

XP-9000-IoT Series

User Manual

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XP-9000-IOT (IOT based PAC) User Manual ve

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1. Introduction

This chapter provides an overview of the XP-9000-IoT and its components, and introduces the fundamental concepts for user familiar with the XP-9000-IoT.



The XP-9000-IoT are Windows IoT based PACs that combine computing, I/O, and operator interface into a single unit, and provide the perfect solution for integrating HMI, data acquisition and control in an individual PAC. It is equipped with an Intel E3845/E3950/i5-8365UE CPU, I/O expansion slots and a variety of connectives including dual Gigabit Ethernet, HDMI, VGA, USB port, RS-232 and RS-485 interface. Local I/O slots are available to use our I-9K and I-97K series I/O modules and remote I/O expansions are available to use our Ethernet I/O modules and RS-485 I/O modules.

Since Windows IoT has the same Win32 API as Windows 10, most popular applications on desktop can run on Windows IoT based controllers.

1.1. Features

The XP-9000-IoT offers the most comprehensive configuration and remote system upgrade solutions to meet specific application requirements. The following list shows the software and hardware features designed to simplify installation, configuration and application.

Software Features

• Windows IoT (Windows 10 IoT Enterprise 2019 LTSC)



Windows 10 IoT is a member of the Windows 10 family that brings enterprise-class power, security, and manageability to the Internet of Things. It leverages Windows' embedded experience, ecosystem, and cloud connectivity, allowing organizations to create their Internet of Things with secure devices that can be quickly provisioned, easily managed, and seamlessly connected to an overall cloud strategy.

- Traditional Windows Shell with Advanced Lockdown Features
- Full Windows UI support (e.g. UWP, WinForms, etc)
- 1. Rich Software Solutions
- 2. Visual Studio .Net 2008 and VC solution: SDK as well as demo programs for C#, VB.Net, and VC are provided.
- 3. eLogger HMI: A free charge and easy-to-use software to implement HMI and data logger, supporting Modbus TCP/RTU/ASCII master and MQTT protocols. (See more...)

Hardware Features

- Powerful CPU Module
 - E3845 (1.91 GHz, 64-bit quad core) for XP-9181-IoT/ XP-9381-IoT/ XP-9781-IoT

- Memory Size:
 - SDRAM (2 GB DDR3) for XP-9181-IoT/ XP-9371-IoT/ XP-9771-IoT
 - SDRAM (4 GB DDR3) for XP-9181-IoT/ XP-9381-IoT/ XP-9781-IoT
 - Flash (64 GB SSD) for XP-9181-IoT/ XP-9371-IoT/ XP-9771-IoT/ XP-9181-IoT/ XP-9381-IoT/
 XP-9781-IoT
 - CF Card (support up to 32 GB) for XP-9000-IoT
- 64-bit Hardware Serial Number
 - The 64-bit hardware serial number is unique and individual. Every serial number of AXP-9000-IoT PAC is different. Users can add a checking mechanism to their AP to prevent software from pirating.
- Rich I/O Expansion Ability
 - I/O Slots
 - RS-232/RS-485
 - FRnet
 - USB



- Dual Ethernet Ports
 - XP-9000-IoT provides two Gigabit Ethernet ports. The two Ethernet ports can be used to implement redundant Ethernet communication and separate Ethernet communication (one for a global Internet, one for private Ethernet).

- Dual Watchdog Timer
 - A system could be hanged up when the OS or the AP fails. There are two watchdogs (CPU watchdog and Backplane watchdog) designed to automatically reset the CPU/Backplane when the situations happen. The design will increase the reliability of the system.
- Redundant Power Input
 - To prevent the XP-9000-IoT from failing by the power loss, the power module is designed with two inputs. The AXP-9000-IoT can keep working even one power input fails, and meanwhile, there is a relay output for informing the power failure.
 - -
- Operating Temperature :
 - -25 °C to +60 °C for XP-9181-IoT/ XP-9381-IoT/ XP-9781-IoT
 - -25 °C to +75 °C for XP-9171-IoT/ XP-9371-IoT/ XP-9771-IoT

1.2. Specifications

The table below summarizes the specifications of XP-9x81-IoT.

Models	XP-9181-loT	XP-9381-loT	XP-9781-loT
System Software			
OS	Windows 10 IoT Enter	prise (64-bit)	
Framework Support	.Net Framework 3.5 ~	4.8	
Embedded Service	IE11, FTP Server, IIS 7.0,	ASP (Java Script, VB Sc	cript)
SDK Provided	Dll for VC, Dll for Visual S	Studio.Net	
Multilanguage Support	English, German, French Korean, Japanese, Simpl	, Spanish, Portuguese, ified Chinese, Traditior	Russian, Italian, nal Chinese
CPU Module	I		
СРИ	E3845 (1.91 GHz, 64-bit	quad core)	
SDRAM	4 GB DDR3		
MRAM	128 KB		
Flash(SSD)	mSATA slot with one 64	GB SSD	
EEPROM	16 KB		
Memory Expansion	CF socket with one 32GE	3 CF card (support up t	o 32 GB)
RTC (Real Time Clock)	Provide second, minute,	hour, date, day of we	ek, month, year
64-bit Hardware Serial Number	Yes, for software copy p	rotection	
Dual Watchdog Timers	Yes (0.8 second)		
Programmable LED Indicator	2 (L1, L2)		
Rotary Switch	Yes (0 ~ 9)		
VGA & Communication Ports			
VGA Resolution	1280 x 1024 to 1920 x 10	080 (16 : 9) /640 x 480	to 1024 x 768 (4 : 3)
Ethernet Port	RJ-45, 10/100/1000M Ba LED indicators)	ase-TX (Auto-negotiati	ng, Auto MDI/MDI-X,
USB 2.0	4		
COM1	Internal communication	with the I-97K series r	nodules in slots
COM2	RS-232/485 (RxD, TxD ar	nd GND for RS-232; Da	ta+, Data- for

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	RS-485); 3000 V _{DC} isol	ated	
COM3	RS-485 (Data+, Data-)	; 3000 V_{DC} isolated	
COM4	RS-232/485 (RxD, TxD for RS-485); 3000 V _{DC}	, CTS, RTS and GND for isolated	RS-232; Data+, Data-
COM5	RS-232 (RxD, TxD, CTS isolated	, RTS, DSR, DTR, CD, RI	and GND); 3000 V_{DC}
Audio	Mic-in and Earphone-	out	
I/O Expansion Slot	1	3	7
Mechanical			
Dimensions (W x H x D, unit: mm)	239 x 164 x 133	300 x 164 x 133	422 x 164 x 133
Installation	Wall mounting / DIN-I	rail mounting	
Environmental			
Operating Temperature	-25 °C to +60 °C		
Storage Temperature	-30 °C to +80 °C		
Ambient Relative Humidity	10 % to 90 % RH (non-	-condensing)	
Power			
Input Range	+10 V_{DC} to +30 V_{DC}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power r	elay (1 A @ 24 V_{DC}) for a	alarm
Capacity	 4.1 A, 5 V supply to CPU and backplane, 2.5 A, 5 V supply to I/O expansion slots, 33 W in total 	 4.2 A, 5 V supply to CPU and backplane, 2.4 A, 5 V supply to I/O expansion slots, 33 W in total 	 4.4 A, 5 V supply to CPU and backplane, 2.2 A, 5 V supply to I/O expansion slots, 33 W in total
Consumption	18.5 W (0.77 A @ 24 VDC)	18.7 W (0.78 A @ 24 V _{DC})	20.4 W (0.85 A @ 24 V _{DC})

The table below summarizes the specifications of XP-9x71-IoT.

Models	XP-9171-loT	XP-9371-loT	XP-9771-loT
System Software			
OS	Windows 10 IoT Enter	prise (64-bit)	
Framework Support	.Net Framework 3.5 SP1	, 4.0, 4.5	
Embedded Service	IE11, FTP Server, IIS 7.0,	ASP (Java Script, VB Sc	ript)
SDK Provided	Dll for VC, Dll for Visual	Studio.Net	
Multilanguage Support	English, German, French Korean, Japanese, Simpl	, Spanish, Portuguese, ified Chinese, Traditior	Russian, Italian, nal Chinese
CPU Module			
СРИ	E3827 (1.75 GHz, 64-bit	dual core)	
SDRAM	2 GB DDR3		
MRAM	128 KB		
Flash(SSD)	mSATA slot with one 64	GB SSD	
EEPROM	16 KB		
Memory Expansion	CF socket with one 32GE	3 CF card (support up t	o 32 GB)
RTC (Real Time Clock)	Provide second, minute,	hour, date, day of we	ek, month, year
64-bit Hardware Serial Number	Yes, for software copy p	rotection	
Dual Watchdog Timers	Yes (0.8 second)		
Programmable LED Indicator	2 (L1, L2)		
Rotary Switch	Yes (0 ~ 9)		
VGA & Communication Ports			
VGA Resolution	1280 x 1024 to 1920 x 10	080 (16 : 9) /640 x 480	to 1024 x 768 (4 : 3)
Ethernet Port	RJ-45, 10/100/1000M Ba LED indicators)	ase-TX (Auto-negotiatii	ng, Auto MDI/MDI-X,
USB 2.0	4		
COM1	Internal communication	with the I-97K series n	nodules in slots
COM2	RS-232/485 (RxD, TxD ar RS-485); 3000 V _{DC} isolate	nd GND for RS-232; Da	ta+, Data- for
СОМЗ	RS-485 (Data+, Data-); 3	000 V _{DC} isolated	

