# VP-23W1/VP-25W1 User Manual

### Version 1.0.7, March 2012

Service and usage information for



VP-23W1



VP-25W1

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Written by Mac Cho

Edited by Anna Huang

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# **1. Introduction**



ViewPAC combines WinPAC, graphic display and keypad in one unit. It equips 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" 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

#### **Hardware Features**

- > PXA 270 CPU (32-bit & 520 MHz)
- > IP65 Compliant Front Panel
- > 3.5"/5.7" TFT LCD (5.7" LCD is with Touch Panel)
- Rubber Keypad with 24/6 Keys
- > Audio with MIC-In and Line-Out
- > 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

# **1.2. Specifications**

The table below summarizes the specifications of the ViewPAC.

System Software	VP-23W1	VP-25W1
OS	Windows CE .NET 5.0	
.Net Compact Framework	2.0	
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	VP-23W1	VP-25W1
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 (64 MB for OS image, 31 MB for built-in Flash	
	disk, 1 MB for registry)	
EEPROM	16 KB (data retention: 40 years; 1,000,000	
	erase/write cycles)	
Expansion Flash Memory	microSD socket with one 1 GB microSD card (support	
	up to 16 GB microSDHC card)	
RTC (Real Time Clock)	Provide seconds, minutes, hours, date of	
	week/month; month and year, valid from 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	VP-23W1	VP-25W1
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)	

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Communication Interface	VP-23W1	VP-25W1
Ethernet Port	RJ45 * 1, 10/100 Base-TX	
	(Auto-negotiating, Auto MDI/MDIX, LED indicators)	
USB 1.1 (host)	1	
COM0	Internal communication with the high profile I-87K	
	series modules in slots	
COM2	RS-485 (D2+, D2-; self-tuner ASIC inside);	
	2500 $V_{DC}$ isolated	
СОМЗ	RS-232 (RxD, TxD, CTS, F	RTS, DSR, DTR, CD, RI
	and GND); Non-isolated	

Main Machine Interface	VP-23W1	VP-25W1
LCD	3.5" TFT	5.7" TFT
	(Resolution 320 x 240)	(Resolution 640 x 480)
Touch Panel	-	Yes
Rubber Keypad	24 Keys	6 Keys
Audio	Microphone-In and Earphone-Out	
LED Indicators	3 Dual-Color LEDs (PWR, RUN, LAN1, L1, L2, L3; L1	
	~ L3 for user programmable)	

Environmental	VP-23W1	VP-25W1
Operating Temperature	-20 ~ +70 °C	
Storage Temperature	-30 ~ +80 °C	
Ambient Relative Humidity	5 ~ 90% RH, non-condensi	ing

Power	VP-23W1	VP-25W1
Input Range	+10 V ~ +30 V <sub>DC</sub>	
Isolation	1 kV	
Capacity	2.5 A, 5 V supply to I/O expansion slots	
Consumption	7.2 W (0.3 A @ 24 V <sub>DC</sub> )	

Mechanical	VP-23W1	VP-25W1
Dimension (W x D x H)	182 mm x 158 mm x 125 mm	
Ingress Protection	Front panel: IP65	
Installation	Panel mounting	

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## 1.3. Overview

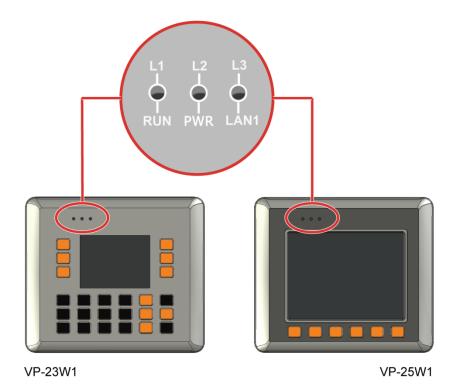
The ViewPAC contains several interfaces and peripherals that can be integrated with external systems. Here is an overview of the components and its descriptions. The details of these items are as follows:



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#### 1. LED Indicators

The ViewPAC contains three LED indicators that are located on the top of the unit.



The LED indicators can be used to indicate the power status, OS status and Link/Activity, and are described as follows:

LED Indicator	State (Color)	Meaning
L1/L2/L3	ON (Red) Controlled via a program	
	OFF	Controlled via a program
RUN	ON (Green)	The OS is on
	Blink	The System_disk is being formatted or defragmented
PWR	ON (Green)	The Power is ON
	OFF	The Power is OFF
LAN1	ON (Green)	The Link is active
	OFF	The Link is inactive
	Blink (Green)	Network activity

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#### 2. LCM

The LCM size of the VP-23W1 is 3.5"  $320 \times 240$ . The LCM size of the VP-25W1 is 5.7"  $640 \times 480$ .

#### 3. Keypad

The keypad on the VP-2000 is used to provide support for keyboard input. The F1 ~ F6 function keys can also be programmed by the user.

#### 4. Micro SD Socket

The ViewPAC also contains a Micro SD socket that can be used to increase memory capacity to 16 GB.

#### 5. Rotary Switch



The 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"

#### 6. I/O Expansion Slots

The VP-2000 contains three I/O expansion slots that are used to serve in the local and remote expansion.

#### 7. Power Input and Frame Ground

The VP-2000 contains a power terminal that is used to provide power for its operation.

The terminal block contains 3 pins and the pin assignments are as follows:

#### 8. Waterproof Ethernet Port

The VP-2000 contains an Ethernet port that is waterproof to protect the device from external contaminants.

#### 9. COM2 (RS-485)

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

#### 10. COM3 (RS-232)

Port Type: Male

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

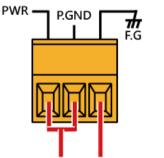
Data Bits: 5, 6, 7, 8

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

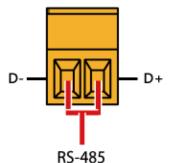
Stop Bits: 1, 2

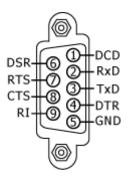
FIFO: 16 bytes





Power Input Frame Ground





#### **Tips & Warnings**



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

#### 11. USB Port

The VP-2000 contains a USB port that allows support for USB devices such as mouse, keyboard or an external USB hard drive.

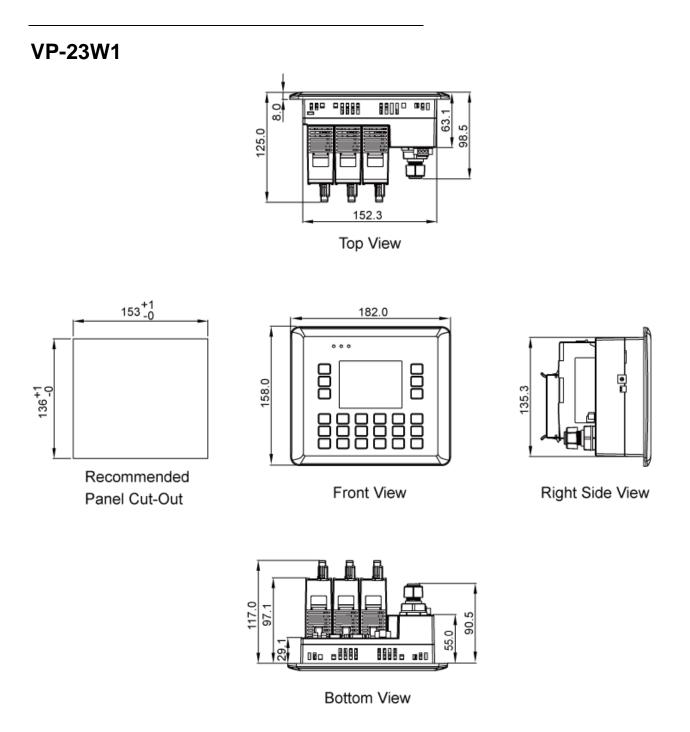
#### 12. Microphone and Earphone Jacks

The VP-2000 contains a microphone and an earphone jack to allow the input and output of audio system.

## 1.4. Dimensions

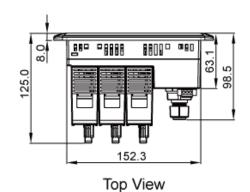
The diagrams below provide the dimensions of the standard VP-2000 family to use in defining your enclosure specifications. Remember to leave room for potential expansion if you are using other components in your system.

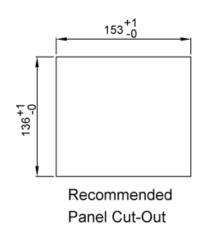
All dimensions in millimeter.

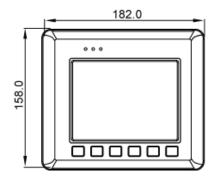


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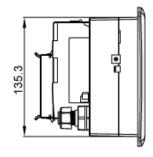
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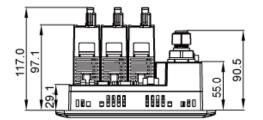








**Right Side View** 

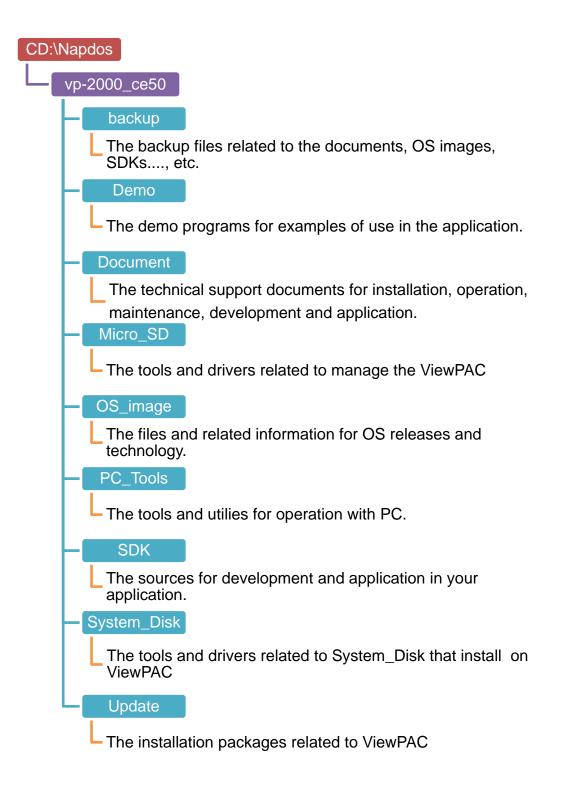


Bottom View

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# 1.5. Companion CD

This section 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.

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



**Quick Start Guide** 



Software Utility CD



1 GB Micro SD Card



**RJ-45 Waterproofing Kit** 



Panel Clip \* 4



**Screw Driver** 

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## 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."

### 2.1.1. 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 1: Hold the top of ViewPAC Step 2: Pull the plastic wrap

been removed

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### 2.1.2. Installing Expansion I/O Sockets

The case (a socket and a top case) is included in the package. Before inserting the I/O modules talling the I/O modules in

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

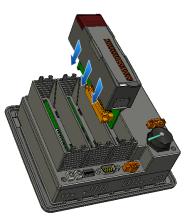
Step 2: Slide the socket into the ViewPAC until it clicks

### 2.1.3. Installing the I/O Modules

ViewPAC supports various types of I/O expansion modules for interfacing many different field devices.

For more information about I/O expansion modules, please refer to: <u>http://www.icpdas.com/products/PAC/winpac/io\_support\_list.htm</u>

- 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

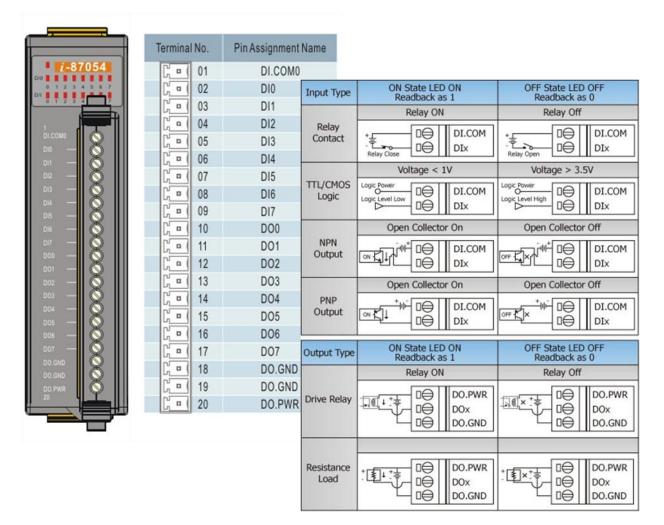
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#### Step 4 Wire the I/O channels

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.

### 2.1.4. Mounting the Waterproof

The ViewPAC provides an IP67 waterproof connector to ch consists of the following components plugged in RJ-45 cable.





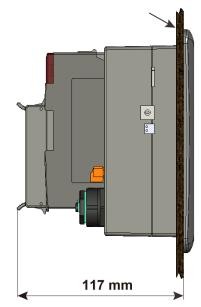
### 2.1.5. Mounting the ViewPAC

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.

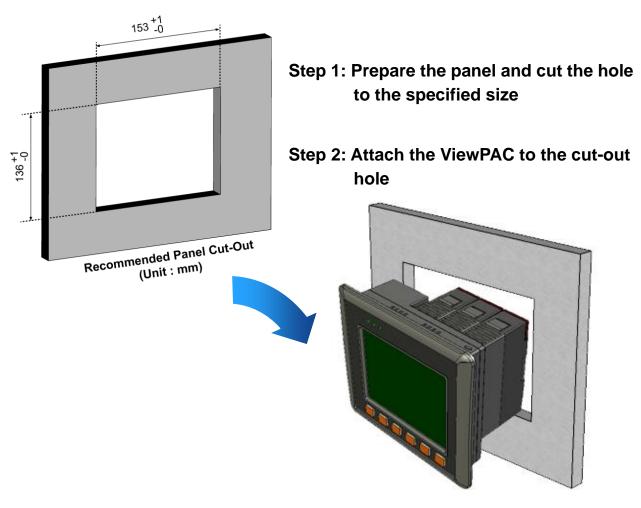
#### **Tips & Warnings**



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.



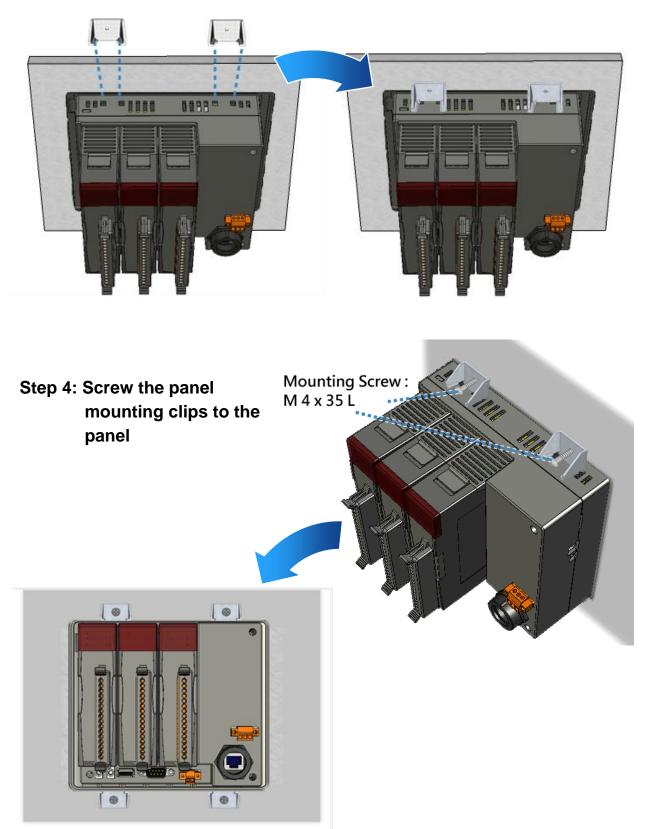
Panel thickness up to 12 mm



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



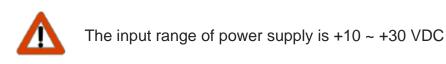
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### 2.1.6. Deploying a Basic ViewPAC Application

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.

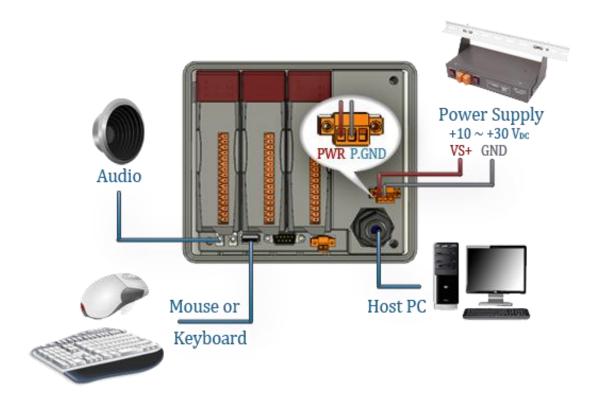
# Step 1: Connect the positive terminal (+) of the power supply to the terminal PWR and the negative terminal (-) of the power supply to the P.GND

#### **Tips & Warnings**



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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# 2.2. Configuring the Boot Mode

The ViewPAC has five operating modes that can be determined through a rotary switch.

