWR and GND terminals.
- v. Connect the monitor to the VGA port.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

2.2. Configuring the Boot Mode

The WinPAC-5000 has the following seven main operating modes, which can be selected by a rotary switch.

	Rotary switch position	Modes of operation
	0	Normal mode (Default)
	1	Safe mode
6780	2	Debug mode
5 A E Z V	3	OS update mode
	4	Development mode
	5	DCON_CE
	6	VCEP
	7 ~ 9	(For user)

The following is an overview of the seven modes.

Normal Mode (Default mode)

Normal mode is the default mode of operation and the one you will use most of the time. Use this mode for more tasks and configurations. Programs also are executed in this mode.

Safe Mode

Safe mode is a trouble shooting. The mode loads the minimum required device drivers and system services to boot the WinPAC-5000.

If you have malicious software or a program caused the WinPAC-5000 cannot be boot or run the normal mode, you can boot in safe mode to solve the problem.

Debug Mode

Debug mode is a special environment in which program debug functions can be used in addition to normal system functions.

Debug mode is unsupported.

OS Update Mode

OS update mode is a way used to update OS. For more information on updating the WinPAC-5000 OS image, please refer to section 6.1. OS updates

Development Mode

DCON_CE

In this mode, the DCON_CE will be run automatically, and other settings are same as the normal mode.

For more information about the VCEP, please refer to section 3.3. DCON_CE.

VCEP

In this mode, the VCEP will be run automatically, and other settings are same as the normal mode.

For more information about the VCEP, please refer to section 3.5 VCEP.

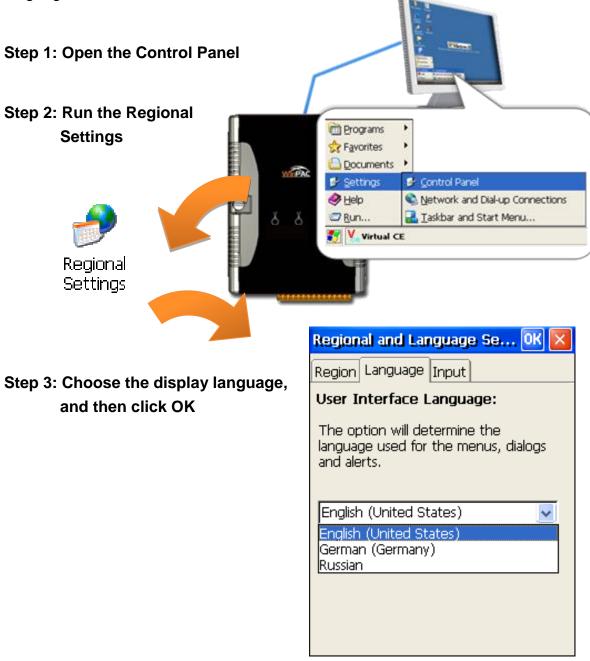
User Mode

The positions 7, 8, 9 of rotary switch are reserved for user's applications.

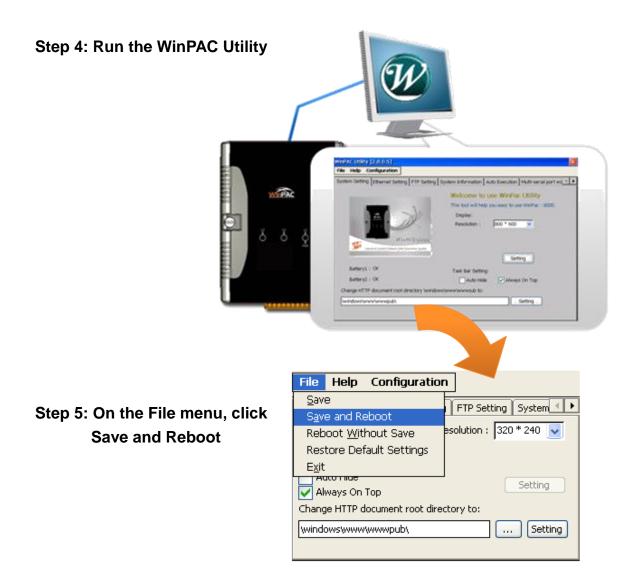
When WinPAC-5000 is boot with one of these positions, it is boot at normal mode. User's application can check the rotary switch position to run at different mode.

2.3. Changing the Language of the User Interface

The WinPAC-5000 is a Windows CE-based operating system which provides multilingual user interface and the user interface can be set to one of multi languages.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



Step 6: Click "Yes" to reboot the WinPAC-5000



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

2.4. Using WinPAC Utility to Configure WinPAC Basic Functionality

WinPAC Utility is a tool that provides ability to configure the WinPAC-5000 services.

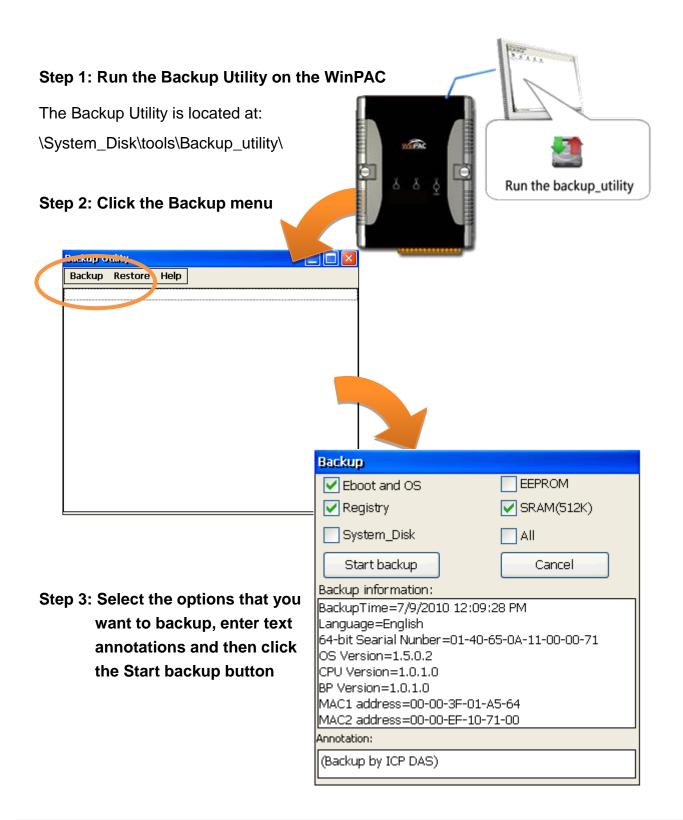


For more information on how to use the WinPAC Utility, please refer to section 3.6. WinPAC Utility.

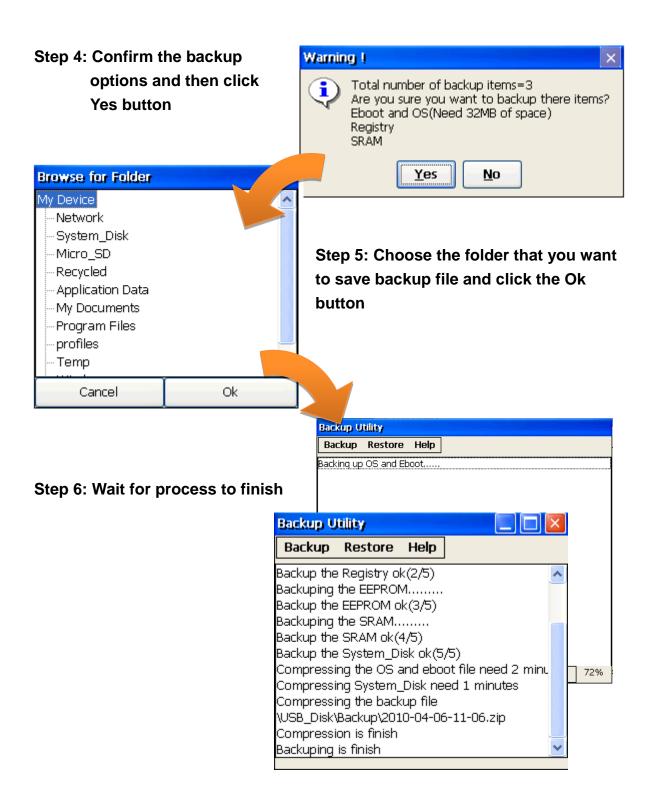
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

2.5. Using Backup Utility to Back up the Settings and Files

After saving the configuration settings for a WinPAC device following the first use, it is recommended to use the Backup utility to back up all the data (settings and files).



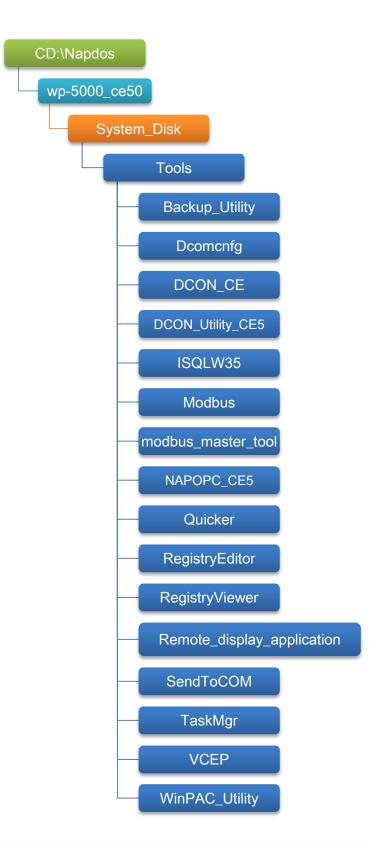
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3. Tools and Tasks

Following tools has been installed on WinPAC-5000.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 37

➤ Backup_Utility

The Backup_Utility is a system backup/restore tool used to backup/restore all the data (OS, settings and files) from/to the WinPAC/ViewPAC device.

> Dcomcnfg

dcomcnfg.exe for Windows CE to configure your DCOM settings.

NTLMUser.exe for Windows CE to create local NTLM accounts on the Windows CE Device.

> DCON_CE

With Host PC running the DCON Utility, on the WinPAC, the DCON_CE program allows user to view and monitor the status of the DCON Utility.

► ISQLW35

The ISQLW35 implements SQL server compact 3.5 Query Analyzer.

➤ Modbus

The Modbus provides various applications of Modbus protocol for configuring the WinPAC.

➤ NAPOPC_CE5

NAPOPC_CE5 is an integrated omnibus software package, it allows user to quickly establish a DCS control system.

Registry Editor

The Registry Editor allows user to editor the registry value of Windows CE Operating System.

➤ Remote display application

The remote display application allows user to view the display remotely of the WinPAC on a Host PC.

➤ SendToCOM

The SendToCOM allows user to send/receive data to/from the expansion module via serial port.

➤ TaskMgr

The TaskMgr provides details about programs and processes running on the WinPAC.

> VCEP

The VCEP allows user to manage the WinPAC remotely on a Host PC.

> WinPAC Utility

The WinPAC Utility provides various useful functions such as configuring Ethernet settings, monitoring system settings and FTP services for easy and quick management.

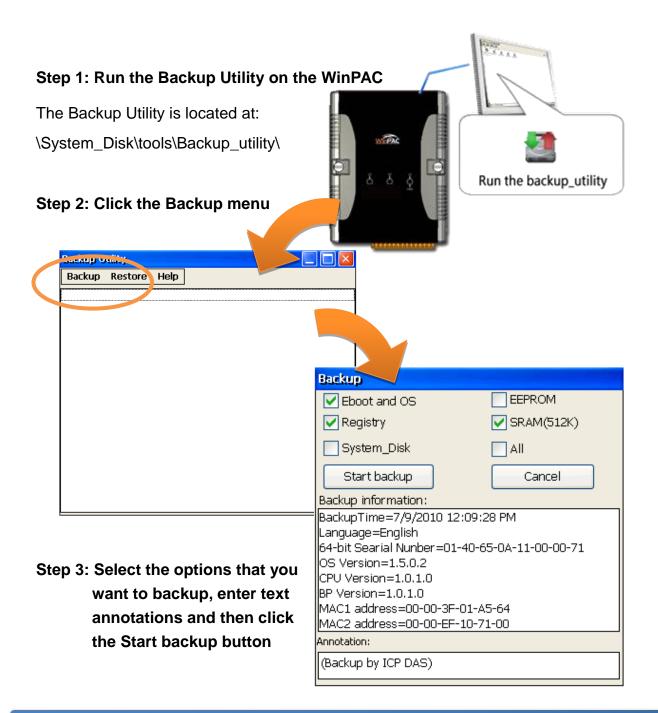
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.1. Backup Utility

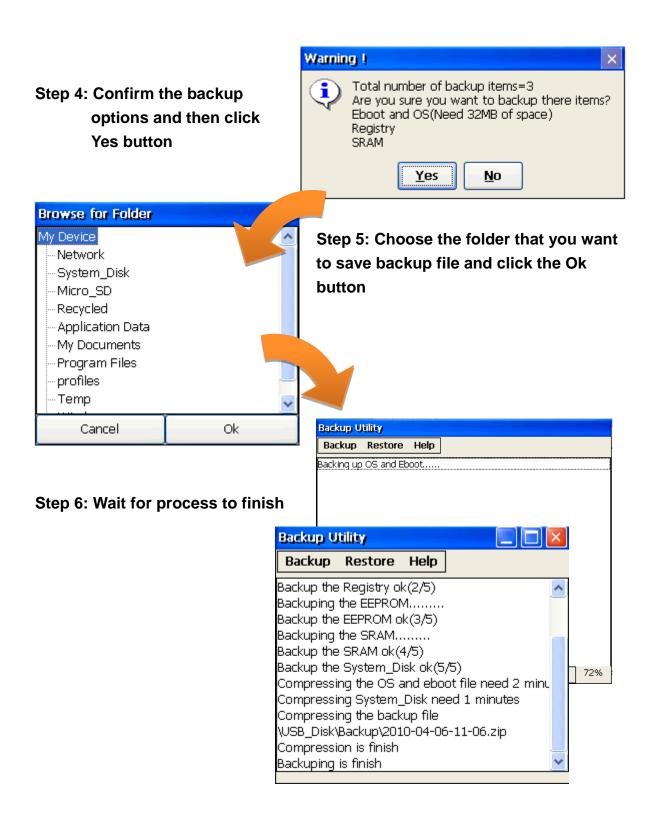
Backup Utility is an application program for backing up data.

With this utility, you can easily back up not only the files and folders you have created on your WinPAC-5000 but also the entire partition(s) including your WinPAC-5000 operating environment and its settings and dictionaries.

Below are the step-by-step procedures to use the Backup utility to back up data.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.2. Dconmcnfg

DCOMCNFG is a utility included with Microsoft Windows CE operating system and is used to configure various DCOM-specific settings in the registry. You can use the registry to specify default permissions for objects on the system, such as Access, Launch, and Configuration.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.3. Napopc_ce5



NAPOPC_CE5 DA Server is a free OPC DA Server (The "OPC" stands for "OLE for Process Control" and the "DA" stands for " Data Access") working on WinPAC, ViewPAC & WinCon controllers provided by ICP DAS Ltd. The first standard (originally called simply the OPC Specification and now called the Data

Access Specification) resulted from the collaboration of a number of leading worldwide automation suppliers working in cooperation with Microsoft. Originally based on Microsoft's OLE COM (component object model) and DCOM (distributed component object model) technologies, the specification defined a standard set of objects, interfaces and methods for use in process control and manufacturing automation applications to facilitate interoperability. NAPOPC_CE5 DA Server integrates OPC, Modbus TCP Slave and Modbus RTU Slave three kind Slave services, as well as integrates Modbus TCP Master, Modbus RTU Master and DCON three kind Master communication protocols. It also provides one advanced function "Rule Script" for use in the I/O integration and transformation, and some conditional Logic operation.

Any version before 2.1.0 of the NAPOPC_CE5 was named "Quicker"

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.4. SendToCOM

The SendToCOM uses the serial port to communicate with expansion module. To use the SendToCOM, you can send data to expansion module through the serial port, and receive data from other device through the serial port.

For more information about these commands for communicating with expansion module, please refer to:

CD:\Napdos\io_module\87k_high_profile_modules.htm

ICPDAS Send to COM v2.00 Connection Status	
COM Port Baudrate Data Bit Parity Stop Bit COM1 I15200 8 0-None Pa 1 x	Slot Close
End string with None LF_CR CR CR_LF LF Commands Responses Current Packet Size (bytes) 0 Current Packet Size (bytes) 0 Total Packet Bytes 0 Total Packet Bytes 0 0 Packet Quantity send 0 Packet Quantity received 0 Clear	string C +CRC Binary String Send Polling Auto send Internal (ms) 500 Start Stop Set Start Time Stop Time Stop Time
	Clear
	1

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.5. VCEP



ICPDAS VCEP is designed for managing your WinPAC anywhere. No matter where you are, ICPDAS VCEP provides a convenient environment on the Desktop PC and allows you control your WinPAC remotely.