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COM4	RS-232/485 (RxD, TxD for RS-485); 3000 V _{DC}	, CTS, RTS and GND for isolated	RS-232; Data+, Data-
COM5	RS-232 (RxD, TxD, CTS isolated	, RTS, DSR, DTR, CD, RI a	and GND); 3000 V_{DC}
Audio	Mic-in and Earphone-	out	
I/O Expansion Slot	1	3	7
Mechanical			
Dimensions (W x H x D, unit: mm)	239 x 164 x 133 300 x 164 x 133 422 x 164 x 13		422 x 164 x 133
Installation	Wall mounting /DIN-ra	ail mounting	
Environmental			
Operating Temperature	-25 °C to +75 °C		
Storage Temperature	-30 °C to +80 °C		
Ambient Relative Humidity	10 % to 90 % RH (non-	condensing)	
Power			
Input Range	+10 V_{DC} to +30 V_{DC}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power r	elay (1 A @ 24 V_{DC}) for a	alarm
	3.7 A, 5 V supply to	3.8 A, 5 V supply to	4.0 A, 5 V supply to
	CPU and backplane,	CPU and backplane,	CPU and backplane,
Capacity	3.3 A, 5 V supply to	3.2 A, 5 V supply to	3.0 A, 5 V supply to
	I/O expansion slots,	I/O expansion slots,	I/O expansion slots,
	35 W in total	35 W in total	35 W in total
Consumption	16.6 W (0.69 A @ 24	16.8 W (0.7 A @ 24	18 W (0.75 A @ 24
Consumption	V _{DC})	V _{DC})	V _{DC})

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1.3. Overview

The XP-9000-IoT Series modules are equipped with several interfaces and peripherals that can be integrated with external systems. Here is an overview of the components and its descriptions.



XP-9371-IoT/XP-9381-IoT



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XP-9171-IoT/XP-9181-IoT

XP-9771-IoT/XP-9781-IoT



The details of these items are as follows:

Redundant Power (PWR1 and PWR2)

 \bigcirc The XP-9000-IoT/AXP-9000-IoT has a terminal with 8-wire; there are 4-wire for redundant power inputs, the details of the redundant power are shown to the side. TP (P.GND Power Input 2 🕕 - PWR2 D- P.GND Power Input 1 - PWR1 \bigcirc

LED Indicators



LED Indicator	Label	State (Color)	Meaning
Programmable LED Indicators	L1 and L2	-	Programmable LED indicators
System LED indicator	RUN	Orange	OS is running
PWR LED Indicator	PWR	Green	Power is on
PWR LED Indicator	PWR	Green	Power is on
LANI LED indicator	Link/Act	Green	The Link is active
	LIIIK/ACL	Blinking	Network activity
	Link/Act	Green	The Link is active
LAN2 LED indicator	LIIIK/ACL	Blinking	Network activity
	1G	Orange	The network speed is 1 G

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• CF Socket with a CF Card Inside

The XP-9000-IoT comes with a CF card inside the CF socket. The CF card can be used to restore the XP-9000-IoT system and expand the memory up to 32 GB.

• LAN Ports, LAN1 and LAN2

The XP-9000-IoT has two Ethernet ports that can be used to connect the router to the Internet or to other devices.

• USB 2.0 Ports, P1, P2, P3 and P4

The XP-9000-IoT has four USB 2.0 ports that can be used to connect the USB devices such as mouse, keyboard or an external USB hard drive.

• Mic-in and Earphone-out

The XP-9000-IoT has a microphone-in and an earphone-out that can be used to process the input and the output of sound.

• Relay Output

The XP-9000-IoT has a relay output that can be used to control a light, siren, or other low voltage device when an alarm occurs.



• VGA Port

The XP-9000-IoT has a VGA port that can be used with a variety of supported VGA resolutions, and the output resolution covers, 640 x 480, 800 x 600, 1024 x768.

• COM1, Expansion I/O Slot

The XP-9000-IoT has 1/3/7 I/O slots that can be used to integrate high performance parallel I/O modules (I-9K Series) or serial I/O modules (I-97K series).



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• COM2 (RS-232/RS-485)

The COM2 port is a 9-pins RS-232/RS-485 connector that can be configured as either RS-232 or RS-485, that only can select one at a time and its configuration depends on the pin connections as follows:

RS-232 (RXD, TXD and GND)

RS-485 (Data+ and Data-)

There is no software configuration or hardware jumper needed.

The details of the COM2 port specifications are shown to the side.

Note: 16C550 compatible 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: 64 bytes



• COM3 (2-wire RS-485)

 Note: 16C550 compatible
 COM3

 Port Type: Terminals
 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: 128 bytes



• COM4 (RS-232/RS-485)

The COM4 port is a 9-pins RS-232/RS-485 connector that can be configured as either RS-232 or RS-485, that only can select one at a time and its configuration depends on the pin connections as follows:

RS-232 (RXD, TXD, RTS, CTS and GND)

RS-485 (Data+ and Data-)

There is no software configuration or hardware jumper needed.

The details of the COM4 port specifications are shown to the side.

Note: 16C550 compatible 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: 128 bytes



• COM5 (RS-232)

The COM5 port is a 9-pins RS-232 connector. The details of the COM5 port specifications are shown to the side.

Note: 16C550 compatible 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: 128 bytes



The table below shows the data bit and their corresponding stop bit for COM2, COM3, COM4 and COM5.

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

Frame Ground Point

The frame ground point is a small piece of metal that can be used to terminate the shield.



1.4. Dimensions

The diagrams below provide the dimensions of the XP-9000-IoT to use in defining your enclosure specifications. Remember to leave room for potential expansion if you are using other components in your system.

The height dimension is the same for all XP-9000-IoT. The width depending on your choose of I/O expansion slots. All dimensions are in millimeters.



XP-9171-IoT/XP-9181-IoT





XP-9771-IoT/ XP-9781-IoT



1.5. Rescue CF Card

The XP-9000-IoT comes with a rescue compact flash card that supports rescue mechanism for the XP-9000-IoT. All of them are listed below.



2. Getting Started

This chapter provides a guided tour of the XP-9000-IoT installation and configuration that describes the steps needed to download, install, configure, and run the basic procedures for user working with the XP-9000-IoT 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, distributor.



XP-91x1-IoT/XP-93x1-IoT/XP-97x1-IoT



Quick Start Guide



RJ-45 Waterproof Assembly







|--|



CF socket with one CF Card



<u>Screw Driver</u> (1C016) 2.4 mm

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2.1. Mounting the XP-9000-IoT

The XP-9000-IoT can be mounted either directly to a wall/panel, or onto a stainless 35mm DIN rail.

Wall/Panel mounting

Step 1: Install the four mounting screws into the 4 keyhole mounting holes

Step 2: Fasten the screws securely



Tips & Warnings



There must be a minimum clearance of 50mm between the XP-9000-IoT and the top and bottom side of the enclosure panel.



Step 3: Connect the ground lead to the frame ground point



Tips & Warnings

A good common ground reference (earth ground) is essential for proper operation of the XP-9000-IoT. One side of all control circuits, power circuits and the ground lead must be properly connected to earth ground by either installing a ground rod in close proximity to the enclosure or by connecting to the incoming power system ground. There must be a single-point ground (i.e. copper bus bar) for all devices in the enclosure that require an earth ground.

DIN Rail mounting

Step 1: Fasten the DIN rail clip to the XP-9000-IoT



Step 2: Clip the device onto a stainless DIN rail



Tips & Warnings



For DIN rail mounting, it is strongly recommended that only a stainless steel DIN rail be used to support the weight of XP-9000-IoT system, providing stability and preventing XP-9000-IoT from leaning



Step 3: Connect the ground lead to the frame ground point



Tips & Warnings

A good common ground reference (earth ground) is essential for proper operation of the XP-9000-WES. One side of all control circuits, power circuits and the ground lead must be properly connected to earth ground by either installing a ground rod in close proximity to the enclosure or by connecting to the incoming power system ground. There must be a single-point ground (i.e. copper bus bar) for all devices in the enclosure that require an earth ground.

2.2. Installing the RJ-45 waterproof connector assembly

The XP-9000-IoT is equipped with an RJ-45 waterproof connector to protect the connection in vibrate environment.

The RJ-45 waterproof connector is optional for use with LAN1 port. If you do not need the RJ-45 waterproof connector, you can remove the cap and just plug in a regular Ethernet cable.





If you want to use the RJ-45 waterproof connector for protecting the connection, follow the instructions below.