	Rotary switch position	Modes of operation
	0	Normal mode (Default)
6780	1	Safe mode
ت في من ال	2	Debug mode
52	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 trouble shooting. The mode loads the minimum required device drivers and system services to boot the ViewPAC.

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

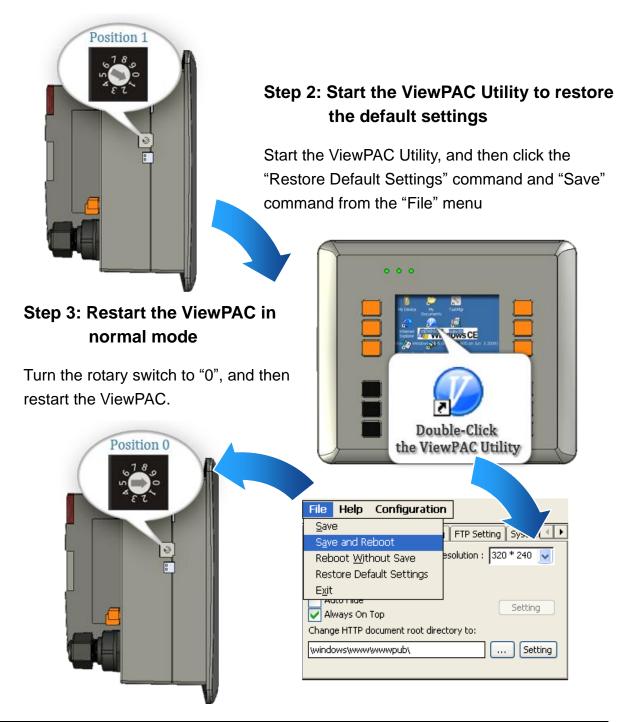
#### **Tips & Warnings**



n 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.



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#### **Debug Mode**

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

#### **OS Update Mode**

OS update mode is a way used to update OS. 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.

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#### **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.

# **2.3. Testing the ViewPAC**

#### VP-23W1:

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.

Image: Construction of the second	Audio Options: Play Audio Play Audio button is used to check the audio output. Buzzer Options: Play Buzzer Play Buzzer button is used to check the buzzer.
<ul> <li>LED Options:</li> <li>These buttons are used to check LEDs sign.</li> <li>KeyPAD Option:</li> <li>Checkboxes are used to check the KeyPAD.</li> <li>Text field is used to check the input format.</li> </ul>	VPAC Quick Test. ViewPACSDK V1.0.0.2       No.000         Play Audio       Play Buzzer         LED       Run       L1       L2       L3         F1       F2       F3       F4       F5       F6         1       2       3       .           4       5       6       Shift       <

#### **Tips & Warnings**

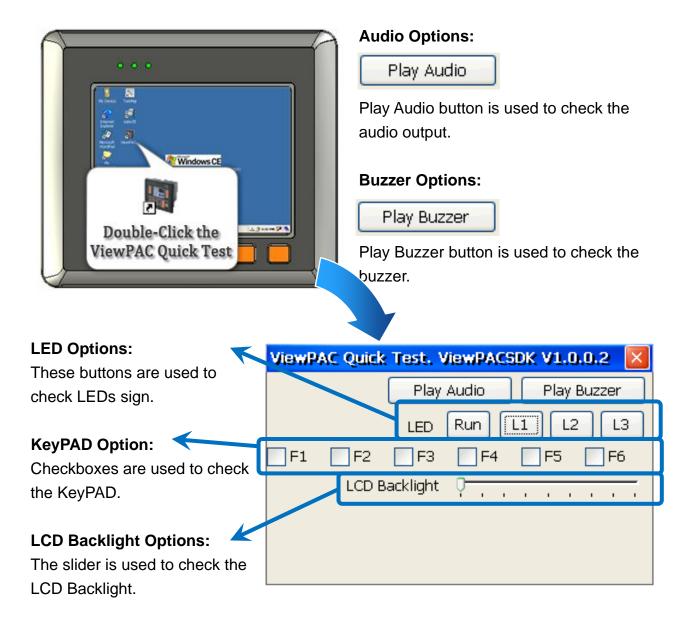


The shift key is a modifier key used to enter alternate upper letters or characters.

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#### VP-25W1:

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.

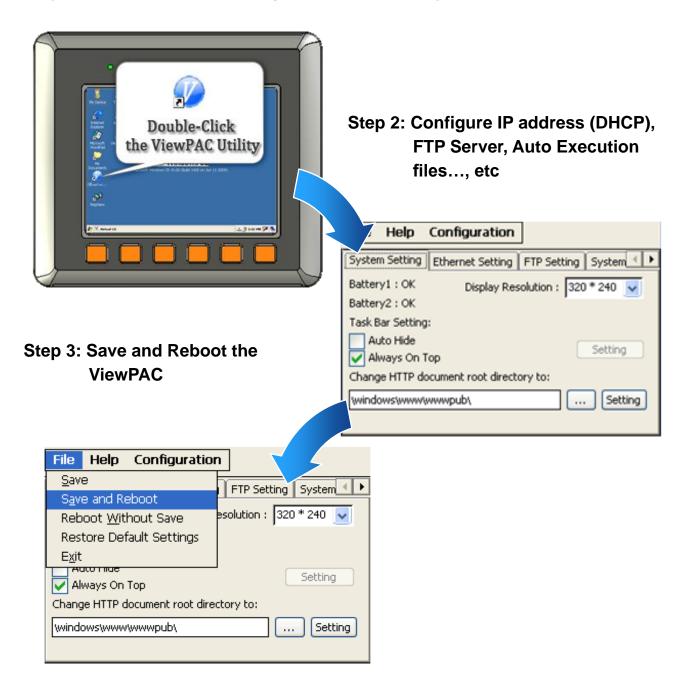


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### 2.4. Using ViewPAC Utility to manage the ViewPAC

The ViewPAC Utility is a toolkit used to quickly control and manage 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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## 2.5. Using DCON Utility to Configure the I/O Modules

DCON Utility is a tool kit used to quickly control and manage expansion I/O modules with DCON protocol.

# Constant of the boost of the bo

Step 1: Run the DCON firmware on the ViewPAC controller

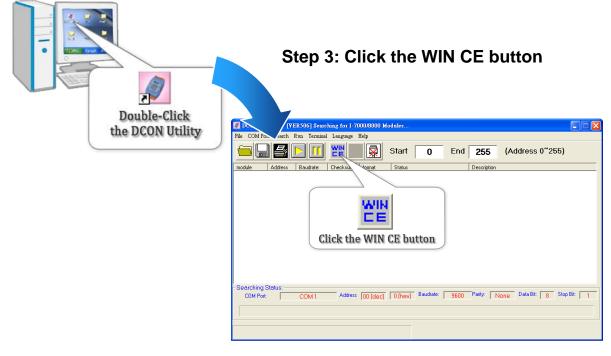
The DCON firmware is located at: \System\_Disk\tools\DCON\_CE\

#### Step 2: Run the DCON Utility on the host PC

The DCON Utility can be obtained from:

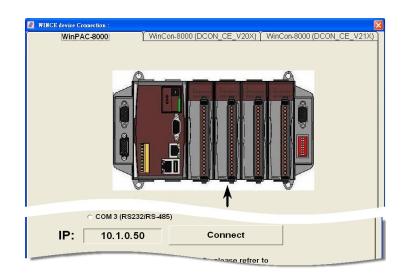
CD:\Napdos\vp-2000\_ce50\PC\_Tools\DCON\_Utility\

http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/pc\_tools/dcon\_utility/



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



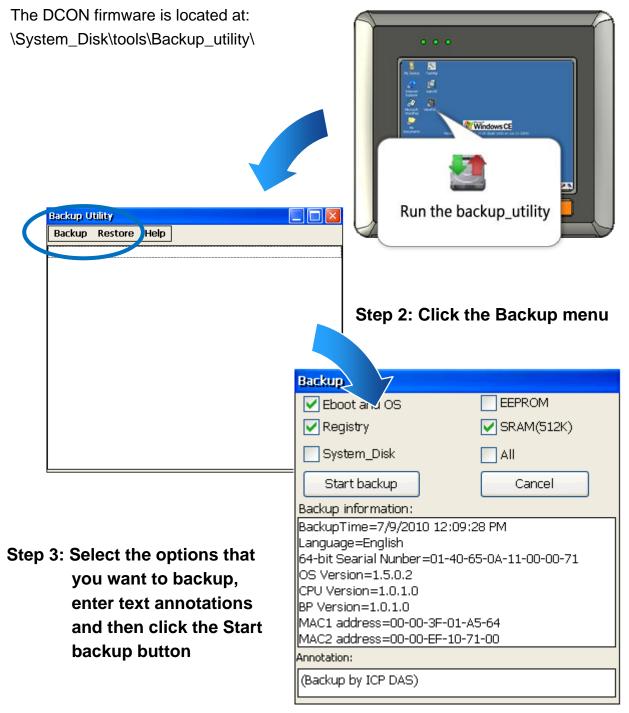
# Step 5: It will display a list of I-87K series expansion I/O modules, then select the module name that you want to configure

module	Address	Baudrate:	Checksum	format	Status	Description
WinCon8000	1[1]	115200	Disable	N,8,1		WinPAC8000 System(DCON)
XXXXX	SO	115200	Disable			[Parallel bus module] or [None]
XXXXX	S1	115200	Disable			[Parallel bus module] or [None]
XXXXX	S2	115200	Disable			[Parallel bus module] or [None]
XXXXX	S3	115200	Disable			[Parallel bus module] or [None]
XXXXX	S4	115200	Disable			[Parallel bus module] or [None]
XXXXX	S5	115200	Disable			[Parallel bus module] or [None]
XXXXX	S6	115200	Disable			[Parallel bus module] or [None]
XXXXX	S7	115200	Disable			[Parallel bus module] or [None]

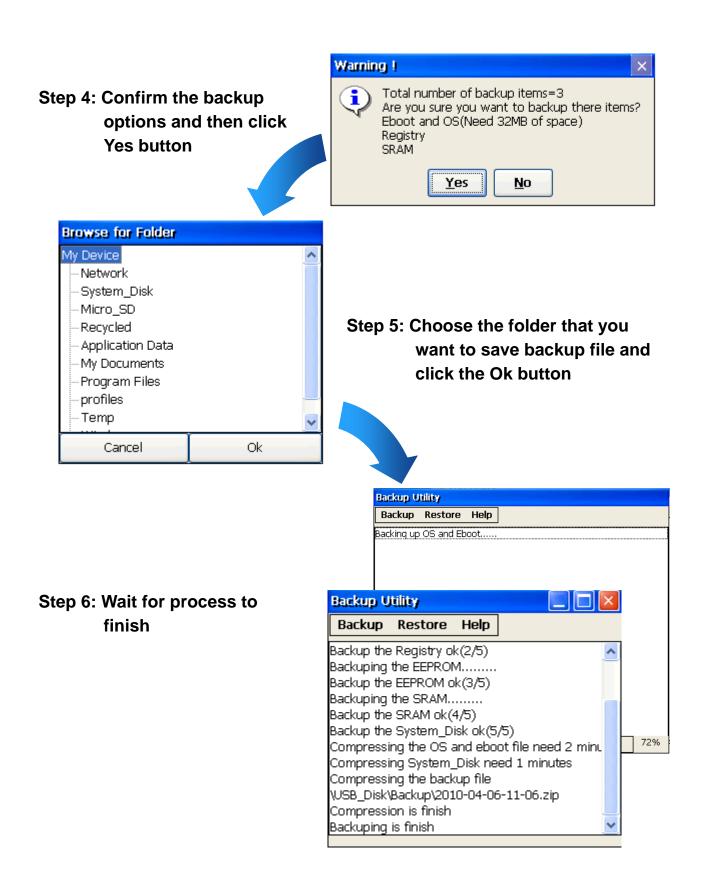
### 2.6. Using Backup Utility to back up the settings and files

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 data (settings and files).

#### Step 1: Run the Backup Utility on the ViewPAC



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# 2.7. A caution about using System\_Disk

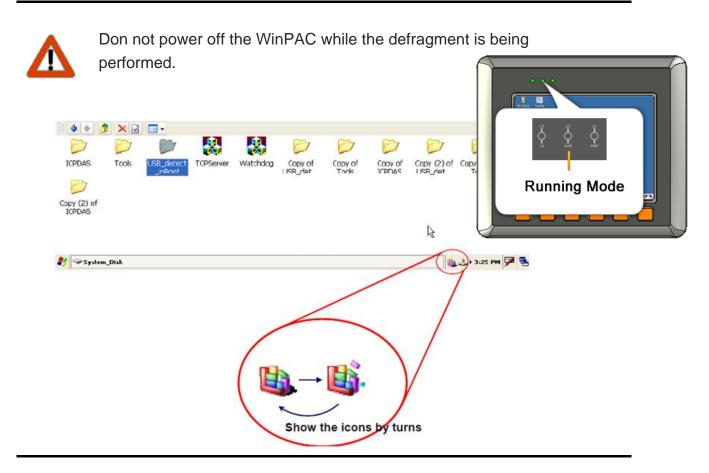
The System\_disk is an authoritative storage device, but is not suitable for frequent copying and deleting of files and is only suitable for storing important files that are not changed frequently.

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.

Note: Do not power off the WinPAC while the defragment is being performed.

#### **Tips & Warnings**

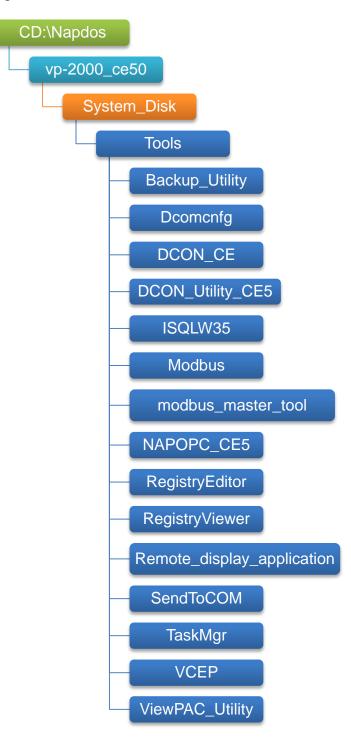


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# 3. Tools and Tasks

This chapter briefly describes the functions of the ViewPAC software toolkits.

Following tools has been installed on the ViewPAC.



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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 status of the DCON Utility.

#### • ISQLW35

The ISQLW35 implements SQL server compact 3.5 Query Analyzer.

#### Modbus

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

#### SendToCOM

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

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#### • TaskMgr

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

#### • VCEP

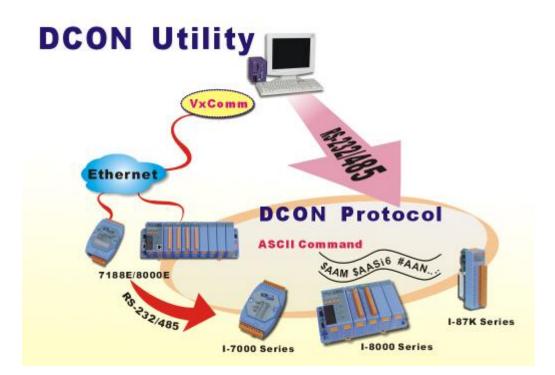
The VCEP allows user to manage the ViewPAC remotely on a Host PC. For more information about the VCEP, please refer to "3.4. VCEP (Virtual CE Pro)".

#### • 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".

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

# 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"

## 3.3. SendToCOM

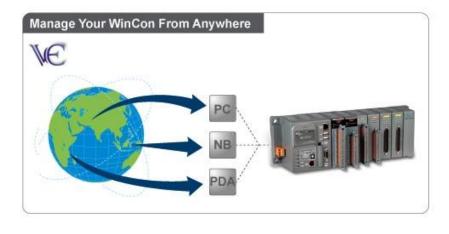
The SendToCOM uses the serial port to communicate with expansion module. To use the SendToCOM, you can send data to expansion module through the serial port, and receive data from other device through the serial port.