ICPDAS VCEP is composed of two main components: The "Server" which runs on WinPAC. The "Client" which runs on a Desktop PC.

Once a connection is established between the client and server (initiated by the client), the client will periodically send requests for screen updates and send mouse/key click information to the server to simulate. Each video frame is inter-compressed against the previous frame and then intra-compressed with a modified LZW scheme to minimize the amount of data transmitted from server to client.

For more detailed information on VCEP application, please refer to <u>ftp://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/pc_tools/vcep_4.2.0.9/</u>

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.6. WinPAC_Utility

The WinPAC Utility is a tool which is designed to quickly control and manage the WinPAC.

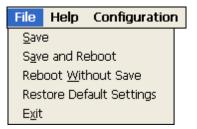
WinPAC Utility [2.0.2.6]
File Help Configuration
System Setting Ethernet Setting Network Setting System Information Auto Execution Multi-serial 💷 🕨
Welcome to use WinPAC Utility This tool will help you to set WinPAC - 8000. Display Resolution : $800 * 600$ Setting Task Bar Setting: Auto Hide Always On Top
Configure the synchronization with a time server Configure Configure Enable Autorun in plugging USB Disk Cenable Autorun in plugging Micro SD

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.6.1. Menu Bar

The WinPAC Utility includes the following function menu. All functions menu will be explained later.

File Menu



Help Menu



Configuration Menu

File	Help	Configuration
		Import Registry Key
		Export Regsitry Key
		Store All Registry Setting
		Dump All Registry Setting

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

➤ File Menu

File	Help	Configuration
<u>S</u> avi	е	
S <u>a</u> v	e and Re	eboot
Reb	oot <u>W</u> itl	hout Save
Res	tore Def	ault Settings
Exit		

The menu commands	Use to
Save	Save the settings into Flash.
	The new settings don't take effect until the WinPAC restart.
Save and Reboot	Save the settings into Flash and restart the WinPAC.
	The new settings will take effect after the WinPAC restart.
Reboot Without Save	Restarts the WinPAC without save the settings into Flash.
Restore Default Settings	Restarts the settings of WinPAC to its factory default values.
	The settings include configuration setting, network setting, auto execution, etc.
Exit	Exits the WinPAC Utility.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

➤ Help Menu

File	Help	Configuration	
	<u>R</u> ese	t System to Defaul	t
	Relea	ise <u>N</u> otes	
	<u>A</u> bou	ıt	

The menu commands	Use to
Reset System to	Resets the system interrupt status to default.
Default	The operation used in the situation when the interrupt crash.
	You can select this operation to reset the
	interrupt status without rebooting the device.
Release Notes	Checks out what's new and the know issues.
About	Displays a dialog box with information about
	WinPAC Utility, including the current version and
	copyright information.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Configuration Menu

File Help Configuration

Import Registry Key
Export Regsitry Key
Store All Registry Setting
Dump All Registry Setting

The menu commands	Use to
Import Registry Key	Backs up a sub-key of registry by using a registration entry (.reg) file.
	How to use:
	Step 1: Select the "Import Registry Key", then the "Open" dialog box will appear
	Step 2: On the "Open" dialog box, select a specific .reg file to import
	Warning:
	1. The .reg file which should be saved by "Export Registry Key".
	2. It will not save automatically after import a .reg file.
Export Registry Key	Makes a backup of a registry sub-key
	How to use:
	Step 1: Select the "Export Registry Key", then the "Export Registry" box will appear
	Step 2: Select a specific root key
	Step 3: Input a specific path of sub-key
	Step 4: Push the "OK" button, then the "Save As" dialog box will appear prompting you to

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

The menu commands	Use to
	select a location where you want to save this exported file
	Warning:
	The export operation will export all the sub-keys of the specific key which you input.
Store All Registry Setting	Stores all registry setting to flash from .das file which is saved by "Dump All Registry Setting".
	How to use:
	Step 1: Select the "Store All Registry Setting", then the "Open" dialog box will appear
	Step 2: On the "Open" dialog box, select a specific .das file to store
	Warning:
	1. The .das file which should be saved by "Dump All Registry Setting".
	2. It will save automatically after store .das file.
Dump All Registry Settings	Dump all registries setting to .das file.
	How to use:
	Select the "Dump All Registry Setting", then the "Save As" dialog box will appear prompting you to select a location where you want to save this
	exported file.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

3.6.2. Property Tabs

The WinPAC Utility includes the following property tabs, all property tabs will be explained later.

WinPAC Utility [2.1.0.4]
File Help Configuration
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto 💶 🕨
Welcome to use WinPAC Utility This tool will help you to set up the WinPAC - 8000. Display Resolution : 800 * 600 Erequency : 55.8 Settings Task Bar Settings: Auto Hide Always On Top
Blank Desktop Configure synchronization with a time server Configure Enable Autorun when connecting a USB Disk Enable Autorun when connecting a Micro SD

- ✓ System Settings
- ✓ System Settings2
- ✓ Ethernet Settings
- ✓ Network Settings
- ✓ System Information
- ✓ Auto Execution
- ✓ Multi-serial port wizard
- ✓ System Memory Setting

System Settings Tab

The System Settings tab provides functions to configure the task bar.

WinPAC Utility [2.1.0.4]
File Help Configuration
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto 💶 🕨
Welcome to use WinPAC Utility This tool will help you to set up the WinPAC - 8000. Display Resolution : 800 * 600 • Frequency : 55.8 • Settings Task Bar Settings: Auto Hide Always On Top Blank Desktop
Configure synchronization with a time server Configure Enable Autorun when connecting a USB Disk Enable Autorun when connecting a Micro SD

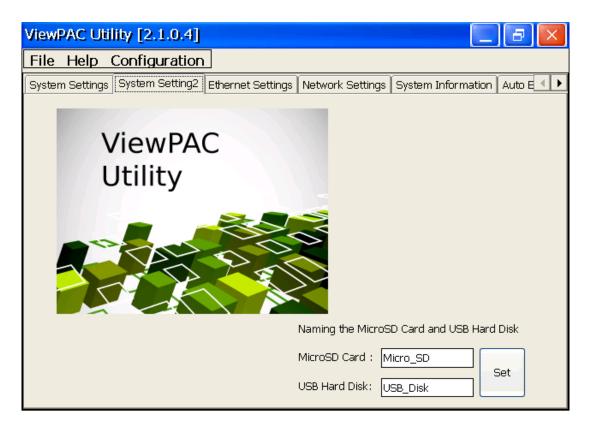
The tab use to	How to use
Adjust the size of the desktop	Select a display resolution from the Resolution list.
Lock or Auto-Hide the taskbar	Auto-Hide: Select the Auto Hide check box Lock: Select the Always On Top check box.
Change the HTTP directory path	Enter a new path in the Change HTTP document root directory \windows\www\wwwpub to field, and then press the Setting button.
Automatic synchronization of system time	Refer to the Appendix A.6 How to configure the service for automatically synchronizing with the internet time server

* The battery initial voltage should be around 2.8~3.0V, when below 2.1V, the WinPAC/ViewPAC Utility will show the low power warning. When below 1.5V, the data in the RTC (real time clock) and 512KB SDRAM will be lost. Proceed to replace the PCs battery. The battery type: BR1225.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

System Settings2 Tab

The System tab provides functions to set the name of the MicroSD card and the USB hard disk.



The tab use to	How to use		
Set the name of the MicroSD card	Enter the name of the MicroSD card and		
ant the USB hard disk	the USB hard disk in the relevant fields,		
	and then press the Set button		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Ethernet Settings Tab

The Ethernet Settings tab provides functions to configure either DHCP (Roaming) or manually configured (Static) network settings and to monitor the MAC address. Generally, DHCP is the default settings, but if you don't have a DHCP server, you must configure the network settings by using manual configuration.

WinPAC Utility [2.1.0.4]
File Help Configuration
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto 💽
LAN1 LAN2
MAC Address 1: 00-00-C6-01-5C-90
LAN 1 IP Address Setting:
Use DHCP to get IP address
O Assign IP address
IP Address: 10.1.0.43
Mask: 255.255.0.0
Gateway: 10.1.0.254
DNS Server: 10.0.0.3
Setting

The tab use to	How to use		
Configure the network settings	Obtaining an IP address automatically from DHCP:		
	Select the Use DHCP to get IP address option.		
	Manually assign an IP address:		
	Select the Assign IP address option.		
Monitor the MAC	See the MAC Address 1 and MAC Address 2 fields		
address	that display the physical address of LAN1 and LAN2.		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Network Settings Tab

The Network Settings tab includes three tabs, FTP Setting, HTTP directory path, Users and Password and File Server Settings.

The FTP settings tab provides functions to enable/disable the FTP access, enable/disable anonymous FTP access, and configure the FTP directory path.

FTP Settings tab

WinPAC Utility [2.0.2.6]				
File Help Configuration				
System Setting Ethernet Setting Network Setting System Information Auto Execution Multi-serial 🔍 🕨				
FTP Setting Users and Password File Server Settings				
FTP				
Allow Anonymous 💿 Enable 🔵 Disable				
Allow Anonymous Enable Disable Upload				
Change FTP default download directory \Temp to:				
\Temp\				
Setting				
Change HTTP document root directory \windows\www\wwwpub to:				
\windows\www\wwwpub\ Setting				

The tab use to	How to use		
Enable or disable the FTP access	Enable:		
	Select the Enable check box in the FTP field.		
	Disable:		
	Select the Disable check box in the FTP field.		
Enable or disable	Enable:		
anonymous FTP access	Select the Enable check box in the Allow Anonymous field.		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

The tab use to	How to use
	Disable:
	Select the Disable check box in the Allow Anonymous field.
Enable or disable anonymous FTP upload	Enable:
	Select the Enable check box in the Allow Anonymous Upload field.
	Disable:
	Select the Disable check box in the Allow Anonymous Upload field.
Change the FTP directory path	Enter a new path in the Change FTP default download directory field, and then press the Setting button.
FTP/Telnet authentication	Refer to the Appendix A.1

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Users and Passwords tab

WinPAC Utility [2.1.0.4]
File Help Configuration
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto
FTP Settings Users and Passwords File Server Settings
User name Password Add Delete
User name Password Note: The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC. Setting
Change the HTTP document root directory \windows\www\wwwpub to:

The tab use to	How to use			
Add a user account	Fill in the User name and Password field of your user account, press the Add button, and then press the Setting button			
Delete a user account	Choose a user name from the user account list, the user account that you select will display in the User name and Password filed, press the Delete button, and then press the Setting button			
* The maximum number of the user accounts is 5.				
* The maximum of the string length of the user name and password fields				

must be less than 20 charachters.

Please refer the document "w2-022_how_to configure_the_File(SMB)_Server " to use the File Server Settings tab.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

System Information Tab

The System Information tab provides functions to monitor necessary system information of the WinPAC. The system information is the most important note of version control for upgrading system.

WinPAC Utility [2.1.0.4]							
File Help Configura	tion						
System Settings Syster	n Settings2	Ethernet Settings	Network Settings	System Information Auto (\mathbf{I}		
XWBoard	Module T	ype:	WP-5141 (64MB)				
	Flash Typ	e(System_disk):	MXIC MX29GL256	5F X 1			
	Flash Typ	e(OS):	MXIC MX29GL256	5F X 1			
	64-bit Se	rial Number:	01-C7-90-EC-15-	00-00-B4			
	OS Versi	on:	1.3.1.0 , 2013/09	9/03 13:30:01			
	Eboot Ve	rsion:	1.2.0.0 , 2012/06	6/28 14:32:17			
	Backplan	e Version:	1.0.0.0				
	CPU Vers	ion:	1.0.2.0				
	WinPacS	OK Version:	4.2.3.7				
	WinPacN		2.1.0.2				
	.NET Fra		3.5.7338.00				
	SQL CE V	'ersion:	3.5.5386.0				
	Last Save	e Date:	Monday, Septemi	ber 11, 2113			

Tips & Warnings



The XW-board series are for uPAC-5000, LP-5000, and WP-5000 series.

One PAC can only plug only one XW-board. The System Information tab show the module name for XW-board.

Auto Execution Tab

The Auto Execute tab provides functions to configure programs running at WinPAC startup, it allows users to configure ten execute files at most.

Tips & Warnings



The allowed file types are .exe and .bat, and they are executed in order of program 1, program 2, etc.

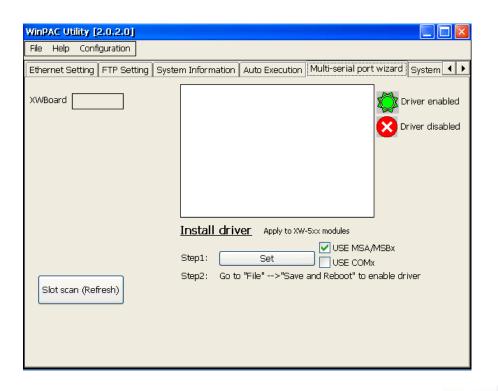
WinPAC Utility [2.0.1.1]							
File Help Configuration							
System Setting Ethe	ernet Setting	FTP Setting	System Informa	ation A	uto Execution	Multi-serial po	rt v 📕 🕨
	Program 1:]	Browse	
	Program 2:					Browse	
	Program 3:					Browse	
	Program 4:					Browse	
	Program 5:					Browse	
At most 10 programs can be	Program 6:					Browse	
specified to execute	Program 7:					Browse	
automatically at system startup.	Program 8:					Browse	
	Program 9:					Browse	
	Program 10	:				Browse	
				Setting			

The tab use to	How to use
Configure programs	Press the Browse button to select the execute file
running at startup	which you want, and then press the Setting button.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

> Multi-Serial Port Wizard Tab

The Multi-serial port provides functions for installation of the XW-board driver.



The table below shows the expansion communication modules that are compatible with the WinPAC-5000.



RS-232/422/485, DI, DO Boards

Model	Serial Port			DI	DO	Isolation	
	Туре	Ch	Wire	ום	DU	ISUIALIUN	
XW506	RS-232	6	3-wire	-	-		
XW507	RS-422/RS-485	1	4/2-wire	5	5	-	
XW508	RS-232	8	3-wire	-	-	-	
XW509	RS-232	2	5-wire	4	4	-	
XW511i	RS-485	4	2-wire	-	-	2500 Vrms	
XW514	RS-485	8	2-wire	-	-	-	

For more detailed information about these support modules, please refer to http://www.icpdas.com/root/product/solutions/pac/upac/xw-board_selection.html

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

> System Memory Setting Tab

The System Memory Setting tab provides functions to adjust and monitor the unused RAM.

WinPAC Utili	ity <u>[2.0.1</u>	.1]				$\overline{\times}$
File Help	Configu	ration				
Auto Executio	on Multi-:	serial port wizard Syste	m Memory Setting Ba	ackplane	Compatibility	
		Move slider to the left fo programs. Move slider to room. Only unused RAM) the right for more sto			
	Storage Vemory		-0		Program Memory	
A	Allocated:	49128KB	Allo	cated:	49128KB	
Ir	n Use:	6916KB	I	n Use :	14248KB	
				Se	etting	

The tab use to	How to use
Adjust display	Move the slider left to release more memory running
	programs or move the slider right to release more
	storage room, and then press the Setting button

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4. Your First Program

When you learn every computer programming language you may realize that the first program to demonstrate is "Hello World", it provides a cursory introduction to the language's syntax and output.

Before writing your first program, ensure that you have the necessary development tools and the corresponding WinPAC-5000 SDKs are installed on your system.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.1. Preparing the Development Tools

WinPAC-5000 is a Windows CE-based unit. Windows CE is a mature embedded operating system which supports rapid development. Two standard development tools are list as follows which are highly integrated, with comprehensive support for developing applications of Windows CE-based WinPAC-5000.

Visual Studio



Visual Studio

WinPAC-5000 has .NET Compact Framework 2.0 installed. Visual Studio takes full advantage of the .NET Compact Framework, which uses public Internet standards to enable integration with new and existing applications running on any platform. Supported languages include Visual C#, and Visual Basic .NET.

Microsoft Embedded Visual C++



eMbedded Visual C++ is a standalone integrated development environment (IDE) that brings a new level of productivity to Windows CE development without compromising flexibility, performance, or control.