Step 1: Remove the RJ-45 connector from the RJ-45 cable



Step 2: Feed the end of the RJ-45 cable through the (A) sealing nut, (B) rubber sealing insert, (C) cable gland base, (D) clamping ring and (E) panel gasket



Step 3: Wrap the (E) panel gasket around the (D) clamping ring



Step 4: Wrap the (C) cable gland base around the (D) clamping ring



Step 5: Insert the (B) rubber sealing insert into the (D) clamping ring



Step 6: Push the (E) sealing nut forward and Hand-tighten it to seal the assembly



Step 7: Insert the RJ-45 cable into the RJ-45 connector



Step 8: Push the RJ-45 waterproof connector ass grabembly forward



Step 9: Insert the Ethernet cable and screw the RJ-45 waterproof into the receptacle



2.3. Deploying a Basic XP-9000-IoT System

The XP-9000-IoT provides a variety of communication interface to suit a range of application. Here is a simple application for using the XP-9000-IoT.

Step 1: Connect the positive terminal (+) of the power supply to the terminal <u>PWR1/2</u> and the negative terminal (-) of the power supply to the <u>P.GND</u>

Tips & Warnings

1. The input range of power supply is +10 to +30 V_{DC} .

2. The XP-9000-IoT have two power inputs that can be connected simultaneously to the two independent power sources. If one power source fails, the other source takes over automatically. Redundant power input help assure non-stop operation of the XP-9000-IoT.



Step 2: Connect the USB mouse or the USB keyboard to the USB port

Step 3: Connect the monitor to the HDMI port or VGA port

Step 4: Connect to PC or the laptop to the LAN port via an Ethernet switch





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2.4. Inserting the I/O Modules

XP-9000-IoT has 1/3/7 I/O expansion slots to support I-9K and I-97K series I/O modules.

Before choosing the right I/O modules, you first need to know the I/O expansion capacities in order to choose the best expansion module for achieving maximal efficiency. For more information about the I/O expansion modules that are compatible with the XP-9000-IoT, please refer to:

https://www.icpdas.com/en/product/guide+Remote I O Module and Unit+PAC %EF%BC %86amp; Local I O Modules+I-9K I-97K Series

Step 1: Insert the I/O module


Step 2: Wiring connection

The metal part of the cord end terminal on the wire can be direct wired to the terminal of XP-9000-IoT.



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.

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2.5. Unable UWF to Allow Settings to Be Saved

The UWF is a safety mechanism that provides the ability to control write protection of the XP-9000-IoT system built in C: drive. Any changes made to the system are lost when the start restarts while UWF is enabled, unless you unable UWF then save the settings. For more details about the UWF, please refer to section 3.4. Configuring the UWF Manager.

1. Click the PAC Utility shortcut on the	e desktop	Double-click the PAC Utility
2. Click the UWF Operation tab, select box, and then click Apply button	t the Disable check	
File Help System Information Auto Execution EWF	Operation Multi-serial Port Modu	ule Language Setting
UWF Control ○ Enable ④ Disa	able	Apply
Unified Write Filter Configuration Utility version 40 Copyright (C) Microsoft Corporation. All rights reso Current Session Settings	erved.	^
FILTER SETTINGS Filter state: ON Pending SERVICING SETTINGS Servicing State: OFF OVERLAY SETTINGS Type: RAM Maximum size: 1024 M MB Freespace Passthrough: OFF Persistent) commit: N/A Shutdown pending:No IB Warning Threshold: 512 MB Critica : OFF Reset Mode: N/A	al Threshold: 1024
VOLUME SETTINGS Volume 0f339e0e-0000-0000-0000-1000000000 Volume state: Protected Volume ID: 0f3 Current Session Exclusions for Volume 0f339e0e C:\Program Files\Windows Defender C:\ProgramData\Microsoft\Windows Defender	00 [C:] 339e0e-0000-0000-0000-100000000000 -0000-0000	File Exclusions:

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3. In the pop-up dialog box, click Yes button

Disable EWF - Warning



If the EWF is disabled, the OS will not be properly protected. In this situation, the OS should be shut down only by clicking the Start button and then clicking the Shut Down button in order to prevent the OS from being damaged.

🖋 start 📥 💽	If the EWF is disabled, you should only turn off the Pac by using the Shut Down button accessible from the Start menu.
	Do NOT directly turn off the power.
×	Do NOT use a watchdog timer to trigger a system reset.
*	Do NOT use the shutdown command.
Ar	re you sure you want to disable the EWF?
	Yes No
4. Click the Start button	, click the power button , and then click Restart for
changes to take effect. Windows Security	
8 🔣 Windows System	
D	
Shut down	
Restart	
Ċ	
■ ク 単	
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2.6. Using DCON Utility Pro to Configure I/O Modules

DCON Utility Pro is a tool kit designed to quickly control and manage I-97K series expansion I/O modules.



3. Security and Risk

This chapter provides information of technological security risks and solutions associated with the XP-9000-IoT services.

Security is important for XP-9000-IoT. Based on Windows 10 IoT, XP-9000-IoT can avoid many security vulnerabilities. The following provides some security policy that you should consider before you develop your XP-9000-IoT.

- > Windows Firewall
- ► IIS (Internet Information Service)
- ► UWF (Unified Write Filter)

The following table provides the default settings of the XP-9000-IoT security policy.

Security Item	Default Settings	User Name	Password
Firewall	Enable	N/A	N/A
IIS	Disable	anonymous	Blank
UWF	Enable	N/A	N/A

3.1. Creating and Managing User Accounts

Based on Windows 10 IoT, XP-9000-IoT includes several components for managing user account names, groups, and passwords.

- The Administrator Account component allows you to specify the password for the local Administrator account. You can only include one Administrator Account component in your configuration.
- The User Account component allows you to specify the user name, group, and password for a local user account. You must add a separate User Account component for each user in your configuration.
- Additional components are required if you want to provide end-user access to account settings, passwords, and display names in User Accounts in Control Panel.

To open the user accounts tool

- 1. Click the Start button
- , find Control Panel then click it.



2. Click the User Accounts



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To create a new use account

1. Click user accounts

🚨 > Contro	IPanel → Us	er Accounts 🤉	~ (ъ
Home		User Accounts	Remove user accounts	
nternet		Credential Manager Manage Web Credentials	Manage Windows Creder	ntials

2. Click the Manage another account



3. Click Add a user in PC settings

Choose the user you would like to change



4. Click Add someone else to this PC



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5. Click I don't have this person's sign-in information

6. Click Add a user without a Microsoft account

Croata acco	unt	
Create acco	ount	
someone@examp	le.com	
Use a phone numbe	r instead	
Get a new email add	ress	
Add a user without a	Microsoft account	>
	Back	Nevt

7. Type the name that you want to use for the account, if you want to set password, please enter it then click next.



To Make Changes to an Account

1. Back to Manage Accounts, click the account that you want to change.

Choose the user you would like to change



Add a new user in PC settings

2. Select the item that you would like to change:

🔏 Change an	Account				×
$\leftarrow \rightarrow \cdot$	↑ 🍇 « User Accounts → Manage Accounts → Change an Account	~	Q	Search Control Panel	م
	Make changes to General User's account				
	Change the account name		16		
	Create a password	2		er (1998)	
	Change the account type	く		General User	
	Delete the account)		Local Account	
	Manage another account				

- Click the Change the account name to change the name that appears on the Welcome screen for the account.
- Click the Create/change a password to create or change the password for the user and create or change the password hint.
- Click the Change the account type to change the account type to increase or decrease the user's rights on the computer.
- Click the Delete the account to delete the user account from the computer. When you delete the account, you are given the option to save the user's files on the computer.
- Click the **Manage another account** to manage another account.

3.2. Turning Firewall On or Off

Based on Windows IoT, XP-9000-IoT Firewall with Advanced Security and the related firewall technologies documented here enable user to share Internet connections, protect connections using a firewall, and provide Network Address Translation (NAT).

To open the Windows Firewall tool

1. Click the Start button _____, find Control Panel then click it.



2. Click the System and Security, and then click Windows Defender Firewall



System and Security Review your computer's status Save backup copies of your files with File History Backup and Restore (Windows 7)





Windows Defender Firewall Check firewall status | Allow an app through Windows Firewall

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To turn on/off Windows Firewall

1. Click the Turn Windows Firewall on or off in the left panel



2. Select the settings for your home/work (private) or public network, and then OK

P Customize Settings	-	- 🗆 🤅	×
← → → ↑ 💣 « Windows Defender Firewall → Customize Settings 🗸 ७	Search Control P	anel 🖌	P
Customize settings for each type of network			
You can modify the firewall settings for each type of network that you use			
Private network settings			
Turn on Windows Defender Firewall			
Block all incoming connections, including those in the list of allowed a	ipps		
Notify me when Windows Defender Firewall blocks a new app			
O Turn off Windows Defender Firewall (not recommended)			
Public network settings		-	
O Turn on Windows Defender Firewall			
Block all incoming connections, including those in the list of allowed a	ipps		
Notify me when Windows Defender Firewall blocks a new app			
	DK Cancel		
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3.3. Configuring the FTP Server

Microsoft Internet Information Service (IIS) is installed in XP-9000-IoT and enabled as default. The IIS includes FTP Server and Web Server. It is convenient to use anonymous FTP access as default. However, it may cause some security problems too.

Tips & Warnings



If you can't set up the FTP server, this is probably caused by the firewall setting, turn the firewall off.