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         Data Bit         Parity         Stop Bit           COM Port         Baudrate         Data Bit         Parity         Stop Bit           COM1         I115200         8         0-None Pa         1         x	Slot Close
End string with  None  LF_CR  CR  CR_LF  LF Commands Current Packet Size (bytes) Current Packet Size (bytes)	string     +CRC       Binary () String     Send       Polling       Auto send Internal (ms)
Total Packet Bytes     0     Total Packet Bytes     0       Packet Quantity send     0     Packet Quantity received     0	Start Stop Set Start Time Stop Time Stop Time
	Clear

## 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 <a href="http://www.icpdas.com/products/PAC/wincon-8000/wincon\_VirtualCE.htm">http://www.icpdas.com/products/PAC/wincon-8000/wincon\_VirtualCE.htm</a>

## **3.5. ViewPAC Utility**

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

ViewPAC Utility [2.0.2.1]						
File Help Configuration						
System Setting Ethernet Setting Netw	vork Setting System Information Auto Execution Multi-serial					
ViewPAC ViewPAC ViewPAC	Welcome to use ViewPAC Utility This tool will help you to set ViewPAC. Display Resolution 540 * 480 V Setting					
Battery1 OK	Task Bar Setting: 🔄 Auto Hide 🛛 🖌 Always On Top					
Battery2 OK	Empty Desktop					
Change HTTP document root directory \	\windows\www\wwwpub to:					
\windows\www\wwwpub\	Setting					
Configure the synchronization with a tim	ne server Configure					

## 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			
<u>S</u> ave					
S <u>a</u> ve and Reboot					
Reboot <u>W</u> ithout Save					
Restore Default 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 Settings	Restarts the settings of ViewPAC to its factory
	default values.
	The settings include configuration setting, network
	setting, auto execution, etc.
Exit	Exits the ViewPAC Utility.

#### **Help Menu**

File Help Configuration

<u>R</u>eset System to Default Release <u>N</u>otes <u>A</u>bout

The menu commands	Use to
Reset System to Default	Resets the system interrupt status to 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.

#### **Configuration Menu**

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

The menu commands	Use to
Import Registry Key	Backs up a sub-key of registry by using a registration entry (.reg) file.
	How to use: Step 1: Select the "Import Registry Key", then the "Open" dialog box will appear Step 2: On the "Open" dialog box, select a specific .reg file to import
	Warning: 1. The .reg file which should be saved by "Export Registry Key". 2. It will not save automatically after import a .reg file.
Export Registry Key	Makes a back up 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 Setting	Stores all registry setting to flash from .das file which is saved by "Dump All Registry Setting".
Cetting	How to use:

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The menu commands	Use to
	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	Dump all registries setting to .das file.
Settings	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.

## 3.5.2. Property Tabs

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

ViewPAC Utility [2.0.2.1]						
File Help Configuration						
System Setting Ethernet Setting Netw	vork Setting System Information	Auto Execution	Multi-serial 📕 🕨			
	Welcome to use ViewF This tool will help you to set Vie Display Resolution 540 *	wPAC.				
ViewPAC Industrial Control Products Data Acquisition System		Setting				
Battery1 OK	Task Bar Setting: 📃 Auto Hide	🛃 Always On Top	)			
Battery2 OK	Empty Des	sktop				
Change HTTP document root directory \windows\www\wwwpub to:						
\windows\www\wwwpub\ Setting						
Configure the synchronization with a tim	ne server Configure					

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

#### **System Setting Tab**

The System tab provides functions to configure the task bar HTTP directory path.

/iewPAC Utility [2.0.2.1]						
File Help Configuration						
System Setting Ethernet Setting Netw	ork Setting   System Information   Auto Execution	Multi-serial 🔳	►			
	Welcome to use ViewPAC Utility This tool will help you to set ViewPAC. Display Resolution 540 * 480					
ViewPAC Industrial Control Products Data Acquisition System	Setting					
Batteryl OK	Task Bar Setting: 🦳 Auto Hide 🛛 🖌 Always On Top					
Battery2 OK	Empty Desktop					
Change HTTP document root directory \windows\www\wwwpub to:						
\windows\www\wwwpub\ Setting						
Configure the synchronization with a tim	e server Configure					

The tab use to	How to use
Adjust the size of the desktop	Select a display resolution from the
	Resolution list.
Lock or Auto-Hide the taskbar	Auto-Hide:
	Select the Auto Hide check box
	Lock:
	Select the Always On Top check box.
Check the status of the battery	See the Battery1 and Battery2 field that
	displays the battery status.
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 <b>Setting</b> button.

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#### **Ethernet Setting Tab**

The Ethernet Setting 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 [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Auto Execution	Multi-serial 💶 🕨
LAN1 MAC Address 1: 00-0D-E0-30-09-EC LAN 1 IP Address Setting:	
Use DHCP to get IP address	
O Assign IP address	
IP Address: 10.1.0.45	
Mask: 255.255.0.0	
Gateway: 10.1.0.254	
DNS Server: 10.0.0.3	
Enable 8135 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 <b>Setting</b> button.
	Manually assign an IP address:
	Select the Assign IP address option, and then press
	the <b>Setting</b> 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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#### 8135 tab

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

ViewPAC Utility [2.0.2.1]	E 🖪 💌
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Auto Execution	Multi-serial 💶 🕨
LAN1 8135	
Slot 1 🔽 Slot0:	
Installed driver: Slot1 Slot1: 8135	
MAC Address: Slot2:	
Use DHCP to get IP address	
O Assign IP address	
IP Address: 10.1.0.55	
Mask: 255.255.0.0	
Gateway:	
DNS Server: 10.0.0.3 Setting	
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 <b>Setting</b> button.
	Manually assign an IP address:
	Select the Assign IP address option, and then
	press the <b>Setting</b> button.

#### **Network Setting Tab**

The Network tab consists of two tabs, Access and Login, which provides functions to enable/disable the FTP access, enable/disable anonymous FTP access, configure the FTP directory path, change HTTP document root directory and maintain the FTP accounts.

ViewPAC Utility [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Auto Execution	Multi-serial 🔹 🕨
FTP Setting Users and Password	
FTP   Enable  Disable	
Allow Anonymous 💿 Enable 🔵 Disable	
Allow Anonymous 💿 Enable 🔘 Disable Upload	
Change FTP default download directory \Temp to:	
\Temp\	
Setting	

#### **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 [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Auto Execution	n Multi-serial 💶 🕨
FTP Setting Users and Password	
FTP   Enable  Disable	
Allow Anonymous 💿 Enable 🔵 Disable	
Allow Anonymous 💿 Enable 🔘 Disable Upload	
Change FTP default download directory \Temp to:	
\Temp\	
Setting	

The tab use to	How to use
Enable or disable	Enable: Select the Enable check box in the FTP field.
the 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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#### **Users and Password tab**

This tab provides functions to maintain the FTP accounts.

ViewPAC Utility [2.0.2.1]	
File Help Configuration	
System Setting Ethernet Setting Network Setting System Information Auto Execu	ution Multi-serial 💶 🕨
FTP Setting Users and Password	
User name Password	
admin **** Add Delete	
User name       Password       Note:         admin       ****       The accounts is used to login         Admin       ****       The servers search as Telnet,         Admin       ****       FTP, WebServer etc on WinPAC.         Setting	

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

#### **System Information Tab**

The System Information tab provides functions to monitor necessary system information of the ViewPAC-8000. The system information is the most important note of version control for upgrading system.

ViewPAC Utility	[2.0.2.1]	
File Help Config	guration	
System Setting Ether	net 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:		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

The Auto Execute tab provides functions to configure programs running at ViewPAC-8000 startup, it allows users to configure ten execute files at most.



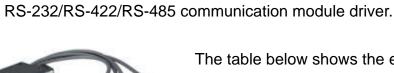
The allowed file types are .exe and .bat, and they are executed in order of program 1, program 2, etc.

ViewPAC Utility	[2.0.2.1]	Ð	$\times$
File Help Cont	figuration		
Auto Execution Mul	ti-serial port wizard Key property System Memory Setting		€
	Program 1: \System_Disk\SnmpUtility.exe	Browse	
	Program 2:	Browse	
	Program 3:	Browse	
	Program 4:	Browse	
	Program 5:	Browse	
At most 10 programs can be	Program 6:	Browse	
specified to execute	Program 7:	Browse	
automatically at	Program 8:	Browse	
system startup.	Program 9:	Browse	
	Program 10:	Browse	
	Setting		

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

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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 Multi-serial port provides functions for installation of the

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 [2.0.2.1]	📃 🗗 📃
File Help Configuration	
System Information Auto Execution	Multi-serial port wizard Key property System Memory Setting 💶 🕨
Slot 0: Slot 1: Slot 2:	Driver enabled
Slot 3:	
Slot 4:	
Slot 5:	
Slot 6:	Install driver (Apply to I-8112/8114/8142/8144 series modules )
Slot 7:	Step1: Set USE MSA/MSBx
Slot scan (Refresh)	Step2: Go to "File">"Save and Reboot" to enable driver

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#### **Key Property Tab**

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



The allowed file types are .exe and .bat.

ViewPAC Utility	[2.0.2.1]
File Help Conf	figuration
System Information	Auto Execution Multi-serial port wizard Key property System Memory Setting 💶 🕨
Assign your favorite programs to the program hardware keys.	F1:        Enable         F2:        Enable         F3:        Enable         F4:        Enable         F5:        Enable         F6:        Enable         F6:        Enable

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 <b>Enable</b> check box, and then		
launch the program	press the <b>Setting</b> button.		
Specify the	Select the F6 control backlight check box, and		
programmable key to	then press the <b>Setting</b> button.		
control backlight			

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#### **System Memory Tab**

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

ViewPAC Utility	[2.0.2.1]			
File Help Confi	guration			
Auto Execution Multi-	-serial port wizard 🛛 Key propert	y System Memory Set	ting	<b>١</b>
				_
	Move slider to the left for more programs. Move slider to the ri room. Only unused RAM can be	ght 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

# 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.

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## 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#

## 4.2. Installing ViewPAC SDKs

The ViewPAC 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 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\
- Step 3: Follow the prompts until the installation is complete

## 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 only supports NET Framework 2.0 or above.

#### > 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:**

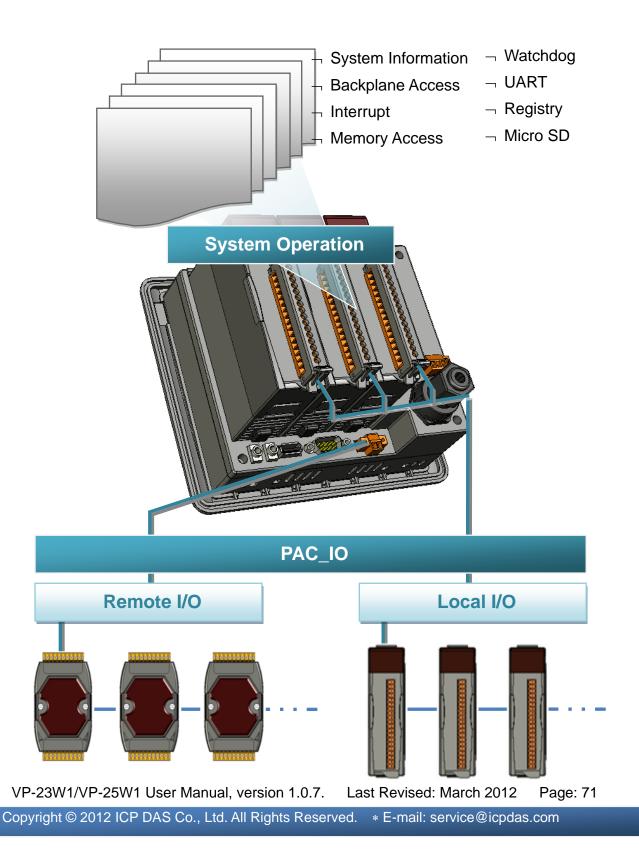
C:\Program Files\Windows CE Tools\wce500\PAC270\Icpdas\Include\ARMV4I\

#### Libraries:

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

## 4.3.1. ViewPAC SDK Overview

#### 4.3.1.1. WinPAC Standard API



#### • 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.

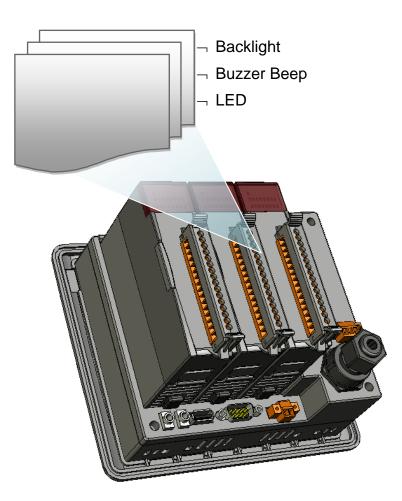
#### • PAC\_IO API

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.

### 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

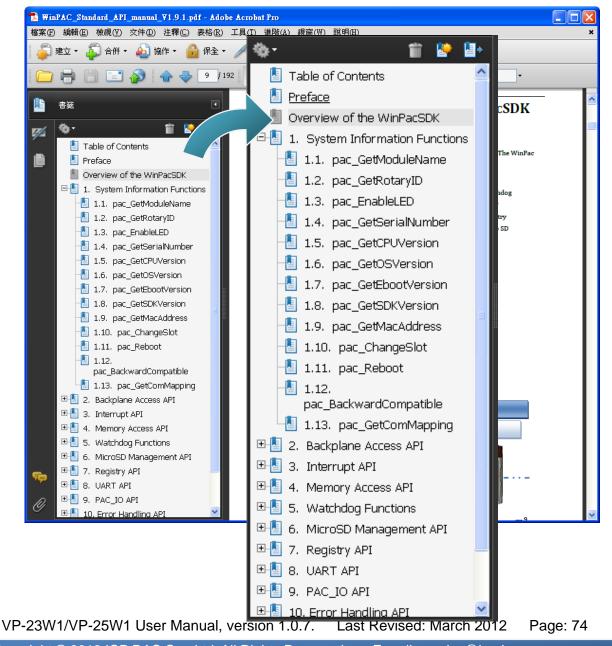
# 4.3.2. ViewPAC SDK Reference

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:

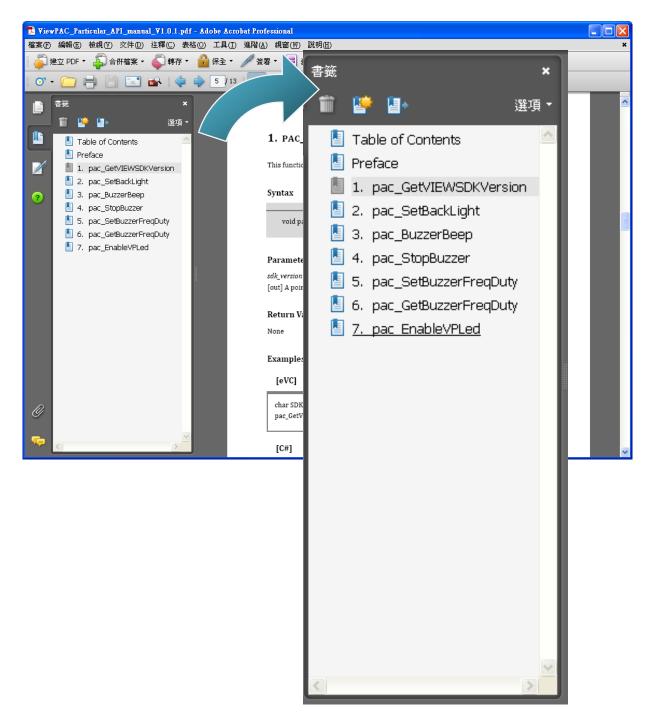
CD:\Napdos\vp-2000\_ce50\Document\SDK\_Document\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/document/sdk\_document/

### ✓ WinPAC Standard API Manual



## ✓ 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:

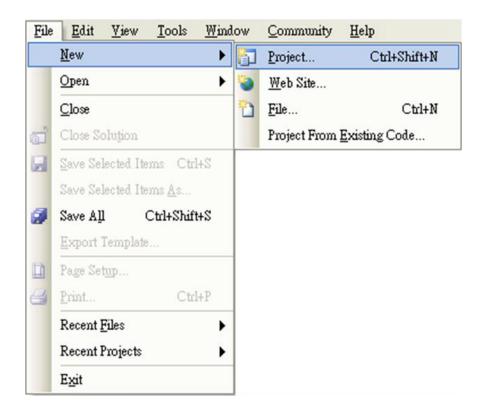
- 1. Create a new project
- 2. Add project reference for an application
- 3. Design and Build an application program
- 4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

## 4.4.1. Create a new project

#### Step 1: Start the Visual Studio 2005

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



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



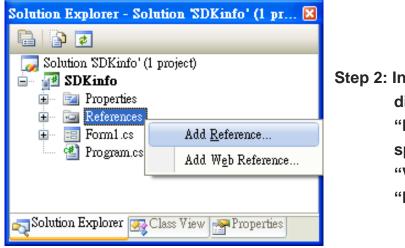
VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 77 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com

