

ViewPAC (WinCE-Based) User Manual

Version 1.0.12, January 2014

Service and usage information for

VP-23W1	VP-25W1	VP-4131

Written by Sean Edited by Anna Huang

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1. Introduction



ViewPAC combines WinPAC, graphic display and keypad in one unit. It is equipped with a PXA270 CPU (520 MHz) running Windows CE.NET 5.0 operating system, various connectivity (USB, Ethernet, RS-232/485), 3 slots to expand I/O modules, 3.5"/5.7"/10.4" TFT LCD and a rubber keypad.

Its operating system, Windows CE.NET 5.0, has many advantages, includes hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level, achievable deterministic control and low cost. Running Windows CE.NET 5.0 in the ViewPAC gives it the ability to run PC-based control software such as Visual Basic.NET, Visual C#, Embedded Visual C++, SCADA software, Soft PLC ...etc.

Compared with traditional IPC + PLC solutions, ViewPAC reduces overall system cost, space and gives you all the best features of IPC and PLC

1.1. Features

The ViewPAC offers the most comprehensive configuration and remote system upgrade solutions to meet specific application requirements. The following list shows the hardware and software features designed to simplify installation, configuration and application.

Software Features

- ➤ Windows CE .Net 5.0 Inside
- > Easy Remote Maintenance via Ethernet
 - 1. FTP Server
 - 2. VCEP Software
- Built-In OPC Server: NAPOPC_CE5
 - 1. An OPC Server for SCADA Software
 - 2. Integrates Local/Remote I/O Modules via RS-232/485 or Ethernet
 - 3. Provides Library for eVC, C#, or VB.NET
 - 4. Supports Modbus and DCON Protocols
- Development Software

Visual Studio.NET 2005/2008, and eVC

➤ SDK/Demo Programs for C#, VB.NET & eVC

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Hardware Features

- PXA 270 CPU (32-bit & 520 MHz)
- ► IP65 Compliant Front Panel
- > 3.5"/5.7"/10.4" TFT LCD (5.7"/10.4" LCD is with Touch Panel)
- Rubber Keypad with 24/6 Keys (for VP-23W1/VP-25W1 series only)
- > Audio with MIC-In and Line-Out (MIC-in is not included with VP-41xx series)
- > 64-bit Hardware Serial Number for Software Protection
- > 3 Slots for High Profile I/O Modules
- Rich I/O Expansion Ability
 - 1. Ethernet
 - 2. RS-232/422/485
 - 3. FRnet
 - 4. CAN bus
- ► Dual Battery Backup SRAM (512 KB)
- > One Ethernet Port
- ➤ 2 Serial Ports (RS-232, RS-485)
- Operating Temperature: -20 ~ +70 °C

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1.2. Specifications

The table below summarizes the specifications of the ViewPAC.

Models	VP-23W1	VP-25W1	VP-4131
System Software			
OS	Windows CE .NET 5.0		
.Net Compact Framework	2.0/3.5		
Embedded Service	FTP server, Web server (supports VB script, JAVA		
	script), Embedded SQL server		
SDK Provided	Dll for eVC, Dll for Visual Studio.Net 2005/2008		
CPU Module			
CPU	PXA270 or compatible (32-bit and 520 MHz)		
SDRAM	128 MB		
Dual Battery Backup SRAM	512 KB (for 5 years data retention)		
Flash	96 MB	96 MB	128 MB
EEPROM	16 KB (data retention: 40 years; 1,000,000		
	erase/write cycles)		
Expansion Flash Memory	microSD socket with a microSD card (support up		
	to 16 GB micros	SD card)	
RTC (Real Time Clock)	Provide seconds	, minutes, hours,	date of week
	/month; month a	nd year, valid from	n 1980 to 2079
64-bit Hardware Serial	Yes		
Number			
Dual Watchdog Timer	Yes (0.8 second)	
Rotary Switch	Yes (0 ~ 9)		
I/O Expansion Slots	1		
Slot Number	3 (for high profile I-8K and I-87K modules only)		
Hot Swap *Will be available	Yes (for high profile I-87K modules only)		
Communication Interface			
Ethernet Port	RJ45 * 1, 10/100 Base-TX		
	(Auto-negotiating, Auto MDI/MDIX, LED		
	indicators)	I	
USB 1.1 (host)	1	1	2
USB 1.1 (client)			1

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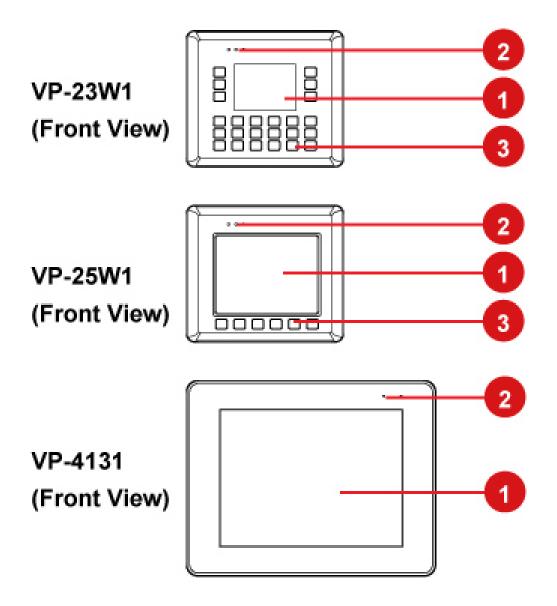
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СОМО	Internal communication with the high profile I-87K			
	series modules in slots			
COM2	RS-485 (D+, D-; self-tuner ASIC inside);			
	$2500 V_{DC}$ isolated			
СОМЗ	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI			
	and GND); Non-isolated			
Main Machine Interface				
LCD	3.5" TFT	5.7" TFT	10.4" TFT	
Resolution	320 x 240	640 x 480	800 x 600	
Touch Panel		Yes	Yes	
Rubber Keypad	24 Keys	6 Keys		
Audio	Microphone-In and		Earphone-Out	
	Earphone-Out			
LED Indicators	3 Dual-Color LEDs (PWR, RUN,		2 Dual-Color	
	LAN1, L1, L2, L3; L1 ~ L3 for		LEDs (PWR,	
	user programmable)		RUN)	
Environmental				
Operating Temperature	-20 ~ +70 °C			
operating remperature			-30 ~ +80 °C	
Storage Temperature	-30 ~ +80 °C			
	-30 ~ +80 °C 10 ~ 90%, non-	condensing		
Storage Temperature		condensing		
Storage Temperature Ambient Relative Humidity				
Storage Temperature Ambient Relative Humidity Power	10 ~ 90%, non-0			
Storage Temperature Ambient Relative Humidity Power Input Range	10 ~ 90%, non-4 +10 V ~ +30 V _D 1 kV		n slots	
Storage Temperature Ambient Relative Humidity Power Input Range Isolation	10 ~ 90%, non-4 +10 V ~ +30 V _D 1 kV	c y to I/O expansion	n slots	
Storage TemperatureAmbient Relative HumidityPowerInput RangeIsolationCapacity	10 ~ 90%, non- +10 V ~ +30 V _D 1 kV 2.5 A, 5 V suppl	c y to I/O expansion	n slots	
Storage Temperature Ambient Relative Humidity Power Input Range Isolation Capacity Consumption	10 ~ 90%, non- +10 V ~ +30 V _D 1 kV 2.5 A, 5 V suppl	c ly to I/O expansior 24 V _{DC})	n slots 293 mm x 231	
Storage TemperatureAmbient Relative HumidityPowerInput RangeIsolationCapacityConsumptionMechanical	10 ~ 90%, non- +10 V ~ +30 V _D 1 kV 2.5 A, 5 V suppl 7.2 W (0.3 A @	c ly to I/O expansior 24 V _{DC})		
Storage TemperatureAmbient Relative HumidityPowerInput RangeIsolationCapacityConsumptionMechanical	10 ~ 90%, non- +10 V ~ +30 V _D 1 kV 2.5 A, 5 V suppl 7.2 W (0.3 A @	c ly to I/O expansion 24 V _{DC}) nm x 125 mm	293 mm x 231	

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1.3. Overview

The ViewPAC contains several interfaces and peripherals that can be integrated with external systems. Here is an overview of the components and its descriptions. The details of these items are as follows:



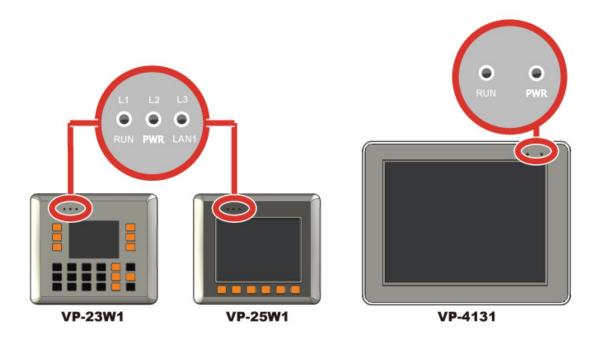
1. LCM

The LCM display allows users to view the status of the backup process.

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2. LED Indicators

The diagram below shows the placement of the LED indicators for each ViewPAC.



The LED indicators which can be used to indicate the power status, OS status and network link/activity are described as follows:

LED Indicator	Color	Description
L1/L2/L3 (for VP-23-	Red, On	LED indicators controlled by user
W1/VP-25W1 only)	Red, Off	Program.
RUN	Green, On	System booted and ready.
	Green, Off	BIOS failure.
	Green, blinking	System memory mapped out,
		formatted or defragmented.
PWR	Green, On	System has power applied to it.
	Green, Off	System is not powered on.
LAN1 (for VP-23W1/-	Green, On	Link between system and network.
VP-25W1 only)	Green, Off	Network disconnected.
	Green, blinking	Network Access.

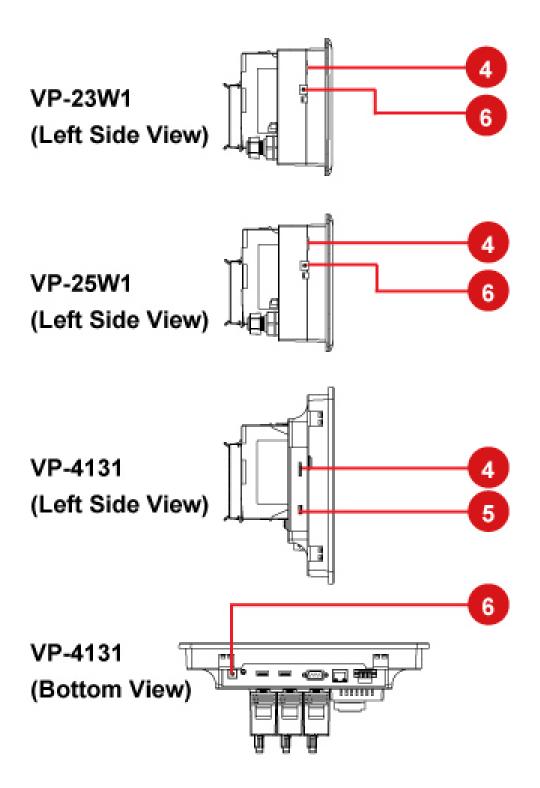
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3. Keypad (for VP-23W1/VP-25W1 only)

The keypad is used to provide support for keyboard input.

The F1 ~ F6 function keys can also be programmed by the user.

The Numerical Keypad allows you to enter numerical information.



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4. microSD Socket

microSD socket allows for memory expansion up to 16 GB.

5. USB Client (for VP-4131 only)

USB client allows you to connect your ViewPAC to another computer via a USB cable, and have that cable act as a network connection.

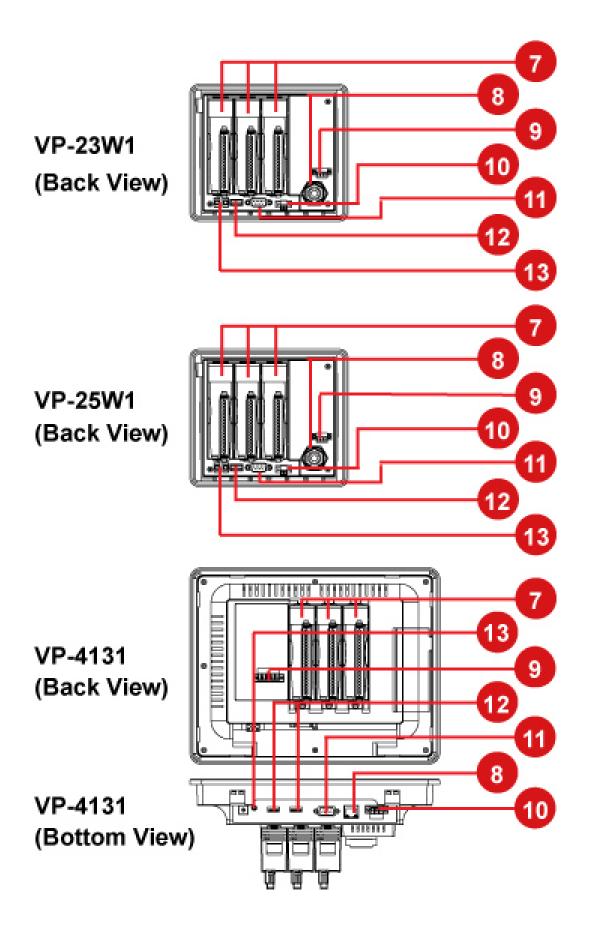
6. Rotary Switch



Rotary Switch is an operating mode selector switch which provides seven functions related to the selection of the operating mode and authorization control for the VP-2000.

For more information about the operating mode, please refer to "section 2.2. Configuring the Boot Mode"

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7. I/O Expansion Slots

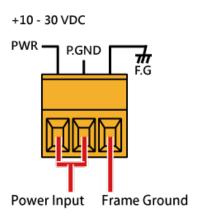
ViewPAC has three I/O expansion slots to serve in the local and remote expansion.

8. Ethernet Port

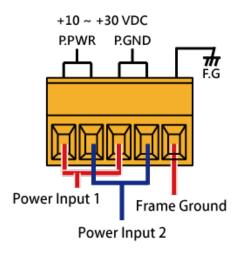
Ethernet port allows you to connect your computer or other device to the internet or to a local network.

9. Power Input and Frame Ground

The VP-23W1/VP-25W1 has a terminal with 3pins, there are 2 pins for power input and a pin for frame ground as follows:



The VP-4131 has a terminal with 5 pins; there are 4 pins for redundant power input and a pin for frame ground as follows:



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10. COM2 (RS-485)

COM2 port provides a connection to external RS-485 devices. The COM2 has 2 pins, as follows:

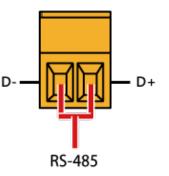
Baud Rate: 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps

Data Bits: 7, 8

Parity: None, Even, Odd, Mark (Always 1), Space (Always 0)

Stop Bits: 1, 2

FIFO: 16 bytes



11. COM3 (RS-232)

ViewPAC offers one standard RS-232 serial communication interface port, COM3 (9-pin Sub-D plug connector), and it is located on the back of ViewPAC. Refer to figure below for RS-232 port pin assignment.

Port Type: Male

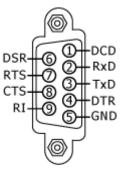
Baud Rate: 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200 bps

Data Bits: 5, 6, 7, 8

Parity: None, Even, Odd, Mark (Always 1), Space (Always 0)

Stop Bits: 1, 2

FIFO: 16 bytes



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The table below shows the data bit of each COM port and their corresponding stop bit.

Word Length	Number of Stop Bits
5, 6, 7, 8	1
5	1.5
6, 7, 8	2

12. USB Port

The VP-23W1/VP-25W1 has a USB port, and the VP-4131 has two USB ports, that allow support for USB devices such as mouse, keyboard or an external USB hard drive.

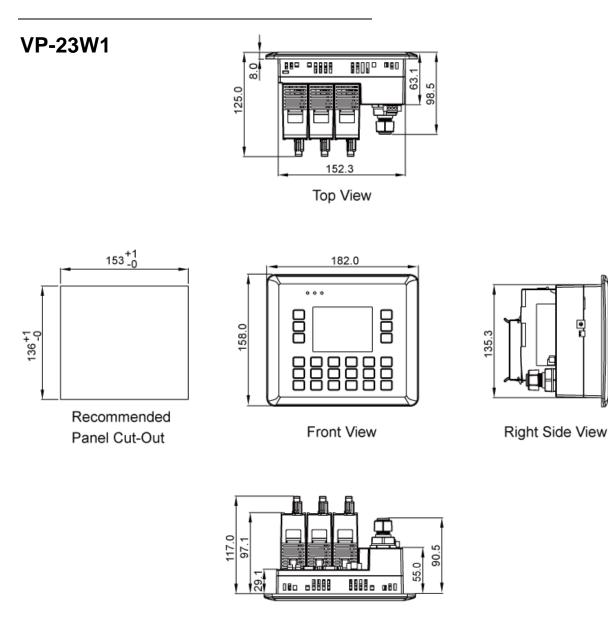
13. Microphone and Earphone Jacks

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

1.4. Dimensions

The diagrams below provide the dimensions of the standard VP-2000 family to use in defining your enclosure specifications. Remember to leave room for potential expansion if you are using other components in your system.

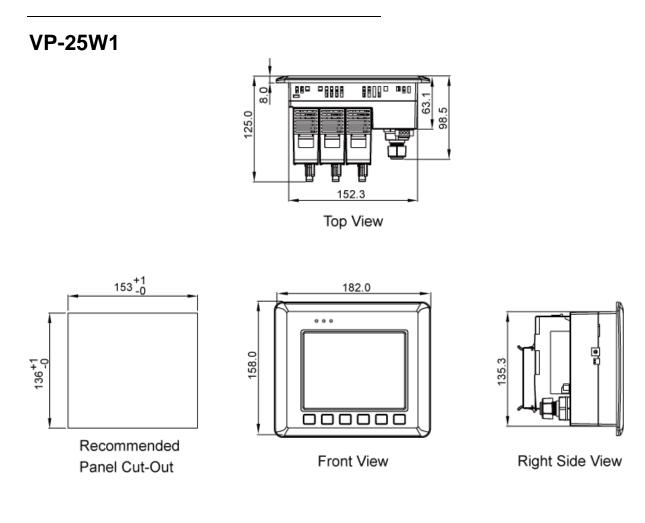
All dimensions in millimeter.

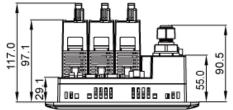


Bottom View

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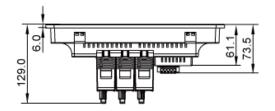


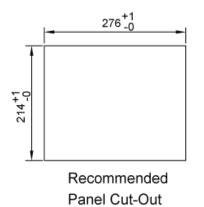
Bottom View

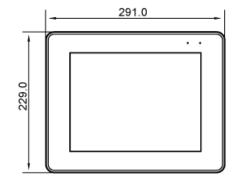
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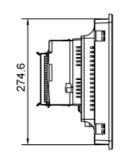
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VP-4131









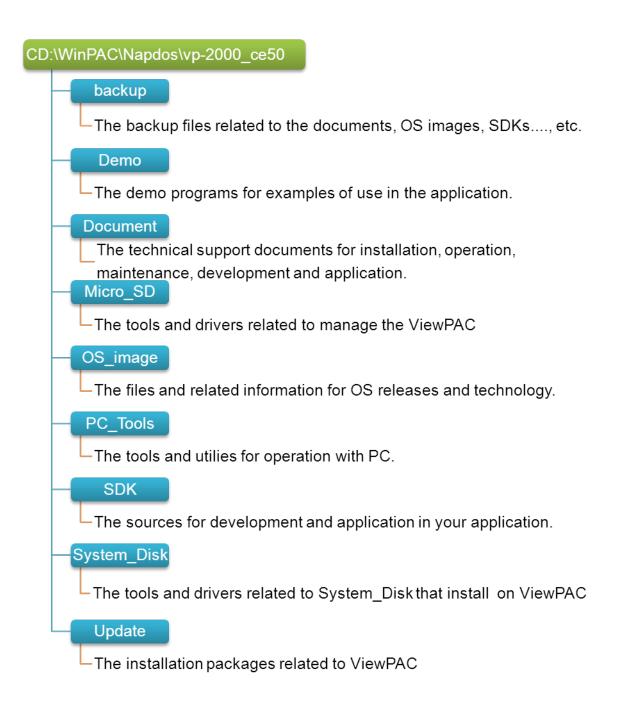


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1.5. Companion CD

This diagram below describes the content of the companion CD, which provides the resource, tool kit, software and documentation related to the ViewPAC.



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2. Getting Started

This chapter provides a guided tour that describes the steps needed to download, install, configure, and run the basic procedures for user working with the ViewPAC for the first time.

2.1. Mounting the Hardware

Before you work with the ViewPAC, you should have a basic understanding of hardware specification, such as the dimensions, the usable input-voltage range of the power supply, and the type of communication interfaces.

For more information about the hardware details, see section 1.2., "Specifications."

For more information about the hardware dimensions, see section 1.4., "Dimension."

The installation instructions differ depending on the ViewPAC you have.

► For VP-23W1/VP-25W1

Please see section 2.1.1. Installation Instructions for VP-23W1/VP-25W1

> For VP-4131

Please see section 2.1.2. Installation Instructions for VP-4131

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2.1.1. Installation Instructions for VP-23W1/VP-25W1

Before starting any task, please check the package contents. If any of the following package contents are missing or damaged, contact your dealer, or distributor.

In addition to this guide, the package includes the following items:



VP-23W1/VP-25W1 & Touch Pen



Expansion I/O Socket * 3



Software Utility CD



RJ-45 Waterproofing Kit



A microSD Card and A microSD to SD Adapter



Panel Clip * 4



Screw Driver

M4x35 L Screw *4

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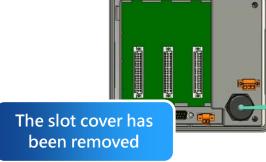
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2.1.1.1. Removing the Slot Cover

The ViewPAC has a slot cover to protect the internal components from damage during shipping. Before starting any installation, please first remove the slot cover.







Step 2: Pull the plastic wrap

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2.1.1.2. Installing Expansion I/O Sockets

The case (a socket and a top case) is included in the package. Before inserting the I/O modules you first need to install the expansion I/O socket.

If you do not expand the I/O module full, please keep the top case of the unused slot to protect the backplane from dirt, dust and damage from foreign objects.

- Step 1: Take the socket out from the case
- Step 2: Padlock the bottom of the socket into the ViewPAC
- Step 3: Slide the socket into the ViewPAC until it clicks

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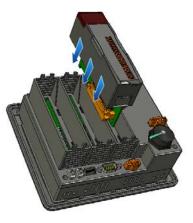
2.1.1.3. Inserting the I/O Modules

ViewPAC supports a complete range of I/O modules for interfacing many different field devices.

For more information about I/O expansion modules, please refer to:

http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

- Step 1: Hold the I/O module vertically and align the socket
- Step 2: Carefully press the I/O module onto the socket



Tips & Warnings



If you do not expand the I/O module full, please keep the top case of the unused slot to protect the backplane from dirt, dust and damage from foreign objects.