4.2. Installing WinPAC-5000 SDK

The PACSDK is a Software Development Kit (SDK) that contains C header files, C libraries and documents.

Step 1: Insert the CD into your CD-ROM drive

Step 2: Execute the "PAC270_SDK_YYYYMMDD.msi"

The PAC270_SDK_YYMMDD.msi can be obtained from: CD:\Napdos\wp-5000_ce50\SDK\ <u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/sdk/</u>

The installation program for the latest version of the WinPAC Platform SDKs can be obtained from:

http://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/sdk/

File name: pac270_sdk_yyymmdd.msi

yyyymmdd: Platform SDK released date

Tips & Warnings



The released date of the installation program SDK installation package that provides the PACSDK library must be later than or equal to 2012/10/15, such as PAC270_SDK_20121015.msi

Step 3: Follow the prompts until the installation is complete

Understanding the PACSDK

The PACSDK includes several application programming interfaces (APIs) that allows you perform various supporting tasks when developing WinPAC.

Requirements

The PACSDK only supports .NET Compact Framework 2.0 or above.

Installation Path

After installing the PACSDK, a number of functions can be installed on the Host PC, and this installation puts the header files, libraries into the following public places so they are easily changed by update the PACSDK.

Header files:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include\ARMV4I\

Libraries:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib\ARMV4I\

PACSDK Reference

For full usage information regarding the description, prototype and the arguments of the functions, please refer to the "PAC Standard API Manual" located at:

For WP-5000 series CD:\Napdos\wp-5000_ce50\Document\SDK_Document\ <u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/document/sdk_docum</u> <u>ent/</u>

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.3. Your First Program in C#

Here we will demonstrate how to create a C# program running on WinPAC-5000 with the C# development tool, which including the following topics:

- 1. Create a new project
- 2. Add WinPAC-5000 reference
- 3. Add the control to the form
- 4. Add the event handling for the control
- 5. Upload the application to WinPAC-5000
- 6. Execute the application on WinPAC-5000

In this tutorial, we will assume that you have installed WinPAC-5000 SDK on PC and used the Visual Studio 2005/2008 for application development.

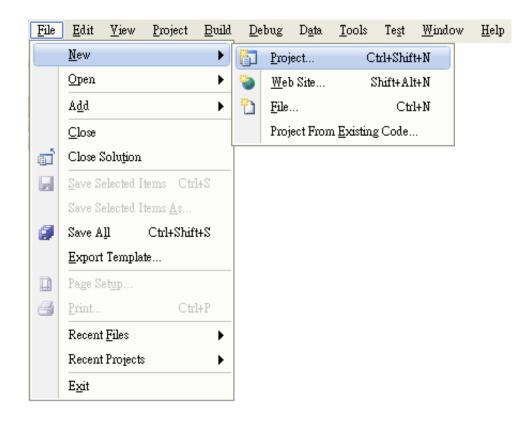
4.3.1. Creating a New Project

The Visual C# project template is a composite control that you use in this example creates a new project with this user control.

Step 1: Start Visual Studio 2005/2008



Step 2: On the File menu, point to New, and then click Project...



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: In the Project types pane, expand Visual C#, and then click Window CE5.0

Step 4: In the Templates pane, click Device Applications

Step 5: Type a name in the Name field, and then click OK

Here we will enter the name "systeminfo" and a different location for the project if you wish

New Project				? 🛛
New Project Project types: Visual C# Windows Smart Device Pocket PC 2003 Smartphone 2005 Windows CE 5.0 Database Starter Kits Other Languages Other Project Types		Iemplates: Visual Static installed templates Device Application Cass Library Console Application My Templates Search Online Templates		
A project for creati		mework 2.0 forms application for 1	Windows CE 5.0 and later	
<u>N</u> ame:	systeminfo			
<u>L</u> ocation:	C:\Windows CE Tool	sVC#		Browse
Solution:	Create new Solution	*	Create <u>d</u> irectory for solution	
	Solution Name:	systeminfo		
				K Can el

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.3.2. Adding the WinPAC-5000 Reference

The WinPAC-5000 SDKs provides a complete solution to integrate with WinPAC-5000. Compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

Step 1: In Solution Explorer, right-click the References node and click Add Reference on the shortcut menu

The Add Reference dialog box appears.

Step 2: Click the Browse tab, and then select PACNET.dll

d Reference		? 🗙
.NET Projects	Browse Recent	
搜尋位置([):	🗁 Example 🛛 🖌 🌍 📂 🛄 -	
im bin My Project obj PACNET di		
檔案名稱(N):	PACNET.dll	~
檔案類型(<u>T</u>):	Component Files (*.dll;*.tlb;*.olb;*.ocx;*.exe)	~
	OK Ca	ncel

Class View

<Search>

🍟 🗢 🔿 🛅 🕶

🗄 {} systeminfo

Class V... 🟹 Solut

 - 🖻

~

Add <u>R</u>eference...

Add Web Reference...

Sort Alphabetically

Sort By Object Type

Sort By Object Access

Group By Object Type

> The "PACNET.dll" file can be obtained from:

CD:\Napdos\wp-5000_ce50\SDK\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/sdk/

or CD:\Napdos\wp-8x4x_ce50\sdk\winpacnet\pacnet

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/sdk/winpacnet/p
acnet/

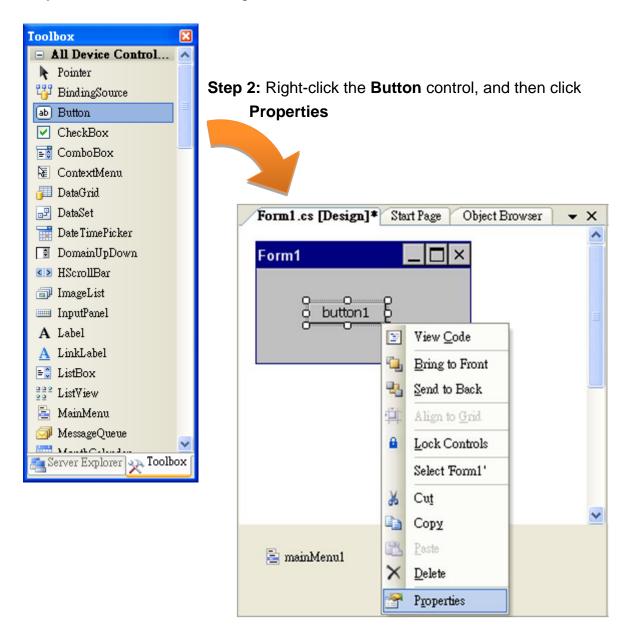
Step 3: Click OK to close the Add Reference dialog box

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.3.3. Adding the Control to the Form

You can drag various controls from the Toolbox onto the form. These controls are not really "live"; they are just images that are convenient to move around on the form into a precise location.

After you add a control to your form, you can use the **Properties** window to set its properties, such as background color and default text. The values that you specify in the **Properties** window are the initial values that will be assigned to that property when the control is created at run time.



Step 1: From the Toolbox, drag a Button control onto the form

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

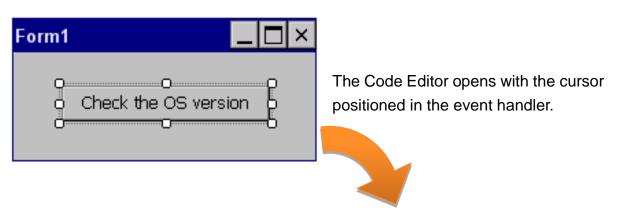
Step 3: In the **Properties** window, type Check the OS version, and press ENTER to set the **Text** property



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.3.4. Adding the Event Handling to the Control

You have finished the design stage of your application and are at the point when you can start adding some code to provide the program's functionality.



Step 1: Double-click the button on the form

Step 2: Inserting the following code into the header area using PACNET;

🗖 using System;	
using System.Coll	ections.Generic;
using System.Comp	onentModel;
using System.Data	- 7
using System.Draw	ing;
using System.Text	•
using System.Wind	ows.Forms;
Lusing PACNET;	

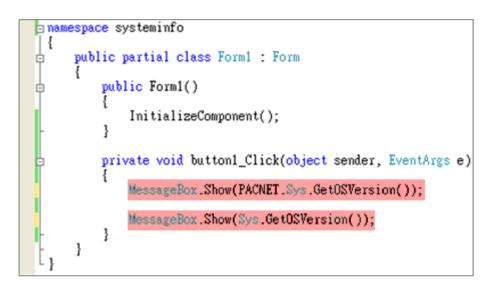
Tips & Warnings

The "PACNET" of "using PACNET" is case- sensitive.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: Inserting the following code

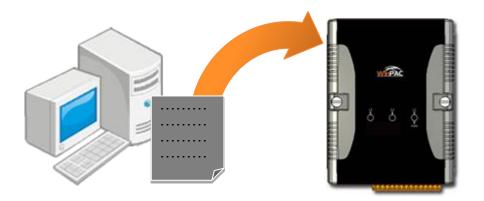
MessageBox.Show(PACNET.Sys.GetOSVersion());
MessageBox.Show(Sys.GetOSVersion());



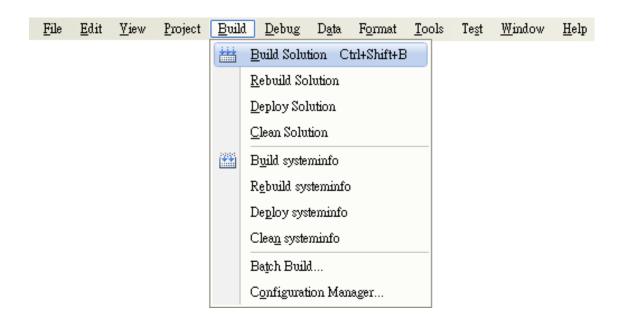
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

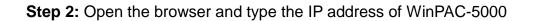
4.3.5. Upload the Application to WinPAC-5000

WinPAC-5000 provide FTP server service, you can upload files to WinPAC-5000 or download files from a public FTP server.



Step 1: On the Build menu, click Build Solution





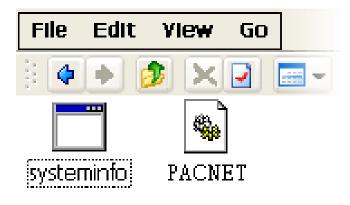
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: Upload the systeminfo.exe application and the corresponding PACNET.dll file to the WinPAC-5000

Tips & Warnings

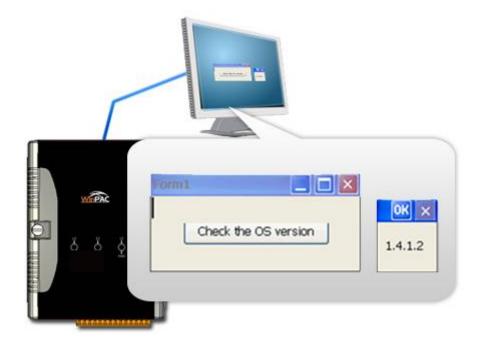


For applications programming in C# and VB.net with .net compact framework, when executing these application on the WinPAC-5000 controller, the corresponding "PACNET.dll" file must be in the same directory as the .exe file.



4.3.6. Executing the Application on WinPAC-5000

After uploading the application to WinPAC-5000, you can just double-click it on WinPAC-5000 to execute it.



4.4. Your First Program in VB.net

Here we will demonstrate how to create a VB.net program running on WinPAC-5000 with the VB.net development tool, which including the following topics:

- 1. Create a new project
- 2. Add WinPAC-5000 reference
- 3. Add the control to the form
- 4. Add the event handling for the control
- 5. Upload the application to WinPAC-5000
- 6. Execute the application on WinPAC-5000

In this tutorial, we will assume that you have installed WinPAC-5000 SDK on PC and used the Visual Studio 2005/2008 for application development.

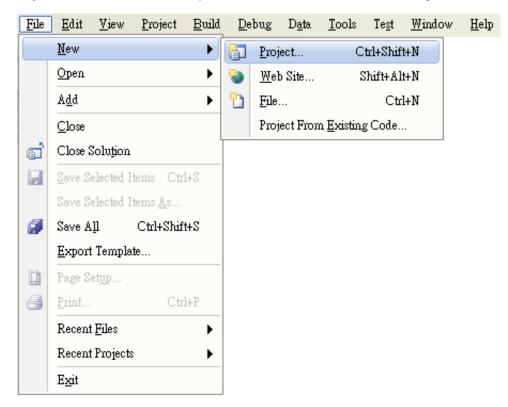
4.4.1. Creating a New Project

The VB.net project template is a composite control that you use in this example creates a new project with this user control.

Step 1: Start Visual Studio 2005/2008



Step 2: On the File menu, point to New, and then click Project...



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: In the Project types pane, expand Visual Basic, and then click Window CE5.0

Step 4: In the Templates pane, click Device Applications

Step 5: Type a name in the Name field, and then click OK

Here we will enter the name "systeminfo" and a different location for the project if you wish

New Project				? 🔀
Project types:		<u>T</u> emplates:		
 Visual C# Windows Smart Devi Database Starter Kits Other Language Visual Basi Windo 	es ic	Yisnal Studio installed ten Device Application Control Libror Empty Project My Templates	n plates	
	cket PC 2003 artphone 2005 indows CE 5.0 Se Ans	🛐 Search Online Templates		
A project for creatin	ng a NET Compact Fr	amework 2.0 forms application for ¹	Windows CE 5.0 and later	
<u>N</u> ame:	systeminfo			
Location:	C.IWillow CE 100	ls\VB.net		▶ <u>B</u> rowse
Solution:	Create new Solution	~	Create directory for solution	
	Solution Na <u>m</u> e:	systeminfo		
			Ok	Cancel

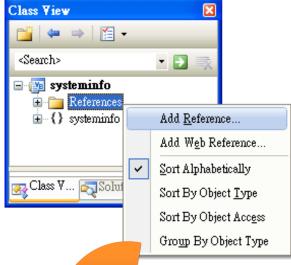
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.4.2. Adding the WinPAC-5000 Reference

The WinPAC-5000 SDKs provides a complete solution to integrate with WinPAC-5000. Compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

Step 1: In Solution Explorer, right-click the References node and click Add Reference on the shortcut menu.

The Add Reference dialog box appears.



Step 2: Click the Browse tab, and then select PACNET.dll

dd Reference		?×
.NET Projects	Browse Recent	
搜尋位置(I):	🔁 Example 🛛 🕑 🤔 📂 🛄 -	
in bin My Project obj <u>PACNET d</u>	9	
檔案名稱(N):	PACNET.dll	~
檔案類型(I):	Component Files (*.dll;*.tlb;*.olb;*.ocx;*.exe)	·
	OK Ca	ncel

> The "PACNET.dll" file can be obtained from:

CD:\Napdos\wp-5000_ce50\SDK\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/sdk/

or CD:\Napdos\wp-8x4x_ce50\sdk\winpacnet\pacnet

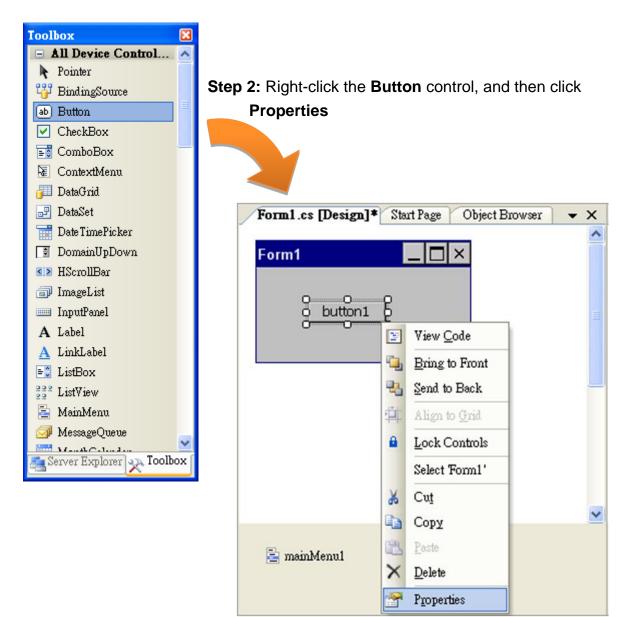
ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/sdk/winpacnet/p
acnet/

Step 3: Click OK to close the Add Reference dialog box

4.4.3. Adding the Control to the Form

You can drag various controls from the Toolbox onto the form. These controls are not really "live"; they are just images that are convenient to move around on the form into a precise location.

After you add a control to your form, you can right-click the control and select **Properties** to set its properties, such as background color and default text. The values that you specify in the **Properties** window are the initial values that will be assigned to that property when the control is created at run time.