New Project			? 🛛
Project types:		Iemplates:	
Visual C#     Windows     Smart Device     Pocket PC 2003     Smartphone 2003     Windows CE 5.0     Database     Starter Kits     Other Languages     Other Project Types		Visual Studio installed templates         Device Application         Control Library         Empty Project         My Templates	
		Search Online Templates	
A project for creatin	VA NET Compart D	ramework 2.0 forms application for Windows CE 5.0 and later	
<u>N</u> ame:	SDKinfo		
Location:	C:\Documents and S	Settings/Windows CE Tools/C#	rowse
Solution:	Create new Solution	a Create directory for solution	
Solution Name:	SDKinfo		
		OK	Cancel

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

## 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



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

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/

Ĺ	NET Projec	ts Browse Recent	G Ø 10 10 10 10 10 10 10 10 10 10 10 10 10	<b>.</b>
			<u> </u>	·····
	🔊 View Pac N	et.dll		
	<u>N</u> ame:	ViewPacNet.dll		~
	<u>N</u> ame: <u>F</u> ile types:	ViewPacNet.dll Component Files (*.dll;*.tlb;*.olb;	;*.ocx;*.exe)	•
		ViewPacNet.dll		~

## 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

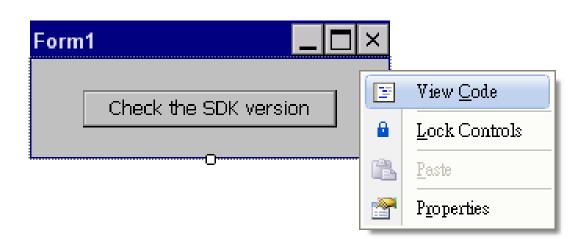
Form1.cs [Design]*	Sta	rt Page	Object E	Browser	<b>▼</b> X
Form1	8 8	_ 🗆	×		~
<u>ö</u> 0		View (	ode	)	
	٩,	Bring	to Front	1	
	23	Send to	o Back		
	俥	Align t	o <u>G</u> rid	1	
	8	Lock (	Controls		
		Select	Form1'	1	
	Ж	Cuţ		1	
	Ð	Сору			~
🛓 mainMenul	B	Paste			
	×	Delete			
	2	Proper	ties		

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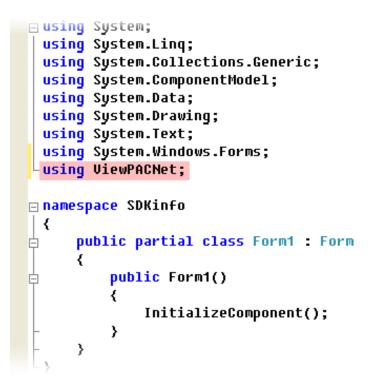
Step 3: On the "Properties" window, type "Check the SDK version" in the "Text" edit box

Рт	operties		×			
bı	<b>itton1</b> System. Windows.Form	s.Button	-			
	12↓ 🔲 🖋 I 🖻					
Ξ	Appearance		^			
	BackColor	Control				
Ð	Font	Tahoma, 10pt				
	ForeColor	ControlText				
	Text	Check the SDK version 🗸				
Ξ	Behavior		~			
	<b>Text</b> The text contained in the control.					
•	Solution Explorer 🔗 Class V	iew Properties				

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



VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 81 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com Step 5: Insert the "using ViewPACNet;" into the header area after "using System.Windows.Forms;"

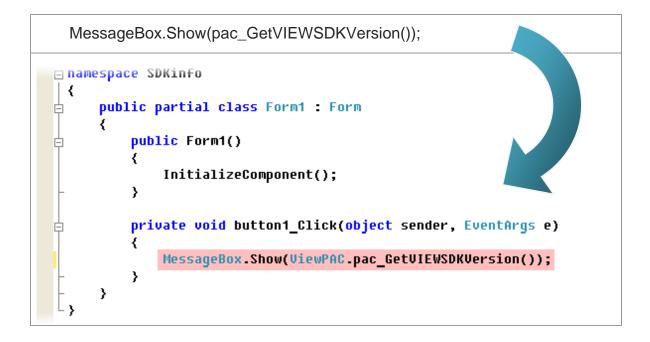


Step 6: In the "Form1" dialog box, double-click the "button" object to open the editor window



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### Step 7: Insert the following code in the Editor Window



## **4.4.4. Execute the application on the ViewPAC**

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

File	Edit	<u>V</u> iew	<u>R</u> efactor	Project	Bui	d <u>D</u> ebug	Data	Tools	Window	Community	<u>H</u> elp
					**	<u>B</u> uild Solut	ion	F6			
						<u>R</u> ebuild So	lution				
						Deploy Sol	ution				
						<u>C</u> lean Solut	ion				
					-	Build system	ninfo 🖇	Shift+F6			
						Rebuild sys	teminfo				
						De <u>p</u> loy syst	eminfo				
						Clea <u>n</u> syste	minfo				
						Batch Build	l				
						Configurat	on Mana	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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## **Tips & Warnings**



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:

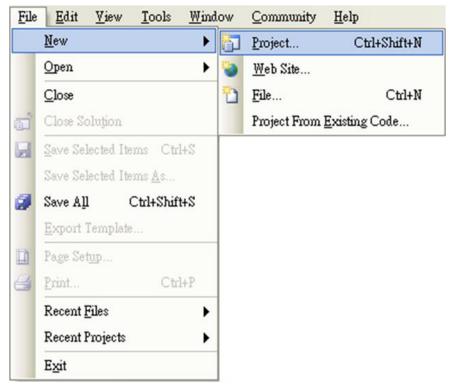
- 1. Create a new project
- 2. Add project reference for an application
- 3. Design and Build an application program
- 4. Execute the application on the ViewPAC

All main steps will be described in the following subsection.

## 4.5.1. Create a new project

#### Step 1: Start the Visual Studio 2005

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



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





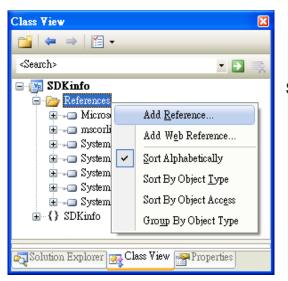
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New Project			2
Project types:		Templates:	
Visual C#     Windows     Windows     Smart Device     Database     Starter Kits     Other Languages     Visual Basic     Window		Visual Studio installed templates         Device Application         Control Library         Empty Project         My Templates	
- Sma	tet PC 2003 rtphone 2003 dows CE 5.0	Search Online Templates	
A project for creating	a NET Compact Pr	answork 2.0 forms application for Windows CE 5.0 and later	
Name:	SDKinfo		
Location:	C:\Documents and S	lettings/Windows CE Tools/C#	owse
Solution:	Create new Solution	Create directory for solution	
Solution Name:	SDKinfo		
		ОКС	ancel

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

## 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" file in the "File name" field

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

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

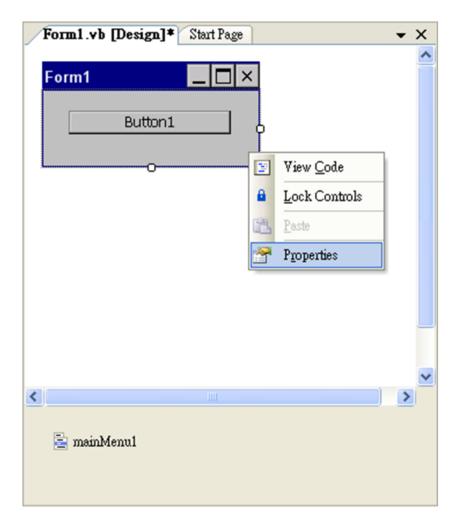
http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/sdk/ViewPACnet/

Add Reference			? >
.NET Projec	ts Browse Recent		
Location: 🥑	🗃 ViewPacNet	🔽 😋 🤣 🔛	•
🔊 ViewPacN	et.dll		
<u>N</u> ame:	ViewPacNet.dll		~
<u>N</u> ame: <u>F</u> ile types:	ViewPacNet.dll Component Files (*.dll;*.tlb;*.olb;	;*.ocx;*.exe)	~
		;*.ocx;*.exe)	
		;*.ocx;*.exe) OK	

## 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



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

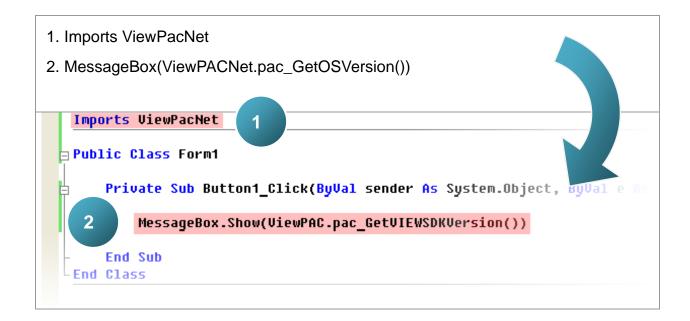
Properties						
bı	<b>itton1</b> System.Windows.Form	s.Button	•			
Θ	Appearance		^			
	BackColor	Control				
Ð	Font	Tahoma, 10pt				
	ForeColor	ControlText				
	Text	Check the SDK version 🗸				
⊡	Behavior		~			
	<b>Text</b> The text contained in the control.					
2	Solution Explorer 🕵 Class V	iew Properties				

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



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### Step 5: Insert the following code in the Editor Window



# **4.5.4. Execute the application on the ViewPAC**

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

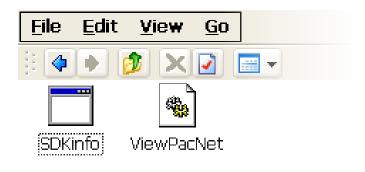
File	Edit	<u>V</u> iew	<u>R</u> efactor	Project	Bui	ld <u>D</u> ebu	g D <u>a</u> ta	<u>T</u> ools	Window	Community	Help
					凿	<u>B</u> uild Sol	ation	F6			
						<u>R</u> ebuild S	olution				
						Deploy Se	lution				
						<u>C</u> lean Sol	ution				
						B <u>u</u> ild syst	eminfo	Shift+F6			
						R <u>e</u> build s	ysteminfo				
						De <u>p</u> loy sy	steminfo				
						Clea <u>n</u> sys	eminfo				
						Batch Bu	ld				
						Configura	tion Mana	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

## **Tips & Warnings**



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.

# 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

File Edit View	Insert Project Build Tools Window Help	
<u>N</u> ew C	ttl+N	
🗃 Open C	ttHO	
Close	New	? 🛛
Open <u>W</u> orksp	Files Projects Workspaces	
Saye Worksp	SWCE Application	Project <u>n</u> ame:
Close Wor <u>k</u> sp		
Save (	WCE MFC ActiveX ControlWizard	Lo <u>c</u> ation:
Save As	WCE MFC AppWizard (exe)	C:\WINDOWS CE TOOLS\C#\
Save All	WCE Static Library	Create new workspace
Ma pave trit		Add to current workspace
Page Setup		Dependency of:
🖨 Print (		
Recent <u>F</u> iles		C <u>P</u> Us:
Recent Wo <u>r</u> ks		Win32 (WCE ARMV4)  Win32 (WCE ARMV4)
Exit		□Win32 (WCE ARMV4T)
5 <u>M</u>		□Win32 (WCE MIPS16) Win32 (WCE MIPSII)
		Win32 (WCE MIPSII_FP)
		OK Cancel

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

Files Projects Workspaces	
WCE Application     WCE ATL COM AppWizard     WCE Dynamic-Link Library     WCE MFC ActiveX ControlWizard     WCE MFC AppWizard (un)	Logation:
WCE MFC AppWizard (exe)	<ul> <li>Create new workspace</li> <li>Add to current workspace</li> <li>Dependency of:</li> </ul>
	CPUs: Win32 (WCE ARMV4) Win32 (WCE ARMV4I) Win32 (WCE ARMV4T) Win32 (WCE MIPS16) WWin32 (WCE MIPS11) WWin32 (WCE MIPS11_FP)

### **Tips & Warnings**



The selected CPU type must have "Win32 [WCE ARMV4I]"

Win32 (WCE ARMV4)	~
✓Win32 (WCE ARMV4I)	
□Win32 (WCE ARMV4T)	
□Win32 (WCE MIPS16)	_
Win32 (WCE MIPSII)	
Win32 (WCE MIPSII FP)	~

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

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			? 🛛
Application		create? ○ <u>S</u> ingle ⓒ <u>D</u> ialog ☑ Docum		re support?
	< <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) - St	ep 2 of 4			? 🛛
Application OK 2		What features	H <u>e</u> lp	include?
		Please enter a SDKinfo Help conten	a <u>title for your dialo</u> ts file: SDKinfo.h	
	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Cancel

VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 98 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com Step 7: On the next page of the wizard, leave all the options as they are, and then click the "Next" button to the next step

WCE MFC AppWizard (exe)	- Step 3 of 4			? 🛛
File Edit Yiew Jasert Build Help         Project         Project	ženi l	⊙ <u>Yes, pl</u> ⊙ No, <u>t</u> ha How would y ⊙ As a sh	ease nk you rou 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 the you: <u>CSDKinfoApp</u> CSDKinfoDlg	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> in	ish Cancel

VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 99 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com 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_FP) Win32 (WCE SH4) 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	

## **4.6.2.** Configure compiler options

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

Ele Edit Yiev Inset Project Build Tools Window Help         Image: Standard Stand	👷 SDKinfo - Microsoft eMbedded Visual C++	
CSDKinfoApp  (All class members) CSDKinfoApp ) SDKinfo SDKinfo SDKinfo CSDKinfo Classes (Win32 (WCE ARMV4I) Release (Win32 (WCE Cenulator) Release (Win32 (WCE MIPSII) Release (Win32 (WCE MIPSII) Release (Win32 (WCE MIPSII) Release (Win32 (WCE MIPSIV) Release (Win32 (WCE SH4) Release (Win32 (WCE SH4) Release (Win32 (WCE x86) Release (WIN32 (WCE X	Eile Edit View Insert Project Build Tools Window Help	
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Ready	Win32 (WCE ARMV4I) Release         Win32 (WCE emulator) Debug         Win32 (WCE emulator) Release         Win32 (WCE MIPSII) Debug         Win32 (WCE MIPSII) Debug         Win32 (WCE MIPSII) FP] Debug         Win32 (WCE MIPSII, FP] Debug         Win32 (WCE MIPSIV) Debug         Win32 (WCE MIPSIV, FP] Debug         Win32 (WCE SH4) Debug         Win32 (WCE x86) Debug         Win32 (WCE x86) Release         Win32 (WCE x86) Release	

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## 4.6.3. Specify the path for project reference

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

🖹 File	<u>E</u> dit	<u> </u> view	Insert	<u>P</u> roject	<u>B</u> uild	Tools	<u>W</u> indow	<u>H</u> elp	
						So	urce Bro <u>w</u>	ser	Alt+F12
						Cl	os <u>e</u> Source	Browser File	
						💦 En	ror Loo <u>k</u> uj	p	
						🎤 Re	mote C <u>a</u> ll	Profiler (WCB	(500)
						💦 Re	mote <u>F</u> ile '	Viewer (WCE	500)
						🥕 Re	mote <u>H</u> eap	) Walker (WC	E500)
								iel <u>T</u> racker (W	
						_			tor (WCE500)
							_	ess Viewer (W	
						_	-	istry Editor (W	CE500)
						-		++ (WCE500)	
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						S <u>e</u> l	lect Remot	te Tools	•
						<u>C</u> u	istomize		
						Op	tions		
						<u>M</u> a	acro		
						<u>R</u> e	cord Quicl	k Macro	Ctrl+Shift+R
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						Co	onfi <u>gu</u> re Pl	atform Manag	er

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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

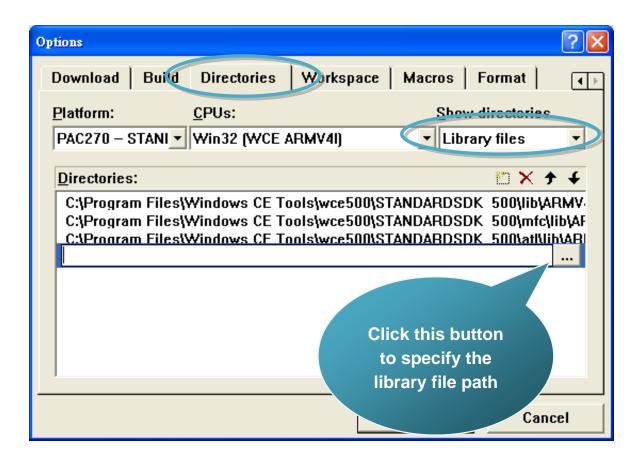
Options		? 🛛
Download Bo	ld Directories Yor	kspace   Macros   Format   🕕
<u>P</u> latform:	<u>C</u> PUs:	Show directories
PAC270 - STAN	Win32 (WCE ARMV4	l) 💽 Include files 🔹
Directories:		🖄 🗙 🕈 🗲
C:\Program File	es\Windows CE Tools\wo	ce500\STANDARDSDK 500\Include\A ce500\STANDARDSDK 500\mfc\includ ce500\STANDARDSDK 500\atl\includ 
		Click this button to specify the header file 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/