To configure the FTP Server

1. Click the Start button . , search Control Panel then click it.



2. Click the System and Security, and then click Administrative Tools



- 3. Click the Internet Information Services (IIS) Manager
- 4. In the left pane, expand the local machine, and right-click Sites, and then click the Add FTP site ...



Internet Information

5. Type the name, and then select the Physical path (The default path is c:\inetpub\ftproot)

Add FTP Site				?	×
Site Information					
FTP site name:					
- Content Directory					
Physical path: T:\Ftproot					
	Previous	Next	Finish	Cancel	

6. Click on the drop down arrow and choose the IP address of your XP-9000-IoT, and then click the Next button

IP Address:	Port:		
All Unassigned	~ 21		
Enable Virtual Host Names:			
Virtual Host (example: ftp.contoso.com)	l:		
Start FIP site automatically			
SSL			
SSL No SSL			
SL No SSL Allow SSL			
) Start FTP site automatically SSL No SSL Allow SSL) Require SSL			
SSL No SSL Allow SSL Require SSL SSL Certificate:			

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7. Click on the drop down arrow and choose the All users, and then select the Read and Write check box, and then click the Finish button

Id FTP Site	? X
Authentication and Authorization Information	
Authentication	
Anonymous	
☑ Basic	
Authorization	
Allow access to:	
All users 🗸	
Permissions	
Read	
Write	
Previous	At Finish Cancel

8. Go to the **Control Panel**, click **System and Security**, and then click the **Allow an app through Windows Firewall**



9. Select the FTP Server check box, and then click the OK button

个 💣 « Windows Defender Firewall 🔉 Allowed apps	~ Ū	Sear	ch Control Panel
Allow apps to communicate through Windows Def	onder Firowall		
Anow apps to communicate through windows bei	ender i newan		
To add, change, or remove allowed apps and ports, click change s	ettings.		
What are the risks of allowing an app to communicate?		Ch	ange settings
Allowed apps and features:			
Name	F	rivate	Public ^
☑ DIAL protocol server			
Distributed Transaction Coordinator			
Email and accounts			
File and Printer Sharing			
File and Printer Sharing over SivibDirect			
FTP Server			
HomeGroup			
iSCSI Service			
Key Management Service			
✓ mDNS			
Media Center Extenders			
Microsoft Content			
	Details		Remove

OK Can

Cancel

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3.4. Configuring the UWF Manager

UWF provides a means for protecting a volume from writes. All writes to an UWF-protected volume are redirected to an overlay. These writes are stored in the overlay and made available as part of the volume. In this way, it feels like that the volume is writeable. The overlay may exist either on disk or in RAM. If desired, the data stored in the overlay may be committed to the protected volume. The following figure is an overview of UWF.

For more detailed information about Unified Write Filter (UWF), please refer to https://docs.microsoft.com/en-us/windows-hardware/customize/enterprise/unified-write-filter

On XP-9000-IoT, only the C drive that OS resides can be protected.

In cases of maintenance, the disk must be updated to your desired changes. There is one way to use contains three steps: (1) disabling UWF, (2) updating, and (3) re-enabling UWF.

To disable the UWF

- 1. Click the PAC Utility shortcut on the desktop
- 2. Click the UWF Operation tab, select the Disable check box, and then click Apply button



Tips & Warnings



If UWF is disabled and XP-9000-IoT/AXP-9000-IoT suffers sudden power off, the operating system of XP-9000-IoT/AXP-9000-IoT may be damaged or incomplete.

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Double-click

the PAC Utility

3. In the pop-up dialog box, click Yes button

Disable EWF - Warning



If the EWF is disabled, the OS will not be properly protected. In this situation, the OS should be shut down only by clicking the Start button and then clicking the Shut Down button in order to prevent the OS from being damaged.

	💜 🥵 start 🔿 💽	If the EWF is disabled, you should only turn off the Pac by using the Shut Down button accessible from the Start menu.			
		Do NOT directly turn off the power.			
	X	Do NOT use a watchdog timer to trigger a system reset.			
	×	Do NOT use the shutdown command.			
	A	Yes No			
4	. Click the Start button changes to take effect.	, click the power button , and then click Restart for			
	Windows Security				
	Shut down				
9	Restart				
(



Tips & Warnings



UWF only takes effect on hard drive C (where the operating system resides), it is recommended to download your programs to Compact Flash or USB-HDD. It'll prevent operating system from damages of illegal writing or sudden power off.

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3. In the pop-up dialog box, click OK button



4. Click the Start button changes to take effect.



Ф

, and then click Restart for

	Windows Security
	Windows System
	D
	Shut down
Q	Restart
	ch l
4	
	i へ H

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How to use the UWF console application command-line tool

To control the status of UWF, use the UWF Manager Command "UWFMGR".

Windows 10 IoT includes the Unified Write Filter (UWF) console application command-line tool, Uwfmgr.exe.

- Enable the UWF:
 uwfmgr filter enable (it is effective after rebooting.)
- Disable UWF: uwfmgr filter disable

For more information about using UWF Manager Commands, please refer to **Manager Commands** <u>https://docs.microsoft.com/en-us/windows-hardware/customize/enterprise/uwfmgrexe</u>

Tips & Warnings

Only the disk drive (usually, c:\) that OS resides can use the feature of UWF

4. Tools and Tasks

This chapter provides a brief introduction of the XP-9000-IoT service tools and its benefits.

There are several tools and utilities built-in and designed for use with XP-9000-IoT. Some of these are pre-installed on XP-9000-IoT and can work directly on XP-9000-IoT, and some of these are supporting tools and can help you to manage the XP-9000-IoT remotely on a PC.

Tools for working with PC can be found separately by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model= XP-9181-IoT



4.1. PAC Utility

PAC Utility is a collection of software applications that enable management and configuration of XP-9000-IoT system and features.

4.1.1. System Information

The System Information tab provides functions to monitor necessary device information of XP-9000-IoT. The system information is the most important note of version control for upgrading system.

PAC Utility V1.1.1.0 10/31/202	20	- 🗆 ×
File Help		
	DAG	
System Information Auto	Execution EWF Operati	on Multi-serial Port Module Language Setting
list the system info	ormation and the mo	dule name on slot.
Module On Slot	Pac Information	·
Slot 1: 9114	Pac Type:	XP9X81IoT
Slot 2: 97018	Serial Number:	01-7E-2A-06-18-00-00-95
Slot 3: 9014	OS Version:	XP9X81loT , 1.0.0.0 , 2020-11-24
Slot 4: Backplane Version: 1.0.14.0		1.0.14.0
Slot 5:	CPU: Intel(R) Atom(TM) CPU E3845 @ 1.910	
Slot 6:	PacSDK Version:	4.4.5.0 , 7/31/2020
Slot 7:	PacNet Version:	2.1.0.5 , 8/15/2018
	Autoinit.exe Version:	1.0.0.0 , 10/30/2020
	Bus Driver:	1.2.2.0 , 5/23/2020
	I/O Driver:	1.2.2.0 , 5/23/2020
	Port Driver:	1.1.8.0 , 5/23/2020

4.1.2. Auto Execution

The Auto Execution tab provides functions to configure programs running at XP-9000-IoT startup, it allows users to configure ten execute files at most.

AC Utility V1.1.1.0 10/31/2020		- 1	×
File Help			
PAC Utili	ty		
System Information Auto Execution EWF Operation Multi-serial Po	ort Module	Language	Setting
Set the program to execute automatically at system s	startup.		
💡 At most 10 programs can be specified to execute automatically at system s	tartup.	Delay execu	ition(sec)
Program 1			
Program 2			
Program 3			
Program 4			
Program 5			
Program 6			
Program 7			
Program 8			
Program 9			
Program 10			
Clea	ar All Setting	Save Al	Setting
			10

Tips & Warnings



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

The tab use to	How to use
Configure programs running at	Click on the Browse button and select the execute file
startup	which you want, and then click the Save All Setting
	button.

4.1.3. UWF Operation

The UWF Operation tab provides functions to configure UWF.

C Utility V1.1.1.0 10/30/2020			1000	
Help				
				-
		History Part Mashel		C
m information Auto Exec	to on ohlo or dischlo	Iti-serial Port Module	e Language	e Sei
ige the EWF status	to enable of disable	the system pro	nection.	
UWF Control				
	0.0		Apple	
	Disable		Apply	
Unified Write Filter Configuration	Utility version 10.0.17763			~
Copyright (C) Microsoft Corporation	on. All rights reserved.			
Current Session Settings				
FILTER SETTINGS Filter state: SERVICING SETTINGS Servicir	ON Pending commit: N/A Sh ng State: OFF	nutdown pending:No		1
OVERLAY SETTINGS	oize: 1024 MD Worping Thra	abold: 510 MD Oritical	Threahold: 100	
MB Freespace Passthrough: O	FF Persistent: OFF Reset Mod	le: N/A	Threshold, 1024	•
VOLUME SETTINGS				
Volume 0f339e0e-0000-0000-000	00-100000000000 [C:]	0000 100000000000	File Evolucione	
Current Session Exclusions for V	Mulle ID. 01339606-0000-0000		File Exclusions	
	olume 0f339e0e-0000-0000-0000-	-100000000000 [C:]		
C:\Program Files\Windows Def	olume 01339e0e-0000-0000-0000 ender Jows Defender	-100000000000 [C:]		

The tab use to	How to use
Enable/disable the UWF function	Enable the UWF function:
	Select the Enable option, and then click the Apply
	button.
	Disable the UWF function:
	Select the Disable option, and then click the
	Apply button.