Step 1: From the Toolbox, drag a Button control onto the form

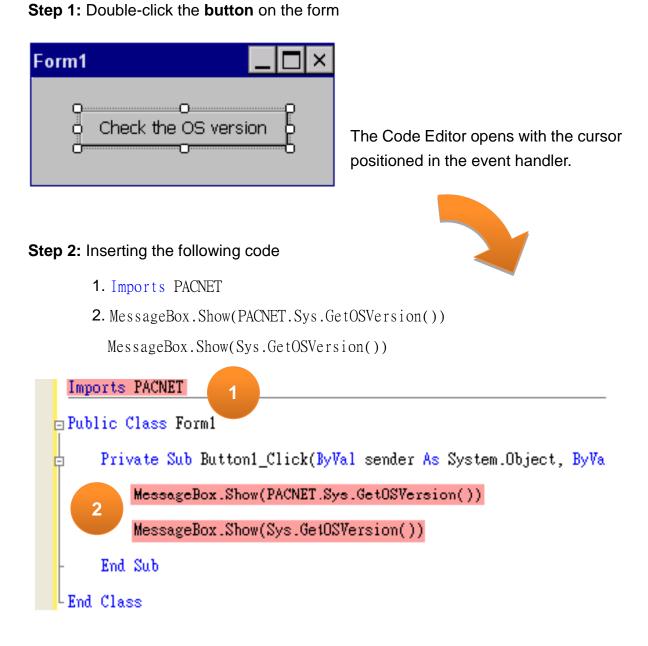
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: In the **Properties** window, type Check the OS version, and press ENTER to set the **Text** property



4.4.4. Adding the Event Handling to the Control

You have finished the design stage of your application and are at the point when you can start adding some code to provide the program's functionality.



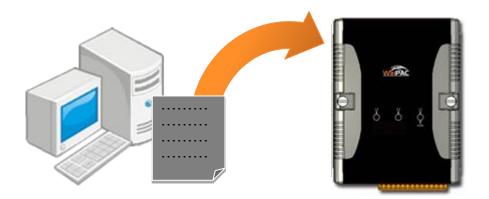
Tips & Warnings

The "PACNET" of "using PACNET" is case- sensitive..

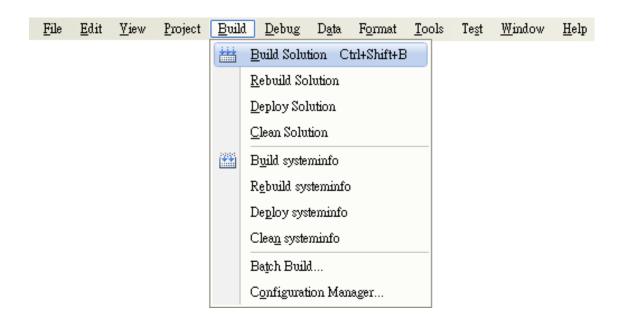
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

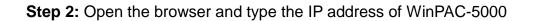
4.4.5. Upload the Application to WinPAC-5000

WinPAC-5000 provide FTP server service, you can upload files to WinPAC-5000 or download files from a public FTP server.



Step 1: On the Build menu, click Build Solution





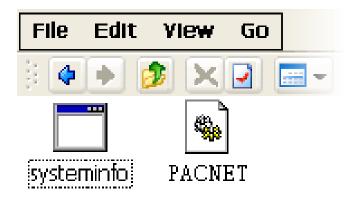
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: Upload the systeminfo.exe application and the corresponding PACNET.dll file to the WinPAC-5000

Tips & Warnings

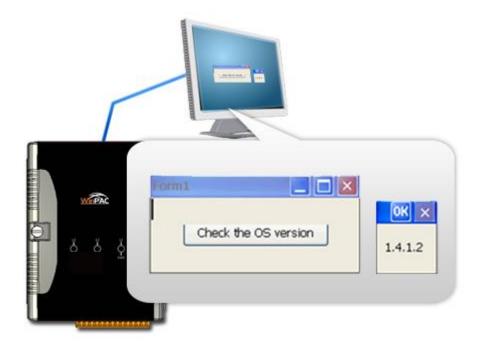


For applications programming in C# and VB.net with .net framework, when executing these application on the WinPAC-5000 controller, the corresponding "PACNET.dll" file must be in the same directory as the .exe file.



4.4.6. Executing the Application on WinPAC-5000

After uploading the application to WinPAC-5000, then you can just double-click it on WinPAC-5000 to execute it.



4.5. Your First Program in eMbedded Visual C++

Here we will demonstrate how to create an eVC++ program running on WinPAC-5000 with the eVC++ development tool, which including the following topics:

- 1. Create a new Forms-Based project
- 2. Configure the platform
- 3. Specify the path of the WinPAC-5000 reference
- 4. Add the control to the form
- 5. Add the event handling for the control
- 6. Upload the application to WinPAC-5000
- 7. Execute the application on WinPAC-5000

In this tutorial, we will assume that you have installed WinPAC-5000 SDK on PC and used the eMbedded Visual C++ 4.0 for application development.

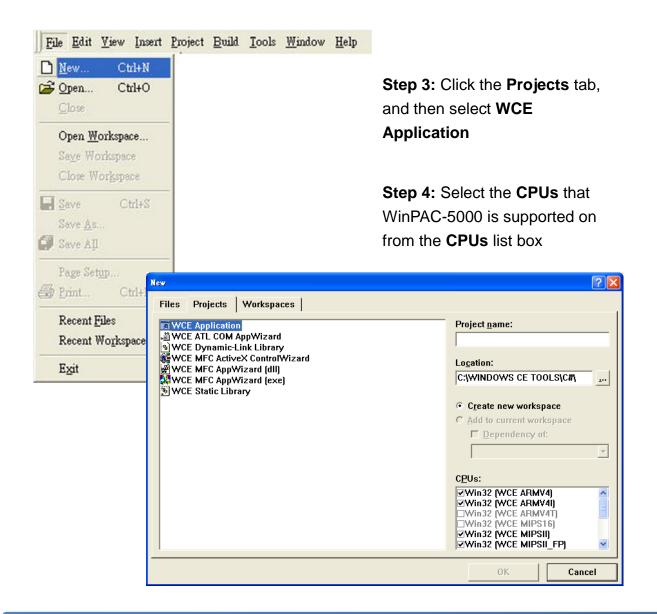
4.5.1. Creating a Forms-Based Project

The eVC++ project template is a composite control that you use in this example creates a new project with this user control.

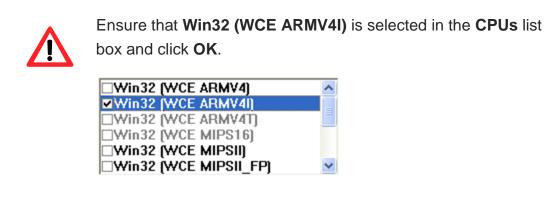
Step 1: Start eMbedded Visual C++



Step 2: On the File menu, and then click New



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



- Step 5: Click OK to start the wizard
- Step 6: On the first page of the wizard, click **Dialog based** and then click **Next**, as shown in the following illustration

WCE MFC AppWizard (exe) -	Step 1 of 4			? 🛛
Application (0)		create? C Single o C Dialog		e support?
	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 7: On the next page of the wizard, leave all the options as they are, and then click **Next**, as shown in the following illustration

WCE MFC AppWizard (exe) - S	tep 2 of 4	
Applicatios DK		What features would you like to include? Windows Sockets Windows Help ActiveX Controls
		SDKinfo Help contents file: SDKinfo.htp
	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish Cancel

Step 8: On the next page of the wizard, click **Next**, as shown in the following illustration

WCE MFC App Wizard (exe)	- Step 3 of 4			? 🛛
File Edit Yiev Jacet Build Jiep Project Project	<u></u>	 Mes, ple No, than How would yo As a sha 	k you u like to use the MI	FC library?
	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 9: On the next page of the wizard, Click Finish, as shown in the following illustration

WCE MFC AppWizard (exe) -	Step 4 of 4		? 🛛	
		AppWizard creates the you: <u>CSDKinfoApp</u> CSDKinfoDlg	s the following <u>c</u> lasses for	
		C <u>l</u> ass name:	Header file:	
		CSDKinfoApp	SDKinfoApp.h	
		Base class:	Implementation file:	
		CWinApp	SDKinfoApp.cpp	
	< <u>B</u> ack	<u>N</u> ext > <u></u> F ir	iish Cancel	

Step10: When the summary appears, click **OK** to complete the wizard, as shown in the following illustration

New Project Information
WCE MFC AppWizard (exe) will create a new skeleton project with the following specifications:
Application type of SDKinfo: Dialog-Based Application targeting: Win32 (WCE ARMV4I) Win32 (WCE MIPSII) Win32 (WCE MIPSII)FP)
Win32 (WCE MIPSIV) Win32 (WCE MIPSIV_FP) Win32 (WCE SH4) Win32 (WCE emulator) Win32 (WCE ×86)
Classes to be created: Application: CSDKinfoApp in SDKinfo.h and SDKinfo.cpp Dialog: CSDKinfoDlg in SDKinfoDlg.h and SDKinfoDlg.cpp View: CChildView in ChildView.h and ChildView.cpp
Features: + Uses shared DLL implementation + Localizable text in: 英文 (美國)
Project Directory: C:\DOCUMENTS AND SETTINGS\WINDOWS CE TOOLS\EVC\SDKinfo
OK Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.5.2. Configuring the Platform

When developing applications by using eMbedded Visual C++, you must configure the Platform to indicate what platform and device you intend to download the application to. Before you deploy your project, check the platform.

On the Win32 [WCE ARMV4I] Debug configuration toolbar, select Win32 [WCE ARMV4I] Release, as shown in the following illustration.

SDKinfo - Microsoft eMbedded Visual C++	
]] <u>File Edit View Insert Project Build Tools Window H</u> elp	
) 🍅 🖬 🕼 X 🖻 🖻 X - C - 🖻 🎘 😤 🅦	
CSDKinfoApp 💽 [All class members] 🔍 🗞 CSDKinfoApp	
SDKinfo 💽 STANDARDSDK 🔍 Win32 (WCE ARMV4I) Release 🔽 STANDARDSDK_500 Emulator 💽	I 🖽 🍭
Image: Win32 [WCE ARMV4]] Debug Win32 [WCE ARMV4]] Release Win32 [WCE emulator] Release Win32 [WCE MIPSII] Debug Win32 [WCE MIPSII] Debug Win32 [WCE MIPSII] Debug Win32 [WCE MIPSII] Release Win32 [WCE MIPSII] P] Debug Win32 [WCE MIPSIV] Release Win32 [WCE MIPSIV] P] Debug Win32 [WCE MIPSIV] FP] Debug Win32 [WCE SH4] Debug Win32 [WCE SH4] Debug Win32 [WCE SH4] Debug Win32 [WCE ×86] Release Win32 [WCE ×86] Release	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.5.3. Specifying the Path of the WinPAC-5000 Reference

The WinPAC-5000 SDKs provides a complete solution to integrate with WinPAC-5000. Compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

Step 1: On the Tools menu, and then click Options

The **Options** dialog box appears.

🖹 File	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	<u>B</u> uild	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp	
						So	urce Bro <u>v</u>	<u>/</u> ser	Alt+F12
						Ch	os <u>e</u> Source	e Browser File	
						💦 En	ror Loo <u>k</u> u	φ	
						🕕 Re	mote C <u>a</u> ll	Profiler (WCI	3500)
						💦 Re	mote <u>F</u> ile	Viewer (WCE	500)
						🥕 Re	mote <u>H</u> ea	p Walker (WC	E500)
						🥕 Re	mote Ken	nel <u>T</u> racker (W	CE500)
						💦 Re	mote Perf	orma <u>n</u> ce Moni	itor (WCE500)
						🥕 Re	mote <u>P</u> roc	ess Viewer (W	(CE500)
						🥕 Re	mote Reg	istry Editor (W	ICE500)
						-		++ (WCE500)	
						-	-	em <u>I</u> nformatio	
						∕ n Re	mote <u>Z</u> oo	min (WCE500	0
						S <u>e</u> l	lect Remo	te Tools	+
						<u>C</u> u	istomize		
						Op	tions		
						<u>M</u> a	acro		
						<u>R</u> e	cord Quic	k Macro	Ctrl+Shift+R
						Pla	y Quick I	víacro	Ctrl+Shift+P
						Co	onfi <u>gu</u> re P	latform Manag	er

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

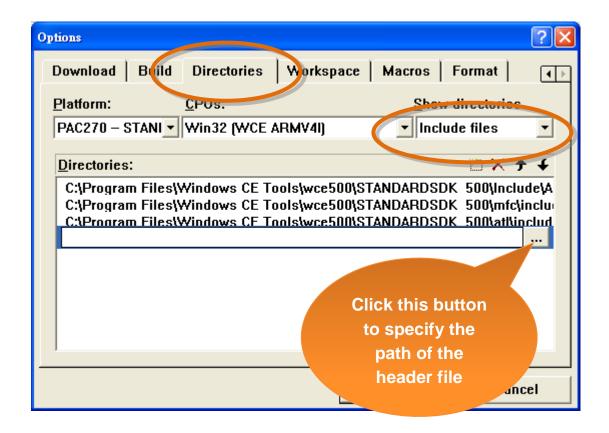
Step 2: On the Directories tab, in the Show directories for list, select Include files

Step 3: Under Directories, type the path of the heard file

> The specified include path of the header file is default located at:

C:\Program Files\Windows CE

Tools\wce500\PAC270\lcpdas\Include\ARMV4I\



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 4: In the Show directories for list, select Library files

Step 5: Under Directories, type the path of the library file

> The specified include path of the header file is default located at:

C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib\ARMV4I\

Options ?X
Download Build Directories Wyrkspace Macros Format
Platform: <u>CPUs:</u>
PAC270 – STANI Vin32 (WCE ARMV4I)
Directories:
C:\Program Files\Windows CE Tools\wce500\STANDARDSDK 500\lib\ARMV C:\Program Files\Windows CE Tools\wce500\STANDARDSDK 500\mfc\lib\AF C:\Program Files\Windows CF Tools\wce500\STANDARDSDK 500\at\\\ib\AB
Click this button to specify the
path of the
Library files

Step 6: On the Project menu, and then click Settings

The **Project Settings** dialog box appears.

🖺 File	<u>E</u> dit	⊻iew	Insert	<u>P</u> roject	<u>B</u> uild	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
				Set	Acti <u>v</u> e I	Project		•
				<u>A</u> dd	l To Pro	oject		•
				Dep	endenc	ies		
				<u>S</u> ett	ings		Alt+I	77
				Exp	ort <u>M</u> al	kefile		
				Inse	ert Proje	ct into 1	Workspace	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 7: On the Link tab, type the PACSDK.lib in the Object/library module field, and then click OK

Project Settings	?×
Settings For: Win32 (WCE ARMV41) Release Systeminfo	General Debug C/C++ Link Resources M ++ Category: General • Reset
	Output file name: ARMV4IRel/systeminfo.exe
	Object/library modules: PACSDK.lib
	<u>Concrete dobag info</u> Ignore all default ll <u>b</u> raries Generate <u>m</u> apfile
	Project <u>O</u> ptions:
	/nologo /base:"0x00010000" /stack:0x10000,0x1000 /entry:"WWinMainCRTStartup" /incremental:no /pdb:"ARMV4IRel/systeminfo.pdb"
	OK Cancel

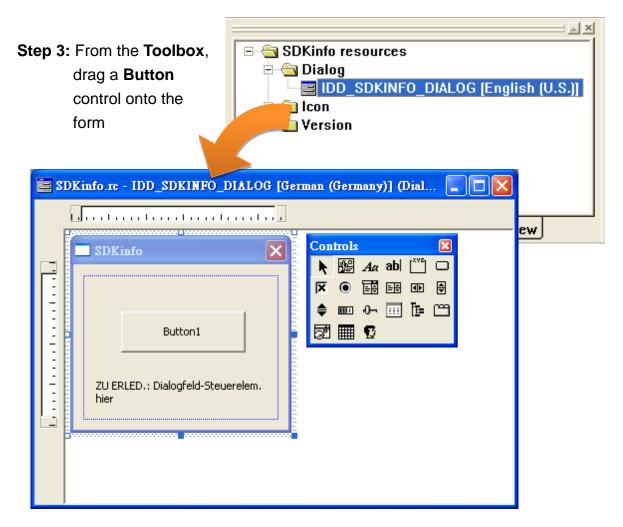
4.5.4. Adding the Control to the Form

You can drag various controls from the Toolbox onto the form. These controls are not really "live"; they are just images that are convenient to move around on the form into a precise location.