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/



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 A 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

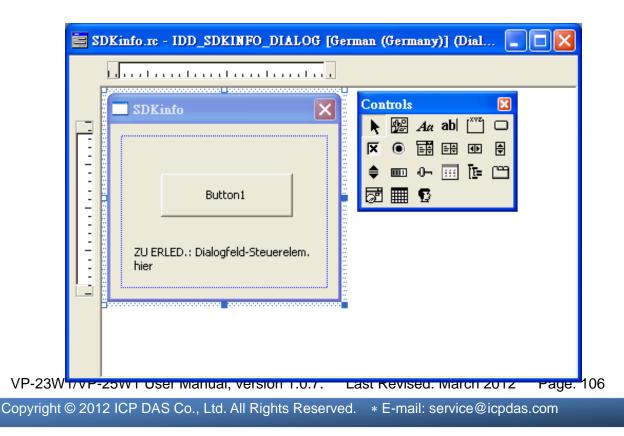
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## 4.6.4. Design and Build an application program

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



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

ie s	DKinfo.rc - IDD_SDKINFO_DI	ALOG [German (Germany)] (	Dial 🔳 🗖 🔀
	Button1	Ba Copv	
		Size to Content Size to Content Class Mign Left Edges Check Mnemonics Class Mizard Events Properties	

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

1	Push But	tton Propertie:	3			X
	-⊨ ?	General	Styles Exte	ended Styles		
	<u>I</u> D:	IDC_BUTTO	DN1	• <u>Caption</u>	Check the SDK version	
	🖂 Vi	<u>s</u> ible	🗆 <u>G</u> roup			T
	🗆 Di	s <u>a</u> bled	☑ Ta <u>b</u> stop			

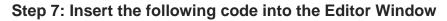
VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 107 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com Step 5: In the "SDKinfo" dialog box, double-Click the button object



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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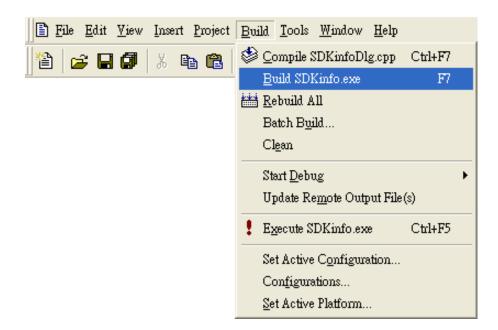


Step 8: Insert the "#include "Viewpacsdk.h" and #include "winpacsdk.h"" into the header area

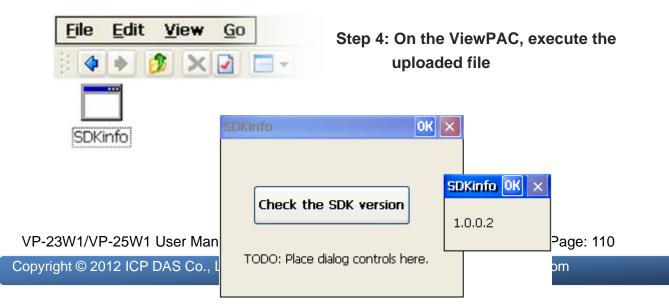
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# 4.6.5. Execute the application program on ViewPAC

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



# 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.

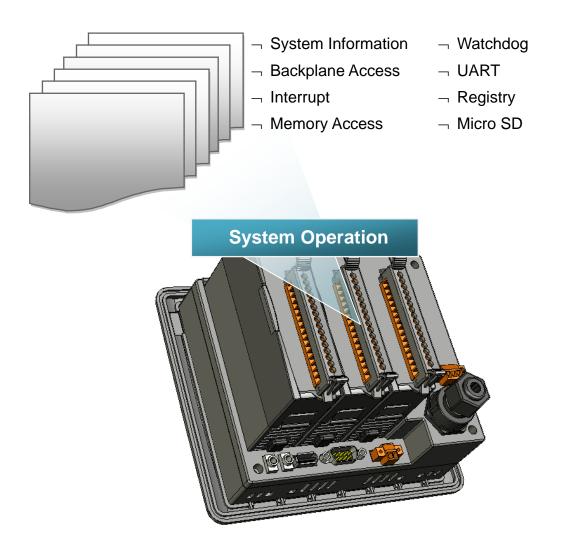
# 5.1. Demo programs with C#

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

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## 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.



Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.

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Folder	Demo	Explanation
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

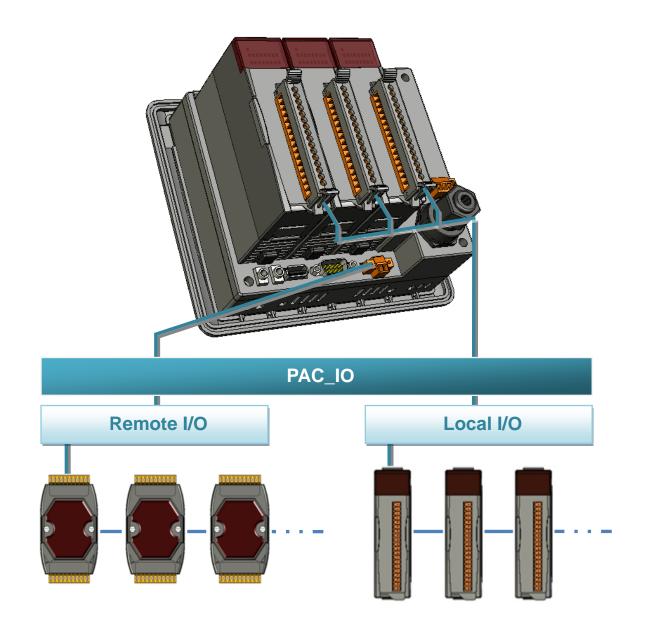
For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-8x4x\_ce50\Demo\WinPAC\DotNET\C#.NET\Standard\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x\_ce50/demo/winpac/dotnet/c%23.</u> <u>net/standard/</u>

## 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.



Folder	Demo	Explanation
Local	find_io	Shows how to retrieve the module names and types
		which plugged in the ViewPAC.

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Folder	Demo	Explanation
		Shows how to read the DI values of DI module.
	8k_di	This demo program is used by 8K series DI modules.
	8k_do	Shows how to write the DO values to DO module.
	ok_uu	This demo program is used by 8K series DO modules.
		Shows how to read the DI and the DO values of the
	8k_dio	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.
		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.
	071	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
	orn_do	modules.
		Shows how to read the DI and the DO values of the
		DIO module.
	87k_dio	This demo program is used by 87K series DIO
		modules.
		Shows how to send/receive a command/response
	7k87k_basic	application.
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
Remote		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.
	7k87k_ao	Shows how to write the AO values to AO module.
		This demo program is used by 7K or 87K series

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Folder	Demo	Explanation
		AI modules which connected through a COM port.
		Shows how to read the DI values of DI module.
	7k87k_di	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to write the DO values to DO module.
	7k87k_do	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to read the DI and the DO values of the
		DIO module.
	7k87k_dio	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.

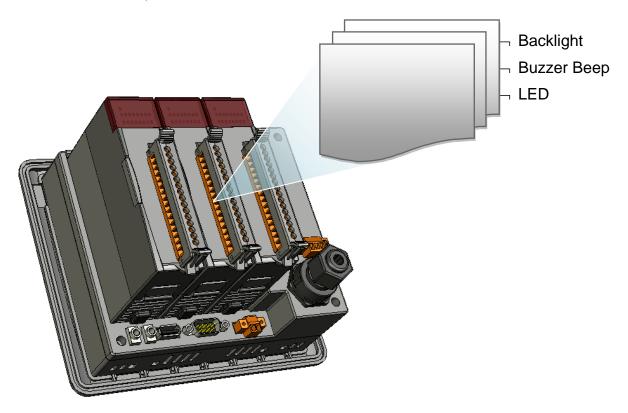
For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-8x4x\_ce50\Demo\WinPAC\DotNET\C#.NET\PAC\_IO\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x\_ce50/demo/winpac/dotnet/c%23.</u> <u>net/pac\_io/</u>

## 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.



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

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

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ftp://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/demo/viewpac/dotnet/c%2
3.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.



Folder	Demo	Explanation
system	systeminfo	Retrieves information about the OS version, CPU version, SDK version, etc.
backplane	backplaneinfo	Retrieves information about the DIP

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Folder	Demo	Explanation
		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

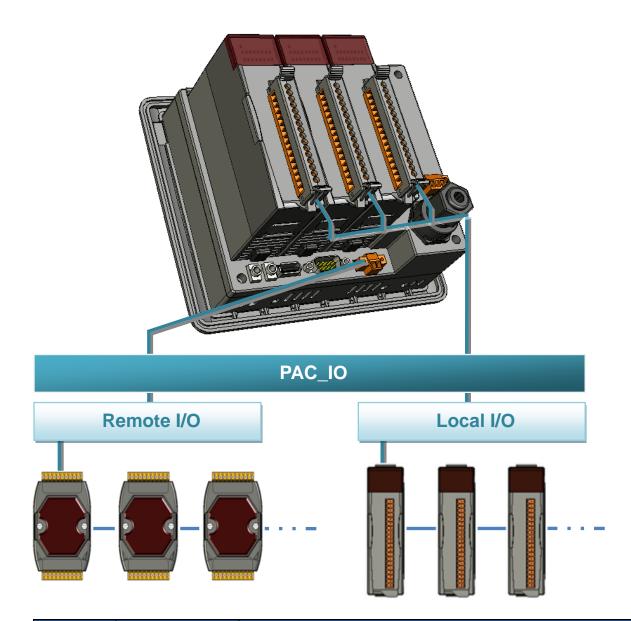
For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-8x4x\_ce50\Demo\WinPAC\DotNET\C#.NET\Standard\

<u>ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x\_ce50/demo/winpac/dotnet/c%23.</u> <u>net/standard/</u>

## 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.



Folder	Demo	Explanation	
	find io	Shows how to retrieve the module names and types	
Level		which plugged in the ViewPAC.	
Local		Shows how to read the DI values of DI module.	
OK_	8k_di	This demo program is used by 8K series DI modules.	

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Folder	Demo	Explanation
		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 the
		DIO module.
	8k_dio	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.
		This demo program is used by 87K series modules.
	87k_ai	Shows how to read the AI values of AI module.
	07 K_ai	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.
	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 the
	87k_dio	DIO module.
		This demo program is used by 87K series DIO
		modules.
	7k87k_basic	Shows how to send/receive a command/response application.
		This demo program is used by 7K or 87K series
		Al modules which connected through a COM port.
		Shows how to read the AI values of AI module.
Remote	7k87k_ai	This demo program is used by 7K or 87K series
Remote		Al 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
		Al modules which connected through a COM port.
	7k87k_di	Shows how to read the DI values of DI module.

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Folder	Demo	Explanation
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to write the DO values to DO module.
	7k87k_do	This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.
		Shows how to read the DI and the DO values of the
	7k87k_dio	DIO module.
		This demo program is used by 7K or 87K series
		AI modules which connected through a COM port.

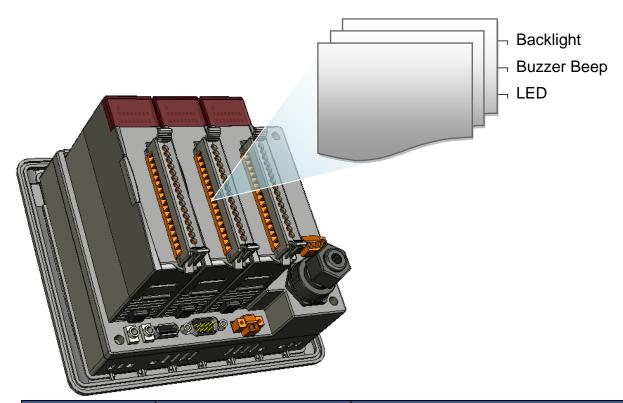
For C# application, these demo programs can be obtained from:

CD:\Napdos\wp-8x4x\_ce50\Demo\WinPAC\DotNET\C#.NET\PAC\_IO\

ftp://ftp.icpdas.com/pub/cd/winpac/napdos/wp-8x4x\_ce50/demo/winpac/dotnet/c%23. net/pac\_io/

## 5.2.3. eVC 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.



Folder	Demo	Explanation
BuzzerBeep	BuzzerBeep	Shows how to make a simple buzzer beep.
KeyPad	KeyPad	Shows how the KeyPad operate.
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%2
3.net/

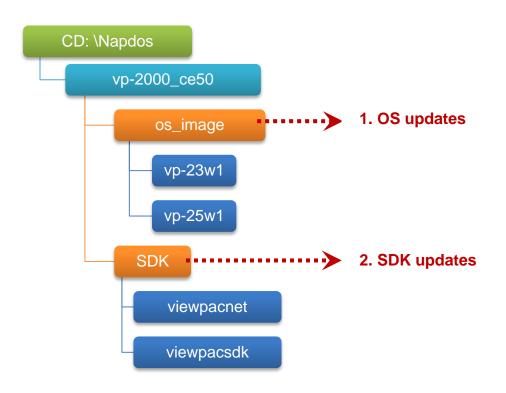
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# 6. ViewPAC Updates

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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# 6.1. OS updates

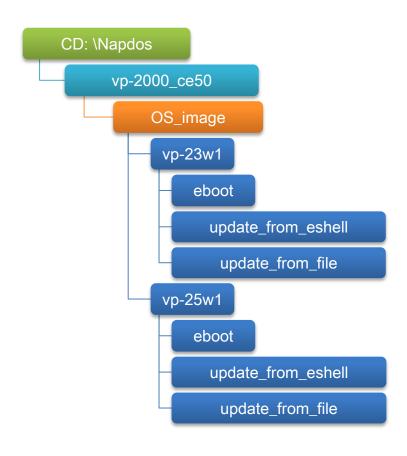
The updates files of OS image are located on:

VP-23W1:

CD:\Napdos\vp-2000\_ce50\OS\_image\vp-23w1\

VP-25W1:

CD:\Napdos\vp-2000\_ce50\OS\_image\vp-25w1\



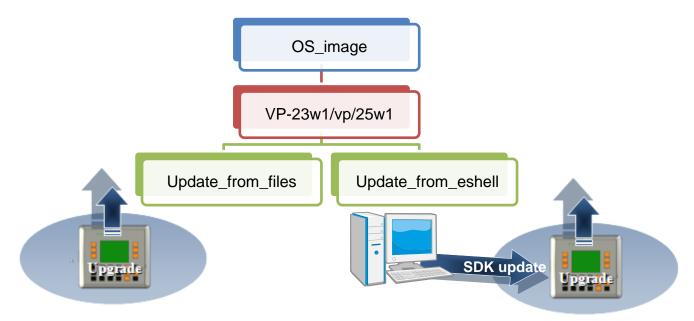
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There are two different ways of ViewPAC OS image updates:

i. ViewPAC OS updates from file

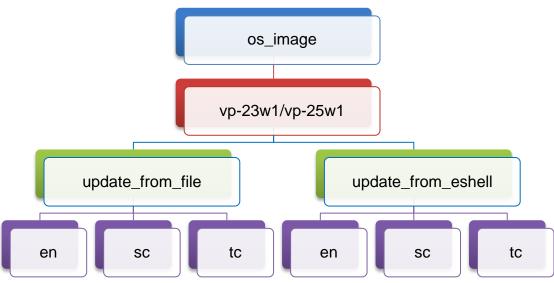
(We recommend that you use this method for quick and easy to update ViewPAC OS image)

ii. ViewPAC OS updates from eshell



The ViewPAC OS supports multi-language:

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



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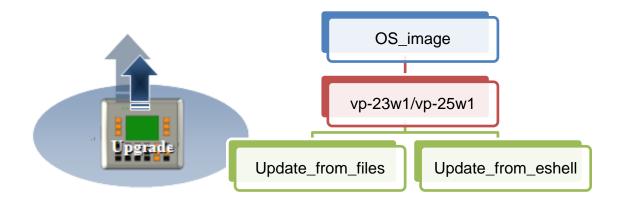
#### 6.1.1. Updating the Boot Loader and the ViewPAC OS image from files

There are two different ways of ViewPAC OS image update:

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

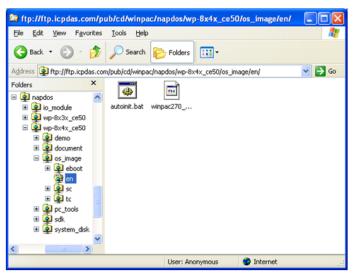
We recommend that you use this method for quick and easy to update the ViewPAC OS image

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.