4.1.4. Multi-serial Port Module



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

The table below shows the expansion RS-232/RS-422/RS-485 communication modules that are compatible with the XP-9000-IoT.

ltem	RS-232	RS-422/RS-485	Isolation	Connector
I-9114	4	4	2500 Vrms	DB-37 (Female) x 1
I-9144	-	4	2500 Vrms	Terminator block x 1

The XP-9000-IoT can be expanded to support up to 16 I/O modules.

For more detailed information about these support modules, please refer to

https://www.icpdas.com/en/product/guide+Remote I O Module and Unit+PAC %EF%BC%86amp; Local I

O Modules+I-9K I-97K Series



4.2. DCON Utility Pro

The DCON Utility Pro is a toolkit that help user to search the network, easily to configure and test the I/O modules via the serial port (RS-232/485) or Ethernet port (using virtual com port).

For more information on how to use DCON Utility Pro to configure I/O modules, please refer to section 2.6. Using DCON Utility Pro to Configure I/O Modules.

5. Your First XP-9000-IoT Program

This chapter provides a guided tour that describes the steps needed to set-up a development environment, download, install, configure for user programming with the XP-9000-IoT.

Before writing your first program, ensure that you have the necessary development tool and the corresponding XP-9000-IoT SDKs are installed on your system.

Development Tools

XP-9000-IoT is a IoT based unit. IoT is a mature embedded operating system which supports rapid development. Three standard development tools are list as follows which are highly integrated, with comprehensive support for developing applications of IoT based XP-9000-IoT.

- Visual Basic.net
- Visual C#
- Visual C++

XP-9000-IoT SDKs

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

The XP-9000-IoT SDK are classified by development tools that can be obtained by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

5.1. Your First XP-9000-IoT Program in VB.NET

The best way to learn programming with XP-9000-IoT is to actually create a XP-9000-IoT program.

The example below will guide you through creating this simple program in VB.net and running them on XP-9000-IoT.

To create a demo program with VB.NET that includes the following main steps:

- 1. Create a new project
- 2. Specify the path of the PAC reference
- 3. Add the control to the form
- 4. Add the event handling for the control
- 5. Upload the application to XP-9000-IoTT
- 6. Execute the application on XP-9000-IoT

All main steps will be described in the following subsection.

5.1.1. Create a New Project

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

1. Run the Visual Studio 2008

Visual Studio 2008



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


3. In the Project types pane, expand Visual Basic, and then click Windows

4. In the Templates pane, click Windows Forms Application

5. Type a name in the Name field, and then click OK button

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

New Project			? 🗙	
Arey Project Project types: → Visual Basic → Windows → Web → Smart Device → Office → Database → Reporting → Test → WCF → Workflow → Visual C# → Other Project Types → Test Projects		INET Framework 3.5 Visual Studio installed templates Image: Studio installed templates		
A project for creatin	g an application with	a Windows user interface (.NET Framework 3	.5)	
<u>N</u> ame:	SDKInfo			
Location:	C:\Documents and Settings\Windows\My Documents\WM_Windows4 My Documents 😽 📴			
Solution Name: SDKInfo			ate <u>d</u> irectory for solution	
OK Cancel				

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5.1.2. Specify the Path of PAC Reference

The PAC SDK provides a complete solution to integrate with XP-9000-IoT and it's compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

1. Get the PACNET.dll and copy it to the project folder

The PACNET.dll can be obtained separately by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT



2. In the Solution Explorer, right-click the References node, and then click Add Reference...

Solution 1	Explorer - MyF	Porject	×
	ø 🗵 🖽	Å.	
🧔 Solu	tion 'MyPorject' (1	1 project)	
	Build		
	Rebuild		
	Deploy		
	Clean		
	Add	+	
	Add <u>R</u> e	ference	
	Add Wg	eb Reference	
	So View C	lass Diagram	
	Set as S	tartUp Project	
_	Debug		
Ai	ld Reference		? 🛛
1	NET Project	Brrwse Basent	
		2 200 Keteni	
	Location: 🥑	🗅 SDKInformation 🛛 🕑 🗊 🖻	•
	🛅 bin		
	My Project		
	PACNET.d	11	
₽ Re			
	<u>N</u> ame:	PACNET.dll	~
	<u>F</u> ile types:	Component Files (*.dll;*.tlb;*.olb;*.ocx;*.exe)	~
		OK	Cancel

3. Click the Browse tab, and then select the PACNET.dll

5.1.3. Add the Control to the Form

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

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

1. From the Toolbox, drag a Button control onto the form



2. Right-click the Button control, and then click Properties

Form1.vb [Design]* Start Page		▼ ×
🖳 Form1		
<u></u>		
d Button1		View Code
0		Allew Corre
	ЧЪ	Bring to Front
	2	Send to Back
	車	Align to <u>G</u> rid
	8	Lock Controls
		Select Form1'
	Ж	Cut
	Ð	Сору
	ß	<u>P</u> aste
	\times	<u>D</u> elete
	P	Properties
	_	

3. In the Properties window, type Check the SDK version in the Text item, and press ENTER



5.1.4. Add the Event Handling for the Control

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

1. Double-click the button on the form



2. Inserting the following code

Dim data(30) As Byte PACNET.Sys.GetSDKVersion(data) MessageBox.Show(PACNET.MISC.WideString(data))

🎁 (Gene	ral) 🔽 🎬 (Declarations)
Pub	lic Class Form1
Þ	Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As Sy Dim data(30) As Byte PACNET.Sys.GetSDKVersion(data)
	MessageBox.Show(PACNET.MISC.WideString(data))
End	Class

Tips & Warnings



5.1.5. Upload the Application to XP-9000-IoT

XP-9000-IoT supports FTP server service. You can upload files to XP-9000-IoT or download files from a public FTP server.



1. On the Build menu, click Build Solution



2. Open the browser and type the IP address of XP-9000-IoT/AXP-9000-IoT

3. Upload the SDKInfo.exe application and the corresponding PACNET.dll files to XP-9000-IoT

Tips & Warnings



For applications programming in C# and VB.net with .net compact framework, when executing these application on XP-9000-IoT, the corresponding PACNET.dll must be in the same directory as the .exe file.



5.1.6. Execute the Application on XP-9000-IoT

SDKInfo.exe

After uploading the application to XP-9000-IoT, you can just double-click it to execute it.

5.2. Your First XP-9000-IoT Program in C#

The best way to learn programming with XP-9000-IoT is to actually create a XP-9000-IoT program.

The example below will guide you through creating this simple program in C# and running them on XP-9000-IoT.

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

- 1. Create a new project
- 2. Specify the path of the PAC reference
- 3. Add the control to the form
- 4. Add the event handling for the control
- 5. Upload the application to XP-9000-IoT
- 6. Execute the application on XP-9000-IoT

All main steps will be described in the following subsection.

5.2.1. Create a New Project

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

1. Run the Visual Studio 2008

Visual Studio 2008



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



3. In the Project types pane, expand Visual C#, and then click Windows

4. In the Templates pane, click Windows Forms Application

5. Type a name in the Name field, and then click OK button

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

New Project			? 🛛	
New Project Project types: Visual Basic Visual C# Windows Web Smart Device Office Database Reporting Test WCF Workflow Visual C++ Other Project Types Test Projects		Templates: Visual Studio installed templates Windows Forms Application WPF Application Windows Service WPF User Control Library My Templates Search Online Templates	NET Framework 3.5 ♥ Elevent Application ■ Empty Project ■ WPF Custom Control Library ■ Windows Forms Control Library	
A project for creatin	g an application with	a Windows Forms user interface (.NET Frame	work 3.5)	
<u>N</u> ame:	SDKInfo			
Location: C:\Documents and Settings\Windows\My Documents\WM_Windows4 My Documents 💟 📴		ws4 My Documents 🛛 🖌 📴 rowse		
Solution Na <u>m</u> e: SDKInfo		Crea	te <u>d</u> irectory for solution	
OK Cancel				

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5.2.2. Specify the Path of PAC Reference

The PAC SDK provides a complete solution to integrate with XP-9000-IoT and it's compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

1. Get the PACNET.dll and copy it to the project folder

The PACNET.dll can be obtained separately by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT



2. In Solution Explorer, right-click the References node, and then click Add Reference...

3. Select Browse tab and add the PACNET.dll

Solution Ex	plorer - SI	KInfor	mation 🛛	
		1 &		
Solution	n SDKInfon	nation' (1	l project)	
	Kinfo Proper	Build		
÷ 🖼	Refere	Rebui	la	
e- 🗃	Form1	Denlo	NY	
	Fo:	Chan	5	
🛃	Progra	4.1.3		
		Ada		
		Add F	Keterence	
		Add	Web Reference	
	80	Y ICW	Class Diagram	
		Set as	StartUp Project	
	Add Refer	ence		? 🔀
	NET	Projects	Browse Recent	
		Topecia		
	Locati	on: [🙋)SDKInformation 🛛 🕐 📴 🖽 -	
	🔁 bin			2
	i [] My C⊐ obi	Project		
	PA	CNET.dl		
			•	
Resourc	Name:		PACNET di	~
	Eile tu	nes:	Compared Eller (* 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10. * 10.	
	(y)		Component rues ("un," un, ".010," 00x," exe)	
	Y			encel
				alter