Step 3: Read the relevant documentation



For high profile I-8K series:

CD:\napdos\io_module\ http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

Manual

For high profile I-87K series:

CD:\napdos\io_module\ http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

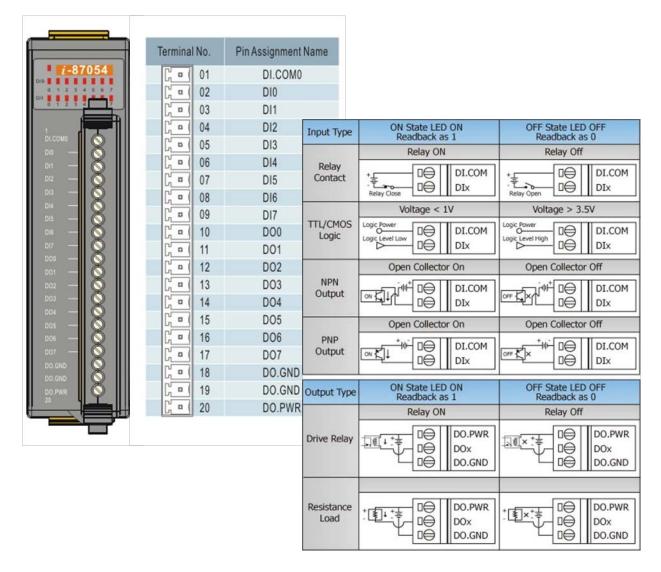
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Step 4 Wire the I/O channels

All documents include the I/O module specifications, pin assignments and wiring connections.

For example, Pin Assignments and Wiring connections for the I-87054W module are as follows:



Tips & Warnings



It is recommended that the power to the ViewPAC is switched off when wring the I/O module which are plugging in the ViewPAC slots.

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2.1.1.4. Mounting the Waterproof

The ViewPAC is equipped with an IP67 waterproof connector to withstand contaminant in dusty environment and immersion in water and corrosive elements.



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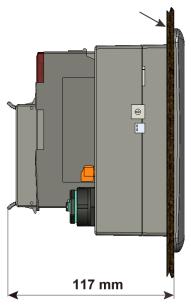
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2.1.1.5. Mounting the ViewPAC

The ViewPAC can be mounted on a panel of maximum thickness 12 mm. Adequate access space can be available at the rear of the instrument panel for wiring and servicing purposes.

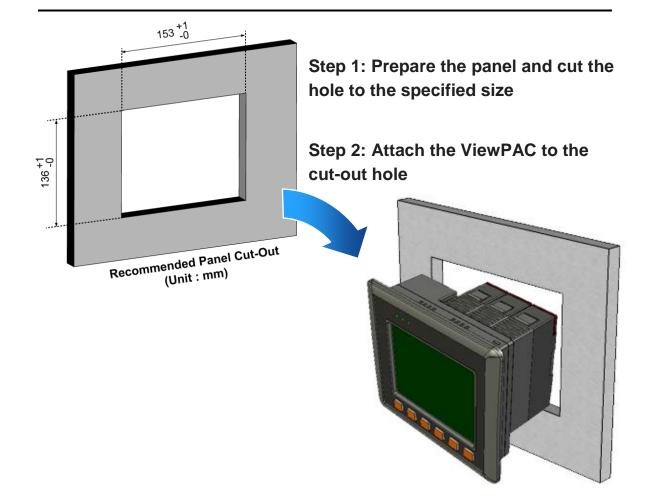
Panel thickness up to 12 mm



Tips & Warnings

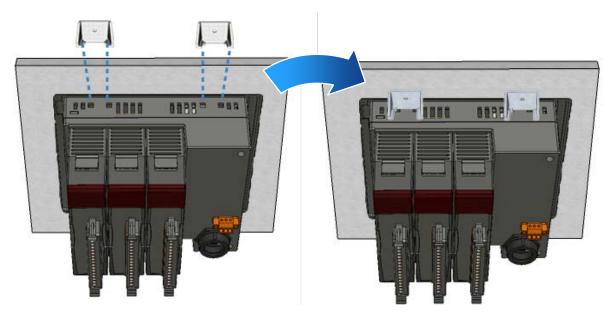


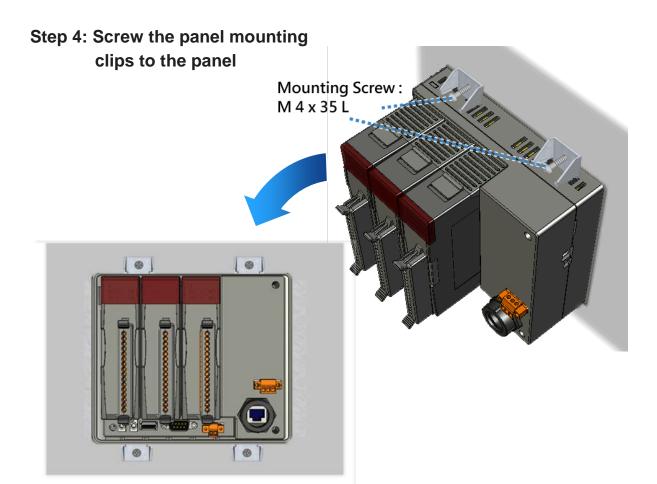
To ensure proper ventilation for your ViewPAC, leave a minimum of 50mm space between the top and bottom edges of the ViewPAC and the enclosure panels.



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Step 3: Insert the panel mounting clips into the upper and lower ventilation holes





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2.1.1.6. Deploying a Basic ViewPAC Application

The ViewPAC provides a variety of communication interface to suit a range of applications. Here is a simple application for using the ViewPAC that is shown below.

Step 1: Connect the positive terminal (+) of the power supply to the terminal PWR and the negative terminal (-) of the power supply to the P.GND

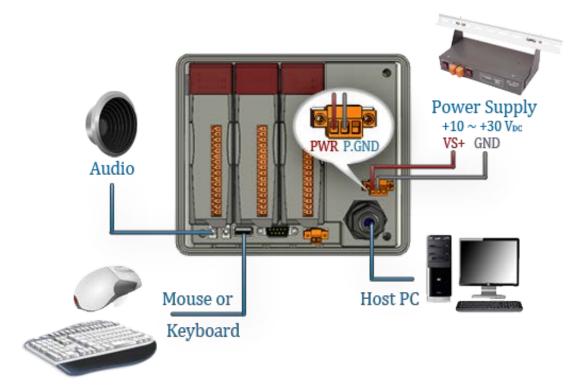
Tips & Warnings



The input range of power supply is +10 \sim +30 V_{DC}

- Step 2: Connect PC to the Ethernet port
- Step 3: Connect the USB keyboard to the USB port

Step 4: Connect the audio to the microphone and earphone jack



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2.1.2. Installation Instructions for VP-4131

Before starting any task, please check the package contents. If any of the following package contents are missing or damaged, contact your dealer, or distributor.

In addition to this guide, the package includes the following items:



VP-4131 & Touch Pen



A microSD card and A microSD to SD Adapter



Software Utility CD



Panel Clip * 4



Screw Driver



M4x35 L Screw *4

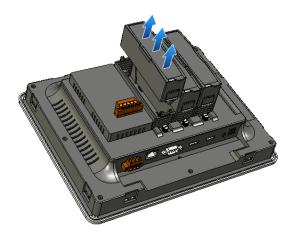
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2.1.2.1. Installing Expansion I/O Sockets

There is a top case on each I/O socket. Before inserting the I/O module you first need to remove it.

If you do not expand the I/O module full, please keep the top case of the unused slot to protect the backplane from dirt, dust and damage from foreign objects.



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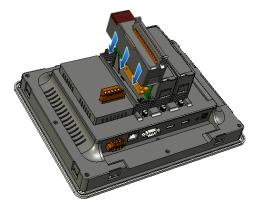
2.1.2.2. Inserting the I/O Modules

ViewPAC supports a complete range of I/O modules for interfacing many different field devices.

For more information about I/O expansion modules, please refer to:

http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

- Step 1: Hold the I/O module vertically and align the socket
- Step 2: Carefully press the I/O module onto the socket



Tips & Warnings



If you do not expand the I/O module full, please keep the top case of the unused slot to protect the backplane from dirt, dust and damage from foreign objects.

Step 3: Read the relevant documentation



For high profile I-8K series:

CD:\napdos\io_module\ http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

Manual

For high profile I-87K series:

CD:\napdos\io_module\ http://www.icpdas.com/products/PAC/winpac/io_support_list.htm

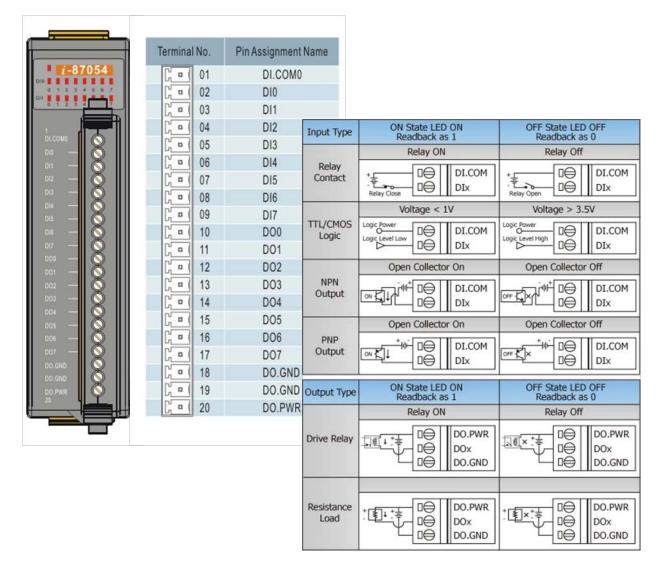
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Step 4 Wire the I/O channels

All documents include the I/O module specifications, pin assignments and wiring connections.

For example, Pin Assignments and Wiring connections for the I-87054W module are as follows:



Tips & Warnings



It is recommended that the power to the ViewPAC is switched off when wring the I/O module which are plugging in the ViewPAC slots.

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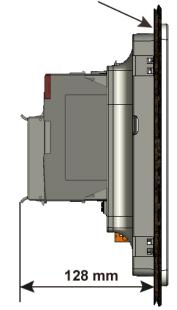
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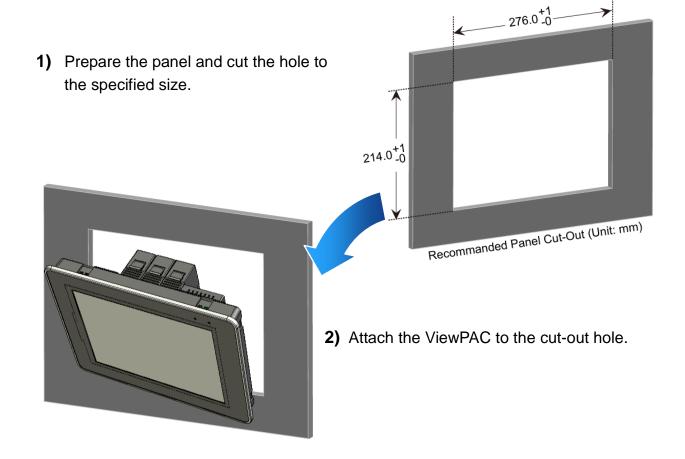
2.1.2.3. Mounting the ViewPAC

The ViewPAC can be mounted on a panel of maximum thickness 5 mm. Adequate access space can be available at the rear of the instrument panel for wiring and servicing purposes.

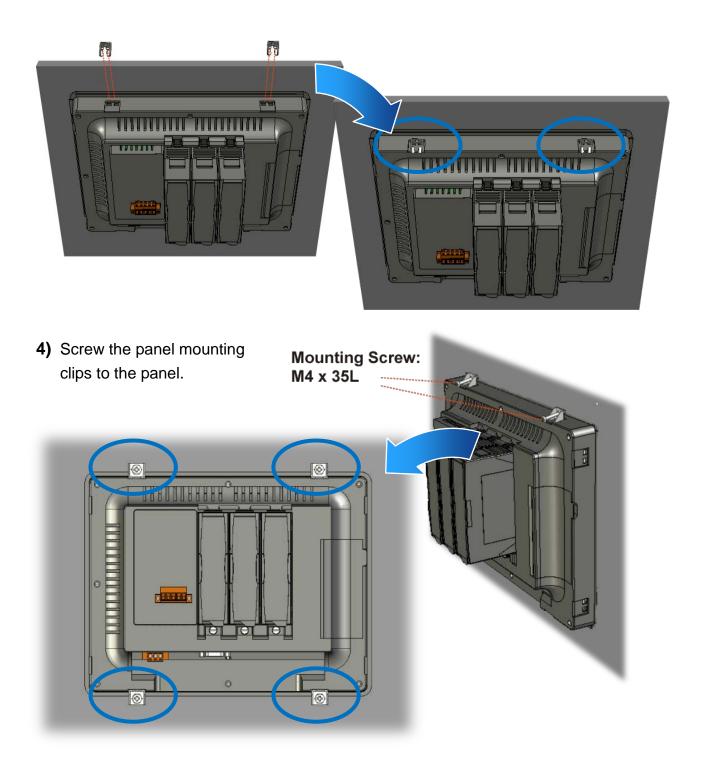
To ensure proper ventilation for your ViewPAC, leave a minimum of 50mm space between the top and bottom edges of the ViewPAC and the enclosure panels.

Panel thickness up to 5 mm





3) Insert the panel mounting clips into the upper and lower ventilation holes.



Recommended Screw Torque: 3.4 ~ 4.5 kgf-cm.

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2.2. Installing the Tools and Utilities

The ViewPAC has several tools and utility that allows and supports you quickly and easily to manage the ViewPAC. Here we will introduce two practical of them and guide you through the installation.



Remote Display is one of the Windows CE operating system toolkits. If your ViewPAC is connected to PC through the network, you can use this utility to display the device screen on the host PC and control the ViewPAC remotely through this interface.

For more information on how to use Remote Display to control the ViewPAC remotely, please refer to section 2.6. Using Remote Display to Control the ViewPAC Remotely



DCON Utility is a toolkit that is designed to configure, manage Utili... and monitor the I/O modules from PC via COM port or Ethernet.

For more information on how to use DCON Utility to configure the I/O module, please refer to section 2.7. Using "DCON Utility" to configure the I/O Module.

Step 1: Get the DCON Utility and Remote Display

The DCON Utility and Remote Display can be installed from the CD that was provided with the package or by downloading the latest version from ICP DAS web site.

CD:\napdos\vp-2000_ce50\PC_Tools\ ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/pc_tools/

Step 2: Follow the prompts until the installation is complete

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2.3. Configuring the Boot Mode

The ViewPAC has seven boot modes that can be determined through a rotary switch.

	Position	Modes of operation
	0	Normal mode (Default)
6780	1	Safe mode
L S S S S S S S S S S S S S S S S S S S	2	Debug mode
23	3	OS update mode
	4	Development mode
	5	DCON_CE
	6	VCEP
	7 ~ 9	(For user)

The table below lists the operation mode selection.

Normal Mode (Default)

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 troubleshooting option that starts your computer with only basic services and functionality. If an existing problem does not reappear when you start ViewPAC in safe mode, you can eliminate the default settings and basic device drivers as possible causes.

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In normal mode, if the new settings are not saved when you change and save the settings using the ViewPAC Utility, to solve this problem, perform the following steps:

Step 1: Restart the ViewPAC in safe mode

Turn the rotary switch to "1", and then restart the ViewPAC.



Start the ViewPAC Utility, and then click the "Restore Default Settings" command and "Save"

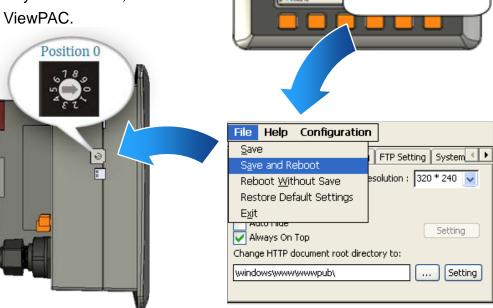
command from the "File" menu

Step 2: Start the ViewPAC Utility to

restore the default settings

Step 3: Restart the ViewPAC in normal mode

Turn the rotary switch to "0", and then restart the ViewPAC.



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Double-Click the ViewPAC_Utility

Debug Mode

The debug mode is a function hidden in a program that provides options used for testing and debugging that are not available to users.

Debug mode is unsupported.

OS Update Mode

OS update mode is a way that is used to update OS. To update the ViewPAC OS image, please refer to "6.1. OS updates"

DCON_CE Mode

This mode is the same as Normal mode. Besides, DCON_CE.exe will be run automatically after booting

Tips & Warnings



DCON_CE.exe must be placed on the \System_Disk\Tools\DCON_CE, or else DCON_CE.exe cannot be run automatically after booting.

VCEP Mode

This mode is the same as Normal mode. Besides, VCEP.exe will be run automatically after booting.

Tips & Warnings



VCEP.exe must be placed on the \System_Disk\Tools\VCEP or else VCEP.exe cannot be run automatically after booting.

User Mode

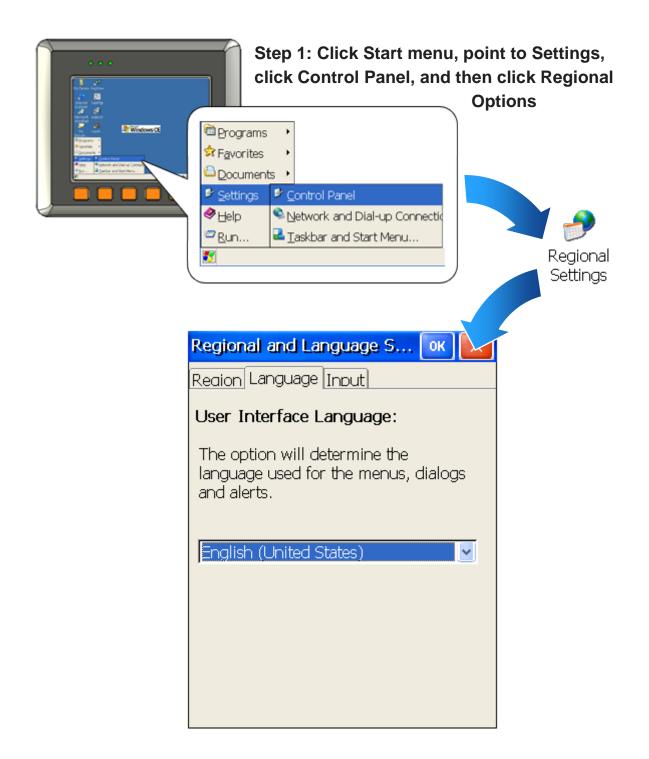
Rotary switch position 7, 8, 9 are reserved for user's applications.

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

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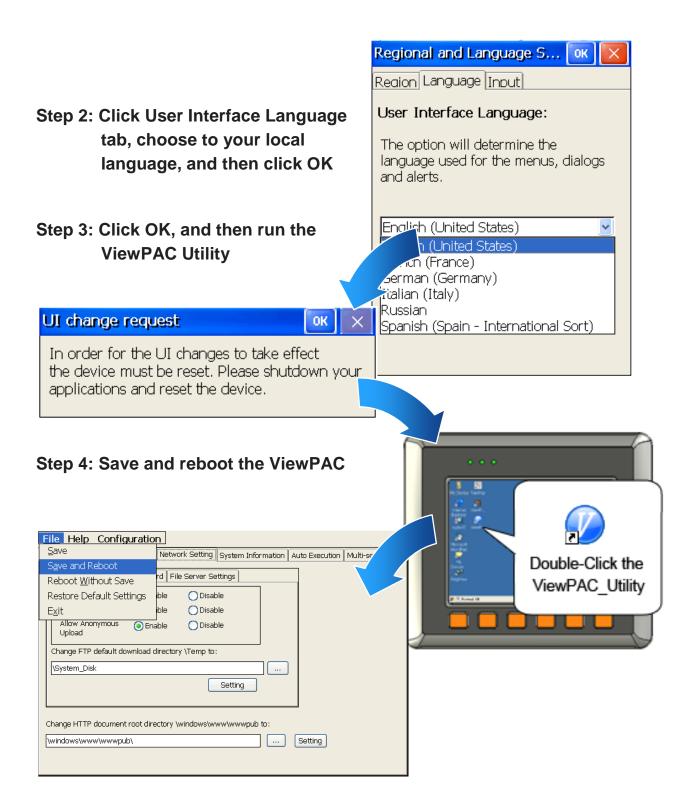
2.4. Changing the User Interface Language

The "Regional Settings" is a Windows CE functionality that allows users to easily change the ViewPAC user interface to your native language.



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2.5. Testing the ViewPAC

ViewPAC combines WinPAC, graphic display and keypad dial in one unit. The ViewPAC Quick Test is a toolkit used to check out the ViewPAC particular function compared with WinPAC.

VP-23W1:

•••		Audio C	ptions	:		
		Play	Audio			
		Play Audio button is used to check the				
		audio ou	itput.			
		Buzzer	Option	S:		
Double-Click the		Play 8	Buzzer			
	t L	Play Buz	zer butt	on is used	to check	k the
		buzzer.				
LED Options:			T			
	Vie		Test.	/iewPACS	DK AT'I	J.U.2 🔼
These buttons are used to			Play	Audio	Play	Buzzer
check LEDs sign.			LED	Run	.1 L2	2 [13]
KeyPAD Option:	F1	F2	F3	F4	F5	F6
Checkboxes are used to						
check the KeyPAD.		2	6	Shift		
Text field is used to check	7	8	9	0		
the input format.						
	👥 yia	wPAC Qui	k Test	Vie	👼 7:37 F	M 🜌 🚍
				••••••••••••••••••••••••••••••••••••••	91.371	" 7 "
Tips & Warnings						



The shift key is a modifier key used to enter alternate upper letters or characters.