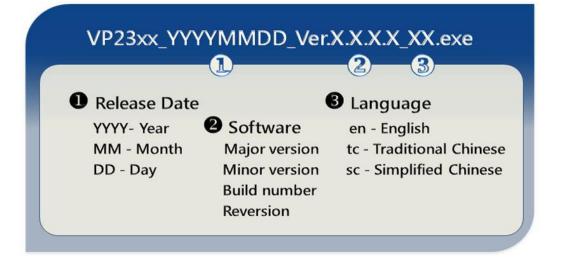


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# Step 2: Get the latest version of the installation package and download it to ViewPAC, then execute it

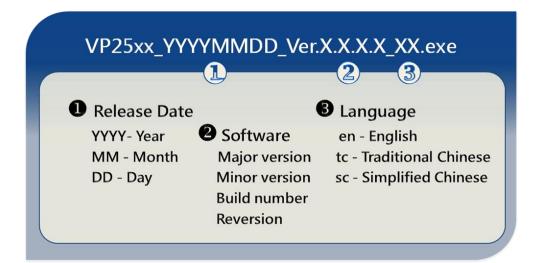
#### For VP23W1:

The latest version of the installation package can be obtained from: CD:\Napdos\vp-2000\_ce50\os\_image\vp-23w1\update\_from\_file\ <u>http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/os\_image/vp-23w1/updat</u> <u>e\_from\_file/</u>



#### For VP25W1:

The latest version of the installation package can be obtained from: CD:\Napdos\vp-2000\_ce50\os\_image\vp-25w1\update\_from\_file\ <u>http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/os\_image/vp-25w1/updat</u> <u>e\_from\_file/</u>



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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:

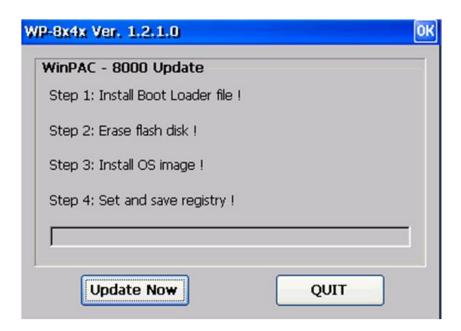
CD:\Napdos\wp-8x4x\_ce50\OS\_image\update\_from\_file\

http://www.icpdas.com/products/PAC/ViewPAC/download/ViewPAC\_8000/download \_os\_images.htm

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

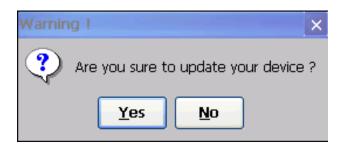


Step 4: On the main dialog, click the "Update Now" button



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



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

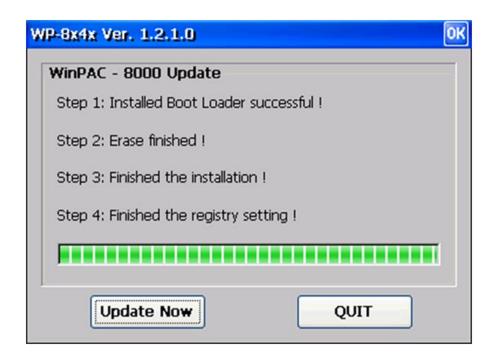
WP-8x4x Ver	1.2.1.0		OK
	<b>:000 Update</b> tall Boot Loader file	1	
Step 2: Era	se flash disk !		
Step 3: Inst	tall OS image !		
Step 4: Set	and save registry !	l	
	ate Now	QUI	T

#### **Tips & Warnings**



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

The installation will perform the following tasks:



#### 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

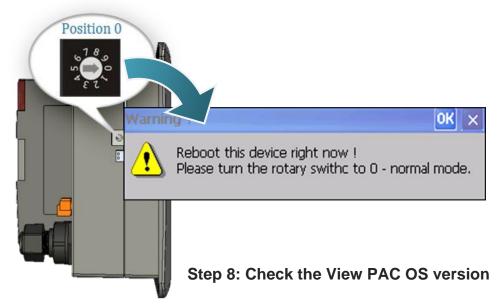
- iii. Install OS image
- iv. Set registry settings to default

#### **Tips & Warnings**



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

VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 134 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com 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



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

ViewPAC Utility [2	.0.0.8]	
File Help Confi		
System Setting Et	hernet Setting FTP Setting System	m Information Auto Execution Multi-serial por
		12 C
Slot 0:	Module Type:	VP-25xx (96MB)
Slot 0:	Module Type: Serial Number:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34
Slot 1:		
Slot 1:	Serial Number:	01-E8-05-81-12-00-00-34
Slot 1:	OS Version:	01-E8-05-81-12-00-00-34
Slot 1:	Serial Number: OS Version: Eboot Version:	01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39
Slot 1: Slot 2: Slot 3:	Serial Number: OS Version: Eboot Version: Backplane Version:	01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39 1.0.4.0
Slot 1: Slot 2: Slot 3: Slot 4:	Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version:	01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39 1.0.4.0 1.0.32.0
Slot 1: Slot 2: Slot 3: Slot 4: Slot 5: Slot 6:	Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version: WinPacSDK Version:	01-E8-05-81-12-00-00-34 1.0.0.6, 2009/01/03 11:44:44 1.0.0.2, 2009/02/11 13:19:39 1.0.4.0 1.0.32.0 1.0.8.6
Slot 1: Slot 2: Slot 3: Slot 4: Slot 5:	Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version: WinPacSDK Version: WinPacNet Version:	01-E8-05-81-12-00-00-34 1.0.0.6, 2009/01/03 11:44:44 1.0.0.2, 2009/02/11 13:19:39 1.0.4.0 1.0.32.0 1.0.8.6 1.2.0.6
Slot 1: Slot 2: Slot 3: Slot 4: Slot 5: Slot 6:	Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version: WinPacSDK Version: WinPacNet Version: .NET Framework Version:	01-E8-05-81-12-00-00-34 1.0.0.6, 2009/01/03 11:44:44 1.0.0.2, 2009/02/11 13:19:39 1.0.4.0 1.0.32.0 1.0.8.6 1.2.0.6 2.0.7045.00

VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 135

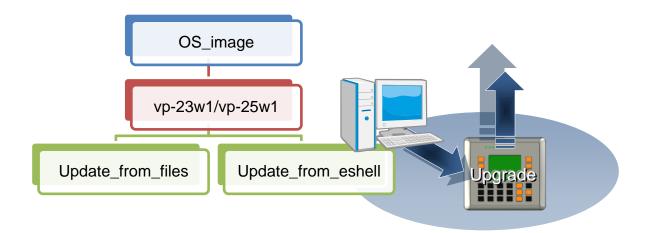
# 6.1.2. Updating the ViewPAC OS image from eshell

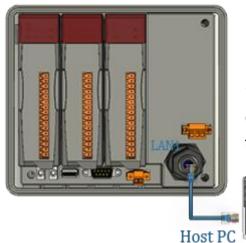
There are two different ways of ViewPAC OS image update:

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.

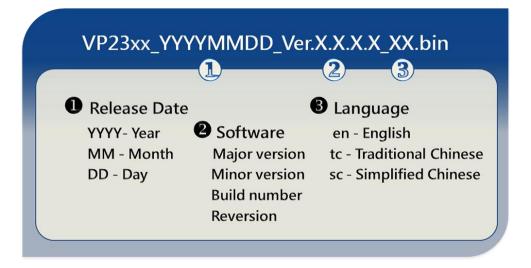
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#### Step 1: Get the latest version of the ViewPAC OS image

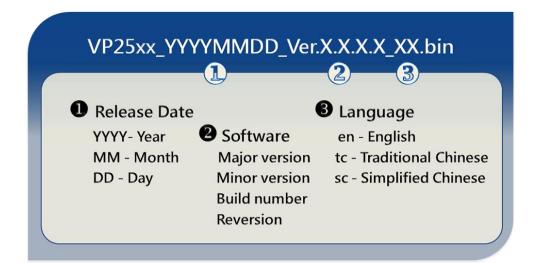
#### For VP23W1:

The latest version of the installation package can be obtained from: CD:\Napdos\vp-2000\_ce50\os\_image\vp-23w1\update\_from\_Eshell\ <u>http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/os\_image/vp-23w1/updat</u> <u>e\_from\_Eshell/</u>



#### For VP25W1:

The latest version of the installation package can be obtained from: CD:\Napdos\vp-2000\_ce50\os\_image\vp-25w1\update\_from\_Eshell\ <u>http://ftp.icpdas.com/pub/cd/winpac/napdos/vp-2000\_ce50/os\_image/vp-25w1/updat</u> e\_from\_Eshell/



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#### Step 2: Run the ESHELL software on the Host PC



ESHELL you can be obtained at:

CD:\Napdos\wp-8x4x\_ce50\PC\_Tools\Eshell\ <u>ftp://ftp.icpdas.com/pub/cd/ViewPAC/napdos/wp-8x4x\_ce50/pc\_tools/eshell/</u>

#### Step 3: Reboot the ViewPAC at update OS mode

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

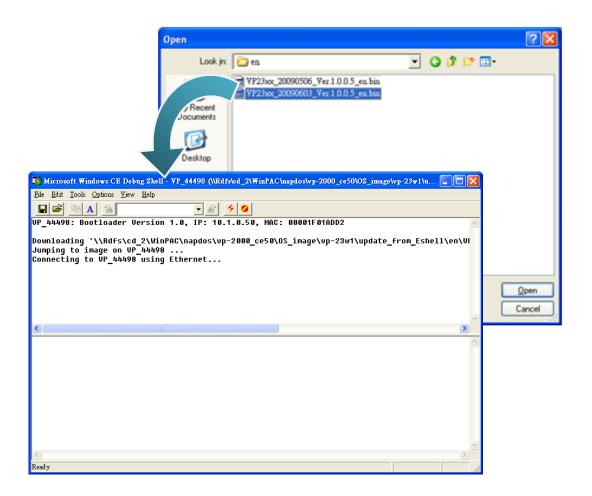


#### Step 4: Select the device which you want to update the OS image

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

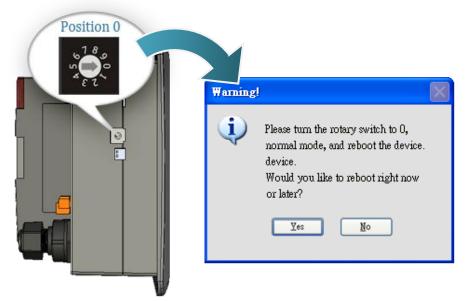
Select Device	
Enter Device Name: VP_44498	ОК
Or <u>S</u> elect From the List	Cancel
VP_44498	Reset devices to automatically put names on the list.

Step 5: Select the latest version of the OS image



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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" position



Step 7: Check the ViewPAC OS version

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

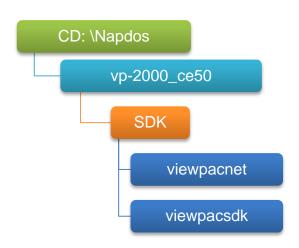
File Help Confi System Setting Et	guration ernet Setting FTP Setting System	n Information Auto Execution Multi-serial po	کا ۲۰۱۰
File Help Confi	guration ernet Setting FTP Setting System Module Type:	VP-25xx (96MB)	<u>, 1</u>
File Help Confi System Setting Eth	guration ernet Setting   FTP Setting   System Module Type: Serial Number:	VP-25xx (96M8) 01-E8-05-81-12-00-00-34	<u>ک</u> ج
File Help Confi System Setting Eth Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version:	VP-25xx (96MB)	2 x
File Help Confi System Setting Eth Slot 0: Slot 1: Slot 2:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version:	VP-25xx (96M8) 01-E8-05-81-12-00-00-34	<u>₹</u> ( )
File         Help         Confi           System Setting         Ether           Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version: Backplane Version:	VF-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44	<u>ع</u> ۲۹۱
File Help Confi System Setting Eth Slot 0: Slot 1: Slot 2:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39	2 
File         Help         Confi           System Setting         Ether           Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version: Backplane Version:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39 1.0.4.0	<u>7</u>
File         Help         Confi           Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39 1.0.4.0 1.0.32.0	2 x - 1
File         Help         Confi           System Setting         Eff           Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version: WinPacSDK Version:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/02/11 13:19:39 1.0.4.0 1.0.32.0 1.0.8.6	R R
File         Help         Confi           Slot 0:	guration ernet Setting FTP Setting System Module Type: Serial Number: OS Version: Eboot Version: Backplane Version: CPU Version: WinPacSDK Version: WinPacNet Version:	VP-25xx (96MB) 01-E8-05-81-12-00-00-34 1.0.0.6 , 2009/01/03 11:44:44 1.0.0.2 , 2009/02/11 13:19:39 1.0.4.0 1.0.32.0 1.0.8.6 1.2.0.6	R R (

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# 6.2. 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++

## 6.2.1. 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: <u>ftp://ftp.icpdas.com/pub/cd/WinPAC/napdos/wp-8x4x\_ce50/sdk/WinPACNet/</u>

#### 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.

# 6.2.2. 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: <a href="http://ftp.icpdas.com/pub/cd/WinPAC/napdos/wp-8x4x\_ce50/sdk/WinPACSDK/">http://ftp.icpdas.com/pub/cd/WinPAC/napdos/wp-8x4x\_ce50/sdk/WinPACSDK/</a>

#### 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

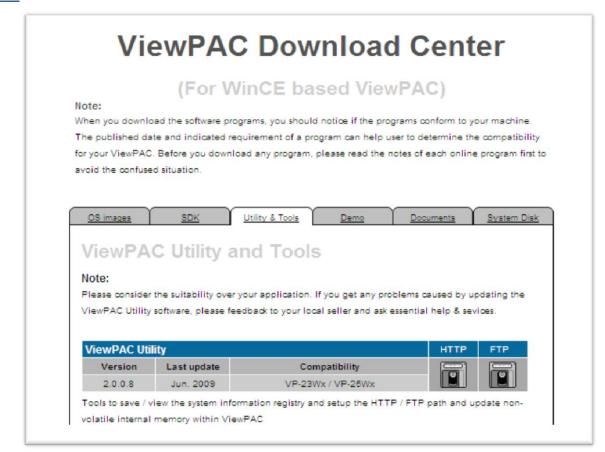
The DLL files are located at: \System\_Disk\ICPDAS\System

# 7. ViewPAC Download Center

This chapter introduces the WinPAC-8000 Download Center.

Visit the ViewPAC Download Center:

http://www.icpdas.com/products/PAC/viewpac/download/viewpac/download\_os\_images. htm



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
- ✓ **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

# 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

#### **Appendix B. Application of RS-485 Network**

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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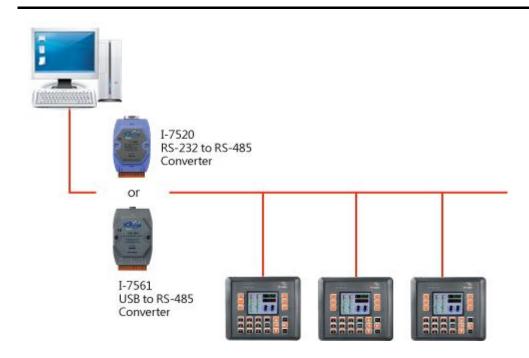
### **B.1. Basic RS-485 Network**

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**

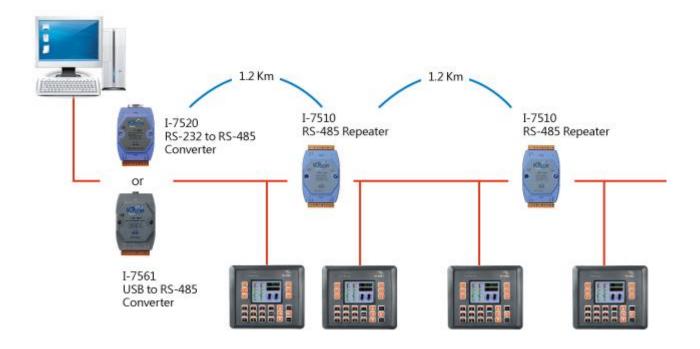


If PC/Laptop has no COM port, you can use the I-7561 (USB to RS-485 converter) for connection between ViewPAC and PC/Laptop. Before using the I-7561 converter, you must install the USB driver. The USB driver can be obtained from: <u>ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/7000/756x/</u>



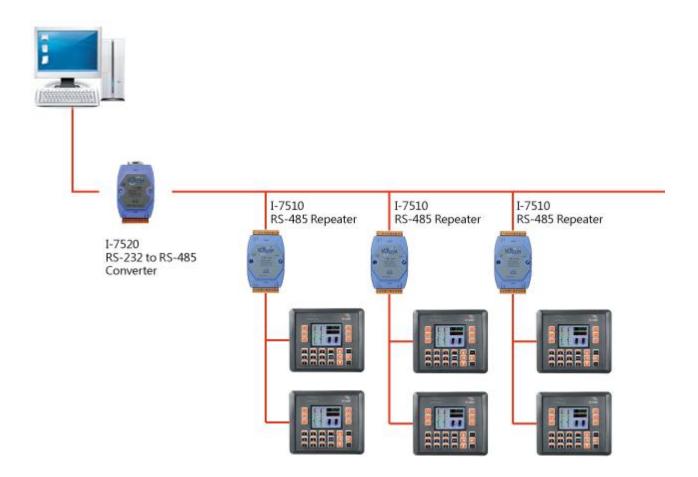
### **B.2. Daisy Chain RS-485 Network**

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.