After you add a control to your form, you can use the **Properties** function to set its properties, such as background color and default text.

- Step 1: Click Resource View in the Project Workspace pane and expand the resources tree by opening the top level folder
- Step 2: Open the Dialog folder and then double-click the dialog resource name IDD_SDKINFO_DIALOG

The resource editor appears in the right pane.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 4: Right-click the Button control, and then click Properties

The **Push Button Properties** dialog box appears.

🔤 SDKinfo.rc - IDD_SDKINFO_DIALOG [German (Germany)] (Dial 📃 🗖 🔀					
Button1	Ba Cody				
	Size to Content Chign Left Edges Check Mnemonics Class <u>Wizard</u> Events Properties				

Step 5: Type Check the OS version in the Captions field, and then click



Push Button Properties				
-¤ ?	General	Styles Extended Styles		
<u>I</u> D:	IDC_BUTTO	DN1 <u>Caption:</u> Check the OS version	-	
🗹 Vi <u>s</u> ible 🔲 <u>G</u> roup				
🗆 Di	s <u>a</u> bled	☑ Ta <u>b</u> stop		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.5.5. Adding the Event Handling to the Control

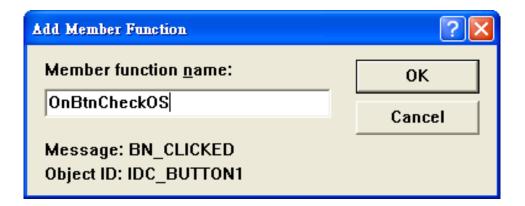
You have finished the design stage of your application and are at the point when you can start adding some code to provide the program's functionality.

Step 1: Double-click the button on the form

The Add Member Function dialog box appears.

🗖 systeminfo 🛛 🔀		
	Check the OS version	

Step 2: Type the onBtnCheckOS in the Member function name field, and then click OK



The Code Editor opens with the cursor positioned in the event handler.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: Insert the following code

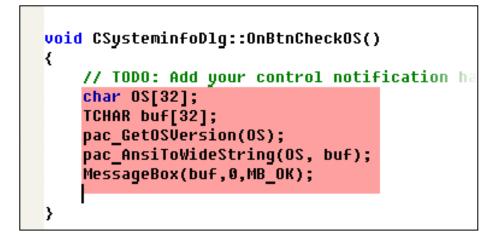
char OS[32];

TCHAR buf[32];

pac_GetOSVersion(OS);

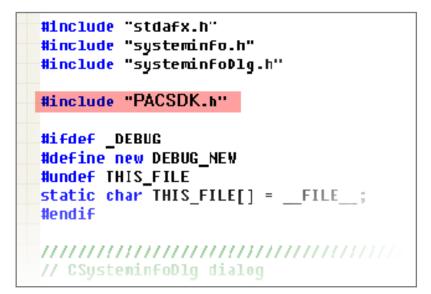
pac_AnsiToWideString(OS, buf);

MessageBox(buf,0,MB_OK);



Step 4: Insert the following code into the header area

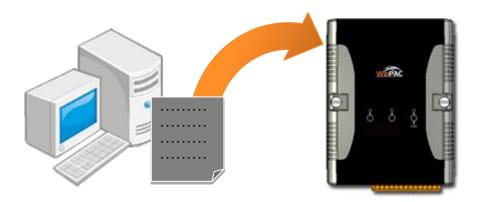
#include "PACSDK.h"



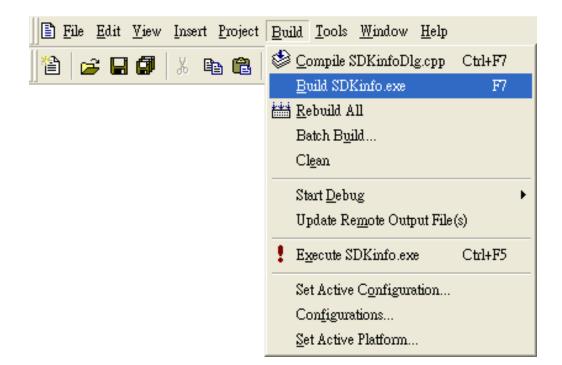
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

4.5.6. Upload the Application to WinPAC-5000

WinPAC-5000 provide FTP server service, you can upload files to WinPAC-5000 or download files from a public FTP server.



Step 1: On the Build menu, click Build SDKinfo.exe



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 2: Open the browser and type the IP address of WinPAC-5000

Step 3: Upload the systeminfo.exe application



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 103

4.5.7. Executing the Application on WinPAC-5000

After uploading the application to WinPAC-5000, then you can just double-click it on WinPAC-5000 to execute it.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

5. APIs and Demo Programs

There are several APIs and demo programs that have been designed for WinPAC-5000. You can examine the APIs and demo source code, which includes numerous functions and comments, to familiarize yourself with WinPAC-5000 APIs and quickly develop your own applications quickly by modifying these demo programs.

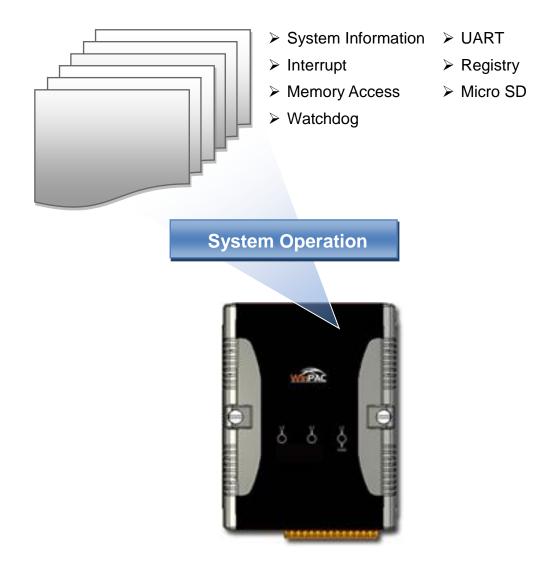
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

5.1. Demo Programs with C#

The following C# demos have been designed to demonstrate the various features of the WinPAC.

5.1.1. C# Demo Programs for WinPAC Standard API

The table below describes the WinPAC-5000 demos that have been designed to demonstrate the standard operation features of the WinPAC-5000.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
memoryaccess	memory	Shows how to read/write date values from/to EEPROM
	battery_backup_sram	Shows how to read or write to the battery backup
watchdog	watchdog	Displays how the watchdog operate
microsd	microsd_management	Shows how to enables/disables Micro SD
registry registry		Shows how to read/write date values from/to registry
uart	diag	Shows how to read the name of local I/O modules via UART

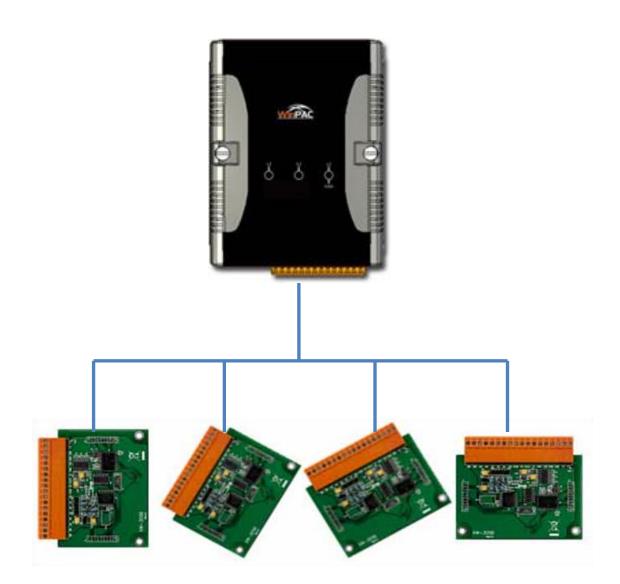
For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-5000_ce50\Demo\WinPAC5000\DOTNET\C#.NET\Standard\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/demo/winpac5000/dotnet
/c%23.net/standard/

5.1.2. C# Demo Programs for PAC I/O API

The table below describes the WinPAC-5000 demos that have been designed to demonstrate the expansion I/O module features of the WinPAC-5000.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 108

Folder	Demo	Explanation
GPIO	GPIO	Shows how to connect and control
XW107	XW107_demo	the XW-board series modules.
XW506	XW506_demo	
XW507	XW507_demo	
XW509	XW509_demo	
XW511i	XW511i_demo	
XW304	XW304_demo	
XW310	XW310_demo	
XW310C	XW310C_demo	

For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-5000_ce50\Demo\WinPAC5000\DOTNET\C#.NET\PAC_IO\ XWBoard\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/demo/winpac5000/dotnet
/c%23.net/pac_io/xwboard/

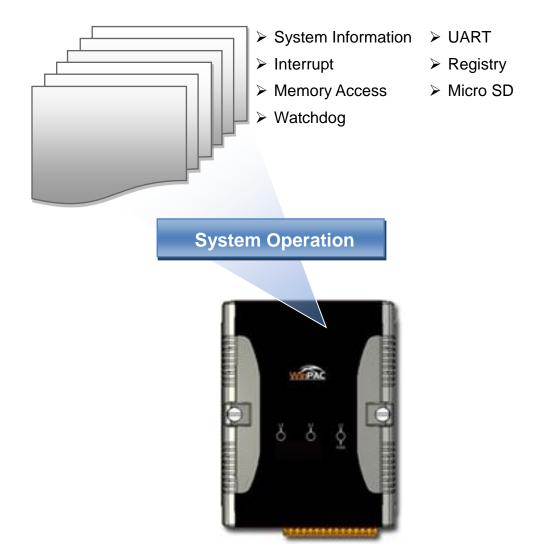
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

5.2. Demo Programs with eVC++

The following eVC++ demos have been designed to demonstrate the various features of the WinPAC.

5.2.1. eVC++ Demo Programs for WinPAC Standard API

The table below describes the WinPAC-5000 demos that have been designed to demonstrate the standard operation features of the WinPAC-5000.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
memoryaccess	memory	Shows how to read/write date values from/to EEPROM
	battery_backup_sram	Shows how to read or write to the battery backup
watchdog	watchdog	Displays how the watchdog operate
microsd	microsd_management	Shows how to enables/disables Micro SD
registry	registry	Shows how to read/write date values from/to registry
uart	diag	Shows how to read the name of local I/O modules via UART

For eVC application, these demo programs can be obtained from:

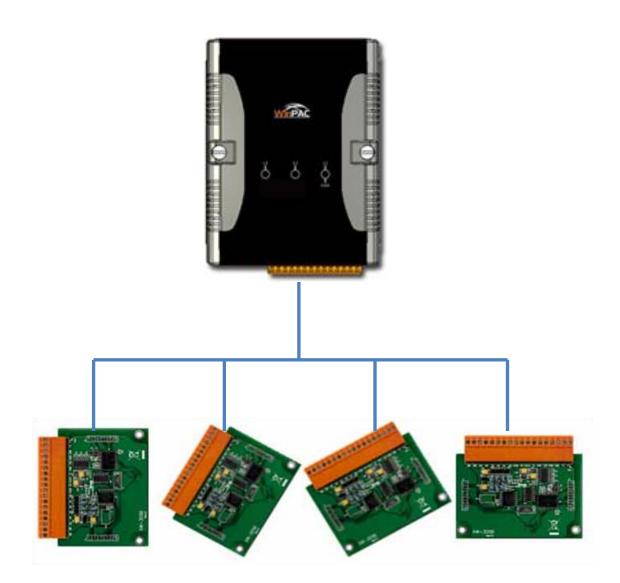
CD:\Napdos\wp-5000_ce50\Demo\WinPAC5000\eVC\Standard\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/demo/winpac5000/evc/st</u> andard/

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

5.2.2. eVC++ Demo Programs for PAC I/O API

The table below describes the WinPAC-5000 demos that have been designed to demonstrate the expansion I/O module features of the WinPAC-5000.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

WinPAC-5000 Series User Manual, Version 1.0.8

Page: 112

Folder	Demo	Explanation
GPIO	GPIO	Shows how to connect and control
XW107	XW107_demo	the XW-board series modules.
XW506	XW506_demo	
XW507	XW507_demo	
XW509	XW509_demo	
XW511i	XW511i_demo	
XW304	XW304_demo	
XW310	XW310_demo	
XW310C	XW310C_demo	

For eVC application, these demo programs can be obtained from:

CD:\Napdos\wp-5000_ce50\Demo\WinPAC5000\eVC\PAC_IO\XWBoard\

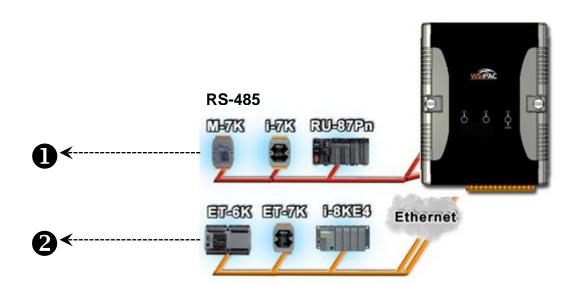
<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/demo/winpac5000/evc/pa</u> <u>c_io/xwboard/</u>

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

6. I/O Modules and SDK Selection

This chapter describes how to select a suitable I/O expansion module and the corresponding SDK library to be used for developing programs on WinPAC-5000 series devices.

Choosing a SDK Library for an I/O Module



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

O RS-485 (I-7K series and M-7K series)

I-7000, M-7000, RU-87Pn and high profile I-87K series modules connect to ViewPAC series devices via a twisted-pair, multi-drop, 2-wire RS-485 network.

> I-7K series I/O modules

Module	Native SDK	.NET CF SDK	
I-7K series	PACSDK.dll	PACNET.dll	
I-7K series + I-7088(D)	PACSDK_PWM.dll	PACNET.dll	

For full details regarding I-7K series I/O modules and its demos, please refer to: <u>http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/applica</u>

bled_demo_for_7k_module.pdf

> M-7K series I/O modules

Module	Native SDK	.NET CF SDK	
M-7K series	Modbus Demo	Modbus Demo	

For more detailed information about M-7K series modules using Modbus protocol and its demos, please refer to:

http://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/nmodbus/

> RU-87Pn + I-87K series I/O modules

Module	Native SDK	.NET CF SDK	
RU-87Pn + I-87K	Refer to local I/O	Refer to local I/O	

> Other specified I/O modules

Module	Native SDK	.NET CF SDK	
Others	PACSDK.dll	PACNET.dll	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

2 Ethernet (ET-7K series)

The Ethernet I/O devices available include ET-7000, I-8KE4/8 and I-8KE4/8-MTCP, and support either the DCON or the Modbus/TCP communication protocol.

Module	Native SDK	.NET CF SDK	
ET-7K	Modbus Demo	Modbus Demo	

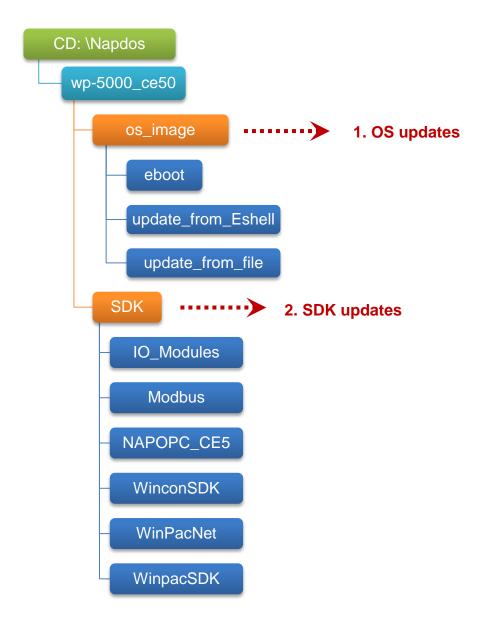
For more detailed information about ET-7K series modules using Modbus protocol and its demos, please refer to:

http://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/nmodbus/

7. WinPAC-5000 Updates

ICP DAS will continue to add additional features to WinPAC-5000 SDK and OS in the future, so we advise you to periodically check the ICP DAS web site for the latest updates.