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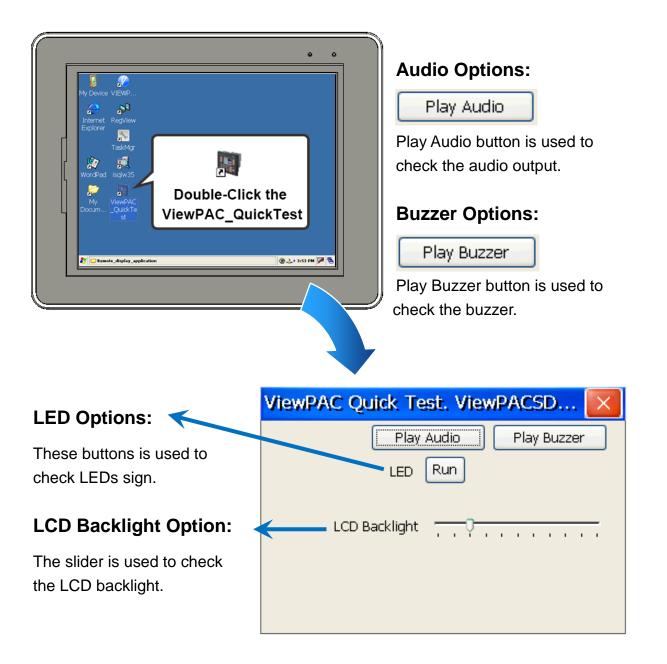
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VP-25W1:

		Play Audio
	161	Play Audio button is used to check the audio
	N	output.
i Shijerj	Double-Click the ViewPAC_QuickTest	Buzzer Options:
		Play Buzzer
		Play Buzzer button is used to check the
		buzzer.
LED Options	5:	
-	ViewPA	AC Quick Test. ViewPACSDK V1.0.0.2 🛛
These buttons	are used to	Play Audio Play Buzzer
check LEDs si	gn.	
KeyPAD Opt	ion: 👞 🔤	LED Run L1 L2 L3
Checkboxes a	re used to F1	F2 F3 F4 F5 F6
check the Keyl		LCD Backlight
LCD Booklig		
LCD Backlig Options:	ht k	

Audio Options:

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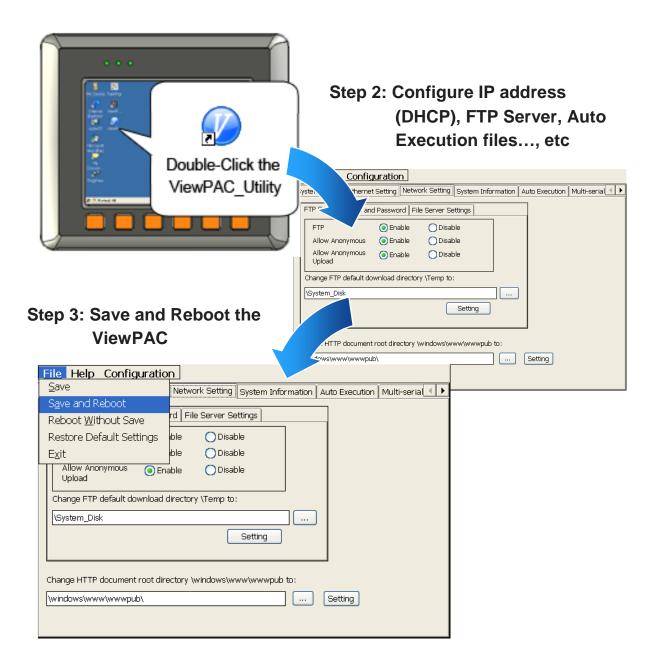


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2.6. Using ViewPAC Utility to manage the ViewPAC

The ViewPAC Utility is a collection of the ViewPAC system tool that allows user quickly and easily manage and configure the ViewPAC.

For more detailed information on ViewPAC Utility applications, please refer to "3.5. ViewPAC Utility"



Step 1: Run the ViewPAC Utility located on desktop

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2.7. Using DCON Utility to Configure the I/O Modules

The DCON Utility is a client utility that runs on PC, and communicates with ViewPAC via DCON protocol. The DCON Utility allows users to remotely connect to I-7K and I-87K series I/O modules for management through the COM port and Ethernet port.

This tool is composed of two parts, a client and a server. The server is a program named DCON_CE_WP.exe running on ViewPAC. The client is a PC-based program named DCON_Utility.exe running on PC.



Step 1: Run the DCON firmware on the ViewPAC controller

The DCON firmware is located at: \System_Disk\Tools\DCON_CE\

Step 2: Run the DCON Utility on the host PC



The DCON Utility can be obtained from:

CD:\napdos\vp-2000_ce50\PC_Tools\DCON_Utility\ http://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/pc_tools/dcon_utility/

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Step 3: Click the WIN CE button

DCON_UTILITY [YER521] select COM Port option then search modules	
File COM Port Search Run Terminal Language Help	
Image: Start mark Image: Start m	:55)
module Address Baudrate: Che ym format Status Description	
Click the WIN CE button	
COM 1 Address 00 [dec] 0 [hex] Baudrate: 9600 Parity: None Data Bit 8 Stop Bit.	1

Step 4: On the WINCE device connection, enter the IP address of the ViewPAC, and press the "Connect to WinPAC" button to search the I-87K series expansion I/O modules

WINCE device (Connection :	×
(Wind	Con-8000 (DCON_CE_V21X)	XPAC_CE
	WinPAC-8000	WinCon-8000 (DCON_CE_V20X)
Pleas	se confirm PAC Model before o	
	COM 0 (Backplane COM Po	rt)
	COM 2 (RS-485)	
	COM 3 (RS232/RS-485)	
IP:	10.1.0.39	Connect to WinPAC
About down	load DCON_CE_V50X for Win	PAC , please refrer to
<u>ftp://ftp.icpda</u>	s.com/pub/cd/winpac/napdos/w	p-8x4x_ce50/system_disk/tools/dcon_ce/

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Step 5: It will display a list of I-87K series expansion I/O modules, then select the module name that you want to configure

🖉 DCON_UI	TILITY_VI	ER [521] sear	ching module	s					
File COM Por	rt Search	Run Terminal	Language H	ielp					
			2		Start	0	End	255	(Max Address range: 0~255)
module	Address	Baudrate:	Checksum	format	Status			Descriptio	
WinPAC 8000		115200	Disable	N,8,1					3000 System(DCON)
XXXXX XXXXX	S0 S1	115200 115200	Disable Disable						bus module] or [None] bus module] or [None]
XXXXX	S2	115200	Disable						bus module] or [None]
XXXXX	S3	115200	Disable						ous module] or [None]
XXXXX	S4 S5	115200 115200	Disable Disable						ous module] or [None] ous module] or [None]
XXXXX XXXXX	50 S6	115200	Disable						bus module) or [None]
*****	\$7	115200	Disable						bus module] or [None]
-Searching S	Status: —								
TCP/IP Address:	10.1	1.0.39	Address 01 (c	lec] 1 [hex] Baudr	ate:	9600 Par	ity: N	lone Data Bit: 8 Stop Bit: 1

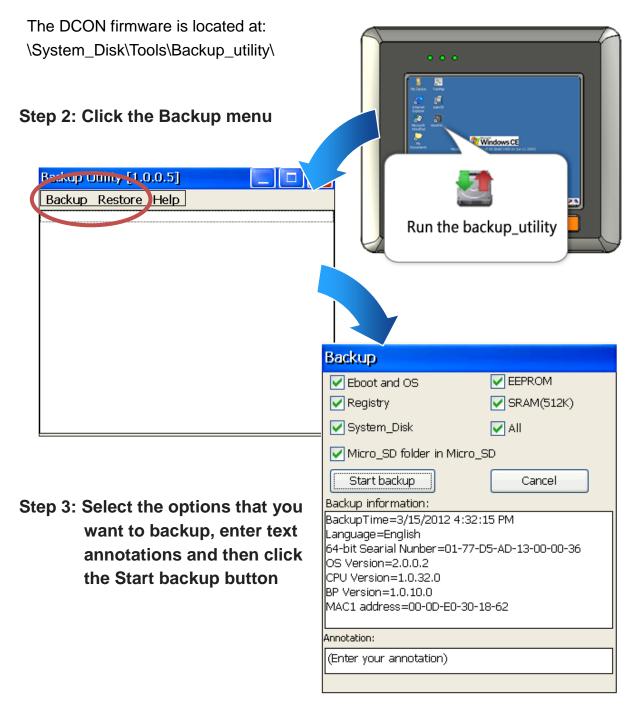
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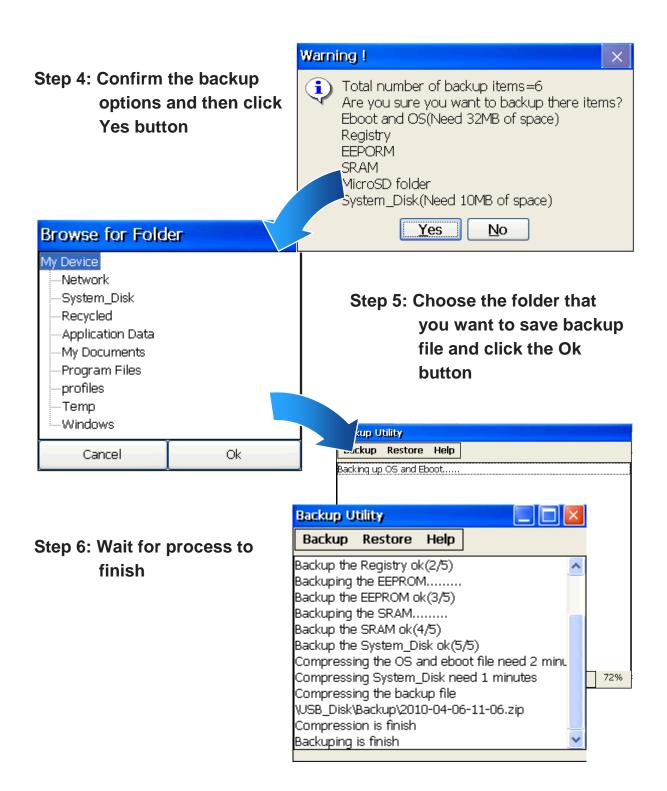
2.8. Using Backup Utility to Backup the settings and files

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

Step 1: Run the Backup Utility on the ViewPAC



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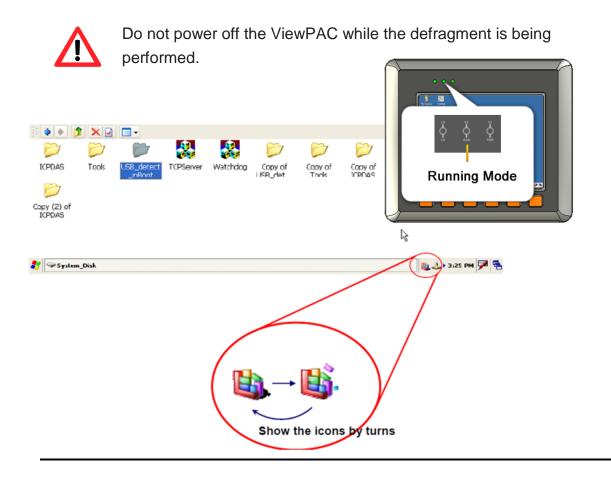
2.9. A caution about using System_Disk

The System_disk is an authoritative storage device, but is not suitable for frequent copying and deleting of files and is only suitable for storing important files that are not changed frequently.

If files are copied and deleted frequently, the system will automatically perform a System_Disk defragment action, which will consume the total resources of the CPU and cause the OS not to function correctly.

When the OS System_Disk defragment action is being performed, the run LED will blink and the defragment action icon will show in the system tray in the bottom right-hand of the pc screen.

Tips & Warnings



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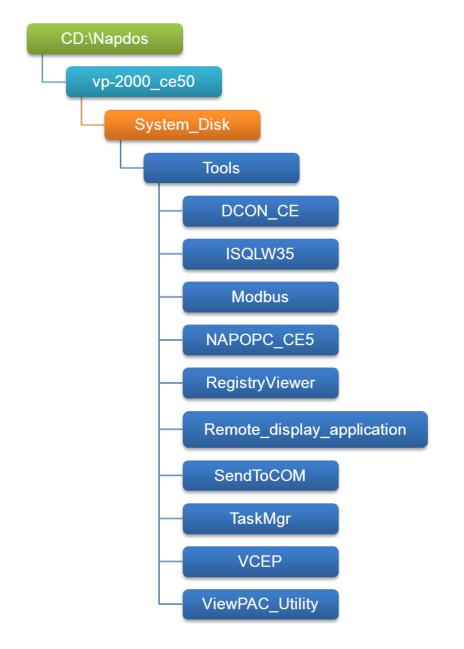
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3. Tools and Tasks

This chapter briefly describes the functions of the ViewPAC tools and utilities.

There are several tools and utilities built-in and designed for use with ViewPAC. Some of these tools and utilities are installed on the ViewPAC controller, some are available on PC.

Both the tools and utilities of the ViewPAC side and PC side tools can be found separately on the CD that was provided with the package or by downloading the latest version from ICP DAS web site.



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• DCON_CE

With Host PC running the DCON Utility, on the ViewPAC, the DCON_CE program allows user to view and monitor the I/O status from 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 ViewPAC.

• NAPOPC_CE5

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

For more information about the NAPOPC_CE5, please refer to "3.2. NAPOPC_CE5".

RegistryViewer

The Registry Viewer allows user to view the registry value of Windows CE Operating System.

Remote display application

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

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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 ViewPAC.

• VCEP

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

For more information about the VCEP, please refer to "3.4. VCEP (Virtual CE Pro)".

• ViewPAC Utility

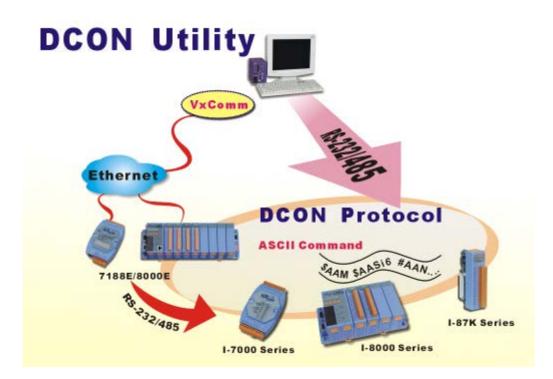
The ViewPAC Utility provides various useful functions such as configuring Ethernet settings, monitoring system settings and FTP services .etc for easy and quick management.

For more information about the ViewPAC Utility, please refer to "3.5. ViewPAC Utility".

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3.1. DCON Utility



The DCON Utility is a tool kit that help user search the network, easily to Configure the I/O modules and test the I/O status via the serial port (RS-232/485) or Ethernet port (using virtual com port). It supports not only the DCON Protocol I/O modules but also the M Series I/O Modules (Modbus RTU M-7K, M-87K and will support Modbus ASCII M-87K) now.

For more detailed information on ViewPAC Utility applications, please refer to

"2.7. Using DCON Utility to configure the I/O modules"

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3.2. 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"

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

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3.4. VCEP



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

ICPDAS VCEP is composed of two main components:

The "Server" which runs on ViewPAC. 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 http://www.icpdas.com/products/PAC/wincon-8000/wincon_VirtualCE.htm

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3.5. ViewPAC Utility

The ViewPAC Utility is a tool which is designed to quickly control and management the ViewPAC.

ViewPAC Utility [2.1.0.4]				
File Help Configuration				
System Settings System Setting2 Eth	ernet Settings	Network Settings	System Information	Auto E া 🕨
		· · · · ·	ne ViewPAC module.	
ViewPAC Industrial Control Products Data Acquisition System		9	Settings	
Battery1 : OK	Task Bar Settin	gs: 📃 Auto Hide	🖌 Always On Top	
Battery2 : OK		📃 Blank Desk	top	
Configure synchronization with a time se	erver	Configure]	
Enable Autorun when connecting a U	JSB Disk		_	
Enable Autorun when connecting a N	1icro SD			

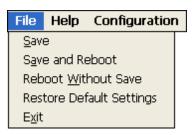
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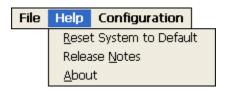
3.5.1. Menu Bar

The ViewPAC Utility includes the following function menu. All function menus 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

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File Menu

File	Help	Configuration	1
<u>S</u> avi	е		
S <u>a</u> vi	e and Re	eboot	
Reb	ioot <u>W</u> it	hout Save	
Rest	tore Def	fault Settings	
E <u>x</u> it			

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

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Help Menu

 File
 Help
 Configuration

 Reset
 System to Default

 Release
 Notes

 About

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
	ViewPAC Utility, including the current version
	and copyright information.

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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 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	Stores all registry setting to flash from .das file which

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The menu commands	Use to
Setting	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.

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3.5.2. Property Tabs

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

ViewPAC Utility [2.1.0.5]							
File Help Configuration							
System Settings 🛛 System Settings2 🛛 Ethernet Settings 🗋 Network Settings 🖉 System Information 🗌 Auto 🛃 🕨							
Welcome to use ViewPAC Utility This tool will help you to set up the ViewPAC module. Display Resolution 640 * 480							
ViewPAC Industrial Control Products Data Acquisition System Settings							
Batteryl OK	'ask Bar Setting	gs: 🔽 Auto Hide 🛛	🖌 Always On Top				
Battery2 OK		🔄 Blank Deskt	q				
Configure synchronization with a time se	Configure]					
Enable Autorun when connecting a USB Disk							
Enable Autorun when connecting a M	Backlight brightnes	is settings					

- ✓ System Settings
- ✓ System Setting2
- ✓ Ethernet Settings
- ✓ Network Settings
- ✓ System Information
- ✓ Auto Execution
- ✓ Multi-serial port wizard
- ✓ System Memory Setting
- ✓ Backplane Compatibility

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System Settings Tab

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

ViewPAC Utility [2.1.0.5]						
File Help Configuration						
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto 💶 🕨						
Welcome to use ViewPAC Utility This tool will help you to set up the ViewPAC module. Display Resolution 640 * 480						
ViewPAC Industrial Control Products Data Acquisition System Settings						
Battery1 OK Task Bar Setti	ngs: 🗹 Auto Hide 🛛 V Always On Top					
Battery2 OK	Blank Desktop					
Configure synchronization with a time server	Configure					
Enable Autorun when connecting a USB Disk						
Enable Autorun when connecting a Micro SD	Backlight brightness settings					

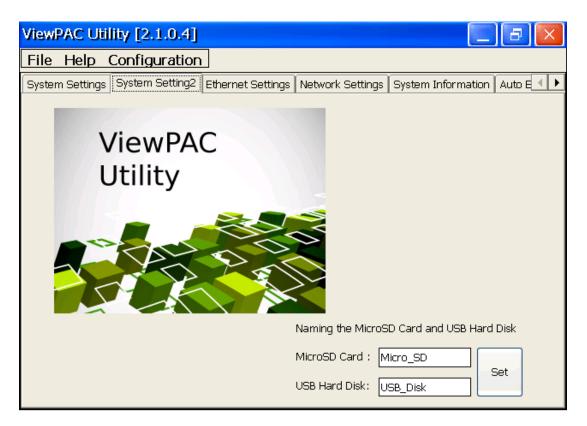
The tab use to	How to use		
Lock or Auto-Hide the taskbar	Auto-Hide:		
	Select the Auto Hide check box		
	Lock:		
	Select the Always On Top check box.		
Check the status of the battery	See the Battery1 and Battery2 field that		
	displays the battery status.		

Note: The battery type is BR1632 (Part number is 2LB010 for ICP DAS)

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System Settings2 Tab

The System Settings2 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

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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.

ViewPAC Utility [2.1.0.5]				
File Help Configuration				
System Settings System Settings2 Ethernet Settings Network Settings System Information Aut	to E া 🕨			
LAN1				
MAC Address 1: 00-0D-E0-30-14-CC				
LAN 1 IP Address Setting: OUse DHCP to get IP address				
O Assign IP address				
IP Address: 10.1.0.82				
Mask: 255.255.0.0				
Gateway: 10.1.0.254				
DNS Server: 10.0.0.3				
Enable 8135W Module				

The tab use to	How to use	
Configure the network	Obtaining an IP address automatically from DHCP:	
settings	Select the Use DHCP to get IP address option, and	
	then press the Setting button.	
	Manually assign an IP address:	
	Select the Assign IP address option, and then press	
	the Setting button.	
Monitor the MAC	See the MAC Address 1 fields that display the	
address	physical address of LAN1.	
Set up the i-8135	See the next page.	
Ethernet module driver		

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This tab provides functions to set up the i-8135 Ethernet module driver.

ViewPAC Utility [2.0.2.1]				
File Help Configuration				
System Setting Ethernet Setting Network Setting System Information Auto Execution Mul	ti-serial 🔳 🕨			
LAN1 8135				
Slot 1 💌 Slot0:				
Installed driver: Slot1 Slot1: 8135				
MAC Address: Slot2:				
Use DHCP to get IP address				
Assign IP address				
IP Address: 10.1.0.55				
Mask: 255.255.0.0				
Gateway:				
DNS Server: 10.0.0.3				
Enable 8135 Module				

The tab use to	How to use
Set up the i-8135 network	Obtaining an IP address automatically from
settings	DHCP:
	Select the Use DHCP to get IP address option,
	and then press the Setting button.
	Manually assign an IP address:
	Select the Assign IP address option, and then
	press the Setting button.

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Network Settings Tab

The Network Settings tab includes three tabs, FTP Settings, HTTP directory path, Users and Passwords 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.

V	ViewPAC Utility [2.1.0.5]								
F	File Help Configuration								
S	ystem Settings System	n Settings2 Eth	ernet Settings	Network	Settings	System Inforr	mation A	uto 🛃	۲
ſ	FTP Settings Users a	nd Passwords	File Server Set	tings]			
	FTP	💽 Enable	🔵 Disable						
	Allow Anonymous	🔘 Enable	🔵 Disable						
	Allow Anonymous Upload	💽 Enable	🔵 Disable						
	Change FTP default do	wnload director	y \Temp to:		1				
	\Temp\								
			Se	etting					
(Change the HTTP docum	nent root directo	ory \windows\\	www\ww	wpub to:				
ſ	\windows\www\wwwp	bub/				Settings			
	· · ·								

The tab use to	How to use
Change the HTTP directory path	Enter a new path in the Change HTTP
	document root directory
	\windows\www\wwwsub to field, and
	then press the Setting button.

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FTP Settings tab

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

ViewPAC Utility [2.1.0.5]				
File Help Configuration				
System Settings System Settings2 Ethernet Settings Network Settings System Information Auto	Þ			
FTP Settings Users and Passwords File Server Settings				
FTP Enable Disable				
Allow Anonymous 💿 Enable 🔘 Disable				
Allow Anonymous Enable Disable Upload				
Change FTP default download directory \Temp to:				
\Temp\				
Setting				
Change the HTTP document root directory \windows\www\wwwpub to:				
\windows\www\wwwpub\ Settings				

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

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This tab provides functions to maintain the FTP accounts.

ViewPAC Utility [2.1.0.5]				
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 Setting				
Change the HTTP document root directory \windows\www\wwwpub to: \windows\www\wwwpub\ Settings				

The tab use to	How to use
Maintain the	Refer to the Appendix C.1 How to add a user account to
FTP accounts	remote login the ViewPAC from PC.

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

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System Information Tab

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

ViewPAC Utility [2.1.0.5]					
File Help Configuration					
System Settings System	System Settings System Settings2 Ethernet Settings Network Settings System Information Auto				
Slot 0:	Module Type:	VP-25xx (96MB)			
Slot 1:	Flash Type(System_disk):	Intel J3 105ns X 1			
Slot 2:	Flash Type(OS):	Intel J3 105ns X 2			
3002.	64-bit Serial Number:	01-25-73-1A-14-00-00-B4			
Slot 3:	OS Version:	2.4.2.0 , 2013/07/08 17:10:30			
Slot 4:	Eboot Version:	1.2.1.0 , 2013/07/09 14:21:52			
Slot 5:	Backplane Version:	1.0.10.0			
Slot 6:	CPU Version:	1.0.32.0			
	WinPacSDK Version:	4.2.3.7			
Slot 7:	WinPacNet Version:	2.1.0.2			
	.NET Framework Version:	3.5.7338.00			
	SQL CE Version:	3.5.5386.0			
	Last Save Date:	2013年8月19日			

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Auto Execution Tab

The Auto Execute tab provides functions to configure programs running at ViewPAC 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.

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

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The Multi-serial port provides functions for installation of the RS-232/RS-422/RS-485 communication module driver.