5.2.3. Add the Control to the Form

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

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

1. From the Toolbox, drag a Button control onto the form



2. Right-click the Button control, and then click Properties

Δ	Form1.cs [Design]* Properties	Start]	Page 🛛 🔻 🗙
	💀 Form1		
	Q	-0	
	d button1		View Code
	0		Duin e to Front
		- 10	Send to Back
		1	Align to <u>G</u> rid
		<u> </u>	Lock Controls
			Select Form1'
		Ж	Cut
			Сору
		B	Paste
		×	Delete
			Properties
			Tobergoo

3. In the Properties window, type Check the SDK version in the Text item, and press ENTER

_	Form1.cs [Design]* Properties Start Page - ×					
b	button1 System. Windows.Forms.Button					
0	2↓ 🗉 🖋 🖾					
Г	ImageList	(none)	^			
	RightToLeft	No				
	Text	Check the SDK Version 💊				
	TextAlign	MiddleCenter				
	TextImageRelation	Overlay				
	UseMnemonic	True				
	UseVisualStyleBackColor True					
T T	Text The text associated with the control.					

5.2.4. Add the Event Handling for the Control

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

1. Double-click the button on the form



2. Inserting the following code

byte []data = new byte[30]; PACNET.Sys.GetSDKVersion(data); MessageBox.Show(PACNET.MISC.WideString(data));



Tips & Warnings



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

5.2.5. Upload the Application to XP-9000-IoT

XP-9000-IoT supports FTP server service. You can upload files to XP-9000-IoT or download files from a public FTP server.



1. On the Build menu, click Build Solution



2. Open the browser and type the IP address of XP-9000-IoT

3. Upload the SDKInfo.exe application and the corresponding PACNET.dll files to XP-9000-IoT

Tips & Warnings



For applications programming in C# and VB.net with .net compact framework, when executing these application on XP-9000-IoT, the corresponding PACNET.dll must be in the same directory as the .exe file.



5.2.6. Execute the Application on XP-9000-IoT

SDKInfo.exe

After uploading the application to XP-9000-IoT, you can just double-click it to execute it.

5.3. Your First XP-9000-IoT Program in Visual C++

The best way to learn programming with XP-9000-IoT is to actually create a XP-9000-IoT program.

The example below will guide you through creating this simple program in Visual C++ and running them on XP-9000-IoT.

To create a demo program with Visual C++ that includes the following main steps:

- 1. Create a new project
- 2. Specify the path of the XP-9000-IoT reference
- 3. Add the control to the form
- 4. Add the event handling for the control
- 5. Upload the application to XP-9000-IoT
- 6. Execute the application on XP-9000-IoT

All main steps will be described in the following subsection.

5.3.1. Create a New Project

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

1. Run the Visual Studio 2008

Visual Studio 2008



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



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3. In the Project types pane, expand Visual C++, and then click MFC

4. In the Templates pane, click MFC Application

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

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

New Project				? 🗙	
<u>P</u> roject types:		Templates:	.NET Framework 3.5		
 Visual Basic Visual C# Visual C++ AIL CLR General MFC Smart Device Test Win32 Other Projects 		Visual Studio installed templates MFC ActiveX Control MFC DLL My Templates	Ho MFC Application		
		🕎 Search Online Templates			
A project for creatin	g an application that u	uses the Microsoft Foundation Class Library			
<u>N</u> ame:	SDKInfo				
Location: C:\Documents and Settings\Windows\My Document		ettings\Windows\My Documents\WM_Windo	ws4 My Documents 🛛 🔽 🗌	<u>B</u> rowse	
Solution Na <u>m</u> e: SDKInfo		Crea	ate <u>d</u> irectory for solution		
	OK Cancel				

6. On the first page of the wizard, click Next >



7. On the next page of the wizard, select Dialog based, select Use MFC in a static library, and then click Finish

C Application Wizard - SDKI	nfo	?	
Applicatio	Application type:	Project style:	
Application Type Compound Document Support Document Template Strings Database Support User Interface Features Advanced Features	Generation of the second	Visual Studig O Office Visual Studig O Office Visual style and colors:	
	Ocument/jew architecture support Resource language: Use Ugicode libraries	Use of MFC: Use of MFC in a shared DLL Use MFC in a static library	
	< Previous Ne	ext > Finish Cancel	

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5.3.2. Specify the Path of the PAC Reference

The PAC SDK provides a complete solution to integrate with XP-9000-IoT and it's compatible with Visual C#, Visual Basic .net and C++. In order to use a component in your application, you must first add a reference to it.

1. Get the PACSDK.H and PACSDK.lib, and copy them to the project folder

The PACSDK.H and PACSDK.lib can be obtained separately by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

2. On the Tools menu, and then click Options



- 3. In the left pane, expand Projects and Solutions, and then click the VC++ Directories
- 4. Select Include files in the Show directories for drop down box, and then click the New Line button
- 5. Add a new line to the list of directories. Browse to the directory that contains the PACSDK.H file.



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- 6. Select Library files in the Show directories for drop down box, and then click the New Line button
- 7. Add a new line to the list of directories. Browse to the directory that contains the PACSDK.lib file, and then click OK button



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8. In the Solution Explorer windows, right-click the project name, and then click Properties



- 9. In the left pane, expand Configuration Properties, and then click the Link
- 10. In the right pane, type the PACSDK.lib in the Additional Dependencies item, click Apply button, and then click the OK button

SDKInfo Property Pages			? 🛛
Configuration: Active(Debug)	Platform: Active(Wir	32)	Configuration Manager
 Common Properties Configuration Properties General Debugging C/C++ Linker General Input Manifest File Debugging System Optimization Embedded IDL Advanced Command Line Manifest Tool Resources XML Document Generator Browse Information Build Events Custom Build Step 	Additional Dependencies Ignore All Default Libraries Ignore Specific Library Module Definition File Add Module to Assembly Embed Managed Resource File Force Symbol References Delay Loaded DLLs Assembly Link Resource	PACSDK.lib No Internet State S	n specific.
		ОК	Cancel <u>A</u> pply

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5.3.3. Add the Control to the Form

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

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

1. From the Toolbox, drag a Button control onto the form



SDKInfo.rc - IDD - Dialog* 🛛 🗢 ×							
		1					
	SDKInfo			\mathbf{X}			
E							
1							
1	Rittool (
1	Buttom	¥	Cut				
E			Сору				
÷			Paste				
1	TO	×	Delete				
E			<u>A</u> dd Event Handler	DK Cancel			
			Insert Active <u>X</u> Control				
		~**	Add Class				
		~	Add Variable				
		12.	Size to Content				
			Align Letts				
		чцт гар	Chash Masmanias				
			Check Minemonics				
	<		rioperties				

2. Right-click the Button control, and then click Properties

3. In the Properties window, type Check the SDK version in the Caption item, and press ENTER

	Properties		₹×				
Π	IDC_BUTION1 (Button Control) IButtonEditor						
21 🗐 🖋 💼							
	Appearance		^				
	Bitmap	False					
	Caption	Check the SDK Version					
	Client Edge	False					
	Flat	False					
	Horizontal Alignr	Default					
	Icon	False					
	Modal Frame	False					
	Multiline	False	~				
Caption Specifies the text displayed by the control.							

5.3.4. Add the Event Handling for the Control

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

1. Double-click the button on the form



2. Inserting the following code

char sdk_version[32]; TCHAR buf[32]; pac_GetSDKVersion(sdk_version); pac_AnsiToWideString(sdk_version, buf); MessageBox(buf,0,MB_OK);



3. Inserting the following code into the header area

#include "PACSDK.H"

// SDKInfoDlg.cpp : implementation file 11 #include "stdafx.h" #include "SDKInfo.h" #include "SDKInfoDlg.h" #include "PACSDK.H" **⊟ #ifdef** _DEBUG L #define /~~~/@F@WQ/ ton it

5.3.5. Upload the Application to XP-9000-IoT

XP-9000-IoT supports FTP server service. You can upload files to XP-9000-IoT or download files from a public FTP server.



1. On the Build menu, click Build Solution



2. Open the browser and type the IP address of XP-9000-IoT

3. Upload the SDKInfo.exe application to XP-9000-IoT



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5.3.6. Execute the Application on XP-9000-IoT



After uploading the application to XP-9000-IoT, you can just double-click it to execute it.

6. I/O Modules and SDK Selection

This chapter describes how to select a suitable expansion I/O module and the corresponding SDK library to be used for developing programs on XP-9000-IoT.

XP-9000-IoT provides the following I/O expansion buses:



I-9K/I-97K series I/O modules

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1. RS-485 (I-7000 series and M-7000 series)

I-7000, RU-87Pn and high profile I-87K series modules connect to XP-9000-IoT via a twisted-pair, multi-drop, 2-wire RS-485 network.