WinPAC-5000 updates services can be divided into the following two main categories:



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

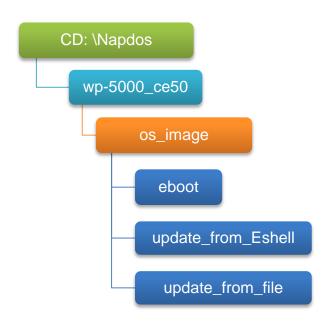
WinPAC-5000 Series User Manual, Version 1.0.8

Page: 117

7.1. OS Updates

The updates files of OS image are located on:

CD:\Napdos\wp-5000_ce50\OS_Image\



There are two ways to update the OS:

1. Update from file (Please refer to section 6.1.1)

(We recommend that you use this one for more quicker and easier to update)

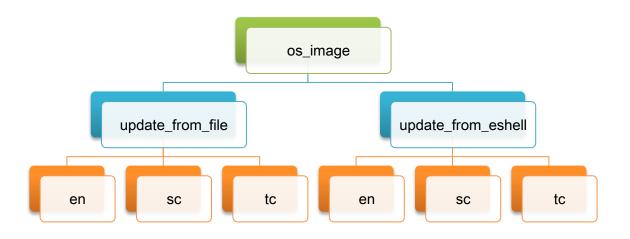
2. Update from Eshell (Please refer to section 6.1.2)



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

The WinPAC-5000 OS supports multi-language:

- 1. en English
- 2. sc Simplified Chinese
- 3. tc Traditional Chinese



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

7.1.1. OS Updates Using Installation Package File

Installation package is easier to upgrade OS image, you just copy the package file (.exe) and the corresponding "AutoInit.bat" file to WinPAC-5000, and then double-click installation package file to run it.



Step 1: Get the latest version of the installation package file and the corresponding "AutoInit.bat" file uploading to WinPAC-5000

The latest version of the installation package file and the corresponding "AutoInit.bat" file can be obtained from:

CD:\Napdos\wp-5000_ce50\OS_image\update_from_file\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/os_image/update_fr</u> <u>om_file/</u>

> The corresponding "AutoInit.bat" file can be obtained from the same folder.

There are several ways to upload these files to WinPAC-5000:

- i. Upload files via Ethernet.
- ii. Upload files via a USB storage device, the removable Micro SD card or FTP server

Step 2: Run the installation package file and then click OK to make sure you receive the important notice of this procedure will ease flash memory



Step 3: Select or clear the Retain the correct registry at next reboot check box to keep or remove the current registry settings at next reboot, and then click Update Now to start updating the WinPAC-5000

W	P5000 Ver. 1.0.0.0_16-bit English OK
	OS/Boot loader Update
	Retain the current registry at next reboot
	Step 1: Backup System_Disk !
	Step 2: Install Boot Loader file !
	Step 3: Erase flash disk !
	Step 4: Install OS image !
	Step 5: Set and save registry !
ſ	
	Update Now QUIT
	W

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

This installation procedure will perform the following tasks:

i. Backup System_Disk

Warning !
Are you sure to backup System_Disk ?
Yes No

Important Warnings



Be careful, if the boot loader broken off in this step and cannot restart in safe mode, you have to send it back to us.

- ii. Erase flash disk
- iii. Install OS image
- iv. Set and save registry

Tips & Warnings

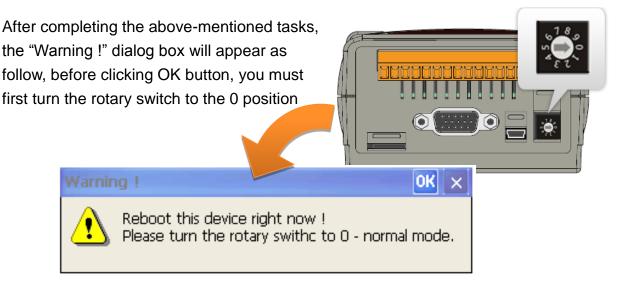


This procedure will reset the registry settings to their default settings, and all of your settings will be lost.

During this time, do not turn off the WinPAC-5000. If the update is cancelled before completion, the WinPAC-5000 may become damaged and may require servicing or exchange.

Besides, we recommend that you turn off all other applications before starting to upgrade the OS.

Step 4: Configure the boot mode in normal mode, and then Click OK



Tips & Warnings



If you have selected the Retain the correct registry at next reboot check box, after the installation has been completed, and then rebooting the WinPAC-5000 in normal mode, the "Warning !" dialog box will appear as follow, click OK button to reboot the WinPAC-5000



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 5: Check the OS version of WinPAC-5000

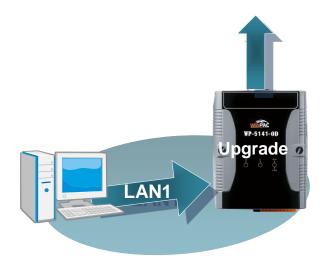
Start the WinPAC Utility, and then select the "System Information" tab to check the current OS version.



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

7.1.2. OS Updates Using Eshell via Ethernet

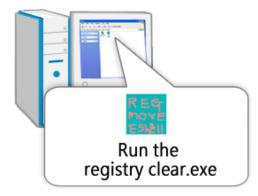
By default, the OS updates via LAN1. Therefore, to update the OS image, make sure LAN1 is connected to the PC.



Step 1: Get the latest version of the WinPAC-5000 OS image

The latest version of the WinPAC OS image can be obtained from: CD:\Napdos\wp-5000_ce50\OS_image\update_from_Eshell\ ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-5000_ce50/os_image/updat e_from_eshell/

Step 2: Run the registry clear.exe



The registry clear.exe can be obtained from: CD:\Napdos\wp-5000_ce50\PC_Tools\ <u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp</u> -5000_ce50/pc_tools/

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: Configure the boot mode in OS update mode

Turn the rotary switch to "3", and then reboot the WinPAC.

The Select Device dialog box appears.

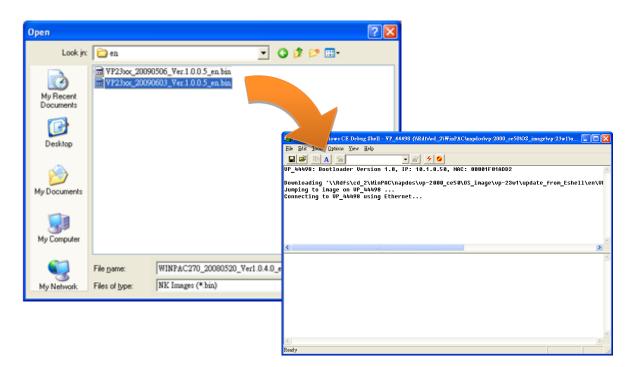


Step 4: Select the device which you want to update the OS image, and then click OK

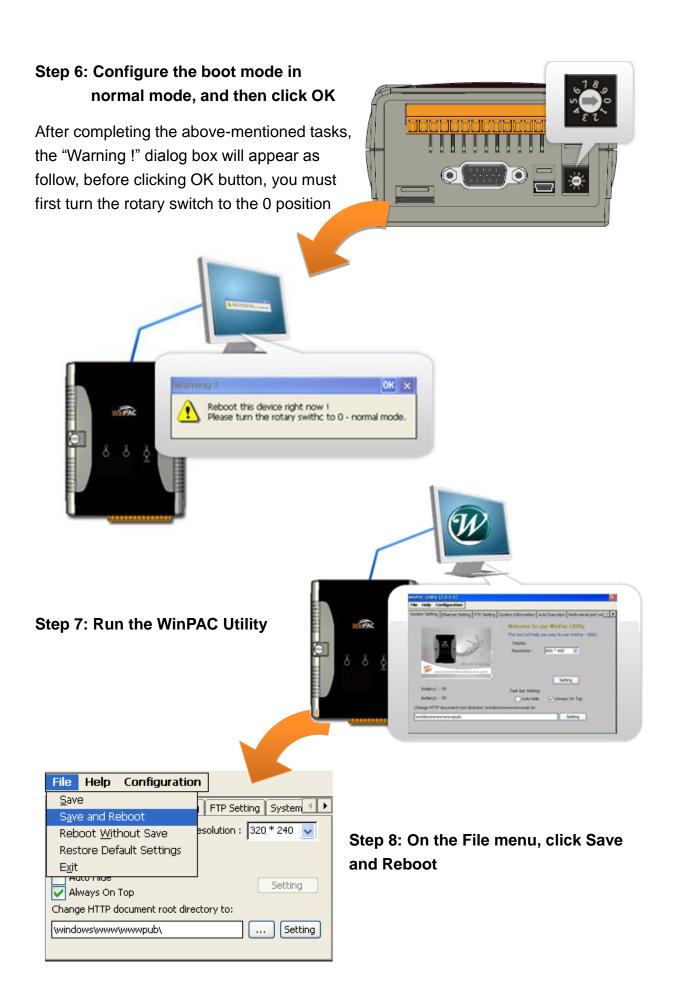
Select the device name which you want to update the OS image from the list.



Step 5: Select the downloaded OS image file, and then click Open



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 9: Click "Yes" to reboot the WinPAC-5000



Step 10: Check the WinPAC OS version

Start the WinPAC Utility, and then select the "System Information" tab to check the current OS version.

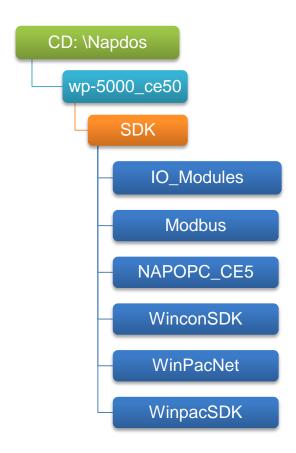


Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

7.2. SDK Updates

The updates files of SDKs are located on:

CD:\Napdos\wp-5000_ce50\SDK\



By eVC and dotnet development tools, the WinPAC SDK installation is divided into the following two parts:

- i. WinPAC SDK updates for dotnet (Please refer to section 6.2.1)
- ii. WinPAC SDK updates for eMbedded Visual C++ (Please refer to section 6.2.2)

7.2.1. WinPAC SDK updates for C# or VB.net

To determine the SDK version that is compatibly running on the WinPAC, you can read the "Release Note" which is located under each SDK folder, these files provides important updated information for what we fixed and added.

Step 1: Get the latest version of the C# or VB.net components

The latest version of the C# or VB.net components can be obtained from: ftp://ftp.icpdas.com/pub/cd/WinPAC/napdos/wp-5000_ce50/sdk/WinPACNet/

Step 2: Copy the latest version of DLL to Host PC and WinPAC

The DLL files on Host PC are located at anywhere only the solution can reference it. The DLL files on WinPAC are located at the same directory as the .exe file.

7.2.2. WinPAC SDK updates for eVC++

To determine the SDK version that is compatibly running on the WinPAC, you can read the "Release Note" which is located under each SDK folder, these files provides important updated information for what we fixed and added.

Step 1: Get the latest version of the eVC++ components

The latest version of the eVC++ components can be obtained from: ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/sdk/winpacsdk/

Step 2: Copy the latest version of header files and libraries to Host PC

The header files are located at: C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include\ARMV4I\ The libraries are located at: C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Lib\ARMV4I\

Step 3: Copy the latest version of DLL files to WinPAC

The DLL files are located at: \System_Disk\ICPDAS\System

Appendix A. Tips-How to

Here we will guide you through some very useful tips to customize your WinPAC-5000

There are more FAQ documents on

ftp://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/document/faq/faq __index.htm.

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.1. How to add a User Account

To establish a new telnet and FTP account, please perform the following steps:

Step 1: Run the WinPAC Utility



Step 2: On the Login tab of the FTP Setting tab, type the user name and password, and then press Add button

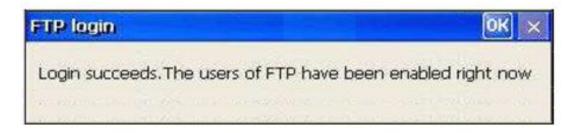
	WinPAC Utility [2.0.1.3] File Help Configuration				
[System Setting Ethernet Setting	FTP Setting	System Information	Auto Execution	Multi-serial port 🔳 🕨
	Access Login User name Password Vic **** Use me Password	Adr			
1. Ту	e the User name and	Passwo	rd		
		Setting			

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: The user has been added to the allowed under the remote login and included in the following list, and then press setting button

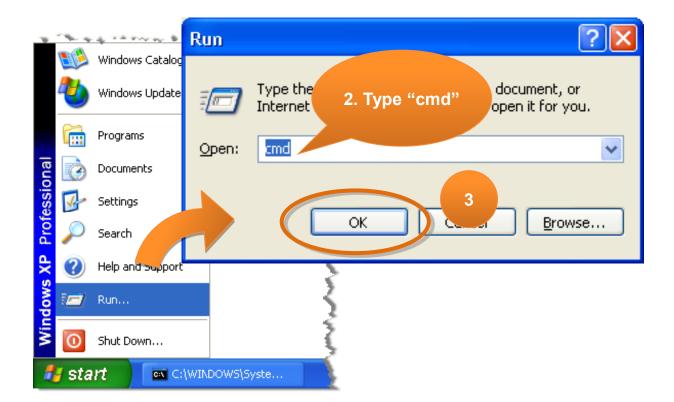
WinPAC Utility [2.0.1.3] File Help Configuration				2
System Setting Ethernet Setting Access Login User name Password	FTP Setting	System Information	Auto Execution	Multi-serial port Վ I
User name Password		Delete		
Vic ****				
	Setting			

Step 4: Press OK to store the settings



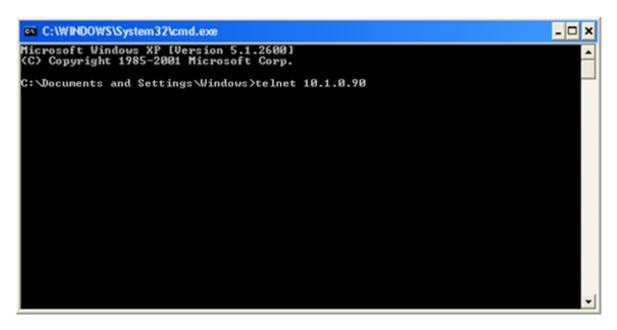
Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.1.1. How to Use telnet to remote login the WinPAC from PC



Step 1: On the PC, open a MS-DOS command prompt

Step 2: At the command prompt, type "telnet (IP address)"



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

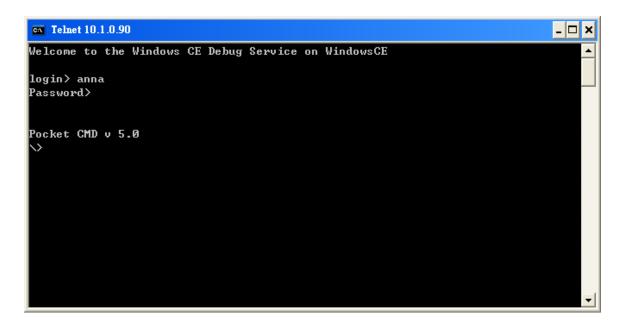
WinPAC-5000 Series User Manual, Version 1.0.8

Page: 135

Step 3: The connection has been set up, and then type the name and password

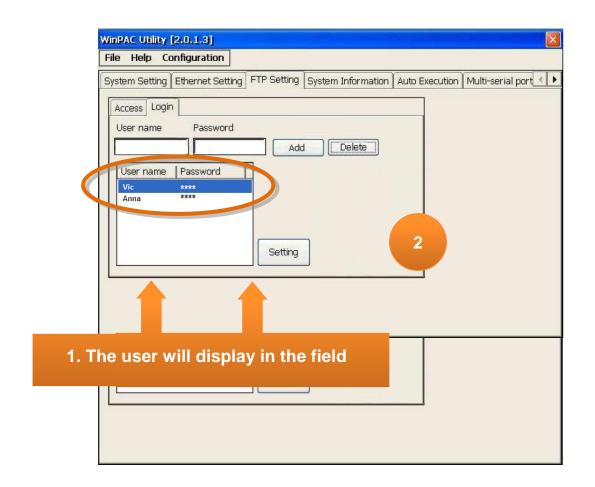


Step 4: The remote login has been completed



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.1.2. How to remove the user from the login list



Step 1: Click a user from the list which you want to remove

Step 2: The user will display in the field, and then press Delete to delete the user from the login list

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.2. How to online debug WinPAC

Debugging is a process that you use to find and resolve errors, or bugs, in a program.

A.2.1. Debug WinPAC programs in EVC++

Step 1: On the Tools menu, click Configure Platform Manager...