The table below shows the expansion RS-232/RS-422/RS-485 communication modules that are compatible with the ViewPAC.

ltem	RS-232	RS-422/RS-485	Isolation	Connector
I-8112iW	2	-	2500 Vrms	DB-9 x 2
I-8114W	4	-	-	DB-37 x 1
I-8114iW	4	-	2500 Vrms	DB-37 x 1
I-8142iW	-	2	2500 Vrms	Terminator block x 1
I-8144iW	-	4	2500 Vrms	Terminator block x 1

The ViewPAC can be expanded to support up to 16 I/O modules.

For more detailed information about these support modules, please refer to http://www.icpdas.com/products/Remote_IO/i-8ke/selection_rs232_i8k.htm

ViewPAC Utility [2.1.0.5]	
File Help Configuration	
Ethernet Settings Network Settings	System Information Auto Execution Multi-serial port wizard K
Slot 0:	Driver enabled
Slot 1:	Driver disabled
Slot 2:	
Slot 3:	
Slot 4:	
Slot 5:	
Slot 6:	Install driver (Apply to I-8112/8114/8142/8144 series modules)
Slot 7:	Step1: Port number assigned according to
	Sequence order
Slot scan (Refresh)	Step2: Set USE MSA/MSBx USE COMx Start Port number
	Step3: Go to "File">"Save and Reboot" to enable driver

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Key Property Tab (for VP-23W1/VP-25W1 only)

The Key Property tab provides functions to specify the programmable key to launch any program that you wish.

Tips & Warnings



The allowed file types are .exe and .bat.

erial port wizard Key property System Memory Setting 💶 🕨
intervention visual interventin visual intervention visual intervention visual interve

The tab use to	How to use
Specify the	Press the button to select the execute file which
programmable key to	you want, select the Enable check box, and then
launch the program	press the Setting button.
Specify the	Select the F6 control backlight check box, and
programmable key to	then press the Setting button.
control backlight	

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System Memory Tab

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

ViewP	AC Utility	[2.0.2.1]			
File F	Help Config	juration			
Auto Exe	ecution Multi-	serial port wizard 🛛 Key pro	perty System Memory Set	ting	
					,
		Move slider to the left for n programs. Move slider to th room. Only unused RAM ca	ne right for more storage		
	Storage Memory	(]	Program Memory	
	Allocated:	45384KB	Allocated:	45384KB	
	In Use:	524KB	In Use:	19704KB	
				Setting	
					-

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

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4. Your First ViewPAC Program

This chapter describes the components of the ViewPAC SDK, and provides step by step tutorial for developer that will teach you how to create your first ViewPAC program.

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

4.1. Preparing the Development Tools

There are several programming tools available for application developers targeting Windows CE-based ViewPAC. One of the following tools must be installed on the Host PC.

- ✓ Microsoft eMbedded Visual C++
- ✓ Visual Basic.net
- ✓ Visual C#

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4.2. Installing ViewPAC Platform SDKs

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

Below is a step by step procedure for installing the ViewPAC Platform SDKs.

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

Step 2: Execute the "PAC270_SDK_YYYYMMDD.msi" which is located in

CD:\Napdos\wp-8x4x_ce50\SDK\

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

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4.3. Understanding the ViewPAC APIs

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

➤ Requirements

The ViewPAC SDK supports NET Compact Framework 2.0/3.5.

➤ Installation Path

After installing the ViewPAC SDKs, 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 ViewPAC SDKs.

Header files:

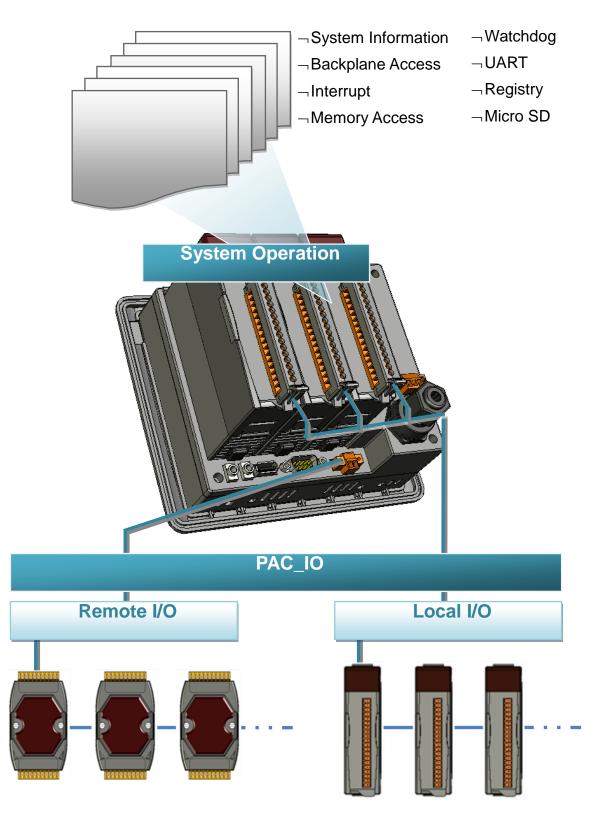
C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include\ARMV4I\

Libraries:

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

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4.3.1. ViewPAC SDK Overview



4.3.1.1. WinPAC Standard API

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SystemInformation Functions

Provides reference information for the system status.

• Backplane Access API

Provides reference information for the backplane access APIs, including Hot Plug and backplane information.

• Interrupt API

Provides reference information for the Interrupt APIs

Memory Access API

Provides reference information for the memory R/W APIs, including EEPROM and SRAM.

• Watchdog Functions

Provides reference information for the watchdog APIs, including hardware watchdog and OS watchdog.

• UART API

Provides reference information for the UART APIs.

• Registry API

Provides reference information for the registry.

microSD Management API

Provides reference information for the microSD Manager.

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• PAC_IO API

Provides reference information for IO APIs, including local and remote. In additions, no matter 8K or 87K modules use the same API.

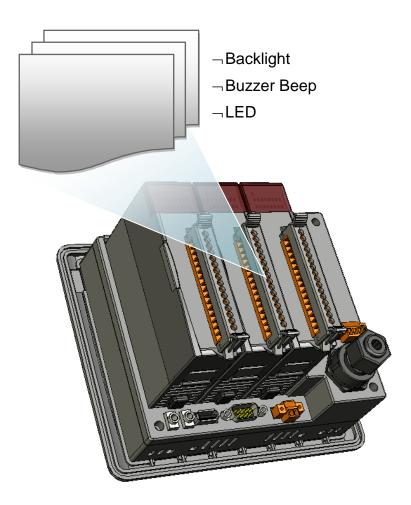
• Error Handling API

Provides reference information for error handling.

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4.3.1.2. ViewPAC Particular API



Backlight Functions

Provides reference information for the backlight.

• Buzzer Beep Functions

Provides reference information for the buzzer.

• LED Functions

Provides reference information for the LED

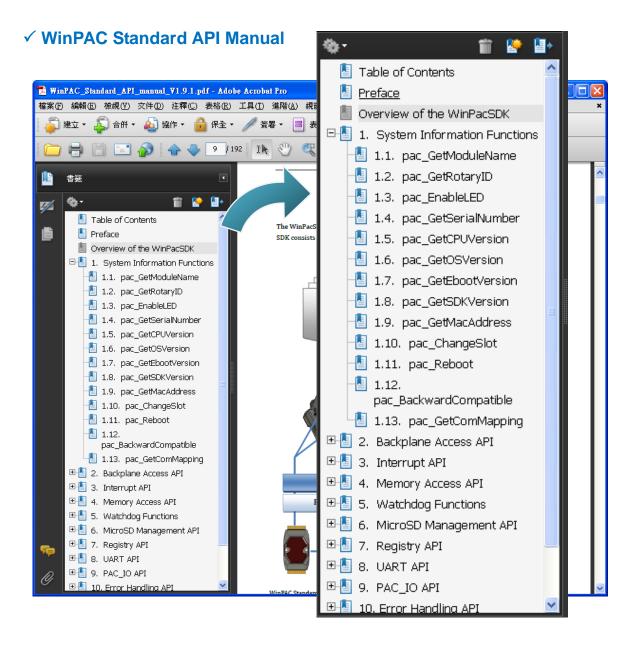
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4.3.2. ViewPAC SDK Reference

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

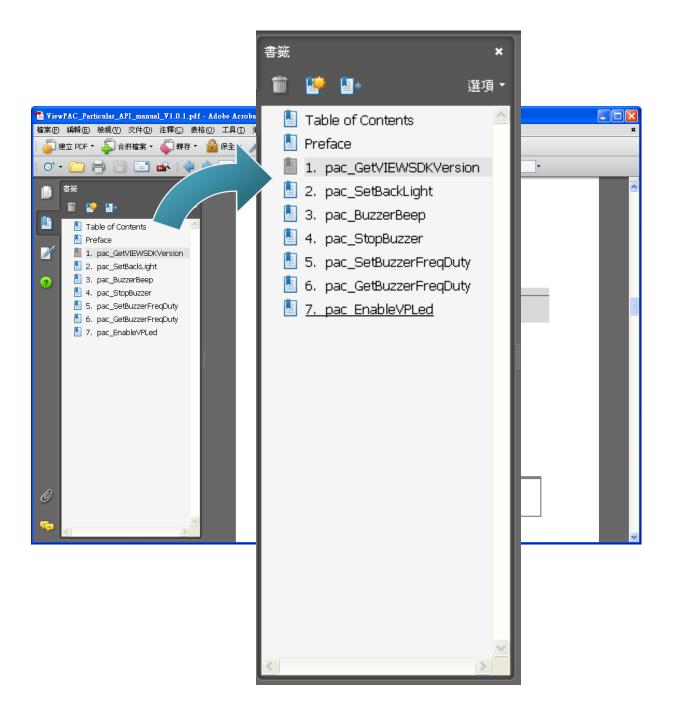
CD:\Napdos\vp-2000_ce50\Document\SDK_Document\ ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/document/sdk_document/



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✓ ViewPAC Particular API Manual



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4.4. Your First Program in C#

To create a demo program with C# development tool includes the following main steps:

- 1. Create a new project
- 2. Add project reference for an application
- 3. Design and Build an application program
- 4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

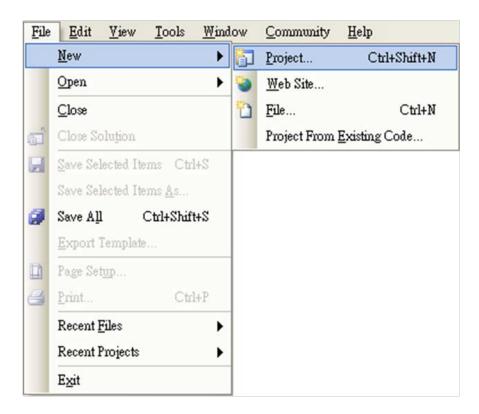
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4.4.1. Create a new project

Step 1: Start the Visual Studio 2005/2008

Step 2: On the "File" menu, select the "New" command, and then click the "Project" command



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Step 3: In the "New Project" dialog box do the following in this order

lew Project			22
Project types:		Iemplates:	
🖃 Visual C#		Visual Studio installed templa	les
Windows Smart Device Pocket PC 2003 Smartphone 2003 Windows CE 5.0 Database Starter Kits		Control Library	Class Library
		Empty Project My Templates	
Other Project A project for creat		Search Online Templates	dows CE 5.0 and later
Name:	SDKinfo		
Location:	C:\Documents an	nd Settings\Windows CE Tools\C#	Browse
Solution:	Create new Solut	ion 🔽 🔽	Create directory for solution
Solution Name:	SDKinfo		
			OK Cancel

Step 4: Click OK to start creating an "SDKinfo" project

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4.4.2. Add project reference for an application

Step 1: On the "Solution Explorer" window, right-click the "Reference" and then click the "Add Reference..." command

Solution Explorer - So	lution 'SDKinfo' (1 pr 🔀			
Solution SDKinfo' () 	l project)			
🗉 🔤 Form1.cs	Add <u>R</u> eference			
🦾 💾 Program.cs	Add Web Reference			
Solution Explorer 🐼 Class View Properties				

Step 2: In the "Add Reference" dialog box, select the "Browse" tab, and then specify the directory of the "ViewPacNet.dll" and "PACNET.dll" file in the "File name" field

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

CD:\Napdos\wp-8x4x_ce50\SDK\WinPacNet\

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

The "ViewPACnet.dll" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewPACNet\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/sdk/ViewPACnet/

Add Reference		? 🗙
.NET Projects	ViewPacNet 🔽 😋 🤣 📂 🎰	
<u>N</u> ame: File types:	ViewPacNet.dll Component Files (*.dll;*.tlb;*.olb;*.ocx;*.exe) OK	▼ ▼ ancel

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4.4.3. Design and Build an application program

- Step 1: Add a **Button** "button" object in the "From1" dialog box
- Step 2: Right-click the "button" object and click the "Properties" command

Form1.cs [Design]	* Sta	rt Page 🚺 Object Browser	- ×
Form1			<
		View <u>C</u> ode	-
	- 0	Bring to Front	
	23	Send to Back	
	車	Align to <u>G</u> rid	
	8	Lock Controls	
		Select Form1'	
	*	Cut	_
		Сору	<u>×</u>
🛓 mainMenul	B	Paste	
	×	Delete	
	2	Properties	

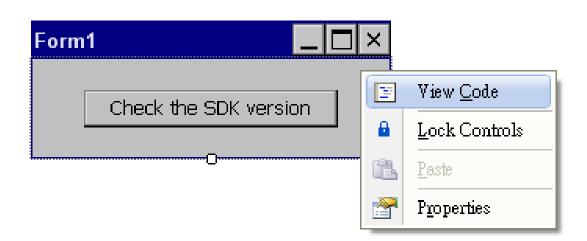
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Step 3: On the "Properties" window, type "Check the SDK version" in the "Text" edit box

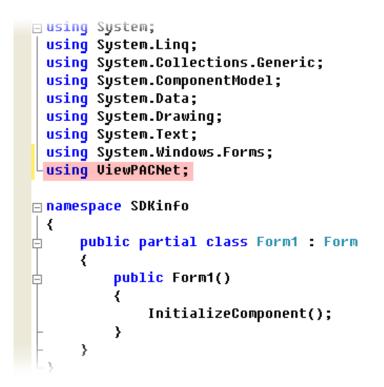
Properties 🛛								
button1 System.Windows.Forms.Button								
	2 €↓ 💷 🖋 🖆							
⊡	Appearance		^					
	BackColor	Control						
Ð	Font	Tahoma, 10pt						
	ForeColor	ControlText						
	Text	Check the SDK version 💊	-					
⊡	Behavior		~					
Text The text contained in the control.								
🟹 Solution Explorer 🐼 Class View 🕋 Properties								

Step 4: Right-click the "Form1" dialog box and click the "View Code" command to open the editor window



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Step 5: Insert the "using ViewPACNet;" into the header area after "using System.Windows.Forms;"



Step 6: In the "Form1" dialog box, double-click the "button" object to open the editor window



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Step 7: Insert the following code in the Editor Window



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4.4.4. Execute the application on the ViewPAC

Step 1: On the "Build" menu, click the "Build Solution" command

File	<u>E</u> dit	<u>V</u> iew	<u>R</u> efactor	Project	Bui	ld <u>D</u> ebu	g D <u>a</u> ta	<u>T</u> ools	Window	Community	<u>H</u> elp
					凿	<u>B</u> uild Sol	ation	F6			
						<u>R</u> ebuild S	olution				
						Deploy So	lution				
						<u>C</u> lean Sol	ution				
						B <u>u</u> ild syst	eminfo	Shift+F6			
						R <u>e</u> build s	ysteminfo				
						De <u>p</u> loy sy	steminfo				
						Clea <u>n</u> sys	eminfo				
						Batch Bui	1d				
						Configura	tion Man	ager			

Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC

Step 3: Upload the "SDKinfo.exe" application and the corresponding "ViewPacNet.dll" file to the ViewPAC via the ViewPAC FTP server

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



Step 4: On the ViewPAC, execute the uploaded file



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4.5. Your First Program in VB.net

To create a demo program with C# development tool includes the following main steps:

- 1. Create a new project
- 2. Add project reference for an application
- 3. Design and Build an application program
- 4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

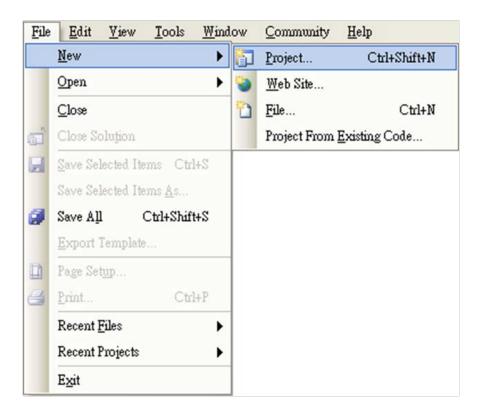
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4.5.1. Create a new project

Step 1: Start the Visual Studio 2005/2008

Step 2: On the "File" menu, select the "New" command, and then click the "Project" command



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Step 3: In the "New Project" dialog box do the following in this order

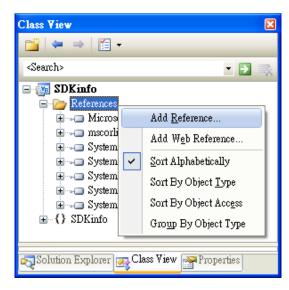
New Project							
Project types:		Iemplates:					
 Virual C# Windows Smart Device Database Starter Kits Other Languages Virual Basic Windows Smart Device Pocket PC 2003 Windows CE 5.0 Starter Kits Virual J# Virual J# Virual J# Virual J# 		Visual Studio installed ten Device Application Empty Project My Templates	Class Library				
		Search Online Templates	Windows CE S 0 and later				
Name:	SDKinfo	and work 2.0 forms apparation for					
Location:		SDRindo C.Documents and Settings/Windows CE Tools/C#					
Solution:	Create new Solutio		Create directory for solution				
Solution Name:	SDKinfo						
			OK Cancel				

Step 4: Click OK to start creating an "SDKinfo" project

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4.5.2. Add project reference for an application

Step 1: On the "Class View" window, right-click the "Reference" and then click the "Add Reference..." command



Step 2: In the "Add Reference" dialog box, select the "Browse" tab, and then specify the directory of the "ViewPACNet.dll" and "PACNET.dll" file in the "File name" field

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

CD:\Napdos\wp-8x4x_ce50\SDK\WinPacNet\

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

The "ViewPacNet.dll" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewPACNet\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/sdk/ViewPACnet/

Add Reference		? 🗙
.NET Projects	Browse Recent ViewPacNet	
<u>N</u> ame: <u>F</u> ile types:	ViewPacNet.dll Component Files (*.dll;*.tlb;*.olb;*.ocx;*.exe)	>
	OK Ca	ncel

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4.5.3. Design and Build an application program

Step 1: Add a **Button** "button" object in the "From1" dialog box

Step 2: Right-click the "button" object and click the "Properties" command

gn]* Start Page	→ ×
	View Code Lock Controls Paste Properties
	×

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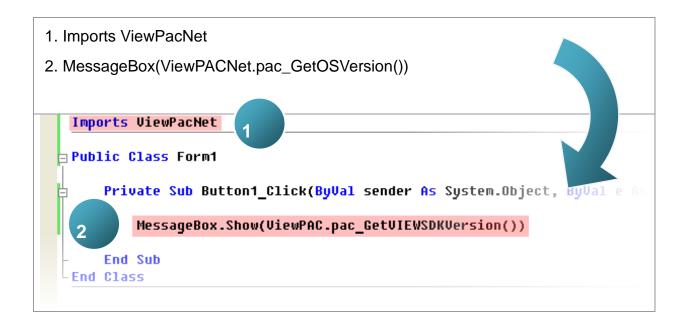
Step 3: On the "Properties" window, type "Check the SDK version" in the "Text" edit box

Pro	Properties							
bı	<pre>button1 System.Windows.Forms.Button</pre>							
	₿ <u>₽</u> ↓ 🔲 🖋 🗀							
Ξ	Appearance		^					
	BackColor	Control						
Ð	Font	Tahoma, 10pt						
	ForeColor	ControlText						
	Text	Check the SDK version 🗸						
Ξ	Behavior		~					
Text The text contained in the control.								
🟹 Solution Explorer 🙀 Class View 🕋 Properties								

Step 4: In the "Form1" dialog box, double-click the "button" object to open the editor window



Step 5: Insert the following code in the Editor Window



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4.5.4. Execute the application on the ViewPAC

Step 1: On the "Build" menu, click the "Build Solution" command

<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>R</u> efactor	<u>P</u> roject	Bui	ld <u>D</u> ebr	ug D	<u>a</u> ta	<u>T</u> ools	<u>W</u> indow	Community	<u>H</u> elp
					凿	<u>B</u> uild So	olution		F6			
						<u>R</u> ebuild	Solutio	n				
						Deploy \$	Solution	ι				
						<u>C</u> lean So	olution					
						B <u>u</u> ild sy	steminf	o S	hift+F6			
						R <u>e</u> build	systemi	nfo				
						De <u>p</u> loy s	systemin	ıfo				
						Clea <u>n</u> sy	rsteminf	0				
						Batch B	uild					
						C <u>o</u> nfigu	uration M	lana	ger			

Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC

Step 3: Upload the "SDKinfo.exe" application and the corresponding "ViewPacNet.dll" file to the ViewPAC via the ViewPAC FTP server

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



Step 4: On the ViewPAC, execute the uploaded file



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4.6. Your First Program in eMbedded Visual C++

To create a demo program with eMbedded Visual C++ development tool includes the following main steps:

- 1. Create a new Forms-Based project
- 2. Configure compiler options
- 3. Design and Build an application program
- 4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

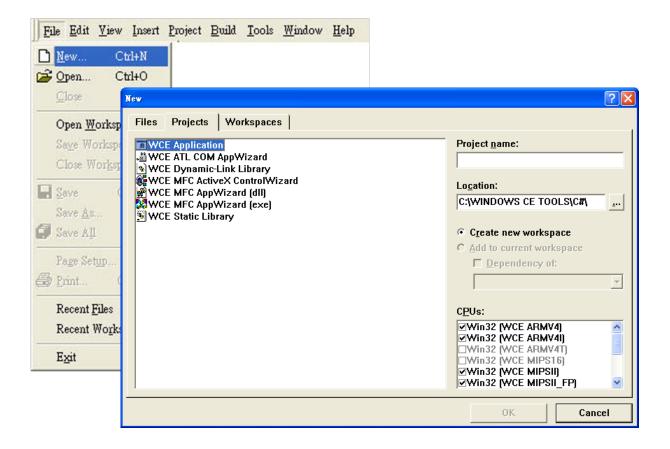
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4.6.1. Create a new Forms-Based project

Step 1: Start the Microsoft Embedded Visual C++

Step 2: From the "File" menu, click the "New" command



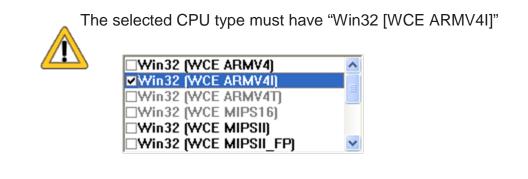
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Step 3: In the "New" dialog, select the "Projects" tab and do the following in this order