> I-7000 series I/O modules

Module	Native SDK	.NET CF SDK
I-7000 series	PACSDK.dll	PACNET.dll
I-7000 series with I-7088 (D)	PACSDK_PWM.dll	PACNET.dll

For full details regarding I-7K series I/O modules and its demos, please refer to:

註:網頁 demo 位置未知

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

Module	Native SDK	.NET CF SDK
RU-87Pn+I-87K series	PACSDK.dll	PACNET.dll

Other Specified I/O

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

2. Local I/O Module (I-9K series and I-97K series)

There are two types of I/O modules that can be inserted into local bus of a XP-9000-IoT, Parallel and Serial. Parallel modules (I-9K Series) are high-speed modules and only support an MCU (Main Control Unit). Serial modules (I-97K Series) can support either an MCU or an I/O expansion unit.

The following table shows the appropriate SDK library to be used for I/O modules.

I-9K series I/O modules

Module	Native SDK	.NET CF SDK
I-9014 (C)	pac_i9014W.dll	pac_i9014Wnet.dll
I-9017(C)-15	pac_i9017W.dll	pac_i9017Wnet.dll
I-9028U	pac_i9028W.dll	pac_i9028Wnet.dll
I-9093	pac_i9093W.dll	pac_i9093Wnet.dll
I-9172	pac_i9172W.dll	pac_i9172Wnet.dll
Other I-9K series	PACSDK.dll	PACNET.dll

For full details regarding I-9K series I/O modules and its demos, please refer to:

註:網頁 demo 位置未知

I-97K series I/O modules

Module	Native SDK	.NET CF SDK
I-97K series	PACSDK.dll	PACNET.dll

For full details regarding I-97K series I/O modules and its demos, please refer to: 註:網頁 demo 位置未知

7. APIs and Demo Programs

This chapter provides a brief overview of PAC APIs and demo programs that have been designed for XP-9000-IoT.

ICP DAS provides a set of demo programs in different programming languages. You can examine the demo codes, which includes numerous comments, to familiarize yourself with the PAC APIs. This will allow developing your own applications quickly by modifying these demo programs.

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



7.1. PAC Standard APIs

The diagram below shows the set of each system operation API provided in the PACSDK.



7.1.1. VB.NET Demo Programs for PAC Standard APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC Standard APIs in a VB.NET language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For VB.NET applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
deviceinformation	deviceinformation	Retrieves information about the OS version, the CPU version and the SDK version, etc.
diagnostic	diagnostic	Retrieves information about the slot count and the module inserted in the backplane.
dip	dip	Retrieves information about the status of the DIP switch.
getrotaryid	getrotaryid	Retrieves information about the status of the rotary switch.
memory	memory	Shows how to read/write date values from/to EEPROM.
uart	uart	Shows how to read the name of local I/O modules via UART
watchdog	watchdog	Displays information about how to operate the watchdog

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7.1.2. C# Demo Programs for PAC Standard APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC Standard APIs in a C# language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For C# applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
deviceinformation	deviceinformation	Retrieves information about the OS version, the CPU version and the SDK version, etc.
diagnostic	diagnostic	Retrieves information about the slot count and the module inserted in the backplane.
dip	dip	Retrieves information about the status of the DIP switch.
getrotaryid	getrotaryid	Retrieves information about the status of the rotary switch.
memory	memory	Shows how to read/write date values from/to EEPROM.
uart	uart	Shows how to read the name of local I/O modules via UART
watchdog	watchdog	Displays information about how to operate the watchdog

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7.1.3. Visual C++ Demo Programs for PAC Standard APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC Standard APIs in a Visual C++ language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For Visual C++ applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
diagnostic	diagnostic	Retrieves information about the slot count and the module inserted in the backplane.
dip	dip	Retrieves information about the status of the DIP switch.
getdeviceinformation	getdeviceinformation	Retrieves information about the OS version, the CPU version and the SDK version, etc.
GetRotaryID	GetRotaryID	Retrieves information about the status of the rotary switch.
Momory	readmemory	Shows how to read date values from EEPROM.
Memory	writememory	Shows how to write date values to EEPROM.
uart_sendcmd	uart_sendcmd	Shows how to read the name of local I/O modules via UART
WatchDog	WatchDog	Displays information about how to operate the watchdog

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7.2. PAC IO APIs

The diagram below shows the types of the PAC IO APIs provided in the PACSDK or the specified SDK.

For more information about the APIs and demo programs provided by the expansion I/O modules, please refer to chapter 6. I/O Modules and SDK Selection



7.2.1. VB.NET Demo Programs for PAC IO APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC IO APIs in a VB.NET language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For VB.NET applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
		Shows how to send/receive a command/response application.
	7k87k_basic	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to read the AI values of AI module.
	7k87k_ai	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to write the AO values to AO module.
	7k87k_ao	This demo program is used by 7K, 87K or 97K series
Develo		AI modules which connected through a COM port.
Remote		Shows how to read the DI values of DI module.
	7k87k_di	This demo program is used by 7K, 87K or 97K 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, 87K or 97K 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, 87K or 97K series
		AI modules which connected through a COM port.

7.2.2. C# Demo Programs for PAC IO APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC IO APIs in a C# language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For C# applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
		Shows how to send/receive a command/response application.
	7k87k_basic	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to read the AI values of AI module.
	7k87k_ai	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to write the AO values to AO module.
	7k87k_ao	This demo program is used by 7K, 87K or 97K series
Dometo		AI modules which connected through a COM port.
Remote		Shows how to read the DI values of DI module.
	7k87k_di	This demo program is used by 7K, 87K or 97K 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, 87K or 97K 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, 87K or 97K series
		AI modules which connected through a COM port.

7.2.3. Visual C++ Demo Programs for PAC IO APIs

The PAC SDK includes the following demo programs that demonstrate the use of the PAC IO APIs in a Visual C++ language environment. The following demo programs can be found by downloading the latest version from ICP DAS web site.

For Visual C++ applications, these demo programs can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Folder	Demo	Explanation
		Shows how to send/receive a command/response application.
	7k87k_basic	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to read the AI values of AI module.
	7k87k_ai	This demo program is used by 7K, 87K or 97K series
		AI modules which connected through a COM port.
		Shows how to write the AO values to AO module.
	7k87k_ao	This demo program is used by 7K, 87K or 97K series
Domete		AI modules which connected through a COM port.
Remote		Shows how to read the DI values of DI module.
	7k87k_di	This demo program is used by 7K, 87K or 97K 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, 87K or 97K 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, 87K or 97K series
		AI modules which connected through a COM port.

8. Restore and Recovery

This chapter provides information of the XP-9000-IoT restore and recovery, and a guided tour that describes the steps needed to restore and recovery the XP-9000-IoT.

The XP-9000-IoT come with a recuse CF card that can be used to not only boot the XP-9000-IoT when the OS fails to load, but also recover files.

The recovery file of the recuse CF card can be found separately by downloading the latest version from ICP DAS web site.

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

8.1. Recovering the XP-9000-IoT

The XP-9000-IoT comes with a recuse CF card that can be used to restore the XP-9000-IoT to factory default settings by reinstalling the XP-9000-IoT OS image.

If the XP-9000-IoT crashes and won't start up, you can use the rescue CF card to start up the XP-9000-IoT and then fix the problem that caused the crash.

To restore the XP-9000-IoT OS

- 1. Plug the Rescue CF card into CF slot (XP-9000-IoT)
- 2. Restart the XP-9000-IoT, and then enter the BIOS by pressing Delete key
- 3. Press the → key to highlight the Boot tab, and then press ↓ key to select [Hard Drive BBS Priorities]





4. Press Enter on Boot Option #1, and select [CF card name]

5. Press the F4 key, and then select Yes to save settings and exit the utility.

The XP-9000-IoT will restart and then enter to the XP-9000-IoT PAC Recovery Utility.

6. Check Yes and click Start XP-9000-IoT Recovery button for start the recovery process.

The process will take a few minutes until this utility is displayed again.

Windows 10 IoT PAC Recovery

Welcome to the PAC Recovery Utility
This program will restore the Windows 10 IoT on your PAC. During this process ALL DATA stored on your Hard Disk will be DELETED. Please backup necessary files before starting to recover.
CAUTION Please do not remove the CF card from your PAC after starting the Recovery-Process. The Recovery Process itself will take a few minutes.
PLEASE WAIT until the process finish, after that, the PAC reboots automatically
Please read the following end-user license agreement (EULA) carefully. To use this factory restore option, you must accept the terms of the EULA.
LICENSE AGREEMENT TO RESTORE THE PC TO THE ORIGINAL OEM FACTORY STATE, YOU WILL NEED \lor TO ACCEPT THIS AGREEMENT BY SELECTING THE "ACCEPT EULA" BUTTON LOCATED ON THE SCREEN.
Yes, I accept the EULA.
No, I decline the EULA.
Start XP-9000-IoT Recovery Start Cmd Exit the Program





8. Click the Exit And Restart button, and then repeat the step 2 to step 5. In step 4, the
[SATA PM: InnoDisk Corp. –mSA] option need be selected for using the restored disk as a boot drive. After completing the configuration process, restart the XP-9000-IoT.