File	Edit	<u>V</u> iew	Insert	Project	Build	Tools	<u>W</u> indow	<u>H</u> elp	
						Re Re Re	emote <u>F</u> ile ' emote <u>H</u> ear	Profiler (WCE Viewer (WCE!) Walker (WC	500) E500)
						Re Re Re Re Re Re	emote Perfo emote <u>P</u> roc emote Regi emote <u>S</u> py4 emote Syste	el <u>T</u> racker (W orma <u>n</u> ce Moni ess Viewer (W stry Editor (W ++ (WCE500) em Information nin (WCE500	tor (WCE500) CE500) CE500) a (WCE500)
							lect Remot astomize ptions acro acord Quicl ay Quick M onfigure Pl	k Macro	• Ctrl+Shift+R Ctrl+Shift+P er

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 2: On the Windows CE Platform Manager Configuration dialog, click Properties...

Windows CE Platform Manager Configuration				
Select a platform or device to configure PAC270 PAC270 Device SA_IA STANDARDSDK_420 Windows CE Default Platform	<u>A</u> dd Device <u>D</u> elete (Properties) <u>Ab</u> out			
<u> </u>				

Step 3: On the Device Properties dialog, click Configure...

Device Properties					
Device Name: PAC270 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 Transport:					
TCP/IP Transport for Windows CE					
Startup Server: ▼ Configure					
<u>O</u> K <u>C</u> ancel <u>I</u> est					

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 4: On the TCP/IP Transport Configuration dialog, select Fixed port check box, and then click the OK

TCP/IP Transport Configuration	n	×			
Configuration for device: PAC270 Device					
Check connection <u>s</u> tatus	<u>I</u> nterval (msec):	60000			
Fixed port	Port number:	5000			
Host IP					
Use fixed address:	10.0.9.52	•			
C Configure <u>a</u> utomatically over serial					
<u> </u>	<u>C</u> ancel				

Step 5: On the Windows CE Platform Manager Configuration dialog, click Test

Device Properties					
Device Name: PAC270 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 Transport:					
TCP/IP Transport for Windows CE	Configure				
Startup Server:					
Manual Server 💌	Configure				
<u>O</u> K <u>C</u> ancel <u>Test</u>					

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 6: The Manual Server - Action dialog will appear displaying a command line, before click OK to close dialog, turn to the WinPAC controller side to do the next two-steps

Manual Server - Action				
Please make sure the following files are on the device				
\WINDOWS\tcpipc.dll \WINDOWS\cemgrc.exe \WINDOWS\cetlstub.dll				
And launch CEMGRC.EXE with the following cmd line				
CEMGRC.EXE /S /T:TCPIPC.DLL /Q /D:10.0.9.52:5000				
Cancel				

Step 7: On the WinPAC, select the 💐 menu, and then click Run...

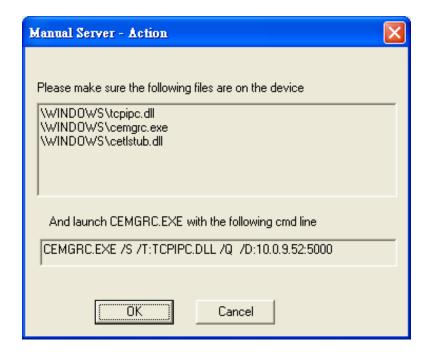


Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 8: On the Run dialog, type the command which displays in step 6 and then click OK

Internet My Internet Internet Microsoft Micro	Internet Explorer	Microsoft	or document, and Windows will open it for you. Open: itcros [:tcpipc.dll /q /d:10.0.9.52:5000]	3
---	----------------------	-----------	---	---

Step 9: Return to the Host PC side, and click OK on the Manual Server – Action dialog



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 10: On the Testing Device Connection dialog, click OK

Testing Device Connection
Device Name: PAC270 Device
Connection to device established
TCP/IP Transport for Windows CE
OK

Step 11: On the Device Properties dialog, click OK

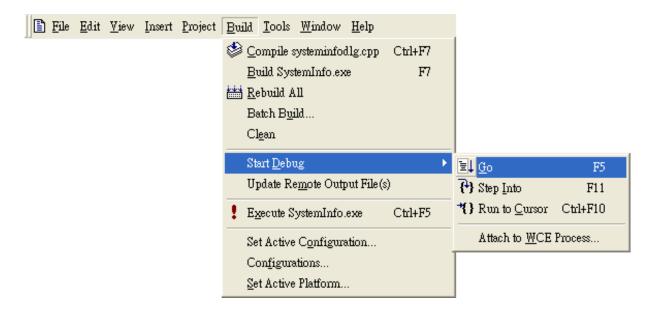
Device Properties					
Device Name:					
PAC270 Device					
Select a transport and a startup server. Choose Test to verify that you can establish a connection to your target device with the selected transport and startup server					
Transport:					
TCP/IP Transport for Windows CE	Con <u>f</u> igure				
<u>S</u> tartup Server:					
Manual Server	Configure				
<u>OK</u> <u>C</u> ancel <u>I</u> est					

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 12: On the Windows CE platform or device to configure dialog, click OK

Windows CE Platform Manager Configuration				
Select a platform or device to configure				
PAC270	<u>A</u> dd Device			
BAC270 Device Back BA_IA	Delete			
	Properties			
- G.	A <u>b</u> out			
<u>OK</u>				

Step 13: On the Build menu, point to Start Debug, and then click Go



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 14: The Manual Server - Action dialog will appear displaying a command line, before click OK to close dialog, turn to the WinPAC controller side to do the next two-steps

Manual Server - Action	X
Please make sure the following files are on the device	
\WINDOWS\tcpipc.dll \WINDOWS\cemgrc.exe \WINDOWS\cetIstub.dll	
And launch CEMGRC.EXE with the following cmd line	
CEMGRC.EXE /T:TCPIPC.DLL /Q /D:10.0.9.52:2008	
Cancel	

Step 15: On the Microsoft eMbedded Visual C++ dialog, click OK

Microsoft eMbedded Visual C++	?×						
'C:\\ARMV4IRel\Memory.exe' does not contain debugging information. Press OK to continue.							
Do not prompt in the future.							
OK Cancel							

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 16: Connection established. Then you can debug on line.

Tips & Warnings



If you want to quit the debugger and return to editing, you can click the "Stop Debugging "button from "Debug" menu

😑 <u>F</u> ile	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	Debu	g <u>L</u> ayout	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
						ŀo			F5
					E F	lestart		Ctrl+Shif	't+F5
					式 s	top <u>D</u> ebug	ging	Shif	t+F5
					Ξµ Ξ	<u>}</u> reak			
					{ •}} S	tep Into			F11
					₽₽ S	tep <u>O</u> ver			F10
					{} ₽ S	tep O <u>u</u> t		Shift	F11
					*{}E	lun to <u>C</u> urs	or	Ctrl-	F10
					😼 E	xceptions			
					昂1	hreads			
					Ī	<u>1</u> odules			
					➡ S	how <u>N</u> ext ?	Statemen	nt Alt+Nu	ım *
					60° ()uickWatch	L		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.2.2. Debug WinPAC programs in Visual Studio 2005/2008

Debugging in Visual Studio 2005/2008 are provided by WinPAC OS image V 1.3.0.4 or later.

Step 1: Make sure the following file are listed with the matching version numbers

Path	File		
C:\Program Files\Common Files\Microsoft	1. ActiveSyncBootstrap.dll		
Shared\CoreCon\1.0\Bin	2. ConMan2.dll		
	3. ConManPS.dll		
	4. DesktopDMA.dll		
	5. eDbgTL.dll		
	6. TcpConnectionC.dll		
C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Bin\1033	conmanui.dll		
C:\Program Files\Common Files\Microsoft	1. DeviceDMA.dll		
Shared\CoreCon\1.0\Target\wce400\armv4i	2. eDbgTL.dll		
	3. TcpConnectionA.dll		
	4. clientshutdown.exe		
	5. CMAccept.exe		
	6. ConmanClient2.exe		

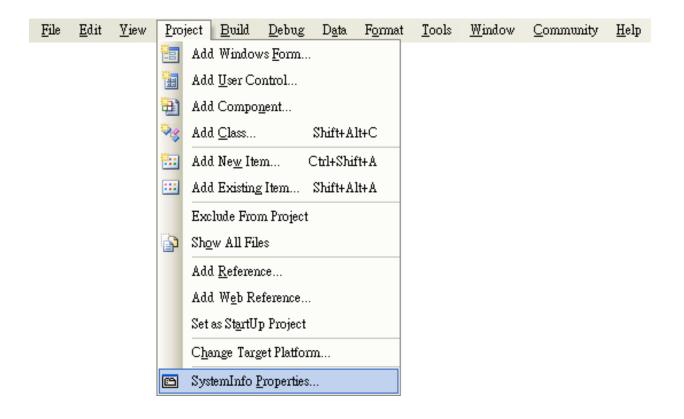
Step 2: If the version matches correctly and the entire file are there, copy the

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

following files to WinPAC:\ System_Disk\ICPDAS\System folder

- ✓ Clientshutdown.exe
- ✓ ConmanClient2.exe
- ✓ CMaccept.exe
- ✓ eDbgTL.dll
- ✓ TcpConnectionA.dll

Step 3: On the Project menu, click [Project Name] Properties ... "



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 4: On the SystemInfo* tab, unselect Deploy the latest version of the .NET compact Framework (including Service Packs) check box

Application	Configuration: N/A V Platform: N/A V
Build	
Build Events	>ployment Options
Debug	Target device: PAC50-ARMV4: ARMV4I_Release
Resources	Qutput file folder: %CSIDL_PROGRAM_FILES%create_database
Reference Paths	Deploy the latest version of the .NET Compact Framework (including Service Packs)
Signing	thenticode Signing
Devices*	Sign the project output with this certificate
	Select Cer

Step 5: On the Tools menu, click Options...

<u>F</u> ile	<u>E</u> dit <u>V</u> iew <u>P</u> roj	ect <u>B</u> uild <u>D</u> ebug D <u>a</u> ta	<u>T</u> ool	ls Te <u>s</u> t <u>W</u> indow <u>H</u> elp	7
1 🛅 -	• 🔠 • 📂 🛃 🧃	1 X 🗈 🛍 🤊 - (°	5	Attach to Process Ctrl+Alt+P	•
PAC.	PAC50-ARMV4: ARMV4I_Release 💌 💁 📰 🕼		e,	Device Security Manager	
*	create_database*	Form1.cs Form1.cs [Desig	9,	Connect to De <u>v</u> ice	
			Ē,	Device Emulator Manager	
Toolbox	Application	Configuration: N/A	۳.,	Connect to <u>D</u> atabase	
	Build		1	Connect to Server	
		ployment Options	B	Code Snippets Manager Ctrl+K, Ctrl+B	
	Build Events	<u>T</u> arget device:		Choose Toolbo <u>x</u> Items	
	Debug	PAC50-ARMV4: ARMV4I		<u>A</u> dd-in Manager	
	Resources	<u>O</u> utput file folder:		Macros	
		%CSIDL_PROGRAM_FILE		Partner Products Catalog	
	Reference Paths	Deploy the latest version		Create <u>G</u> UID	cks)
	Signing	thenticode Signing		Dotfuscator Community Edition	
	Devices*	Sign the project output w	.	$\underline{W} CF$ Service Configuration Editor	
				<u>E</u> xternal Tools	Select <u>C</u> er
				Import and Export Settings	
				<u>C</u> ustomize	
		<		Options	>
				À	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 6: On the Options dialog, select PAC 270 from the Show devices platform list, and then click Properties...

Options	? 🛛
 Documents Find and Replace Fonts and Colors Help Import and Export Settings International Settings Keyboard Startup Task List Web Browser Projects and Solutions Source Control Text Editor Database Tools Devices Form Factors 	Show devices for platform: PAC270 Devices: PAC50-ARMV4: ARMV4I_Release Pacebe Properties Default device: PAC50-ARMV4: ARMV4I_Release OK Cancel

Step 7: On the PAC50- ARMV4:ARMV4I_Release Properties dialog, click Configure...

PAC50-ARMV4: ARMV4I_Release Proper	ties ? 🔀
Default output location on device:	
Program Files Folder	✓
Transport:	
TCP Connect Transport	✓ <u>C</u> onfigure
<u>B</u> ootstrapper:	
ActiveSync Startup Provider	✓ Configure
Detect when device is disconnected	
	OK Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 8: On the Configure TCP/IP Transport dialog, select the Use specific IP address option and type the IP address of WinPAC, and then click OK

Configure TCP/IP Transport	i and the second se	? 🔀
Use fixed port number:	5655	
⊂ Device IP address		
ODbtain an IP address autom	natically using ActiveSync	
⊙ U <u>s</u> e specific IP address:		
10.0.9.43		~
]
	ОК	Cancel

Step 9: On the PAC50- ARMV4:ARMV4I_Release Properties dialog, click OK

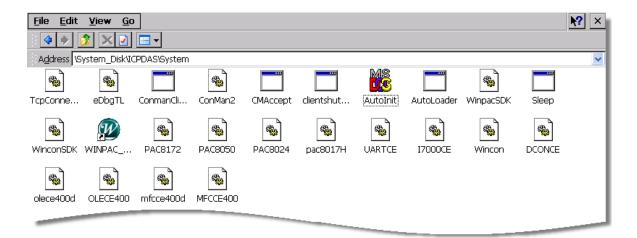
PAC50-ARMY4: ARMY4I_Release Properties	? 🔀
Default output location on device:	
Program Files Folder	*
Transport:	
TCP Connect Transport 💌	<u>C</u> onfigure
<u>B</u> ootstrapper:	
ActiveSync Startup Provider 🛛 👻	Configure
Detect when device is disconnected	
	OK Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 10: On the Options dialog, click OK

Options		? 🔀
Documents Find and Replace Fonts and Colors Import and Export Settings International Settings Keyboard Startup Task List Web Browser Source Control Text Editor Database Tools Debugging		Show devices for platform: PAC270 Image: Constraint of the second se
Device Tools General Devices Form Factors	~	Defaul <u>t</u> device: PAC50-ARMV4: ARMV4I_Release
		OK Cancel

Step 11: On the WinPAC, run the CommanClient2 and the CMAccept.exe applications which is located at: \System_Disk\ICPDAS\System



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>P</u> roject	<u>B</u> uild	<u>D</u> ebug	D <u>a</u> ta	Too	ls <u>W</u> indow <u>C</u> o	ommunity <u>H</u> elp
							5	Attach to <u>P</u> rocess	. Ctrl+Alt+P
							j,	Connect to Device.	
							ъ,	Connect to <u>D</u> atabas	se
							📇	Connect to Server.	
							B	Code Snippe <u>t</u> s Mar	nager Ctrl+K, Ctrl+B
								Choose Toolbo <u>x</u> It	tems
								<u>A</u> dd-in Manager	
								<u>M</u> acros	•
								Create <u>G</u> UID	
								Dotfuscator Comm	unity Edition
								<u>E</u> xternal Tools	
								Device Emulator M	fanager
								Import and Export	Settings
								<u>C</u> ustomize	
								Options	

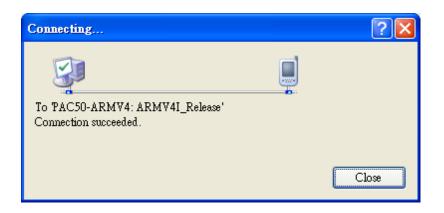
Step 12: On the Tools menu, click Connect to Device...

Step 13: On the Connect to Device dialog, select PAC 270 from Platform list and then click Connect

Connect to Device	? 🔀
To connect to a physical device or launch an emulator image, select a platform: Platform: PAC270 Devices: PAC50-ARMV4: ARMV4I_Release	Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 14: On the Tools menu, click Connect to Device...



Step 15: Connection established. Then you can debug on line

FAQ:

If the connection fails shown as follow, return to step 11 to do the action below



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Open the command prompt, run the

"CommanClient2.exe/transport:tcpconnectiona.dll/property:port=5000/id:Con" at: \System_Disk\ICPDAS\System, and then run the "CMAccept.exe"

1	} 🙂 🛙	१●■	90 🕓			
Eile	<u>E</u> dit	Help				
perty	:port=	5000 /id	-	Conmanclient2.exe	/transport:tcpconnectiona.d	ill /pro

Configure TCP/IP Transport	? 🔀
Use fixed port number: 5000 Device IP address	k≱
O Obtain an IP address automatically using ActiveSync	
⊙ U <u>s</u> e specific IP address:	
10.0.9.10	~
OK OK	Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.3. How to use the printer

WinPAC have ability to access the printer, you can connect to the printer via Ethernet network or USB.