New Files Projects Workspaces	? [X
WCE Application WCE ATL COM AppWizard WCE Dynamic-Link Library WCE MFC ActiveX ControlWizard WCE MFC AppWizaro (oii) WCE MFC AppWizaro (oii) WCE MFC AppWizaro (exe) WCE Static Library	C:\DOCUMENTS AND SETTINGS
	 Create new workspace Add to current workspace Dependency of: CPUs:
	□Win32 [WCE ARMV4] □Win32 [WCE ARMV4I] □Win32 [WCE ARMV4T] □Win32 [WCE MIPS16] □Win32 [WCE MIPSII] □Win32 [WCE MIPSII]
	OK Cancel

Tips & Warnings



Step 4: Click the "OK" button to start the wizard

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Step 5: On the first page of the wizard, select "Dialog based" option and then click the "Next" button to the next step

WCE MFC AppWizard (exe) - :	Step 1 of 4	? 🔀
Applicatios 🔘		What type of application would you like to create? Single document Dialog based Document/Yiew architecture support? What language would you like your resources in?
	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish Cancel

Step 6: On the next page of the wizard, leave all the options as they are, and then click the "Next" button to the next step

WCE MFC AppWizard (exe) - S	tep 2 of 4	? 🛛
Applicatios ()K	×	What features would you like to include? Windows Sockets Windows H <u>e</u> lp ActiveX Controls
		Please enter a <u>title for your dialog:</u> SDKinfo Help contents file: SDKinfo.htp
	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish Cancel

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Step 7: On the next page of the wizard, leave all the options as they are, and then click the "Next" button to the next step

WCE MFC App Wizard (exe)	- Step 3 of 4			? 🛛
File Edit Yice szert Build Help Project Project		☞ Yes, ple ○ No, than How would you ④ As a shape	ase k you bu like to use the l	
	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

Step 8: On the next page of the wizard, leave all the options as they are, and then click the "Finish" button to complete the wizard

WCE MFC AppWizard (exe) -	Step 4 of 4		? 🛛	
		AppWizard creates 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>F</u> inish Cancel	

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Step 9: The final summary appears, click the "OK" button to exit the wizard

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) 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	

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4.6.2. Configure compiler options

On the WCE configuration toolbar, select the "Win32 [WCE ARMV4] Release"

👷 SDKinfo - Microsoft eMbedded Visual C++	
File <u>E</u> dit <u>V</u> iew Insert <u>P</u> roject <u>Build</u> <u>Tools</u> <u>Window</u> <u>H</u> elp	
12 🚅 🖬 🕼 🙏 🖻 💼 🗠 × 🗠 × 🚾 🔉 😤 🐂	
CSDKinfoApp (All class members) - CSDKinfoApp	
SDKinfo STANDARDSDK Vin32 (WCE ARMV41) Release STANDARDSDK_500 Emulator	💽 🖉 🕮 (
Image: Win32 [WCE ARMV4I] Debug Win32 [WCE enulator] Release Win32 [WCE emulator] Release Win32 [WCE MIPSII] Debug Win32 [WCE MIPSII] Debug Win32 [WCE MIPSII] Release Win32 [WCE MIPSII] P] Debug Win32 [WCE MIPSII] P] Release Win32 [WCE MIPSII] P] Release Win32 [WCE MIPSIV] Pebug Win32 [WCE MIPSIV] Pebug Win32 [WCE MIPSIV] Release Win32 [WCE MIPSIV] Release Win32 [WCE MIPSIV] Pebug Win32 [WCE MIPSIV] Pebug Win32 [WCE MIPSIV] Release Win32 [WCE MIPSIV] Release Win32 [WCE SH4] Debug Win32 [WCE SH4] Debug Win32 [WCE SH4] Release Win32 [WCE ×86] Debug Win32 [WCE ×86] Release	
Ready	

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4.6.3. Specify the path for project reference

🖹 <u>F</u> ile	<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	
	Fau	Trew	Insert	Tolect	2000	Sou Clo A Em A Rer A Rer A Rer	urce Bro <u>w</u> or Loo <u>k</u> uj mote C <u>a</u> ll mote <u>F</u> ile ' mote <u>H</u> eap mote Kern	ser Browser File Profiler (WCH Viewer (WCE) Walker (WC el <u>T</u> racker (W	500) E500) ICE500)
						A Rer Rer Rer Rer Marer	mote <u>P</u> roc mote Regi mote <u>S</u> py+ mote Syste mote <u>Z</u> oor	ess Viewer (W stry Editor (W + (WCE500) em Informatio nin (WCE500	ICE500) n (WCE500)
						<u>C</u> ux <u>Op</u> t Ma <u>R</u> ec Play	cord Quicl y Quick M	k Macro	Ctrl+Shift+R Ctrl+Shift+P ær

Step 1: Click the "Options..." command from the "Tools" menu

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Step 2: In the "Option" dialog, select the "Directories" tab and do the following in this order to specify the header file include path

Options			? 🛛
Download Brild	Directories Vo	rkspace Macros F	ormat 🕕
<u>P</u> latform:	<u>C</u> PUs:	Show d	lirectories
PAC270 - STANI	Win32 (WCE ARMV	4l) 💽 Includ	e files 🔹
Directories:			[™] × → ↓
C:\Program Files\	Windows CE Tools\w	/ce500\STANDARDSDK /ce500\STANDARDSDK /ce500\STANDARDSDK	500\mfc\inclu
		Click this butt to specify th header file	e
		include path	
			Cancel

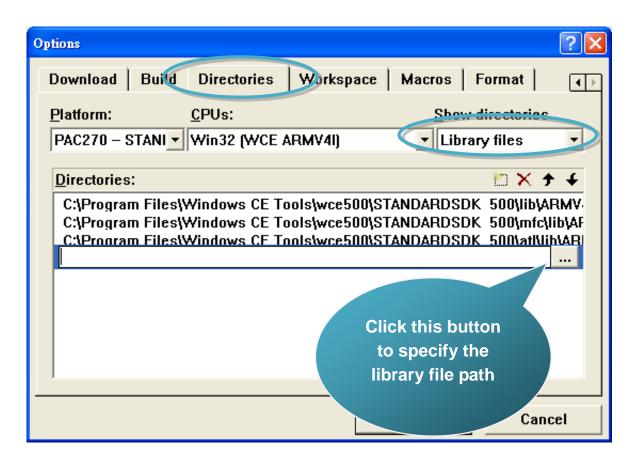
The "Viewpacsdk.h" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewpacSDK\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/sdk/viewpacsdk/

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Step 3: In the "Option" dialog, select the "Directories" tab and do the following in this order to specify the library file path

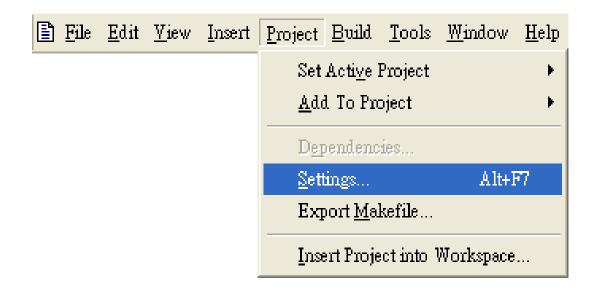


The "ViewPACSDK.lib" file can be obtained from:

CD:\Napdos\vp-2000_ce50\SDK\ViewpacSDK\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/sdk/viewpacsdk/

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Step 4: Click the "Settings..." command from the "Project" menu

Step 5: In the "Project Settings" dialog box do the following in this order

Project Settings	? 🛛
Settings For: Win32 (WCE ARMV4I) Release SDKinfo	C,C++ Link Resources MIDL Browse Info (+) Category: General Reset Output file name: ARMV4IRel/SDKinfo.exe Object/library modules: ViewPACSDK.lib Generate debug info Ignore all default libraries Generate mapfile Project Options: ViewPACSDK.lib /nologo /base:"0x00010000" /stack:0x10000,0x1000 /entry:"wWinMainCRTStartup" /incremental:no /pdb:"ARMV4IRel/SDKinfo.pdb"
	OK Cancel

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4.6.4. Design and Build an application program

Step 1: On the "Workspace" window, select the "ResourceView" tab and expand the "dialog" folder, and then double-click the "IDD_DEMO_DIALOG" to open the dialog box



Step 2: Add the "button" object in the "SDKinfo" dialog box

🔄 SDKinfo.rc - IDD_SDKINFO_DIALOG [German (German	y)] (Dial 🔳 🗖 🔀
SDKinfo Button1 Controls	

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Step 3: In the "SDKinfo" dialog box, right-click the button object and then click the "Properties" command

DKinfo.rc - IDD_SDKINFO_DI	ALOG [German (Germany)] (Dial 🔳 🗖 🔀
 Button1 ZU ERLED.: Dialogfeld-Steuen hier	Ba Corv	
	Size to Content Size to Content ## Align Left Edges ## Align Top Edges ** Check Mnemonics * ClassWizard Events * Properties	

Step 4: Type the "Check the SDK version" in the "Caption" edit box and then Click the "close" button

Push But	ton Propertie	s	×	
-⊭ ?	General	Styles Extended Styles		
<u>I</u> D:	IDC_BUTT	ON1 Caption Check the SDK version		
▼ Vi <u>s</u> ible				
🗆 Di	s <u>a</u> bled	☑ Ta <u>b</u> stop		

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Step 5: In the "SDKinfo" dialog box, double-Click the button object



Step 6: Type the "OnBtnCheckSDK" in the "Member function name" edit box and then click the "OK" button

Add Member Function	? 🛛
Member function <u>n</u> ame:	ОК
OnBtnCheckSDK	Cancel
Message: BN_CLICKED Object ID: IDC_BUTTON1	

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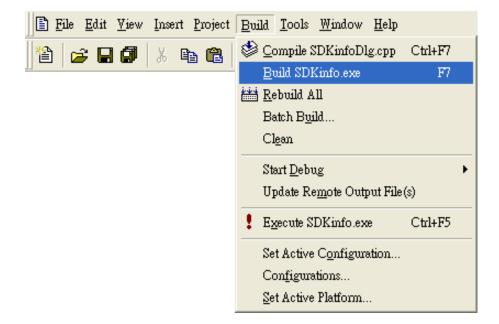
Step 8: Insert the "#include "Viewpacsdk.h" and #include "PACSDK.h" into the header area

```
// SDKinfoDlg.cpp : implementation file
//
#include "stdafx.h"
#include "SDKinfo.h"
#include "SDKinfoDlg.h"
#include "Viewpacsdk.h"
#include "PACSDK.h"
#ifdef _DEBUG
#define new DEBUG_NEW
#undef THIS_FILE
static char THIS_FILE[] = __FILE__;
#endif
```

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4.6.5. Execute the application program on ViewPAC



Step 1: On the "Build" menu, click the "Build systeminfo.exe" command

- Step 2: Open the web browser and type the IP address to connect the FTP server of ViewPAC
- Step 3: Upload the "SDKinfo.exe" application to the ViewPAC via the ViewPAC FTP server

<u>File Edit View G</u> o	Step 4: On the ViewPAC, execute the uploaded file
	SDK version ialog controls here.

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5. APIs and Demo References

This chapter introduces demo programs that have been designed for the ViewPAC. You can examine the demo source code, which includes numerous comments, to familiarize yourself with the ViewPAC API. This will allow developing your own applications quickly by modifying these demo programs. The following details the contents of the ViewPAC demo programs.

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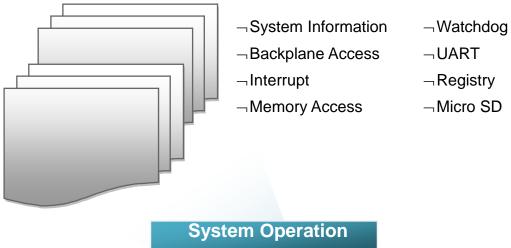
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5.1. Demo programs with C#

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

5.1.1. C# Demo program for WinPAC Standard API

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





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Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
backplane backplaneinfo		Retrieves information about the DIP switch, backplane ID and slot count.
	memory	Shows how to read/write date values from/to EEPROM
memoryaccess	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:

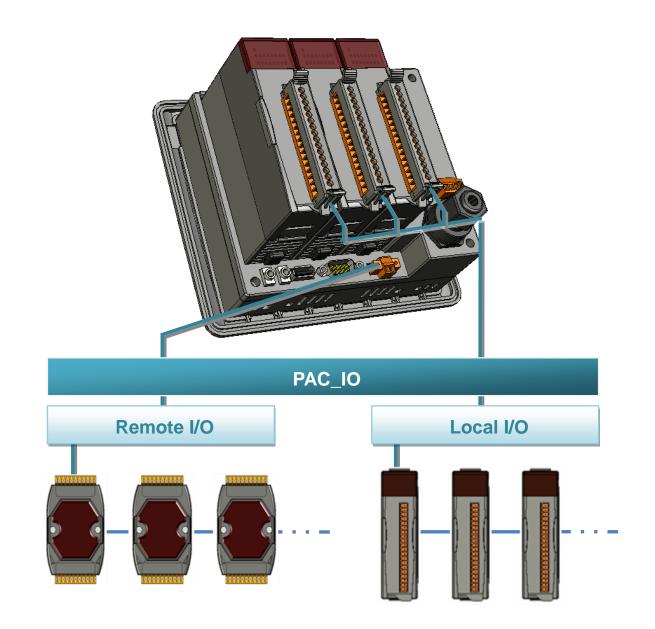
CD:\Napdos\wp-8x4x_ce50\Demo\WinPAC\C#.NET\Standard\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/c%23/s</u> <u>tandard/</u>

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5.1.2. C# Demo program for PAC IO API

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



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Folder	Demo	Explanation
	find_io	Shows how to retrieve the module names and
		types which plugged in the ViewPAC.
		Shows how to read the DI values of DI module.
	8k_di	This demo program is used by 8K series DI
		modules.
		Shows how to write the DO values to DO module.
	8k_do	This demo program is used by 8K series DO
		modules.
		Shows how to read the DI and the DO values of
	8k_dio	the DIO module.
		This demo program is used by 8K series DIO
		modules.
		Shows how to send/receive a command/response
	87k_basic	application.
		This demo program is used by 87K series modules.
		Shows how use UART API and the IO modules
	87K_demo	located as slots.
Local		This demo program is used by 87K series
Looal		modules.
	87k_ai	Shows how to read the AI values of AI module.
		This demo program is used by 87K series AI
		modules.
	87k_ao	Shows how to write the AO values to AO module.
		This demo program is used by 87K series AO
		modules.
	87k_di	Shows how to read the DI values of DI module.
		This demo program is used by 87K series DI
		modules.
		Shows how to write the DO values to DO module.
	87k_do	This demo program is used by 87K series DO
		modules.
		Shows how to read the DI and the DO values of
	87k_dio	the DIO module.
		This demo program is used by 87K series DIO
		modules.

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Folder	Demo	Explanation
		Shows how to send/receive a command/response
	7k87k basic	application.
	7K87K_DASIC	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to read the AI values of AI module.
	7k87k_ai	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to write the AO values to AO module.
	7k87k_ao	This demo program is used by 7K or 87K series
Remote		AI modules which connected through a COM port.
Keniole	7k87k_di	Shows how to read the DI values of DI module.
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
	7k87k_do	Shows how to write the DO values to DO module.
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
	7k87k_dio	Shows how to read the DI and the DO values of
		the DIO module.
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.

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

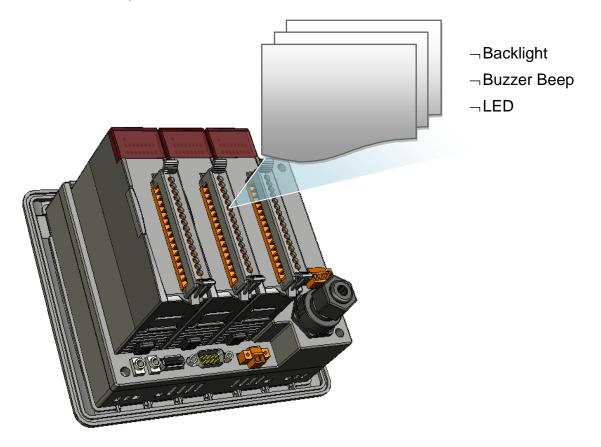
CD:\Napdos\wp-8x4x_ce50\Demo\WinPAC\C#.NET\IO\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/c%23/i
o/

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5.1.3. C# Demo program for ViewPAC Particular API

The table below describes the ViewPAC demos that have been designed to demonstrate the particular features of the ViewPAC.



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Folder	Demo	Explanation
Buzzer Beep	Buzzer Beep	Shows how to make a simple buzzer beep.
Keypad	Keypad	Shows how the KeyPad operates.
LCDBackLight	LCDBackLight	Shows how to control the LCD backlight.
Led	Led	Shows how to control the LEDs.
PlaySound	PlaySound	Shows how to control the microphone-in and earphone-out.

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

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\DotNET\C#.NET\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/demo/viewpac/dotnet
/c%23.net/

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5.2. Demo Programs with eMbedded Visual C++

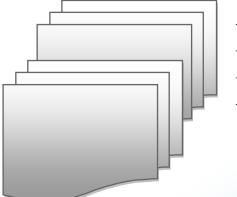
Examples are good way to understand the ViewPAC SDK. The table below describes ViewPAC demos and covers most of the common usages of each ViewPAC API for using eMbedded Visual C++.

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5.2.1. eVC Demo program for WinPAC Standard API

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



-System Information	Watchdog
– Backplane Access	\neg UART
- Interrupt	¬Registry
-Memory Access	– Micro SD



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Folder	Demo	Explanation
system systeminfo		Retrieves information about the OS version, CPU version, SDK version, etc.
backplane backplaneinfo		Retrieves information about the DIP switch, backplane ID and slot count.
	memory	Shows how to read/write date values from/to EEPROM
memoryaccess	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:

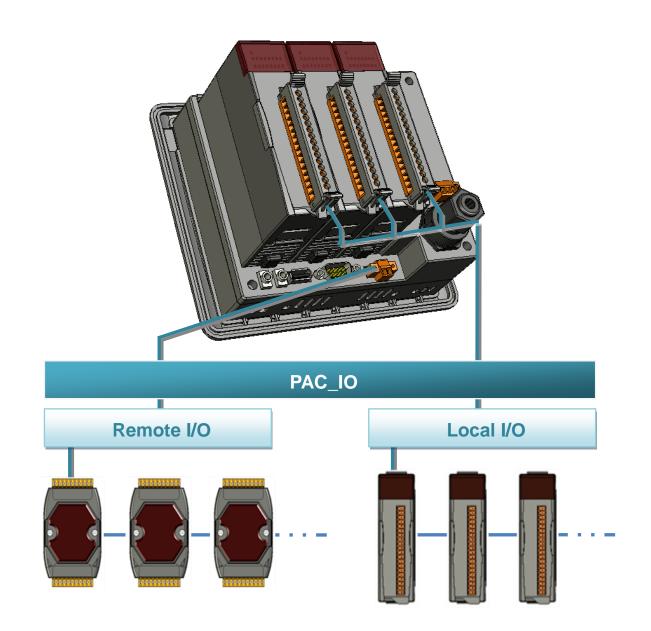
CD:\Napdos\wp-8x4x_ce50\Demo\WinPAC\eVC\Standard\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/evc/sta</u> <u>ndard/</u>

ViewPAC WinCE-Based User Manual, version 1.0.11.

5.2.2. eVC Demo program for PAC IO API

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



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Folder	Demo	Explanation	
	find in	Shows how to retrieve the module names and	
	find_io	types which plugged in the ViewPAC.	
		Shows how to read the DI values of DI module.	
	8k_di	This demo program is used by 8K series DI modules.	
		Shows how to write the DO values to DO module.	
	8k_do	This demo program is used by 8K series DO	
		modules.	
		Shows how to read the DI and the DO values of	
	8k_dio	the DIO module.	
		This demo program is used by 8K series DIO modules.	
		Shows how to send/receive a command/response	
	071	application.	
	87k_basic	This demo program is used by 87K series	
		modules.	
	87K_demo	Shows how use UART API and the IO modules located as slots.	
Local		This demo program is used by 87K series	
		modules.	
	87k_ai	Shows how to read the AI values of AI module.	
		This demo program is used by 87K series AI	
		modules. Shows how to write the AO values to AO module.	
	87k_ao	This demo program is used by 87K series AO	
		modules.	
		Shows how to read the DI values of DI module.	
	87k_di	This demo program is used by 87K series DI	
		modules.	
		Shows how to write the DO values to DO module.	
	87k_do	This demo program is used by 87K series DO modules.	
		Shows how to read the DI and the DO values of	
	87k_dio	the DIO module.	
		This demo program is used by 87K series DIO	
		modules.	

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Folder	Demo	Explanation
	7k87k_basic	Shows how to send/receive a command/response application. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_ai	Shows how to read the AI values of AI module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_ao	Shows how to write the AO values to AO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
Remote	7k87k_di	Shows how to read the DI values of DI module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_do	Shows how to write the DO values to DO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.
	7k87k_dio	Shows how to read the DI and the DO values of the DIO module. This demo program is used by 7K or 87K series AI modules which connected through a COM port.

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

CD:\Napdos\wp-8x4x_ce50\Demo\WinPAC\eVC\IO\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/evc/io/

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5.2.3. eVC Demo program for ViewPAC Particular API

- Backlight - Buzzer Beep - LED

The table below describes the ViewPAC demos that have been designed to demonstrate the particular features of the ViewPAC.

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Folder	Demo	Explanation
BuzzerBeep	BuzzerBeep	Shows how to make a simple buzzer beep.
KeyPad	KeyPad	Shows how the KeyPad operates.
LCDBackLight	LCDBackLight	Shows how to control the LCD backlight.
Led	Led	Shows how to control the LEDs.
PlaySound	PlaySound	Shows how to control the microphone-in and earphone-out.

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

CD:\Napdos\vp-2000_ce50\Demo\ViewPAC\eVC\

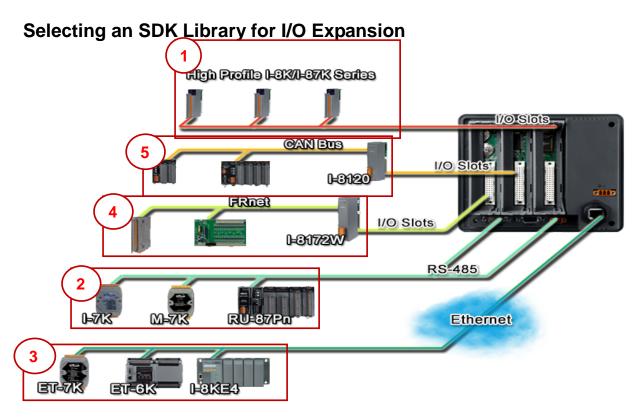
ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/demo/viewpac/evc/

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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 ViewPAC series devices.



1. Local I/O (I-8K Series & I-87K Series)

There are two types of I/O modules that can be inserted into local bus of a ViewPAC device, Parallel and Serial. Parallel modules (I-8K Series) are high-speed modules and only support an MCU (Main Control Unit). Serial modules (I-87K Series) can support either an MCU or an I/O expansion unit. The following table shows the appropriate SDK library to be used for I/O modules.