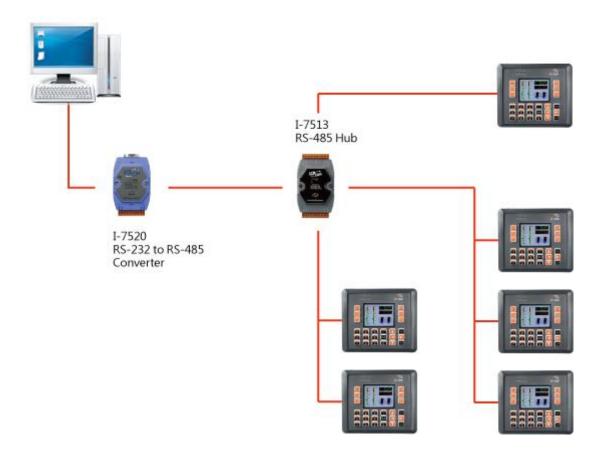


### **B.3. Star Type RS-485 Network**

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.



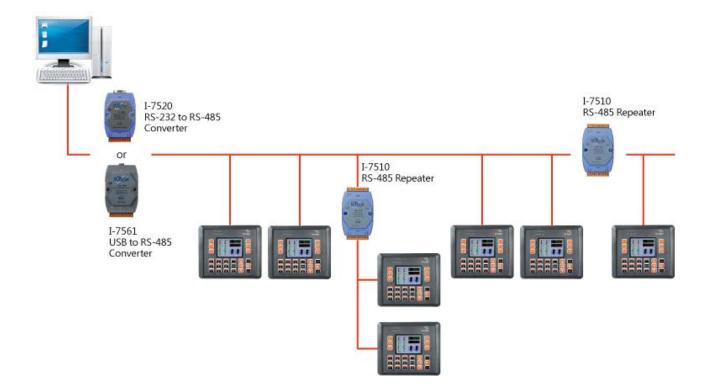
There is a better choice to use 7513 as a RS-485 hub on start type network.



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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**

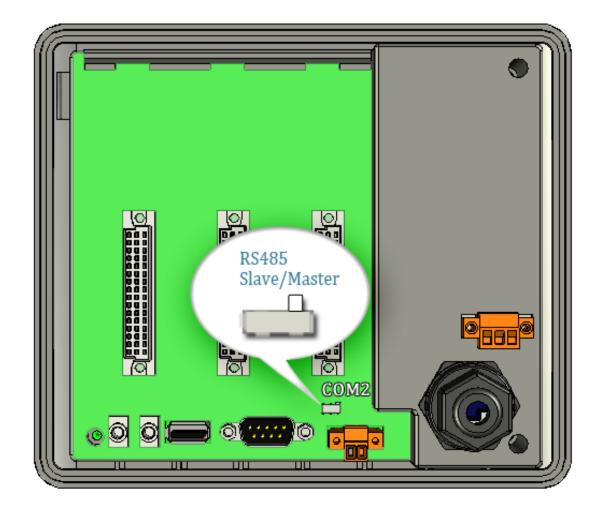
There must be exist one master to have a jumper in the same network. In a master/slave application, "Master" is the default configuration of ViewPAC.

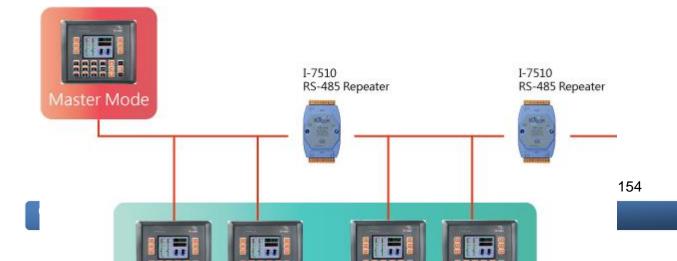
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#### **B.5.1. ViewPAC as a Master (default)**

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.

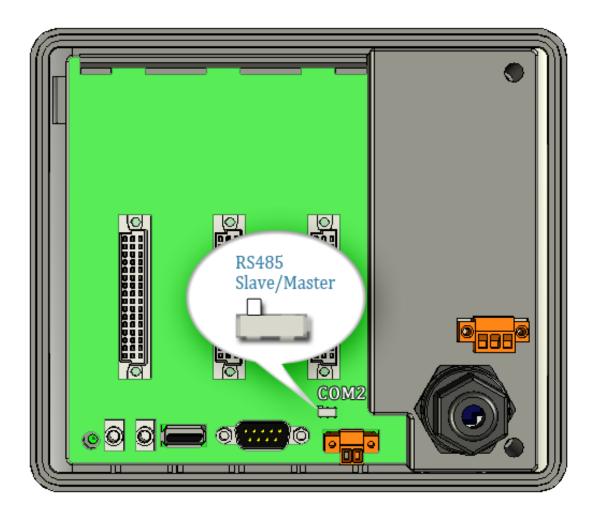
Set ViewPAC to the master mode by adjusting the jumpers on the power board of ViewPAC. Refer to the following figure:



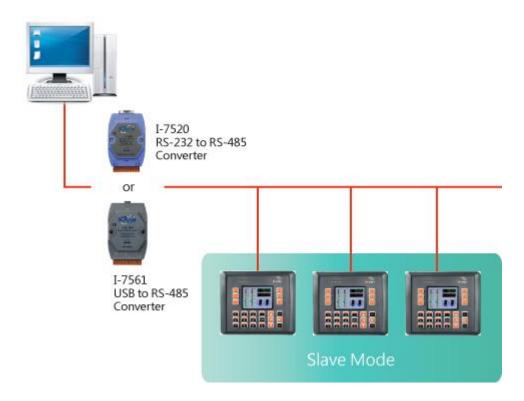


#### **B.5.2. ViewPAC as a Slave:**

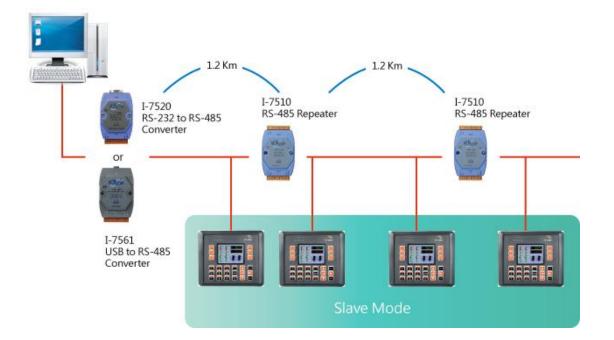
Set ViewPAC to the slave mode by adjusting the jumpers on the power board of ViewPAC. Refer to the following figure:



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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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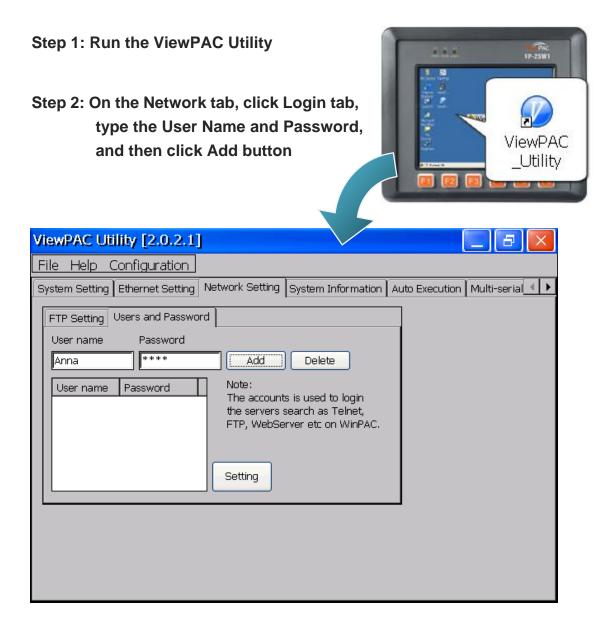
## Appendix C. Tips – How to

VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 157 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com C.1. How to add a user account to remote login the ViewPAC from PC

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#### C.2.1. How to add a user account

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



# 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
VP-2	System Setting Ethernet Setting Network Setting System Information Auto Execution Multi-serial 💶 💽 : 159
Copyr	FTP Setting Users and Password
	User name Password

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

ViewPAC Utility [2.0.2.1]		
File       Help       Configuration         Save       Save         Save       Save         Save       Save         Reboot       Without Save         Restore       Default Settings         Exit       User name       Password	Network Setting System Information Auto Ex rd Add Delete Note: The accounts is used to login	xecution Multi-serial 🚺
Anna ****	Setting	
🐉 ViewPAC Utility [2.0.2.1]		👃 EN 2:54 PH 🏓 🔁

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\* E-mail: service@icpdas.com

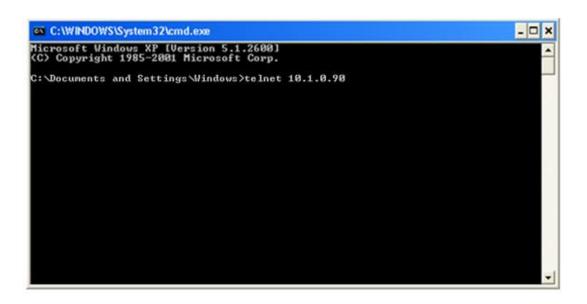
#### C.2.2. How to Use telnet to remote login the ViewPAC from PC

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

	Windows Catalog	Run			2
	Windows Update	-	Type the n	2. Type "cmd"	ent, or
Professional	Documents	Open:	Internet res.		it for you.
lindows XP	Help an ort		OK	Cancel	<u>B</u> rowse
	Shut Down art C:\WIN	.DOWS\Syste			

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

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

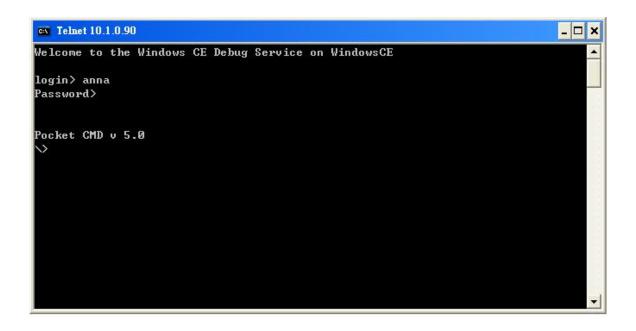


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Step 3: The connection has been set up, and then type the name and password



Step 4: The remote login has been completed



#### C.2.3. 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 A	uto Execution   Multi-serial 💶 🕨
FTP Setting       Users and Password         User name       Password         Anna       ****         User name       Password         User name       Password         User name       Password         Note:       The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC.	
Setting	

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

ViewPAC Utility [2.0.2.1]		- B 🛛
File Help Configuration	1	
<u>S</u> ave	Network Setting System Information Auto E	«ecution) Multi-serial
S <u>a</u> ve and Reboot	rd]	
Reboot <u>W</u> ithout Save		
Restore Default Settings E <u>x</u> 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.

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#### C.2.1. Debug ViewPAC programs in EVC++

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

Eile Edit View Insert Project Build	<u>T</u> ools <u>W</u> indow <u>H</u> elp
	↗ Error Lookup
	↗ Remote Call Profiler (WCE500)
	💦 Remote File Viewer (WCE500)
	🕕 Remote <u>H</u> eap Walker (WCE500)
	↗ Remote Kernel <u>T</u> racker (WCE500)
	🕕 Remote Performance Monitor (WCE500)
	↗ Remote Registry Editor (WCE500)
	💦 Remote Spy++ (WCE500)
	▶ Remote System Information (WCE500)
	↗i Remote Zoomin (WCE500)
	Select Remote Tools
	Customize
	Options
	* <u>M</u> acro
	Record Quick Macro Ctrl+Shift+R
	Play Quick Macro Ctrl+Shift+P
	Configure Platform Manager

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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 PAC270 Device SA_IA STANDARDSDK_420 Windows CE Default Platform	Add Device Delete Properties About
Ōĸ	

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>OK</u> <u>Cancel</u> <u>T</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 Configuratio	n	$\mathbf{X}$
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	r serial	
<u> </u>	<u>C</u> ancel	

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

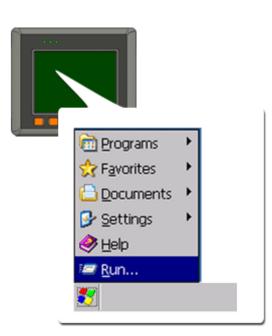
Device Properties	
Device Name: PAC270 Device	
Select a transport and a startup server. Choose Test to verify th establish a connection to your target device with the selected tra startup server T <u>r</u> ansport:	
TCP/IP Transport for Windows CE	Configure
<u>S</u> tartup Server:	
Manual Server	Configure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

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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



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



VP-23W1/VP-25W1 User Manual, version 1.0.7. Last Revised: March 2012 Page: 169 Copyright © 2012 ICP DAS Co., Ltd. All Rights Reserved. \* E-mail: service@icpdas.com Step 8: On the "Run" dialog, type the command which displays in step 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	
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	
T <u>r</u> ansport:	
TCP/IP Transport for Windows CE 🔹	Configure
Startup 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

Windows CE Platform Manager Configuration							
Windows CE Platform Manager Configuration Select a platform or device to configure PAC270 PAC270 Device PAC270 Device SA_IA STANDARDSDK_420 H - @ Windows CE Default Platform	Add Device Delete Properties About						

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

Eile Edit View Insert Project	<u>Build</u> <u>T</u> ools <u>W</u> indow <u>H</u> elp	
	Compile systeminfodlg.cpp Ctrl+F7 Build SystemInfo.exe F7	
	Rebuild All Batch B <u>u</u> ild Cl <u>e</u> an	
	Start <u>D</u> ebug Update Re <u>m</u> ote Output File(s)	El         Go         F5           {*}         Step Into         F11
		*{} Run to Cursor Ctrl+F10
	Set Active Configuration Configurations Set Active Platform	Attach to <u>W</u> CE Process

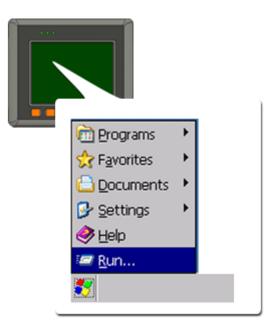
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Step 14: The "Manual Server - Action" dialog will appear displaying a command line, before click the "OK" button to close dialog, turn to the ViewPAC controller side to do the next two-steps



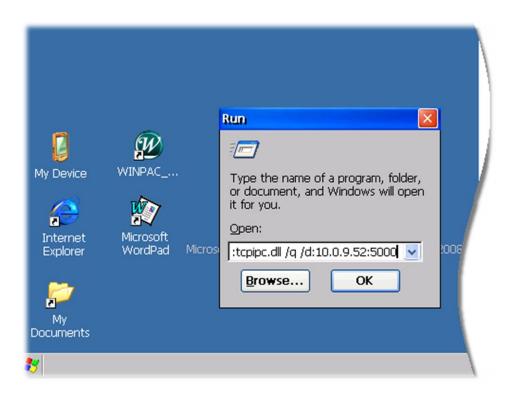
Step 15: On the ViewPAC controller side, select the and then click the "Run..." command



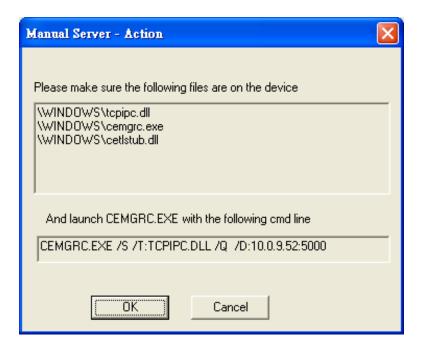


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# Step 16: On the "Run" dialog, type the command which displays in step 5 and then click the "OK" button