Tips & Warnings



WinPAC only supports HP Laser Jet Printers which support PCL6 driver. The following printer support is released by HP

- HP LaserJet 4000 series/HP LaserJet 4100 series
- HP LaserJet 2100 series/HP LaserJet 2200 series
- HP LaserJet 1200
- HP LaserJet 3200/HP LaserJet 3300
- HP LaserJet 4200 series/HP LaserJet 4300 series
- HP LaserJet 5000 series/HP LaserJet 5100 series
- HP LaserJet 8000 series
- HP LaserJet 9000 series printers

If you need the latest support of HP PCL6 printer, you can refer to following link

http://h20000.www2.hp.com/bizsupport/TechSupport/Document. jsp?objectID=bpl04568

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.3.1. How to use network printer

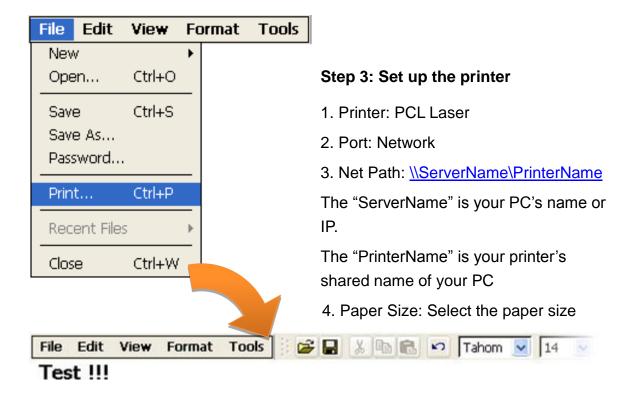
To use a shared network printer, please perform the following steps:

Step 1: On the Host PC, check the name of the Host PC and the shared printer

System Properti	BS		? 🛛	
System Resto	ore Automa	tic Updates	Remote	
General	Computer Name	Hardware	Advanced	
	ws uses the following in network.	ormation to identify	y your computer	
Computer <u>d</u> escrip	tion:			
	Computer". ServerName. ICPDAS.COM		'or ''Mary's	
	e a local user account,			
To renami Gen		dvanced Color Ma	N_WINPAC Properties	s 🤶 🔀
		his printer, click Shar er el vith users running dif ht to install additional	ferent versions of drivers, so that the	
	the shared printer.		Additional Drivers	el Apply Help

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 2: On the WinPAC, open a WordPad format file

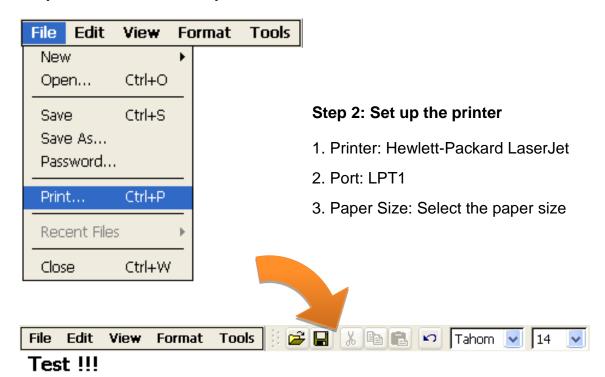


Printer:	PCL Laser	Print Range	Orientation
Port:	Network	 All 	Portrait
Net Path:	NRD1-User2\Anna	O Selection	O Landscape
Paper Size:	A4	Margins (inches)	-
Advand	ed Draft Mode	10000 C	Top: 1" Bottom: 11

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.3.2. How to use printer via USB

To use a shared network printer via USB, please perform the following steps:



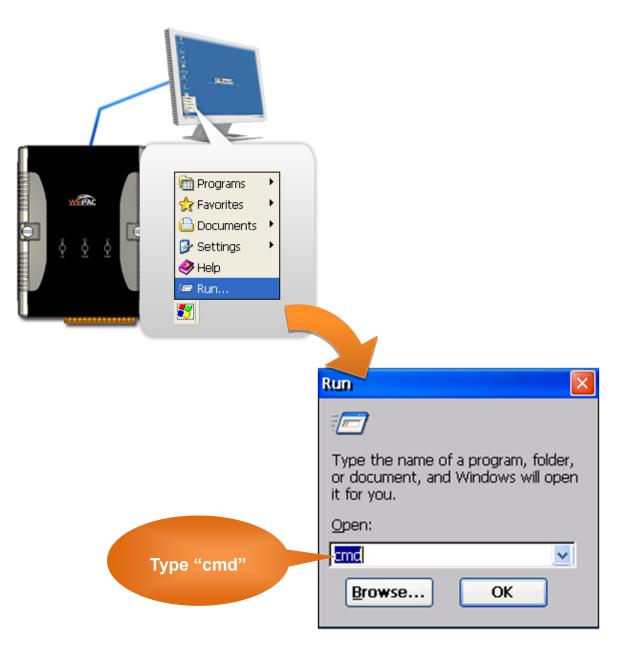
Step 1: On the WinPAC, open a WordPad format file

Print			? OK 🔀
Printer:	Hewlett-Packard LaserJ 🔽	Print Range	Orientation
Port:	LTP1 💌		Portrait
Net Path:		O Selection	 Landscape
Paper Size:	A4 🔽	Margins (inches) Left: 1.25" 1	Гор: 1"
Advance	ed Draft Mode		Bottom: 1"

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.4. How to use services tool

The services tool can help you turn on, turn off and monitor the WinCE services.





Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 2: List all services

[Syntax] services list

File E	dit	Help]			
ocket	CMD	v 5.0				
> serv:	ices	list				
7Y0:	0x00	03011	0	NOTIFY.	D11	Running
PO:	0x00	03157	0	HTTPD.D	LL	Running
RDO:	0x00	03207	0	credsvc	.dll	Running
MQ1:	0x00	03679	0	MSMQD.D	11	Off
3X0:	0x00	036b2	0	OBEXSrV	r.dll	Off
CPO:	0x00	03777	0	FTPD.D1	1	Running
ELO:	0x00	037ac	0	TELNETD	.D11	Running
MB0:	0x00	03c3e	0	smbserv	er.dll	Running
TPO:	0x00	O3fff	0	timesvo	.dll	Running
>						

Step 3: Type the commands to configure service

[Syntax] services stop <services name>

For example, turn on the "FTP" service:

services stop FTP0:

File Edit Help		
Pocket CMD v 5.	0	
<pre>\> services stop</pre>	FTPO:	
>> services list		
NFYO: 0x000301	10 NOTIFY	.D11 Running
HTPO: 0x000315	70 HTTPD.)	DLL Running
CRDO: 0x000320	70 credsv	c.dll Running
MMQ1: 0x000367	90 MSMQD.1	D11 Off
0BX0: 0x00036b	20 OBEXSr	Vr.dll Off
FTPO: 0x000377	70 FTPD.D.	11 Off
TELO: 0x00037a	CO TELNET	D.D11 Running
SMB0: 0x0003c3	e0 smbser	ver.dll Running
NTPO: 0x0003ff	f0 timesv	c.dll Running
1>		



For more information about using services tool, you just type "services help"

File Edit Help

```
Pocket CMD v 5.0
\> services help
Commands:
       help - print this text
        list - lists loaded services
        load <service name> - activates a service that is inactive
        stop <service instance> stops/pauses a service (does not unl)
        start <service instance> - starts/resumes a service
        refresh <service instance> - causes service to refresh its of
        unload <service instance> - causes service to be unloaded an
        register <service name> - service will be automatically load
eboot
        unregister <service name> - service will not be automatically
next reboot
        command <service name> [argl arg2 ...] - send service-specif
o service
        help <service name> - get information on what service-specif.
are supported
        <service name> - service's name in the registry (i.e. HTTPD)
        <service instance> - particular instantiation (i.e. HTPO:)
Flags:
        -f <file name>
        -s silent
        -d output to debugger
\>
```

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.5. How to use ActiveSync through USB port

ActiveSync helps you to synchronize the files on your host PC with the WinPAC.

Step 1: On the PC, install the Microsoft ActiveSync software

The Microsoft Active Sync software can be obtained from Microsoft website.

Step 2: Run the Microsoft ActiveSync

You can run Microsoft Active Sync from the Start menu

	🛞 Microsoft ActiveSync 📃 🗖 🔀
	<u>File View T</u> ools <u>H</u> elp
Nicrosoft ActiveSync	🔕 Sync 🕒 Schedule 🔯 Explore
MICIOSOIT ACTIVES YEL	No partnerships
	Not connected
	Hide Details 🕿
	Information Type Status

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 3: On the File menu, click Connection Settings...

🔕 Microsoft ActiveSync	
<u>File V</u> iew <u>T</u> ools <u>H</u> elp	
Synchronize	🔯 Explore
Mobile Device Delete Mobile Device Connection Settings	
Close	Hide Details 🗙
Information Type Stat	us

Step 4: Make sure the Allow USB connections are selected, and then click Connect...

S Connection Settings
Waiting for device to connect
🔽 Show status <u>i</u> con in taskbar
Allow USB connections
Allow connections to one of the following:
COM1
This computer is connected <u>t</u> o:
Automatic
 Open ActiveSync when my device connects <u>A</u>llow wireless connection on device when connected to the desktop
Help OK Cancel

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 5: Click Next to get connected

Get Connected			
	Get Connected		
	To connect your device to this PC:		
	1. Connect the cable to the PC		
	2. Turn on the device		
	3. Connect the device to the cable		
	ActiveSync should automatically detect your device.		
	If your device is not automatically detected, click Next. If you are using infrared (IR) or Bluetooth, click Help.		
	< Back Next > Cancel Help		

Step 6: Wait a while until the connection is established

After the connection is established, the color of the ActiveSync icon will change to green.

iet Connected	
Checking COM Ports Please wait while Setup locates your mobile device.	Disconnected – Black & Write
Progress Looking for a mobile device	Connected - Green
	3
< Back Next> Cancel Help	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 7: Click Yes, and then click Next to set up a partnership



Step 8: Select the type of information you want to synchronize, and then click Settings...

New Pa	artnership					
	Select Synchronization Settings Select the type of information you want to synchronize.					
	To synchronize a particular typ synchronization of that informal	e of information, select its check box. To stop tion, clear its check box.				
	Mobile Device	Desktop Computer				
	Calendar Microsoft Outlook					
	🗆 🚨 Contacts	Microsoft Outlook				
	🗹 🔁 Files	Synchronized Files				
	🗆 🗹 Tasks	Microsoft Outlook				
	To find out more about and to customize what gets synchronized, click <u>S</u> ettings					
	< E	Back Next > Cancel Help				

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Step 9: Click Finish to complete the setup



Step 10: Click Sync to synchronize the information

🔞 Microsoft ActiveSync	
<u>F</u> ile <u>V</u> iew <u>T</u> ools <u>H</u> elp	
Sync Stop Details Explore Options	
WindowsCE	
Connected Synchronized	
Information Type Status	
🔁 Files Synchronized	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Example: Synchronize a file between the PC and WinPAC-5000

Step 1: Follow the above-mentioned procedures to synchronize a file folder, and then double-click the Files

🔞 Microsoft ActiveSync	
<u>File V</u> iew <u>T</u> ools <u>H</u> elp	
Sync Stop Details Explore	Options
WindowsCE	
Connected Synchronized	
Information Type Status	
🔁 Files Synchi	ronized

Step 2: Under the Synchronized files, click Add... to select the synchronized files or add the file to the synchronization folder, and then click OK

	File Synchronization Settings	
	File Synchronization Synchronize selected files on your mobile device with the corresponding files on this computer.	The path of the synchronization
(Un this computer, synchronize the files in this folder: C:\Documents and Settings\Windows\My Documents\WindowsCE	folder.
	Synchronized no.	
	Add	
	OK Cancel	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

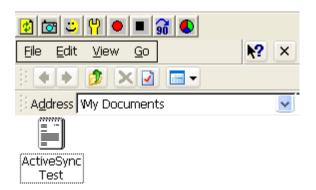
Step 3: Check the synchronization status

After clicking OK, the synchronization will be performed.

C:\Documents and Settings\Windows\My Documents\Windows\	TE My Documents
🛞 Microsoft ActiveSync	
<u>File V</u> iew <u>T</u> ools <u>H</u> elp	
Sync Stop Details Explore Options	
	ActiveSync Test.txt
WindowsCE Connected Synchronized	
Information Type Status	
🔁 Files Synchronized	

The synchronization folder on PC

The synchronization folder on WinPAC-5000



Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

A.6. How to automatically synchronize the WinPAC clock with an Internet Time Server



Step 2: On the System Settings tab, press Configure

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

- Step 3: Select the domain name in the Server drop down list, and then enter a value in the Autoupdate Frequency field
- Step 4: Check the "Automatically synchronize with an internet time server" check box

Internet Time 1.	0.0.1		
Step1: Server:	ool.ntp.org		~
Step2: Autoupdate	Frequency:	1440	minute
Step3:			
Automatically syr	nchronize with	n an internet	: time server
	Update No)W	
Step 4:Go to "File" driver	>"Save and	d Reboot" to	enable
Auto update stoppe	ed		

- Step 5: On the File menu, click Save and Reboot
- Step 6: The WinPAC will automatically synchronize with an internet time server regularly

<u>S</u> avi	в		- h		ting System
S <u>a</u> v	e and Reb	1000	- 1		
Reh	oot wee	out Save	es	olution :	320 * 240 🔽
Res	tore Defa	ult Setting	IS		
E <u>x</u> it					
Al	ways On Te	ор			Setting
Chang	je HTTP do	cument root	directo	ory to:	
Swinde	ws\www\	vwwpub\			Setting

Step 7: Press Update Now to synchronize WinPAC clock immediately.

Internet Time 1.0.0.1				
Step1: Server: pool.ntp.org				
Step2: Autoupdate Frequency: 1440 minute				
Step3:				
Automatically synchronize with an internet time server				
Update Now				
Step 4:Go to "File">"Save and Reboot" to enable driver				
Auto update running				

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Appendix B. XW-board Modules

The XW-board series are for uPAC-5000, LP-5000, and WP-5000 series. One PAC can only plug only one XW-board. The XW-board series have following common specification:

- DI channel is dry contact, sink type.
- DO channel is open collector, sink type.



DI, DO Expansion

Model	DI	DO	Isolation		
XW107	0	0	-		
XW107i	0	0	3750 Vrms		
XW110i	16	-	3750 Vrms		

AI, AO, DI, DO Expansion

Medal	AI (12-bit)		AO (12-bit)		DI	
Model	Ch	Range	Ch	Range	וט	DO
XW304	6	+/- 5V	1	+/- 5V	4	4
XW310	Λ	+/- 10V	0	+/- 10V	2	2
XW310C	4	0~20 mA	2	0~20 mA	3	3

RS-232/422/485, DI, DO Boards

Model	Serial Port			DI	DO	Isolation
	Туре	Ch	Wire	וט	00	ISUIALIUII
XW506	RS-232	6	3-wire	-	-	
XW507	RS-422/RS-485	1	4/2-wire	5	5	-
XW508	RS-232	8	3-wire	-	-	-
XW509	RS-232	2	5-wire	4	4	-
XW511i	RS-485	4	2-wire	-	-	2500 Vrms
XW514	RS-485	8	2-wire	-	-	-

For more detailed information about these support modules, please refer to <u>http://www.icpdas.com.tw/product/solutions/pac/upac/xw-board_selection.html</u>

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Appendix C. Revision History

Revision	Date	Description		
1.0.1	August 2010	Initial issue		
1.0.2	December 2010	 Added information about using backup utility to back up the settings and files in section 2.5. 		
		 Added information about a caution about using System_Disk in section 2.6. 		
		3. Added information on how to add a user account in section A.1.		
1.0.3	January 2012	 Modified information about XW-board supported in section 3.6.2 and appendix B. 		
		 Modified information about the OS updates in section 6.1.1 and section 6.1.2. 		
1.0.4	August 2012	 WP-5441 changed the Model number to WP-5141-OD. 		
		 Added information about COM1, COM2 and COM3 in section 1.4. 		
		3. Added information about how to use the printer in appendix A.3.		
1.0.5	October 2012	Modified information about WinPAC Platform SDKs in chapter 4.		
1.0.6	September 2013	 Update WinPAC utility information in section 3.6. 		
		2. Added Understanding the PACSDK and PACSDK reference in section 4.2.		
		 Added I/O Modules and SDK Selection in section 6. 		
1.0.7	January 2014	Added information about battery.		

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com

Revision	Date	Description	
1.0.8	June 2018	 Added information about WP-5151/WP-5151-OD in section 1.1, 1.1.2, 1.3, 1.4, 1.5, 2 and 2.1. 	
		 Deleted a caution about using System_Disk in section 	
		 Added information about the location of the PACNET.dll file in section 4.3.2 and 4.3.3. 	

Copyright © 2014 ICP DAS Co., Ltd. All Rights Reserved. E-mail: service@icpdas.com