	Modules			
SDK	I-87K series	I-87K series with PWM functions	I-8K series	Specified I-8K series

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Native SDK	PACSDK.dll	PACSDK_PWM.dll	PACSDK.dll	Specified SDK
.NET CF SDK	PACNET.dll	PACNET.dll	PACNET.dll	Specified SDK

The detail of the SDK library to be used for a specific I/O Module is listed in the table below:

Module	Native SDK	.NET CF SDK
I-8017HW	pac_i8017HW.dll	pac_i8017HWNet.dll
I-8014W	pac_i8014W.dll	pac_i8014WNet.dll
I-8024W	pac_i8024W.dll	pac8024WNet.dll
I-8026W	pac_i8026W.dll	pac_i8026WNet.dll
I-8048W	pac_i8048W.dll	pac_i8048WNet.dll
I-8050W	pac_i8050W.dll	pac_i8050WNet.dll
I-8084W	pac_i8084W.dll	pac_i8084WNet.dll
I-8088W	pac_i8088W.dll	pac_i8088WNet.dll
I-8093W	pac_i8093W.dll	pac8093WNet.dll
I-87088W	PACSDK_PWM.dll	PACNET.dll
Other I-8K & I-87K modules	PACSDK.dll	PACNET.dll

2. RS485 (I-7K Series & 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.

Modules				
SDK	I-7K series	I-7K series with	M-7K series	RU-87Pn +

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		PWM functions		I-87K
Native SDK	PACSDK.dll	PACSDK_PWM.dll	Modbus Demo	Refer to the I-8K Series & the I-87K Series
.NET CF SDK	PACNET.dll	PACNET.dll	Modbus Demo	Refer to the I-8K Series & the I-87K Series

The detail of the SDK library to be used for a specific I/O Module is listed in the table below:

Module	Native SDK	.NET CF SDK
M7000 series	Modbus Demo	Modbus Demo
I-7088W	PACSDK_PWM.dll	PACNET.dll
Other I-7K modules	PACSDK.dll	PACNET.dll

3. Ethernet

The Ethernet I/O devices available include ET-6000, 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-6K/ET-7K series	Modbus Demo	Modbus Demo

4. FRnet

FRnet is an innovative industrial field bus technology that uses twisted pair cable as the transmission medium. The status of all I/O devices is updated on a fixed cycle, no matter how many FRnet I/O modules are connected to the FRnet network.

Module Native SDK	.NET CF SDK
-------------------	-------------

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I-8172W pac_i8172W.dll	pac8172WNet.dll
------------------------	-----------------

5. CAN Bus

The Controller Area Network (CAN) is a serial communication way, which efficiently supports distributed real-time control with a very high level of security. It provides the error-processing mechanisms and concepts of message priority. These features can improve the network reliability and transmission efficiency.

Module	Native SDK	.NET CF SDK
I-8120W	l8120.dll	I8120net_pac.dll

Selection Guide for an I/O Module Demo Program

I-7K series:

http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/appl icabled_demo_for_7k_module.pdf

I-87K series:

http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/appl icabled_demo_for_87k_module.pdf

I-87K series:

http://ftp.icpdas.com.tw/pub/cd/winpac/napdos/wp-8x4x_ce50/demo/winpac/appl icabled_demo_for_8k_module.pdf

Modbus demo:

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

CAN Bus demo:

ftp://ftp.icpdas.com/pub/cd/fieldbus_cd/can/slotmodule/i_8120w/demos/

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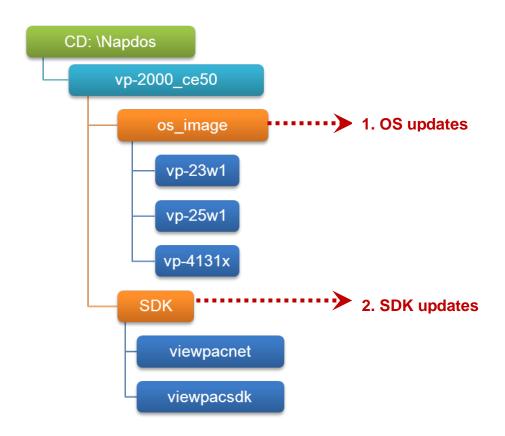
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7. ViewPAC Updates

This chapter provides instructions on how to upgrade ViewPAC OS and SDK.

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

ViewPAC updates services can be divided into the following two main categories:



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7.1. OS updates

The updates files of OS image are located on:

VP-23W1:

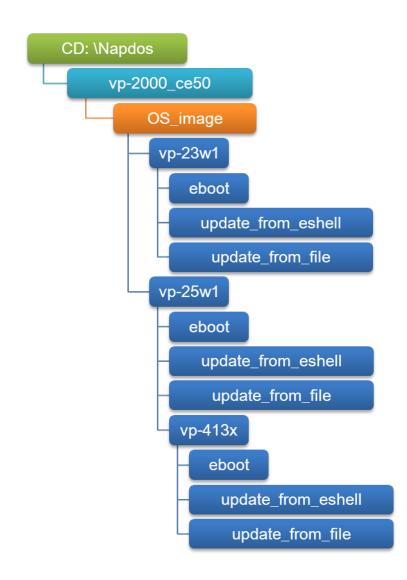
CD:\Napdos\vp-2000_ce50\OS_image\vp-23w1\

VP-25W1:

CD:\Napdos\vp-2000_ce50\OS_image\vp-25w1\

VP-413x:

CD:\Napdos\vp-2000_ce50\OS_image\vp-413x\



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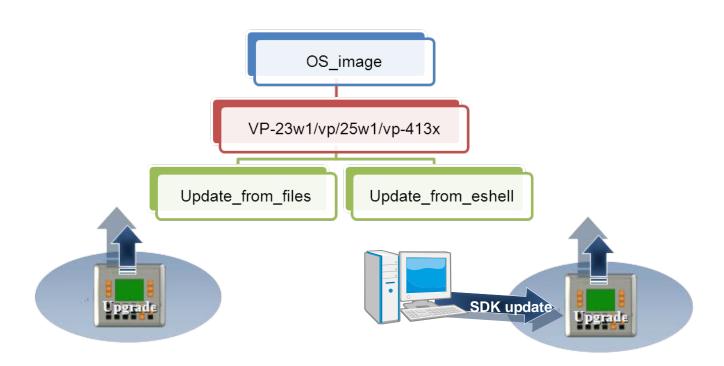
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There are two different ways of ViewPAC OS image updates:

i. ViewPAC OS updates from file

(We recommend that you use this method for quick and easy to update ViewPAC OS image)

ii. ViewPAC OS updates from eshell

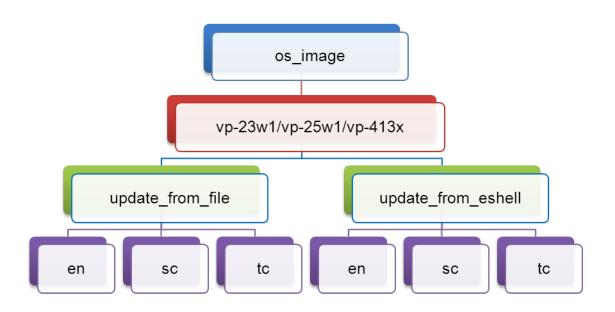


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The ViewPAC OS supports multi-language:

- i. en- English
- ii. sc- Simplified Chinese
- iii. tc- Traditional Chinese



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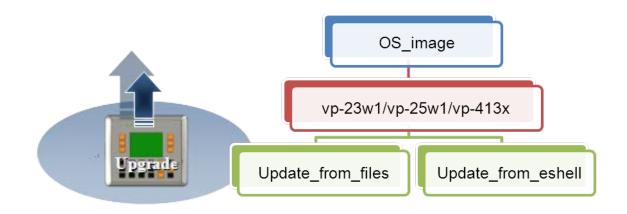
7.1.1. Updating the Boot Loader and the ViewPAC OS image from files

There are two different ways of ViewPAC OS image update:

i. ViewPAC OS updates from files (Please refer to this section)

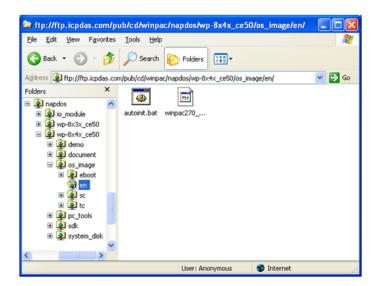
We recommend that you use this method for quick and easy to update the ViewPAC OS image

ii. ViewPAC OS updates from eshell tool (Please refer to section "6.1.2. Updating the ViewPAC OS image from eshell")



Step 1: Get the latest version of the execute file and the corresponding "autoinit.bat" file and run it on the ViewPAC side

Each folder contains an execute file and a corresponding "autoinit.bat" file.



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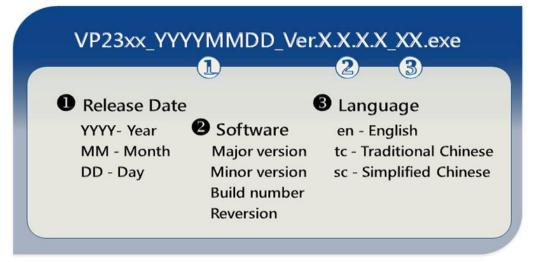
Step 2: Get the latest version of the installation package and download it to ViewPAC, then execute it

For VP-23W1:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-23w1\update_from_file\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-23w1/ update_from_file/

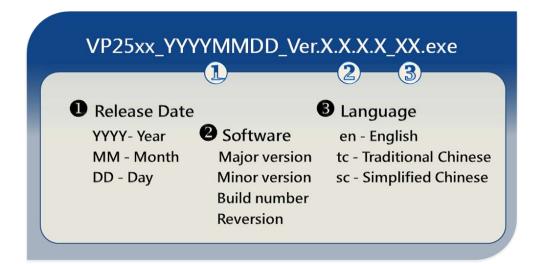


For VP-25W1:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-25w1\update_from_file\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-25w1/ update_from_file/



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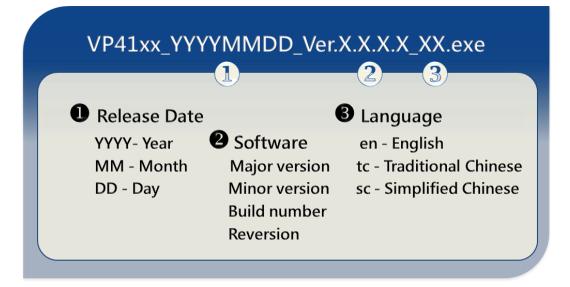
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For VP-41xx:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-413x\update_from_file\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-413x/u pdate_from_file/



There are several ways to download the installation package to ViewPAC:

- On the ViewPAC, you can download the installation package via an Ethernet connection.
- On the host PC, you can download the installation package to ViewPAC via a USB storage device, the removable Micro SD card or FTP server.

The latest version of the ViewPAC OS image file can be obtained from:

CD:\Napdos\vp-2000_ce50\OS_image\

http://www.icpdas.com/products/PAC/ViewPAC/download/ViewPAC_8000/dow nload_os_images.htm

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Step 3: After execute the installation package, the "Warning !" dialog will display, then click the "OK" button to start the update instructions



Step 4: On the main dialog, click the "Update Now" button

WP-8x4x Ver. 1.2.1.0	ОК
WinPAC - 8000 Update Step 1: Install Boot Loader file !	
Step 2: Erase flash disk !	
Step 3: Install OS image !	
Step 4: Set and save registry !	
Update Now	QUIT

Step 5: On the "Warning !" dialog, click the "Yes" button



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Step 6: On the main dialog, click the "Update Now" button to start

WP-8x4x Ver. 1.2.1.0	ОК
WinPAC - 8000 Update Step 1: Install Boot Loader file !	
Step 2: Erase flash disk !	
Step 3: Install OS image !	
Step 4: Set and save registry !	
Update Now	QUIT

installation

Tips & Warnings



Please never turn the ViewPAC off during OS load. Besides we recommend you turn off all other application before updating.

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The installation will perform the following tasks:

WP-8x4x Ver. 1.2.1.0 OK
WinPAC - 8000 Update
Step 1: Installed Boot Loader successful !
Step 2: Erase finished !
Step 3: Finished the installation !
Step 4: Finished the registry setting !
Update Now QUIT

i. Install Boot Loader file

Important Warning



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 registry settings to default

Tips & Warnings

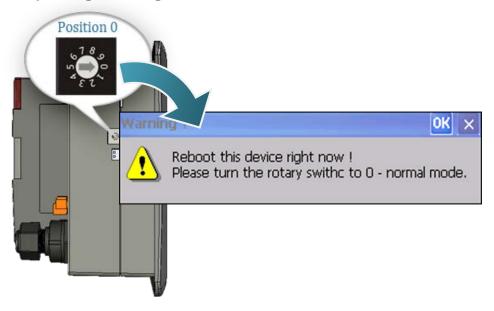


This step will reset the registry settings to default, all of your before settings will lost.

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Step 7: After completing the above-mentioned tasks, the "Warning !" dialog will appear as follow, after clicking "OK" button to finish updating OS image, be sure the ViewPAC at normal mode



Step 8: Check the ViewPAC OS version

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



ViewPAC Utility [2	2.0.2.1]	
File Help Configu	ration	
System Setting Etherne	t Setting Network Setting Sy	stem Information 🛛 Auto Execution 🗍 Multi-serial 🔳 🕨
Slot 0:	Module Type:	VP-25xx (96MB)
Slot 1:	Flash Type(System_disk):	Intel J3 95ns X 1
Slot 2:	Flash Type(OS):	Intel J3 95ns X 2
510(2,	64-bit Serial Number:	01-B8-16-AE-13-00-00-69
Slot 3:	OS Version:	2.0.0.2 , 2010/11/18 17:10:30
Slot 4:	Eboot Version:	1.1.0.3 , 2010/09/13 15:29:02
Slot 5:	Backplane Version:	1.0.6.0
Slot 6:	CPU Version:	1.0.32.0
	WinPacSDK Version:	2.0.0.6
Slot 7:	WinPacNet Version:	1.2.0.6
	.NET Framework Version:	2.0.7045.00
	SQL CE Version:	3.5.5386.0

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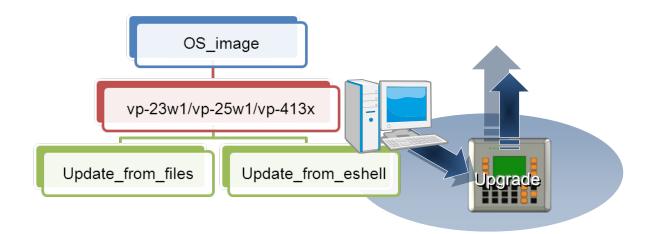
7.1.2. Updating the ViewPAC OS image from eshell

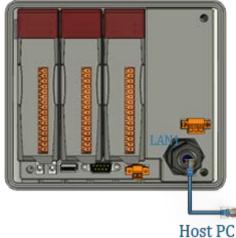
There are two different ways of ViewPAC OS image update:

i. ViewPAC OS updates from files (Please refer to this section)

We recommend that you use this method for quick and easy to update the ViewPAC OS image

ii. ViewPAC OS updates from eshell tool (Please refer to section "6.1.2. Updating the ViewPAC OS image from eshell")





By default, the OS update from Host PC to ViewPAC via Ethernet. Therefore, to update the OS image, make sure Ethernet is connected to the PC.



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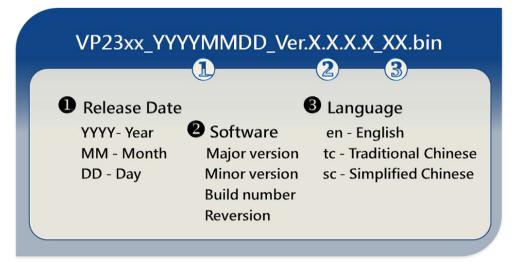
Step 1: Get the latest version of the ViewPAC OS image

For VP-23W1:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-23w1\update_from_Eshell\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-23w1/ update_from_Eshell/

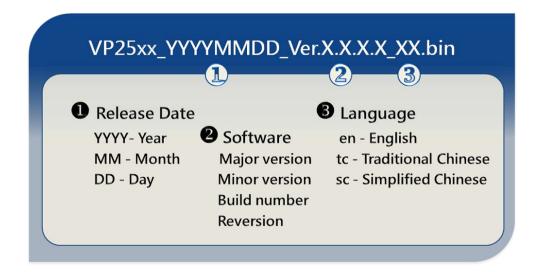


For VP-25W1:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-25w1\update_from_Eshell\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-25w1/ update_from_Eshell/



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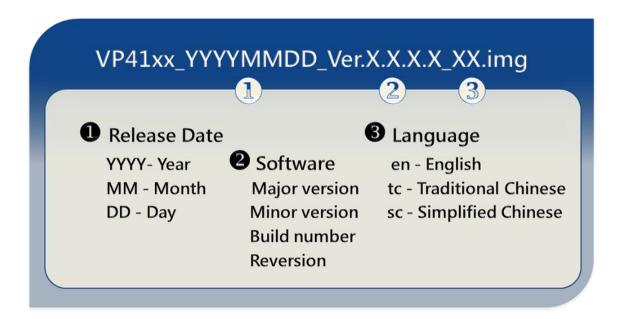
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For VP-41xx:

The latest version of the installation package can be obtained from:

CD:\Napdos\vp-2000_ce50\os_image\vp-413x\update_from_Eshell\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000_ce50/os_image/vp-413x/u pdate_from_Eshell/



Step 2: Run the ESHELL software on the Host PC



ESHELL you can be obtained at: CD:\Napdos\wp-8x4x_ce50\PC_Tools\Eshell\ ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/wp-8x4x_ce50/pc_tools/eshell/

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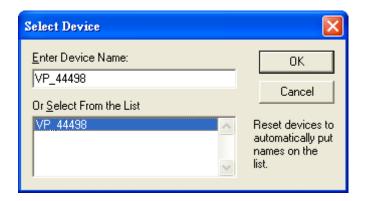
Step 3: Reboot the ViewPAC at update OS mode

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



Step 4: Select the device which you want to update the OS image

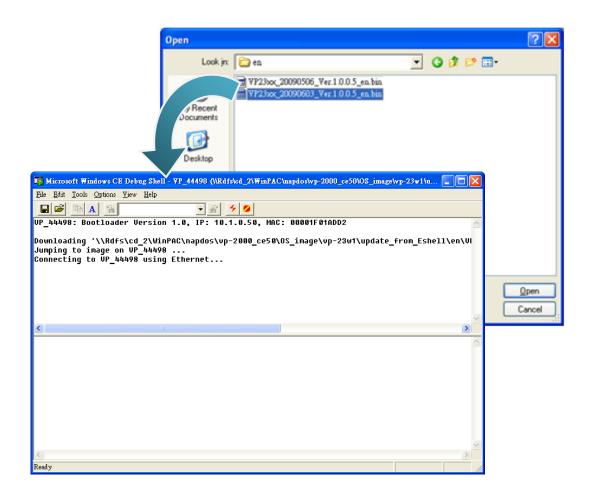
After starting the ESHELL software, the "Select Device" dialog will appear, and then select the device which you want.



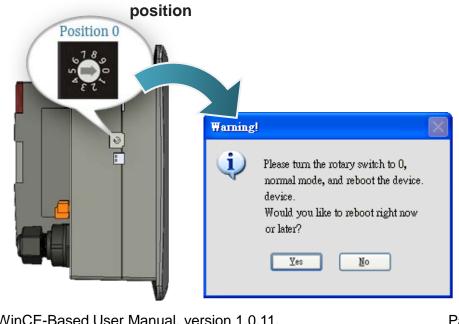
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Step 5: Select the latest version of the OS image



Step 6: Once the procedure is completed, the "Warning !" dialog box will Appear on ViewPAC screen as below shown, before clicking the "Yes" button, you must first turn the rotary switch to the "0"



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Step 7: Check the ViewPAC OS version

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



ViewPAC Utility [2	.0.2.1]		
File Help Configu	ration		
System Setting Etherne	t Setting Network Setting S	ystem Information Auto Execution Multi-serial 💶 🕨	
Slot 0:	Module Type:	VP-25xx (96MB)	
Slot 1:	Flash Type(System_disk):	Intel J3 95ns X 1	
Slot 2:	Flash Type(OS):	Intel J3 95ns X 2	
3002.	64-bit Serial Number:	01-B8-16-AE-13-00-00-69	
Slot 3:	OS Version:	2.0.0.2 , 2010/11/18 17:10:30	
Slot 4:	Eboot Version:	1.1.0.3 , 2010/09/13 15:29:02	
Slot 5:	Backplane Version:	1.0.6.0	
Slot 6:	CPU Version:	1.0.32.0	
	WinPacSDK Version:	2.0.0.6	
Slot 7:	WinPacNet Version:	1.2.0.6	
	.NET Framework Version:	2.0.7045.00	
	SQL CE Version:	3.5.5386.0	

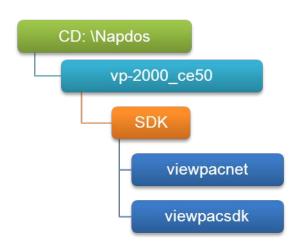
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7.2. SDKs Updates

The updates files of SDK image are located on:

CD:\Napdos\vp-2000_ce50\SDK\



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

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

i. WinPAC SDK updates for dotnet

ii. WinPAC SDK updates for eMbedded Visual C++

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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: http://ftp.icpdas.com/pub/cd/WinPAC/napdos/wp-8x4x_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.

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7.2.2. WinPAC SDK updates for eMbedded Visual C++

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 eMbedded Visual C++ components

The latest version of the eMbedded Visual C++ 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\Include The libraries are located at: C:\Program Files\Windows CE Tools\wce500\PAC270\Lib

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

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

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8. ViewPAC Download Center

This chapter introduces the ViewPAC-2000 Download Center.

Visit the ViewPAC Download Center:

http://www.icpdas.com/products/PAC/viewpac/download/viewpac/download_os_ima ges.htm

	(For Wir	CE based Viewl	PAC)
Note:			
		ms, you should notice if the progra	
		rement of a program can help user	and the second
		any program, please read the not	tes of each online program first
avoid the confuse	ad situation.		
OS images	<u>SDK</u> Ut	tility & Tools Demo	Documents System Disk
10.000	0.116164	d To alla	
ViewPA	C Utility an	a 1001s	
Note:			
Please consider	the suitability over you	r application. If you get any proble	ems caused by updating the
ViewPAC Utility	software, please feedb	adk to your local seller and ask ess	sential help & sevices.
	lity		HTTP FTP
ViewDAC IIti			
ViewPAC Uti		Compatibility	
ViewPAC Uti Version	Last update	Compatibility VP-23Wx / VP-25Wx	

The following update categories are available from the ViewPAC Download Center.

- ✓ **OS images** Includes updates and the latest version of ViewPAC OS.
- ✓ ViewPAC SDK Includes updates and the latest version of each ViewPAC component SDK, such as ViewPAC SDK, NAPOPC_CE5 SDK, Modbus SDK, etc.