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



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

📃 <u>F</u> ile	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	Debug	<u>L</u> ayout	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
					EL Go	)			F5
					E Re	start		Ctrl+Shif	t+F5
					🛣 Ste	op <u>D</u> ebugg	ging	Shif	t+F5
					≣∎ <u>B</u> r	eak			
					₹+} Ste	p Into			F11
					₽₽ Ste	p <u>O</u> ver			F10
					{∱ Ste	ep O <u>u</u> t		Shift-	F11
					<b>*{ }</b> Ru	n to <u>C</u> urs	pr	Ctrl	F10
					🛃 Ex	ceptions			
						reads			
					M	odules			
					➡ Sh	ow <u>N</u> ext S	tatemen	t Alt+N	.m. *
					66° <u>O</u> t	uick Watch			

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

# Step 2: If the version matches correctly and the entire file are there, copy the following files to ViewPAC :\ System\_Disk\ICPDAS\System folder

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

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

<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	Project Build Debug Data Format Tools Window Community H	elp
			Add Windows Form	
			Add User Control	
			Add Component	
			Add Class Shift+Alt+C	
			Add New Item Ctrl+Shift+A	
			Add Existing Item Shift+Alt+A	
			Exclude From Project	
			Show All Files	
			Add <u>R</u> eference	
			Add Web Reference	
			Set as StartUp Project	
			Change Target Platform	
			🖾 SystemInfo Properties	

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

SystemInfo* For	nl.cs [Design] Start Page Object Browser - >
Application	Configuration: N/A V Platform: N/A V
Build	
Build Events	Deployment Options
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
	Select <u>C</u> ertificate

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#### 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	Debug	D <u>a</u> ta	F <u>o</u> rmat	Too	ols <u>W</u> indow <u>C</u> ommunity <u>H</u> elp
									Attach to Process Ctrl+Alt+P
								9,	Connect to De⊻ice
								۳.,	Connect to <u>D</u> atabase
								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
									External Tools
									Device Emulator Manager
									Import and Export Settings
									⊆ustomize
									Options

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

Options		? 🛛
<ul> <li>Environment</li> <li>Projects and Solutions</li> <li>Source Control</li> <li>Text Editor</li> <li>Database Tools</li> <li>Debugging</li> <li>Device Tools</li> <li>General</li> <li>Devices</li> <li>Form Factors</li> <li>HTML Designer</li> <li>Windows Forms Designer</li> </ul>	Show devices for platform:          PAC270 <ul> <li>All Platforms</li> <li>Pocket PC 2003</li> <li>Smartphone 2003</li> <li>Windows CE 5.0</li> </ul> PAC270           Default device:           CAYMAN-ARMV4I_Release	Save As Rename Delete Properties
		K Cancel

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## 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	×
T <u>r</u> ansport:	
TCP Connect Transport 🛛 💌	<u>C</u> onfigure
<u>B</u> ootstrapper:	
ActiveSync Startup Provider 🛛 🖌	Configure
Detect when device is disconnected	
C	OK Cancel

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     Database Tools     Debugging     Device Tools     General     Devices     Forg-Restare	Show devices for platform: PAC270 All Platforms Pocket PC 2003 Smartphone 2003 Windows CE 5.0 PAC270	Save As <u>R</u> ename Delete	
Windov Configure TCP/	IP Transport		?×
<ul> <li>□ Use fixed port</li> <li>Device IP addr</li> <li>○ Obtain an II</li> <li>○ Use specific</li> <li>10.0.9.43</li> </ul>	ess 9 address automatically using ActiveSyn	c	~
	C	OK	Cancel

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Step 9: On the "CAYMAN-ARMV4I\_Release Properties" dialog, click the "OK" button

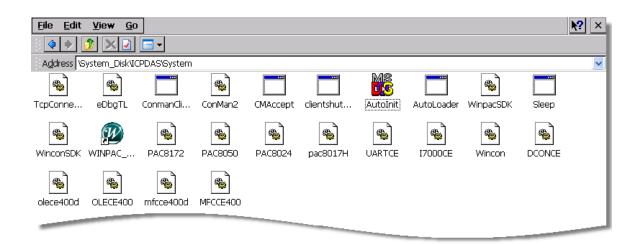
CAYMAN-ARMV4I_Release Properties		? 🛛
Default output location on device: Program Files Folder		~
Transport:		
TCP Connect Transport	*	<u>C</u> onfigure
<u>B</u> ootstrapper:		
ActiveSync Startup Provider	*	Configure
Detect when device is disconnected		
		OK Cancel

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

Options		? 🛛
<ul> <li>Environment</li> <li>Projects and Solutions</li> <li>Source Control</li> <li>Text Editor</li> <li>Database Tools</li> <li>Debugging</li> <li>Device Tools</li> <li>General</li> <li>Devices</li> <li>Form Factors</li> <li>HTML Designer</li> <li>Windows Forms Designer</li> </ul>	Show devices for platform: PAC270  Devices:  CAYMAN-ARMV4I_Release	Save As Rename Delete Properties
	Default device: CAYMAN-ARMV4I_Release	K Cancel

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



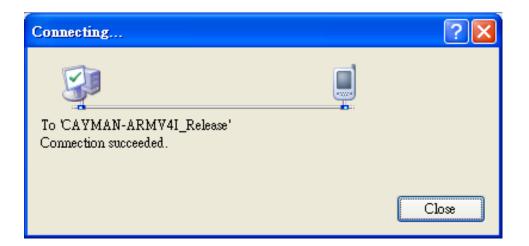
#### Step 12: On the "Tools" menu, click "Connect to Device..." command

<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>P</u> roject	<u>B</u> uild	<u>D</u> ebug	D <u>a</u> ta	Too	ls <u>W</u> indow <u>C</u> ommunity	<u>H</u> elp
								Attach to Process	Ctrl+Alt+P
							g,	Connect to De <u>v</u> ice	
							۰.	Connect to <u>D</u> atabase	
							1	Connect to <u>S</u> erver	
							4	Code Snippe <u>t</u> s Manager Ct	rl+K, Ctrl+B
								Choose Toolbo <u>x</u> Items	
								<u>A</u> dd-in Manager	
								<u>M</u> acros	•
								Create <u>G</u> UID	
								Dotfuscator Community Editio	n
								<u>E</u> xternal Tools	
								Device Emulator Manager	
								Import and Export Settings	
								<u>C</u> ustomize	
								Options	

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

Connect to Device	? 🛛
To connect to a physical device or launch an emulator image, select a platform:  PAC270  Devices:  CAVMAN-ARMV4I_Release	<u>C</u> onnect Cancel

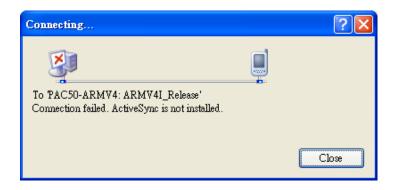
Step 14: On the "Tools" menu, click "Connect to Device..." command



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

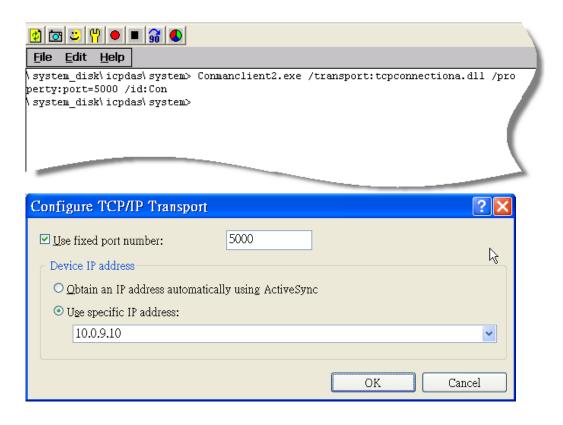
FAQ:

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



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"



# 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

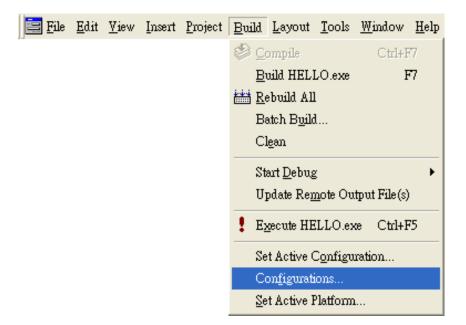
## **Tips & Warnings**



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.

## 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 Vist	al C++ - [DemoDlg.cpp]			
🛛 🔁 Eile Edit Yiew Insert Project Bu	ild <u>T</u> ools <u>W</u> indow <u>H</u> elp		_ 8 ×	
) 🏠 🕞 🖬 🕼 🕹 🗳 🖄	🖪 🗖 😤 🐂	<b>▼</b> <sup>7</sup> #3		
CDemoDig 🔹 [All class members] 🔹 🗞 OnButtonAO 🔹 🗟 💌				
Demo 🗨 STANDARDSDK 🕶 Win32 (WCE ARMV4) Release 💌 STANDARDSDK_420 Emulator 💌				
TCHAR temp[20],*stopstring; float A0[4]; int i; m_A00.GetWindowText(temp, 20); float)wcstod(temp, &stopstring);				

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

onfigurations	
Projects and	Close
⊡ Demo	
Win32 (WCE emulator) Release	<u>A</u> dd
Win32 (WCE emulator) Debug	
Win32 (WCE ARMV4) Release	<u>R</u> emove
Win32 (WCE ARMV4) Debug	
Win32 (WCE x86) Release	
Win32 (WCE x86) 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  Configuration:	OK Cancel
Release The new configuration will be called: Demo - Win32 (WCE ARMV4I) Release	

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

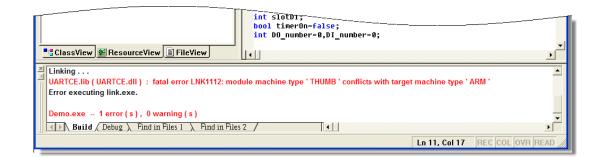
🗗 <u>F</u> ile	<u>E</u> dit	<u>V</u> iew	Insert	<u>P</u> roject	<u>B</u> uild	<u>T</u> ools	<u>W</u> indow	<u>H</u> elp
				Set.	Acti <u>v</u> e I	Project		•
				<u>A</u> dd	l To Pro	oject		•
				Dep	endenc	ies		
				<u>S</u> ett	ings		Alt+I	77
				Exp	ort <u>M</u> al	kefile		
				Inse	ert Proje	ct into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

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

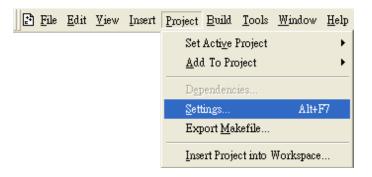
Project Settings		? 🔀
Settings For: Win32 (WCE ARMV4) Release	General   Debug   C/C++ Category: Output	Link Resources M ()
	<u>B</u> ase address: 0×00010000	Entry-point symbol: wWinMainCRTStartup
	Stack allocations Reser <u>v</u> e: 0x10000	<u>C</u> ommit: 0×1000
	Version information Major:	Minor:
	Project <u>O</u> ptions: UARTCE.lib 17000CE.lib /nol /stack:0×10000,0×1000 /entr /incremental:no /pdb:"ARMV	y:"wWinMainCRTStartup" 📃
		OK Cancel

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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



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

# 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

# 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.

## C.4.1. How to use network printer

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

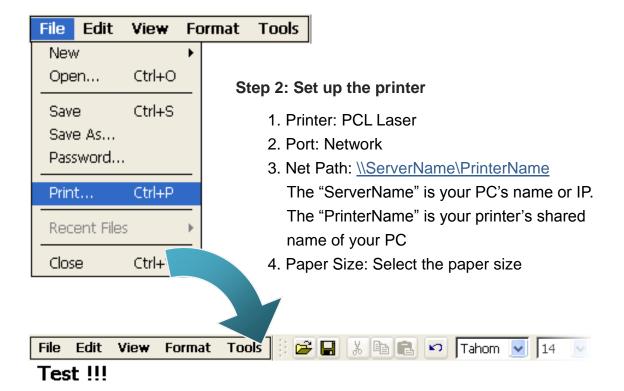
Step 1: On the Host PC, check the name of the Host PC and the shared printer

System Properties
System Hestore Automatic updates 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 LaserJet 2200 (RD1) on KEVIN_WINPAC Properties
ID. General Sharing Ports Advanced Color Management II
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 not share this printer
Share 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 Help

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





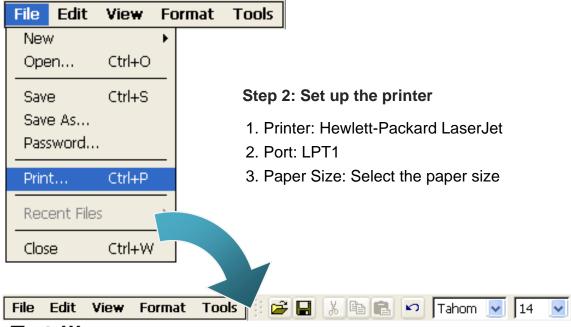
Print			? OK 🔀
Printer:	PCL Laser 💽	Print Range	Orientation
Port:	Network	💽 All	Portrait
Net Path:	RD1-User2\Anna	O Selection	<ul> <li>Landscape</li> </ul>
Paper Size:	A4 🔽	Margins (inches)	
Advanc	ed Draft Mode		Гор: ]1" Bottom: ]1']

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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:

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



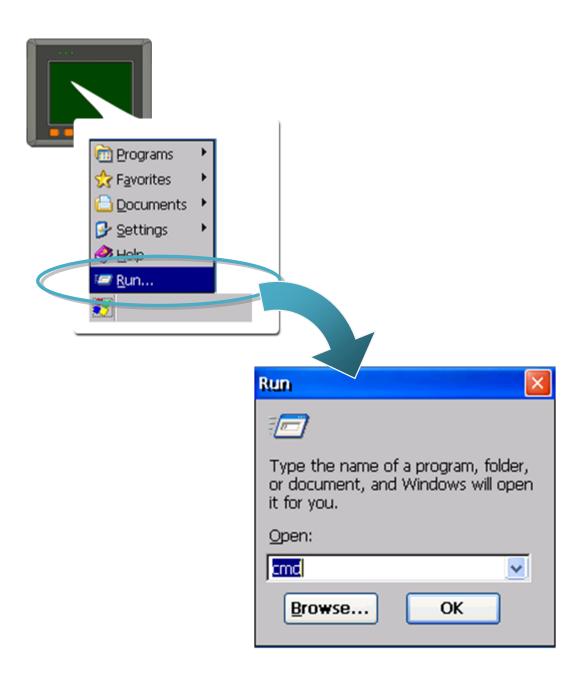
Test !!!

Print			? ОК 🔀
Printer: Port:	Hewlett-Packard LaserJ	Print Range	Orientation Orientrait
Net Path:		O Selection	O Landscape
Paper Size:	A4 🔽	Margins (inches)	op: 1"
Advanced Color			op: 1" Bottom: 1"

# 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 I	Edit Help		
Pocket	: CMD v 5.0		
<pre>\&gt; serv</pre>	vices list		
NFYO:	0x00030110	NOTIFY.D11	Running
HTPO:	0x00031570	HTTPD.DLL	Running
CRDO:	0x00032070	credsvc.dll	Running
MMQ1:	0x00036790	MSMQD.D11	Off
OBX0:	0x00036b20	OBEXSrVr.dll	Off
FTPO:	0x00037770	FTPD.D11	Running
TELO:	0x00037ac0	TELNETD.D11	Running
SMB0:	0x0003c3e0	smbserver.dll	Running
NTPO:	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	Edit Help		
Pocket	5 CMD v 5.0		
\≻ <mark>ser</mark>	vices stop FTPO	:	
\≻ serv	vices list		
NFY0:	0x00030110	NOTIFY.D11	Running
HTPO:	0x00031570	HTTPD.DLL	Running
CRDO:	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
1>			

## **Tips & Warnings**



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
        unload <service instance> - causes service to be unloaded and
        register <service name> - service will be automatically loads
eboot
        unregister <service name> - service will not be automaticall
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
\langle \rangle
```

# **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	<ol> <li>Modified the operating modes in section 2.5</li> <li>Added the requirements of the ViewPAC SDK in section 4.3.</li> </ol>
1.0.4	February 2010	<ol> <li>Modified the specification of the Dual Battery Backup SRAM features in section 1.1.</li> <li>Modified information about Operating Environment in section 1.2.</li> </ol>
1.0.5	January 2011	<ol> <li>Added information on how to use Backup Utility to back up the settings and files in section 2.9.</li> <li>Added information about a caution of using System_Disk in section 2.10.</li> <li>Added information about the ViewPAC Utility functionality in section in section 3.5.2.</li> <li>Deleted information on how to establish a new telnet and FTP account in section C.1.</li> <li>Added information on how to add a user account to remote login the ViewPAC from PC in section C.1.</li> </ol>
1.0.6	July 2011	<ol> <li>Added information on the Overview in section 1.4.</li> <li>Modified information about the application of RS-485 network in appendix E.</li> </ol>