Windows 10 IoT PAC Recovery

Welcome to the PAC Recovery Utility
This program will restore the Windows 10 IoT on your PAC. During this process ALL DATA stored on your Hard Disk will be DELETED. Please backup necessary files before starting to recover.
CALIFICIAL Please do not remove the CF card from your PAC after starting the Recovery-Process. The Recovery Process itself will take a few minutes.
PLEASE WAIT until the process finish, after that, the PAC reboots automatically
Please read the following end-user license agreement (EULA) carefully. To use this factory restore option, you must accept the terms of the EULA.
LICENSE AGREEMENT TO RESTORE THE PC TO THE ORIGINAL OEM FACTORY STATE, YOU WILL NEED \checkmark TO ACCEPT THIS AGREEMENT BY SELECTING THE "ACCEPT EULA" BUTTON LOCATED ON THE SCREEN.
 Yes, I accept the EULA. No, I decline the EULA.
Start XP-9000-IoT Recovery Start Cmd Exit the Cogram

Page: 126

8.2. Restoring the Rescue CF Card

The rescue CF card is rescue equipment that allows you to perform some maintenance tasks on your system in case of failure.

Once the rescue CF card are partitioned or formatted, you must restore the rescue CF card.

Requirements

For restoring the Rescue CF card, you should prepare Ghost 11 or later, which you could obtain by contacting Symantec (<u>http://www.symantec.com</u>)

In this article, we will use Symantec Norton Ghost32 V.11 (The Symantec Norton Ghost V.11 or above version are recommend) to restore the rescue CF card.

To restore the rescue CF card

1. Get the rescue ghost file, rescue.gho

The rescue.gho file can be found by downloading the latest version from ICP DAS web site. <u>https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT</u>

2. Run the Symantec Ghost32, and then click OK button

bout Symantec Ghos	1
Product Manufacturer	Symantee Ghost 11.0.2 Corporate Edition Symantee Corporation Copyright (C) 1998-2007 Symantee Corporation. All rights reserved. Symantee, the Symantee Logo are trademarks or registered trademarks of Symantee Corporation or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners. The Licensed Software and Documentation are deemed to be "commercial computer software" and "commercial computer software documentation" as defined in FAR Sections 12.212 and DFARS Section 227.7202.
	<u>0</u> K

3. Click Function Menu, point to Local, point to Disk, and then click From Image

Sym	antec Ghost 11	1.0.2	Copyright	(0)	1998-2007 Sym	antec	Corporation.	All rights reserved.	
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	Peer to peer		<u>P</u> artition		To <u>I</u> mage				
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Sup	<u>Q</u> uit								
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- Symantee Ghost 11.0.2 Copyright (C) 1998-2007 Symantee Corporation. All rights reserved.

 Image file name to restore from

 Look in:

 Date

 Name

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 Name

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 Date

 Nith State

 N2000_Rescue_Disk_v1000 155,022,573

 2014/06/30 02:19:48 PM

 File game:

 Image file description:

 Image file description:
- 4. Select the rescue ghost file, rescue.gho, that you saved and then click Open

5. Select the destination to CF card and click then OK

Drive	Sino(MR)	Tuno	L Culindora	Honda	Sectors
1	476940	Bacio	60801	neaus 255	B3
2	953869	Basic	121601	255	63
3	1839	Basic	234	255	63
-					_

6. Recovery the rescue ghost file, rescue.gho, into CF card and then click OK

yma	anteo	c Ghost	11.0.2	Copyri	ght (C) 1998-i	2007 Syman	tec Corporatio	on. All rights r	eserved.	
	Dest	lination	Drive De	tails						
	ſ	Part	Type	ID	Description	Label	New Size	Old Size	Data Size	
		1	Primary	0Ь	Fat32	N0 NRME	1835	1898	181	
						Free	4	7		
						Total	1839	1905	181	
			[<u>0</u> K		<u>C</u> ano	cel		J.
						5	symant	ec.		

7. The rescue CF card has been done

ymantec Ghost 11.0.2	Copyright (C)	1998-2007 Symantee	Corporation	All rights res	erved.	
Progress Indicator -						
0%	25%	50%		75%		100%
Statistics						
Percent complete	3			~ 1.	. 1	
Speed (MB/min)	140				1	
MB copied	7			1	-7	
MB remaining	174			1		
Time elapsed	0:03			1		
Time remaining	1:14					
Details						
Connection tupe	Local					
Source	Local file D:\	N2000_Rescue_Disk_	v1000.GHO.	1905 MB		
Destination	Local drive [3]	I, 1839 MB				
Current partition	1/1 Type:b [Fat3	2], Size: 1898 MB, NO NAME				
Current file	\BIN\ZIP.EXE					
Symantec.						

9. XP-9000-IoT Updates

This chapter provides information of the XP-9000-IoT OS, SDKs and tools, and a guided tour that demonstrates the steps needed to update the XP-9000-IoT OS, SDKs and tools.

ICP DAS will continue to add additional features to XP-9000-IoT OS, SDKs and tools in the future, so we advise you to periodically check the ICP DAS web site for the latest updates.

The files of OS updates, SDK updates and tool updates can be found by downloading the latest version from ICP DAS web site.



https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT/

9.1. Updating the XP-9000-IoT OS

ICP DAS will continue to add additional features and improve performances to XP-9000-IoT OS in the future, so we advise you to periodically check the ICP DAS web site for the latest updates.

The information can be obtained from: https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Free feel to contact us to get the latest version of OS image. E-mail: <u>service@icpdas.com</u>

9.2. Updating the XP-9000-IoT SDK

ICP DAS will continue to include more functionality and API calls to XP-9000-IoT SDK in the future, so we advise you to periodically check the ICP DAS web site for the latest updates.

To update the XP-9000-IoT SDK



2. Click the Start button



٢ , click the power button

, and then click Restart for

changes to take effect.

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3. Download the latest version of the pacsdk.dll file

The latest version of the pacsdk.dll file can be obtained from ICP DAS web site. https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Copy the downloaded file, pacsdk.dll into the C:\Windows\System32\ folder. This will overwrite the existing pacsdk.dll file

9.3. Updating the XP-9000-IoT Tools

ICP DAS will continue to add more functionality and support to the PAC utility in the future, so we advise you to periodically check the ICP DAS web site for the latest updates.

To update the PAC Utility

1. Download the latest version of the PAC utility file in PC or a laptop

The latest version of the PAC utility file can be obtained from ICP DAS web site. <u>https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT</u>

2. Extract the downloaded file, and then copy the file folder to the CF card



3. Plug the Rescue CF card into CF socket of XP-9000-IoT



4. Run the PAC Utility, and then disable the UWF overlay



5.	Click the Start button
	changes to take effect.



6. Copy the file folder into C:\icpdas\, and then delete the older, existing file folder

Φ

, click the power button

, and then click Restart for

10. XP-9000-IoT Download Center

This chapter provides a brief introduction of the XP-9000-IoT download center.

XP-9000-IoT has a download center where you can access the latest version of the software, tools, demo programs, and related information.

The XP-9000-IoT Download Center can be found at:

https://www.icpdas.com/en/download/index.php?model=XP-9181-IoT

Download Center	
About Product	
РАСТЕСН	
Catalog/Flyer	
Partner Zone	

Download Center

User Manual

FILE NAME	DESCRIPTION	MODEL	FILE DATE	LAST UPDATE	DETAIL
DCON Utility Pro	DCON Utility Pro User Manual	XP- 9181- IoT	2020-11- 19	2020-11-20	Q
PAC Standard API (WES/IoT Platform)	User Manual for Windows XP/7/8/10 PC and WES PAC	XP- 9181- IoT		2020-08-18	۹

Search for Subjects 🔻

Quick Start

FILE NAME	DESCRIPTION	MODEL	FILE DATE	LAST UPDATE	DETAIL
XP-9000-IoT	Quick Start	XP- 9181- IoT		2020-12-17	۹

Data Sheet

FILE NAME	DESCRIPTION	MODEL	FILE DATE	LAST UPDATE	DETAIL

Appendix

A. I-9K Modules and I-97K Modules

This chapter provides a brief overview of the different between the I-9K series modules and I-97K series modules.

There are two types of I/O modules provided for supporting XP-9000-IoT. One is high communication speed I-9K series modules with parallel interface; the other is I-97K series modules with serial interface.



The differences between the I-9K and I-97K series I/O modules are as follows.

Item	I-9K Series	I-97K Series
Communication Interface	Parallel Bus	Serial Bus
Protocol	-	DCON
Communication Speed	Fast	Slow
DI with latched function	-	Y
DI with counter input	-	Y (100 Hz)
Power on value	-	Y
Safe Value	-	Υ
Programmable slew-rate for AO module	-	Y

B. Revision History

This chapter provides revision history information to this document.

Revision	Date	Created By	Description
V1.0.0	July 2015	Anna	Initial issue
V1.1.0	March 2017	Sunny	Added XP-9x71-IoT product information
V1.1.1	November 2017	Anna	Modified the information about the RJ-45 Waterproof
			installation in section 2.2 Installing the RJ-45
			Waterproof Assembly.
V1.1.2	May 2021	Jeffery	Modified the pictures to IoT version.
			Modified the links to new website.
			Deleted section 1.5(Companion CD)

The table below shows the revision history.