✓ Utility & Tools Includes updates and the latest version for ViewPAC toolkits

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✓ **Demo** Includes all related ViewPAC demos.

✓ **Documents** Includes updates and the latest version for related ViewPAC documents.

✓ System Disk Includes updates and the latest version for ViewPAC toolkits

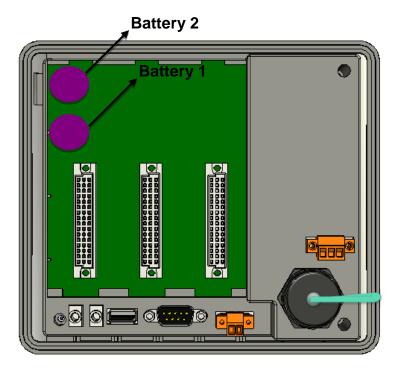
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9. How to change the batteries

RTC and SRAM data is retained by two Li batteries, which can supply continuous power to the 512 KB SRAM to ensure that the data is retained for 5 years. The dual-battery design has the added function of preventing data from being lost while replacing the battery.

The following figures show the location of the tow batteries installed in the ViewPAC.



Checking the current battery power:

1. Run the ViewPAC utility and check the Battery1 and Battery2 fields that display the current status of each battery. Refer to Section 3.5 ViewPAC utility "System Settings Tab" for more details. If the power level for either of the batteries is low, both should be replaced. Note which battery has the lowest power level.

2. When programming this, call the pac_GetBatteryLevel() API function in the PACSDK.dll to check whether the battery power is low. When the power for either of the batteries is low, it's recommended that the battery is replaced immediately, otherwise the data on the SRAM may be lost or RTC time will be reset.

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Note:

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.

1 Replacing the battery without losing data

- 1.1 Power off the ViewPAC device.
- 1.2 Remove the cover of the module inserted into the slot.
- 1.3 First, remove the battery that is running low on power from the battery holder.
- 1.4 Insert a new battery.
- 1.5 Remove the other battery.
- 1.6 Insert a new battery.

Notes:

- 1. If the battery power for only one of the two batteries is low, you can use this method to replace the battery so as to prevent data from being lost. (In the circuit design for the ViewPAC series, When the power for one of the batteries is low, it will automatically switch to the other one to ensure continued battery power)
- 2. If both batteries have run out of power, the data will be lost, even if this method is used to replace the batteries.

2 Replacing the battery – 2

Back up the SRAM data using a backup utility before replacing the battery. Refer to Section 2.8 "Using the Backup Utility to back up the settings and files" to back up and restore the SRAM data.

- 2.1 Run the backup utility to back up the SRAM data.
- 2.2 Power off the ViewPAC device.
- 2.3 Remove the cover of the module inserted into the slot.
- 2.4 Remove both batteries from their respective holders.
- 2.5 Insert two new batteries.
- 2.6 Power on the ViewPAC device.
- 2.7 Run the backup utility to restore the SRAM data.
- 2.8 Set the RTC time.

Ordering information

Battery type: BR1632 (Part number is 2LB010 for ICP DAS)

For more detailed information, contact your local sales office or distributor.

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Appendix A. I-8K and I-87K Modules

There are 3 slot options to expand local I/O. And the I/O modules can be parallel bus type (high profile I-8K series) and serial bus type (high profile I-87K series).

The difference between them is

Item	I-8K Series	I-87K Series
Communication interface	Parallel bus	Serial bus
Protocol	-	DCON
Communication speed	Fast	Slow
DI latched function	-	Yes
Counter input (for digital input module)	-	Yes (100 Hz)
Power on value	-	Yes
Safe value	-	Yes
Programmable slew-rate for AO module	-	Yes

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The RS-485 length can be up to 4000 ft or 1.2 km over a single set of twisted–pair cables, if the RS-485 network is over 4000 ft or 1.2Km, the RS-485 repeater must be added to extend the RS-485 network.

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B.1. Basic RS-485 Network

The basic component of the RS-485 network consist of a Master Controller (or using a PC as a host controller), and some RS-485 devices.

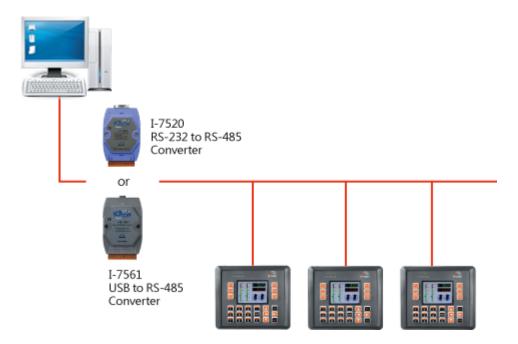
Tips & Warnings



If PC/Laptop has no COM port, you can use the I-7561 (USB to RS-485 converter) for connection between ViewPAC and PC/Laptop.

Before using the I-7561 converter, you must install the USB driver. The USB driver can be obtained from:

ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/7000/756x/

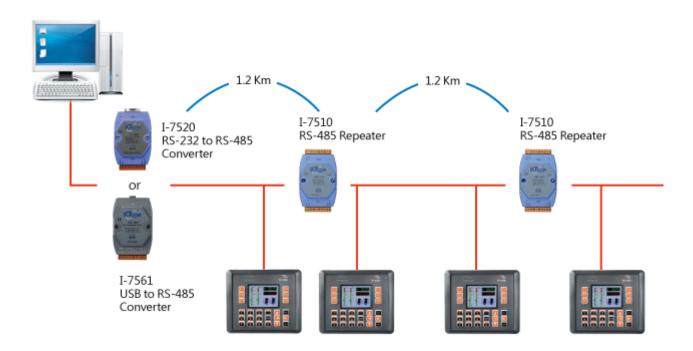


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B.2. Daisy Chain RS-485 Network

All RS-485 devices are wired directly to the main network, If the network is up to 1.2 km, it will need a repeater (7510 series) to extend the network length.

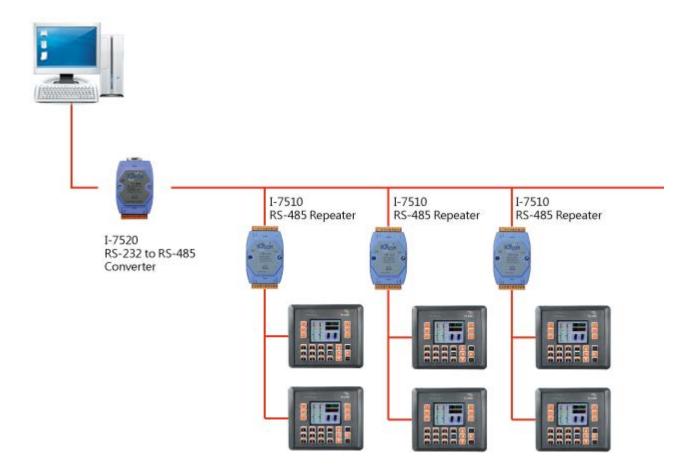


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B.3. Star Type RS-485 Network

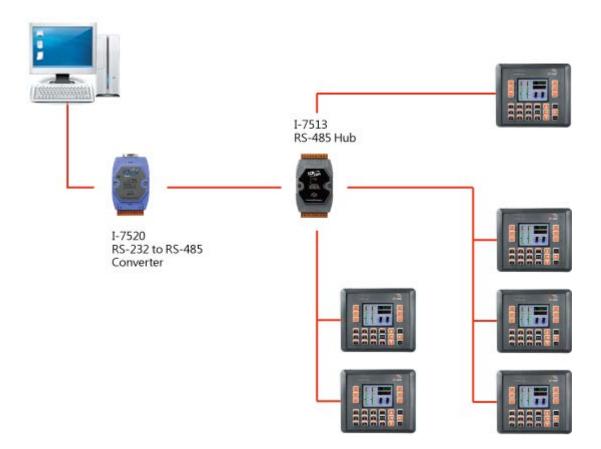
There are branches along the main network. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices.



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There is a better choice to use 7513 as a RS-485 hub on start type network.

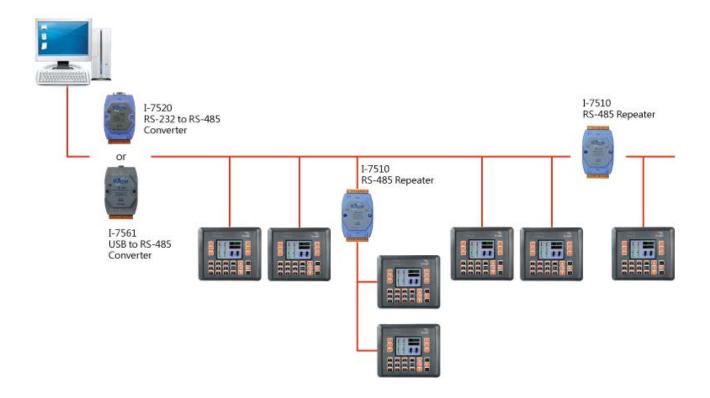


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B.4. Random RS-485 Network

There are branches along the main wire. In this case, it is better to have a repeater to isolate or filter the noise that is made by devices.



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B.5. Master/Slaves Settings

There must be exist one master to have a jumper in the same network. In a master/slave application, "Master" is the default configuration of ViewPAC.

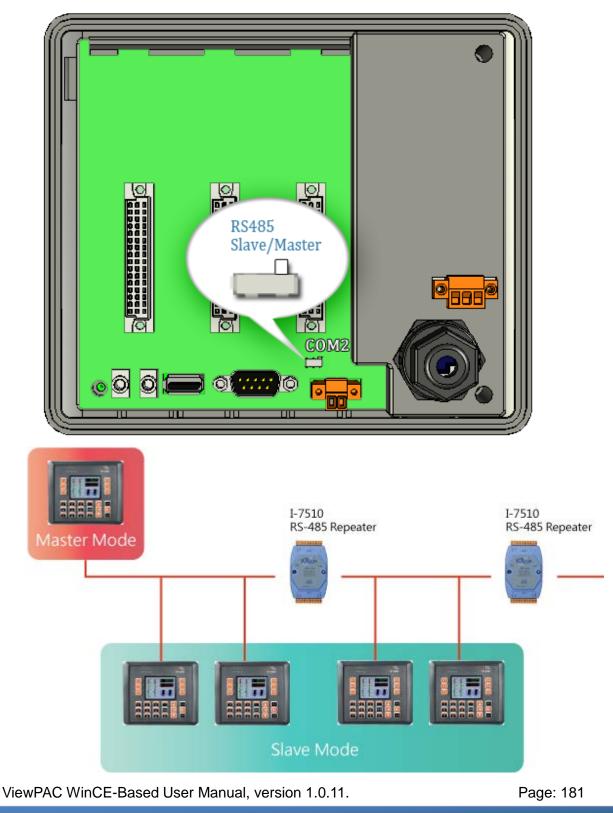
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B.5.1. ViewPAC as a Master (default)

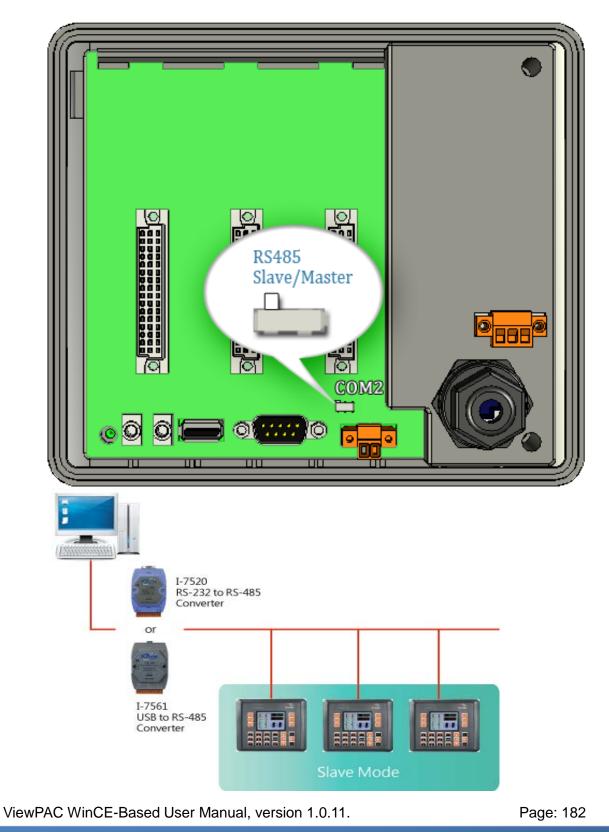
When one of ViewPAC is set to the master mode, then all the other devices on the same network must be set to the slave mode.

Set ViewPAC to the master mode by adjusting the jumpers on the power board of ViewPAC. Refer to the following figure:

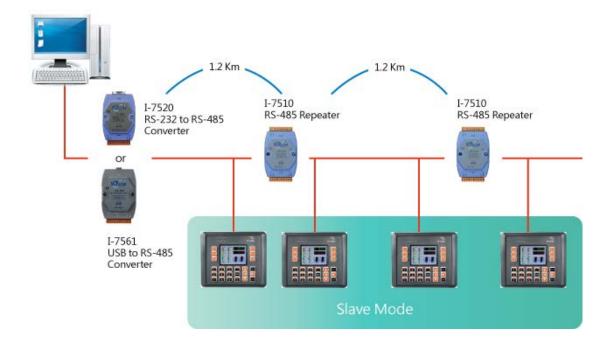


B.5.2. ViewPAC as a Slave:

Set ViewPAC to the slave mode by adjusting the jumpers on the power board of ViewPAC. Refer to the following figure:



The maximum distance of RS-485 without using a repeater is 1,200 meters (4,000 feet). You can extend that distance by adding an RS-485 Repeater every 1,200 meters as shown below.



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Appendix C. Tips – How to

We will continue to add flexibility and support to the ViewPAC that always can be found at:

http://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x_ce50/document/faq/general_io _expansion/

The following sections will present several common application of ViewPAC.

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C.1. How to add a user account to remote login the ViewPAC from PC

C.1.1. How to add a user account

Here are step by step instructions on how to add a user account.

Step 1: Run the ViewPAG Step 2: On the Network to Login tab, type to Name and Passe then click Add b	tab, click the User word, and	ViewPAC Utility
ViewPAC Utility [2.0.2.1] File Help Configuration System Setting Ethernet Setting Ne FTP Setting Users and Password User name Password Anna **** User name Password	etwork Setting System Information A	Luto Execution Multi-serial ()

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Step 3: The user has been added to the allowed under the remote login and included in the following list

ViewPAC Utility [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information A	uto Execution Multi-serial 🔍 🕨
FTP Setting Users and Password User name Password	
Add Delete	
User name Password Note: Anna **** The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC.	

Step 4: On the File menu, click Save and Reboot for changes to take effect

ViewPAC Utility [2.0.2.1]		E 🛯
File_Help_Configuration Save Save and Reboot	Network Setting System Information A	uto Execution Multi-serial 🕢 🕨
Restore Default Settings	Add Delete Note: The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC. Setting	
ViewPAC Utility [2.0.2.1]		🕹 EN 2:54 PI 🇭 🔁

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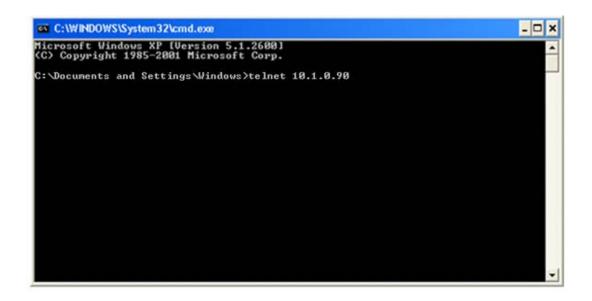
C.1.2. How to Use telnet to remote login the ViewPAC from PC

Here are step by step instructions on how to use telnet to remote login the XPAC from PC.



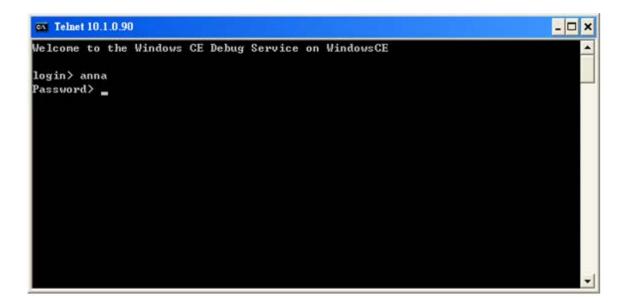
The show is server i	1 1		
隧 Windows Catal	og Run		
🥸 Windows Upda		Ture the 2. Type "cmd"	
Programs		Type the n Internet res.	ent, or It for you.
📴 👩 Documents	•		
Documents gs 1 ch	Open:		~
😫 🕜 Help anr'		OK Cancel	Browse
Shut Down			
🐉 start 🔰 🗖	C:\WINDOWS\Syste.		

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

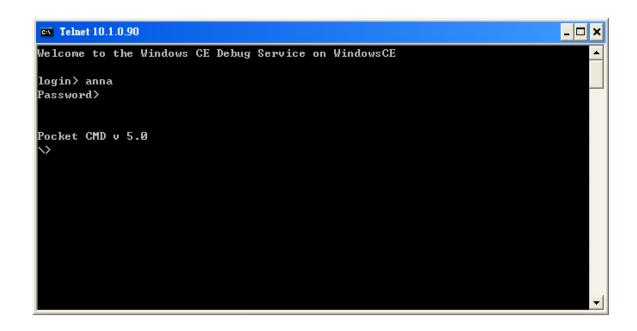


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Step 3: The connection has been set up, and then type the name and password



Step 4: The remote login has been completed



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C.1.3. How to remove the user from the login list

Here are step by step instructions on how to remote the user from the login list.

Step 1: Click a user from the list which you want to remove, and the user will display in the field, and then press Delete to delete the user from the login list

ViewPAC Utility [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Aut	to Execution Multi-serial
FTP Setting Users and Password	
User name Password	
Anna **** Add Delete	
User name Password Note: Anna **** The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC. Setting	

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Step 2: On the File menu, click Save and Reboot for changes to take effect

ViewPAC Utility [2.0.2.1]	I 📃 🗗 🔀
File Help Configuration	1
<u>S</u> ave	Network Setting System Information Auto Execution Multi-serial
S <u>a</u> ve and Reboot	ra]
Reboot <u>W</u> ithout Save	
Restore Default Settings E⊻it	
User name Password	Note: The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC. Setting

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C.2. How to online debug ViewPAC

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

C.2.1. Debug ViewPAC programs in EVC++

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

File	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	<u>B</u> uild	Tools	<u>W</u> indow	<u>H</u> elp		
						💦 En	ror Loo <u>k</u> u	p		
						🎤 Re	mote C <u>a</u> ll	Profiler (WCE	(500)	
						💦 Re	mote <u>F</u> ile	Viewer (WCE	500)	
						🍂 Re	mote <u>H</u> eap	Walker (WC)	E500)	
						🥕 Re	mote Kerr	uel <u>T</u> racker (W	CE500)	
						🂦 Re	mote Perfe	orma <u>n</u> ce Moni	tor (WCE500)	
						ir Re	mote <u>P</u> roc	ess Viewer (W	CE500)	
						🂦 Re	mote Regi	istry Editor (W	CE500)	
						➢ Remote Spy++ (₩CE500)				
						A Remote System Information (WCE500)				
						∕ħ Re	mote <u>Z</u> ooi	min (WCE500)	
						Sel	lect Remot	te Tools		•
						<u>C</u> υ	stomize			
						Op	tions			
						Ma	em			-
							cord Quic	k Macro	Ctrl+Shift+R	
						_	y Quick M		Ctrl+Shift+P	
						Co	nfigure Pl	atform Manag	er	

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

Windows CE Platform Manager Configuration	
Select a platform or device to configure PAC270 Device PAC270 Device SA_IA STANDARDSDK_420 Windows CE Default Platform	Add Device Delete Properties) About
<u> 0</u> K	

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

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:
Manual Server Configure
<u>O</u> K <u>Cancel I</u> est

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

TCP/IP Transport Configuration				
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>o</u> k	<u>C</u> ancel			

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

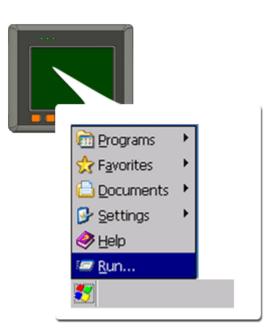
Device Properties				
Device Name: PAC270 Device				
Select a transport and a startup server. Choose Test to verify the establish a connection to your target device with the selected tra startup server	at you can ansport and			
T <u>r</u> ansport:				
TCP/IP Transport for Windows CE	Transport for Windows CE Configure			
Startup Server:	Continue			
Manual Server	Configure			
<u>O</u> K <u>C</u> ancel <u>T</u> est				

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

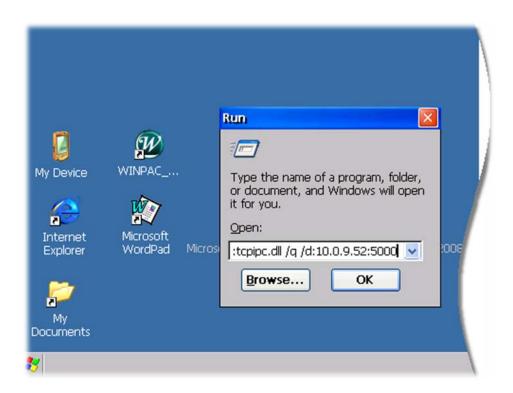
Manual Server - Action
Please make sure the following files are on the device
\WINDOWS\tcpipc.dll \WINDOWS\cemgrc.exe \WINDOWS\cetlstub.dll
And launch CEMGRC.EXE with the following cmd line
CEMGRC.EXE /S /T:TCPIPC.DLL /Q /D:10.0.9.52:5000
Cancel

Step 7: On the ViewPAC controller side, select and then click the "Run..." command

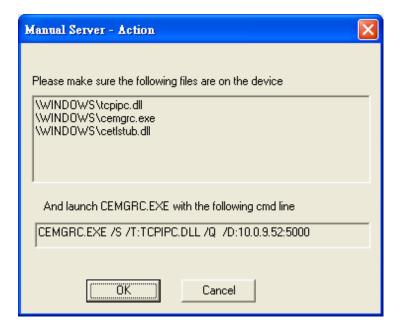


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Step 8: On the "Run" dialog, type the command which displays in step 5 and then click the "OK" button



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



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

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

Step 11: On the "Device Properties" dialog, click the "OK" button

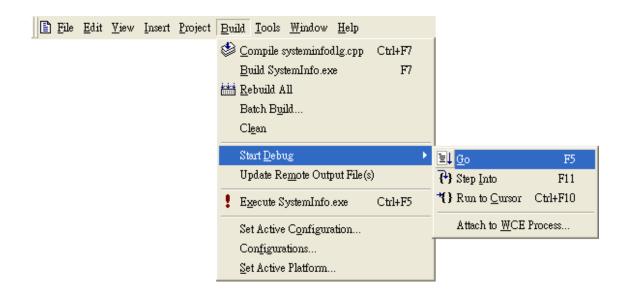
Device Properties	
Device Name: PAC270 Device	
I NC210 Device	
Select a transport and a startup server. Choose Test to verify th establish a connection to your target device with the selected to startup server	
T <u>r</u> ansport:	
TCP/IP Transport for Windows CE	Configure
<u>S</u> tartup Server:	
Manual Server 💌	Configure
OK <u>C</u> ancel <u>T</u> est	

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

Wi	ndows CE Platform Manager Configuration	
	Select a platform or device to configure	
	PAC270	<u>A</u> dd Device
	PAC270 Device	Delete
	 Image: Constraint of the second secon	Properties
		About
	<u>OK</u>	

Step 13: On the "Build" menu, select the "Start Debug" command and then click the "Go" command



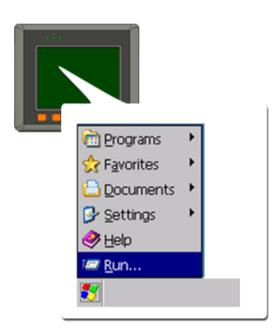
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Step 14: The "Manual Server - Action" dialog will appear displaying a command line, before click the "OK" button to close dialog, turn to the ViewPAC controller side to do the next two-steps

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 /T:TCPIPC.DLL /Q /D:10.0.9.52:2008	
Cancel	

Step 15: On the ViewPAC controller side, select the and then click the "Run..." command

"Start" menu,



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Step 16: On the "Run" dialog, type the command which displays in step 5 and then click the "OK" button

		Run	
My Device My Device Internet Explorer	WINPAC Microsoft WordPad	Type the name of a program, folder, or document, and Windows will open it for you. Open: :tcpipc.dll /q /d:10.0.9.52:5000	2005

Step 17: Return to the Host PC side, on the "Manual Server – Action" dialog, click the "OK" button



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Step 18: On the "Manual Server - Action" dialog, click the "OK" button

Microsoft eMbedded Visual C++	? 🛛						
'C:\\ARMV4IReI\Memory.exe' does not contain debugging information. Press OK to continue.							
🗖 Do not <u>p</u> rompt	in the future.						
ОК	Cancel						

Step 19: 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

😑 File	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	<u>D</u> ebu	g <u>L</u> ayout	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
						,o			F5
					₽ R	estart		Ctrl+Shif	't+F5
					式 S	top <u>D</u> ebug;	ging	Shif	t+F5
					≣n E	reak			
					{ ∙}} S	tep Into			F11
					₽₽ S	tep <u>O</u> ver			F10
					{ } 2	tep O <u>u</u> t		Shift	F11
					*{} R	un to <u>C</u> urs	or	Ctrl+	F10
					夷 e	xceptions			
					5 I	hreads			
					M	[odules			
					➡ S	how <u>N</u> ext S	Statemen	nt Alt+Nu	.m. *
					61° <u>0</u>	uick Watch	L		

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C.2.2. Debug ViewPAC programs in Visual Studio 2005/2008

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

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

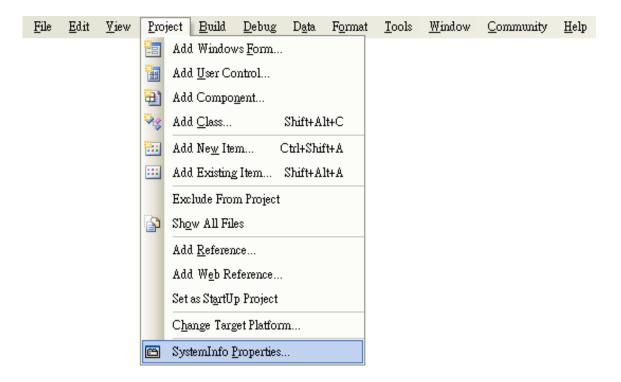
Path	File
C:\Program Files\Common Files\Microsoft	1. ActiveSyncBootstrap.dll
Shared\CoreCon\1.0\Bin	2. ConMan2.dll
	3. ConManPS.dll
	4. DesktopDMA.dll
	5. eDbgTL.dll
	6. TcpConnectionC.dll
C:\Program Files\Common Files\Microsoft Shared\CoreCon\1.0\Bin\1033	conmanui.dll
C:\Program Files\Common Files\Microsoft	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

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Step 2: If the version matches correctly and the entire file are there, copy the following files to ViewPAC :\ 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..." command



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

SystemInfo* For	m1.cs [Design] Start Page Object Browser ->
Application	Configuration: N/A V Platform: N/A V
Build	
Build Events	Deployment Options
Dona Events	Target device:
Debug	CAYMAN-ARMV4I_Release
Resources	Output file folder:
	%CSIDL_PROGRAM_FILES%SystemInfo
Reference Paths	Deploy the latest version of the .NET Compact Framework (including Service Packs)
Signing	Authenticode Signing
Devices#	Sign the project output with this certificate
Devices*	Select Certificate
	V

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

File	<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	F <u>o</u> rmat	Too	ls <u>W</u> indow <u>C</u> ommunity <u>H</u> elp
									Attach to Process Ctrl+Alt+P
								9,	Connect to De <u>v</u> ice
								۳.,	Connect to Database
								1	Connect to Server
								B	Code Snippets Manager Ctrl+K, Ctrl+B
									Choose Toolbo <u>x</u> Items
									<u>A</u> dd-in Manager
									Macros
									Create <u>G</u> UID
									Dotfuscator Community Edition
									<u>E</u> xternal Tools
								.	Device Emulator Manager
									Import and Export Settings
									<u>C</u> ustomize
									Options

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

Options	
 Environment Projects and Solutions Source Control Text Editor Database Tools Debugging Device Tools General Devices Form Factors HTML Designer Windows Forms Designer 	Show devices for platform: PAC270 Image: Constraint of the second se
	OK Cancel

Step 7: On the "CAYMAN-ARMV4I_Release Properties" dialog, click the "Configure..." button

CAYMAN-ARMY4I_Release Properties	? 🛛
Default output location on device:	
Program Files Folder	<u>×</u>
T <u>r</u> ansport:	
TCP Connect Transport 🗠	<u>C</u> onfigure
Bootstrapper:	
ActiveSync Startup Provider 🛛 👻	Con <u>f</u> igure
Detect when device is disconnected	
	OK Cancel

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

Options			? 🔀	
Environment Projects and Solutions Source Control Text Editor Debugging Debugging Device Tools General Devices For For	Show devices for platfor PAC270 All Platforms Pocket PC 2003 Smartphone 2003 Windows CE 5.0 PAC270 Te TCP/IP Transport	m: •	Save As Rename	? 🗙
	ixed port number: e IP address otain an IP address automat æ specific IP address: 0.0.9.43	5655 tically using ActiveSynt	c	~
	5.0.5.49			
			OK	Cancel

Step 9: On the "CAYMAN-ARMV4I_Release Properties" dialog, click the "OK" button

CAYMAN-ARMV4I_Release Properties	?×
Default output location on device: Program Files Folder	<
Transport:	
TCP Connect Transport 💽 Configure	
Bootstrapper:	
ActiveSync Startup Provider Configure	
Detect when device is disconnected	
OK Ca	uncel

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Step 10: On the "Options" dialog, click the "OK" button

Options		? 🛛
 Environment Projects and Solutions Source Control Text Editor Database Tools Debugging Device Tools General Devices Form Factors HTML Designer Windows Forms Designer 	Show devices for platform: PAC270 Devices: CAYMAN-ARMV41_Release Default device: CAYMAN-ARMV41_Release	Save As Rename Delete Properties
		OK Cancel

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

<u>F</u> ile <u>E</u> dit	<u>V</u> iew <u>G</u> o									№? ×
	🦻 🗙 🖸									
Address S	ystem_Disk\IC	PDAS\System								~
-	*		*			MS 195		-		
TcpConne	eDbgTL	ConmanCli	ConMan2	CMAccept	clientshut	AutoInit	AutoLoader	WinpacSDK	Sleep	
-	W	*	*	-	**	*	*	*	*	
WinconSDK	WINPAC	PAC8172	PAC8050	PAC8024	pac8017H	UARTCE	17000CE	Wincon	DCONCE	
-	-	*	*							
olece400d	OLECE400	mfcce400d	MFCCE400							
	-									

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<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	<u>T</u> oo	ls <u>W</u> indow <u>C</u> o	mmunity <u>H</u> elp
								Attach to <u>P</u> rocess	Ctrl+Alt+P
							, Connect to De <u>v</u> ice		
							۰,	Connect to <u>D</u> atabas	æ
							2	Connect to Server	
							B	Code Snippe <u>t</u> s Man	ager Ctrl+K, Ctrl+B
								Choose Toolbo <u>x</u> It	ems
								<u>A</u> dd-in Manager	
								<u>M</u> acros	•
							Create <u>G</u> UID		
								Dot <u>f</u> uscator Comm	unity Edition
								<u>E</u> xternal Tools	
								Device Emulator M	lanager
								Import and Export	Settings
								<u>C</u> ustomize	
								Options	

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

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

To connect to a physical device or launch an emulator image, select a platform, then choose a device below. Cancel Platform: PAC270 Devices: CAYMAN-ARMV4I_Release

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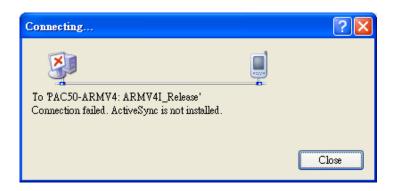
Step 14: On the "Tools" menu, click "Connect to Device..." command

Connecting	? 🛛
To 'CAYMAN-ARMV4I_Release' Connection succeeded.	
	Close

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

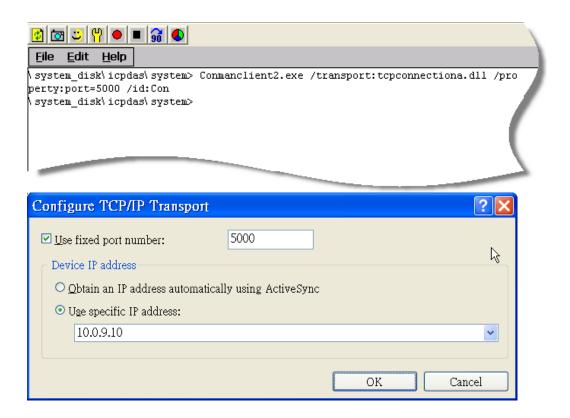
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Open the command prompt, run the

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



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C.3. How to recompile WinCon programs

To recompile Wincon programs to run on ViewPAC, certain components of the programs require adjustments that divides into two parts:

- 1. Compiler old programs which ran on Wincon 8x3x and 8x4x
- 2. Modify .vcp file to upgrade the old WinCon project

Tips & Warnings

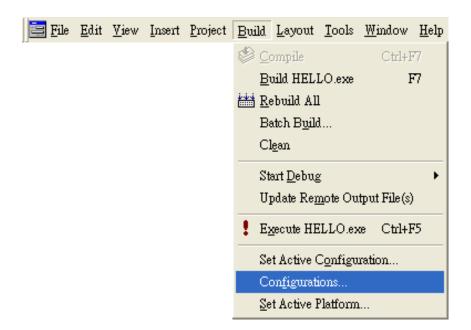


In general, you only need to do part 1, after this, if the program still can't be compiled to an application, the part 2 just need to do.

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C.3.1. Compiler old programs which ran on Wincon 8x3x and 8x4x

- Step 1: Open project which programmed in WinCon using eMbedded Visual C++
- Step 2: On the "Build" menu, click "Configurations" command



Step 3: Make sure the CPU type is "STANDARDSDK"

🔀 Demo - Microsoft eMbedded Visual	C++ - [DemoDlg.cpp]		
📄 Eile Edit <u>V</u> iew Insert Project Build	<u>T</u> ools <u>W</u> indow <u>H</u> elp	_	. 8 ×
) 🏠 😂 🖬 🕼 X 📭 🖻 그 -	· · · · · · · · · · · · · · · · · · ·	▼ ² #4	
CDemoDlg 💽 (All class	members] 💌 💊 OnButtonAO	▼ 🗷 ▼	
Demo • STANDARDSDK	Win32 (WCE ARMV4) Release	▼ STANDARDSDK_420 Emulator	•
Demo resources	TCHAR temp[20],*stopstr float A0[4]; int i;	ing;	-
	m_AO0.GetWindowText(tem https://wcstod(tem		

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Step 4: On the "Configurations" dialog, click the "Add..." button

Configurations	? 🛛
Projects and	Close
Win32 (WCE emulator) Release Win32 (WCE emulator) Debug	<u>A</u> dd
- Win32 (WCE ARMV4) Release - Win32 (WCE ARMV4) Debug	<u>R</u> emove
Win32 (WCE x86) Release	
Win32 (WCE ×86) Debug	

Step 5: On the "Add Project Configuration" dialog, choose one of the CPU type and then click the "OK" button.

Add Project Configuration	? 🛛
CPU: Win32 (WCE ARMV4I) Copy settings from: *Default Debug Configuration	OK Cancel
Configuration: Release The new configuration will be called: Demo - Win32 (WCE ARMV4I) Release	

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 File
 Edit
 View
 Insert
 Project
 Build
 Tools
 Window
 Help

 Set Active Project
 •

 Add To Project
 •

 Dependencies...
 Settings...
 Alt+F7

 Export
 Makefile...
 Insert Project into Workspace...

Step 7: On the "Project Settings" dialog, select the "Link" tab and change the value of the "Entry-point symbol" field, "WinMainCRTStarup" to "wWinMainCRTStartup",

Project Settings		? 🛛
Settings For: Win32 (WCE ARMV4) Release ▼ ⊕ @ Demo	Category: Output Base address:	Link Resources M <u>Reset</u> <u>Entry-point symbol:</u>
	0x00010000 Stack allocations Reserve: 0x10000	wWinMainCRTStartup
	Version information Major: Project Options:	Mi <u>n</u> or:
	UARTCE.lib 17000CE.lib /nolo /stack:0×10000,0×1000 /entr /incremental:no /pdb:"ARMV	y:"wWinMainCRTStartup" 📃
		OK Cancel

Step 6: On the "Project" menu, click "Settings..." command

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Step 8: After performing above-mentioned steps, build the project, your project should build success. If not, it will show error message as follow. Please continue with the following steps

	<pre>int slotD1; bool timerOn=false; int D0_number=0;D1_number=0;</pre>
ClassView 🖀 ResourceVi	ew E FileView
▲ Linking UARTCE.lib (UARTCE.dll) : Error executing link.exe.	fatal error LNK1112: module machine type ' THUMB ' conflicts with target machine type ' ARM '
Demo.exe 1 error (s), 0	warning (s)
Build Debug Find	in Files 1 \ Find in Files 2 /
	Ln 11, Col 17 REC COL OVR READ

Step 9: On the "Project" menu, click "Settings..." command



Step 10: On the "Project Settings" dialog, select the "Link" tab and change the value of the "Project Options" field, "ARM" to "THUMB", and then built the project

Project Settings	?X
Settings For: Win32 (WCE ARMV4I) Release	General Debug C/C++ Link Resources M () Category: General Reset
	Project Options: /nodefaultlib:"\$[CENoDefaultLib]" /out:"ARMV4IRel/Demo.exe" /subsystem:\$[CESubsystem /MACHINE:THUMB OK Cancel

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C.3.2. Modify .vcp file to upgrade the old WinCon project

- Step 1: Open a text editor to modify the .vcp file
- Step 2: In the .vcp file, replace "0xa301" with "0xa501"
- Step 3: In the .vcp file, replace "ARMV4" with "ARMV4I"
- Step 4: In the .vcp file, replace "MACHINE:ARM" with "MACHINE:THUMB"
- Step 5: Save the .vcp file just edited
- Step 6: Open the old WinCon project and recompile it

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C.4. How to use the printer

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

Tips & Warnings



ViewPAC 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.j sp?objectID=bpl04568

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C.4.1. 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

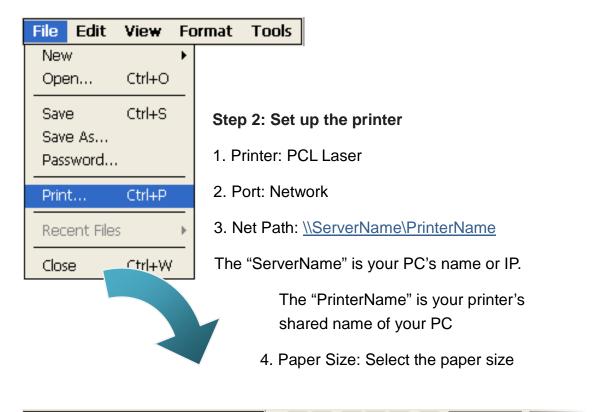
System Properties	
System Restore Automatic opdates Remote	
General Computer Name Hardware Advanced	
Windows uses the following information to identify your computer on the network.	
Computer description:	
For example: "Kitchen Computer" or "Mary's Computer".	
Full computer name: ServerName.	
Workgroup: ICPDAS.COM	
To use the Ne 🍣 Auto HP Laser Jet 2200 (RD1) on KEVIN_WINPAC Properties	? 🛛
ID. General Sharing Ports Advanced Color Management	
To rename this You can share this printer with other users on your network. To enable sharing for this printer, click Share this printer.	
O Do <u>n</u> ot share this printer	
Chare this printer	
Share name: PrinterName	
Drivers If this printer is shared with users running different versions of Windows, you may want to install additional drivers, so that the users do not have to find the print driver when they connect to the shared printer. Additional Drivers	
OK Cancel Apply Hel	p

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

Step 3: On the ViewPAC, open a WordPad format file



 File
 Edit
 View
 Format
 Tools
 Image: Second s

Print			? ок 🛛
Printer:	PCL Laser 💌	Print Range	Orientation
Port:	Network	 All 	Portrait
Net Path:	RD1-User2\Anna	Selection	 Landscape
Paper Size:	A4 🔽	Margins (inches)	-
Advanc	ed Draft Mode		Top: 1" Bottom: 1'

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C.4.2. How to use printer via USB

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

1

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

File Edit View Fo	ormat Tools		
New 🕨			
Open Ctrl+O			
Save Ctrl+S			
Save As			
Password	Step 2: Set up the printer		
Print Ctrl+P	1. Printer: Hewlett-Packard LaserJet		
Recent Files	2. Port: LPT1		
Close Ctrl+W	3. Paper Size: Select the paper size		
File Edit View Forma	at Tools 🗄 🚰 🔚 🐰 🖻 💼 💌 Tahom 💌 14 💌		
Test !!!			
Print	? OK 🔛		
Printer: Hewlett-	Packard LaserJ 🔽 Print Range Orientation		

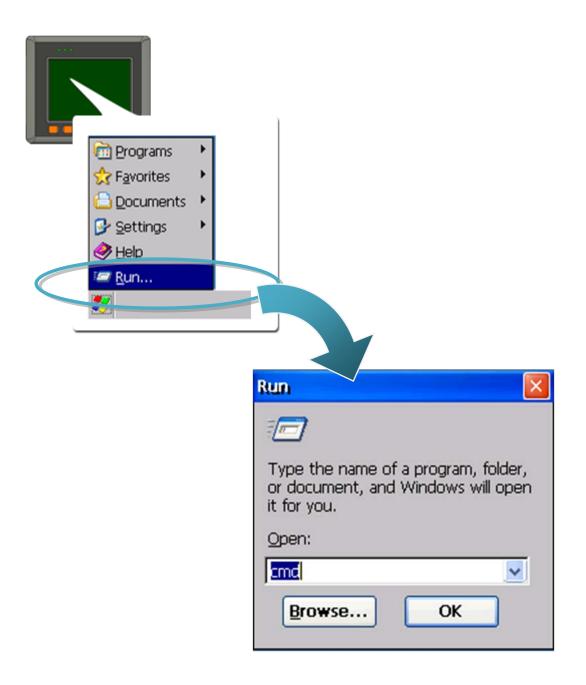
F	Printer:	Hewlett-Packard LaserJ 🛛 🐱	Print I	Range	Orientation	
F	Port:	LTP1 🔽			OPortrait	
ſ	Net Path:		O Sel	lection	O Landscape	
F	Paper Size:	Α4 🔽	_	ns (inches)		
		Draft Mode	Left:	1.25"	Тор: 1"	
	Advance		Right:	1.25"	Bottom: 1"	

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C.5. How to use services tool

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





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Step 2: List all services

[Syntax] services list

File	Edit Help		
Pocket	t CMD v 5.0		
> serv	vices list		
FYO:	0x00030110	NOTIFY.D11	Running
TPO:	0x00031570	HTTPD.DLL	Running
RD0:	0x00032070	credsvc.dll	Running
MQ1:	0x00036790	MSMQD.D11	Off
BX0:	0x00036b20	OBEXSrVr.dll	Off
TPO:	0x00037770	FTPD.D11	Running
ELO:	0x00037ac0	TELNETD.D11	Running
SMB0:	0x0003c3e0	smbserver.dll	Running
JTPO:	0x0003fff0	timesvc.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 E	Edit Help		
Pocket	CMD v 5.0		
\≻ <mark>serv</mark>	rices stop FTP	0:	
\≻ serv	rices list		
NFYO:	0x00030110	NOTIFY.D11	Running
HTPO:	0x00031570	HTTPD.DLL	Running
CRD0:	0x00032070	credsvc.dll	Running
MMQ1:	0x00036790	MSMQD.D11	Off
OBX0:	0x00036b20	OBEXSrVr.dll	Off
FTPO:	0x00037770	FTPD.D11	Off
TELO:	0x00037ac0	TELNETD.D11	Running
SMB0:	0x0003c3e0	smbserver.dll	Running
NTPO:	0x0003fff0	timesvc.dll	Running
\ >			

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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 automatical.
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
\geq 1
```

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Appendix D. Revision History

Revision	Date	Description
1.0.1	August 2009	Initial issue
1.0.2	September 2009	Added information about the support of the printer driver in section C.4
1.0.3	December 2009	 Modified the operating modes in section 2.5 Added the requirements of the ViewPAC SDK in section 4.3.
1.0.4	February 2010	 Modified the specification of the Dual Battery Backup SRAM features in section 1.1. Modified information about Operating Environment in section 1.2.
1.0.5	January 2011	 Added information on how to use Backup Utility to back up the settings and files in section 2.9. Added information about a caution of using System_Disk in section 2.10. Added information about the ViewPAC Utility functionality in section in section 3.5.2. Deleted information on how to establish a new telnet and FTP account in section C.1. Added information on how to add a user account to remote login the ViewPAC from PC in section C.1.
1.0.6	July 2011	 Added information on the Overview in section 1.4. Modified information about the application of RS-485 network in appendix E.
1.0.7	February 2012	 Modified the features of the ViewPAC in section .1.1. Modified the specification of the ViewPAC in section 1.2.
1.0.8	July 2012	 Added information about COM2 in section 1.3. Added information about how to use the printer in appendix C.4.
1.0.9	October 2012	Modified information about ViewPAC Platform SDKs in chapter 4.

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1.0.10	November 2012	Added information about VP-4131 in section 1.2, 1.3, 1.4 and 2.1 Added the ViewPAC Utility function in in section 3.5.2
1.0.11	September 2013	 Update ViewPAC utility information in section 3.5. Added limitations for using Visual Studio in section 4.1. Added battery change in section 9
1.0.12	January 2014	1. Added information about battery.

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