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How to automatically synchronize the time of XP-8xx7-CE6 / WP-8xx7 / VP-2xW7 over a network?

XP-8xx7-CE6, WP-8xx7 and VP-2xW7 support SNTP (Simple Network Time Protocol) Client for Network Time Synchronization. The available versions of the OS image and Utility for SNTP Network Time Synchronization are listed below.

The available versions of the OS image and Utility files

The SNTP Network Time Synchronization is supported since the following versions:

PAC Series	Model	OS image Version	Utility Version
ХРАС	XP-8xxx-CE6	Ver.1.3.2.0	XPAC Utility 1.0.2.3
WinPAC	WP-8x3x	Ver.1.2.0.3	WinPAC Utility 2.0.2.0
WinPAC	WP-8x4x	Ver.1.6.0.0	WinPAC Utility 2.0.1.5
ViewPAC	VP-23Wx	Ver.1.1.0.2	ViewPAC Utility 2.0.1.6
ViewPAC	VP-25Wx	Ver.2.0.0.1	ViewPAC Utility 2.0.2.0

Steps to setup the SNTP Client Network Time Synchronization

- 1. Check OS image version (download new version first and update it as Ch.1.1)
- 2. Check Utility version (download new version first and update it as Ch.1.2)
- 3. Setup the SNTP time synchronization (if above version is available, go to Ch.1.3)

Download Center

If it is not available version, please download the newest OS image or Utility at: https://www.icpdas.com/en/download/index.php?kind=23

According to your PAC to click on "XP-8000-CE6", "WinPAC-8000 download center" or "ViewPAC Series download center", and download the suitable OS image or Utility.

Development Toolkits / Softwares / Manuals

XPAC Series	
• XP-8000	• XP-8000-CE6
• XP-8000-Atom	• XP-8000-Atom-CE6
	b
Man DACA Serve DAC Contra	
WinPAC/ViewPAC Series WinPAC-8000 download center	WinPAC-5000 download enter
WinPAC/ViewPAC Series WinPAC-8000 download center ViewPAC Series download center	WinPAC-5000 download enter ISaGRAF PAC Driver, User's Manual & DataSheet
WinPAC/ViewPAC Series WinPAC-8000 download center ViewPAC Series download center	 WinPAC-5000 download enter ISaGRAF PAC Driver, User's Manual & DataSheet (For all ISaGRAF PAC like the WP-8xx7, uPAC-7186EG,)

The setting steps for the XPAC, WinPAC and ViewPAC are similar. In the next section, we use the WP-8x47 as an example to show how to set up the WP-8x47 as a SNTP Client for Network Time Synchronization and how to test it after setting up.

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Setting up WP-8x47 as an SNTP Client for Network Time Synchronization										
1.1. The steps to update the WP-8x47 OS image										
There are two ways to update the WinPAC OS: 1. Update from file: copy the package file (.exe) into the WinPAC and install on WinPAC (easier); 2. Update from Eshell tool program. Here we use the first method: copy the package file (exe) into the WinPAC to run the installation										
Please refer to the following website for the other method information: http://www.icpdas.com/en/download/show.php?num=2065&model=WP-8121-CE7										
1. Set up the root folder as the WP-8x47 FTP directory for easy updating										
Run the WINPAC_Utility on the WinPAC desktop to set up the FTP Setting. When finishing, click [File] > [Save and Reboot] to restart the WP-8x47.										
	WinPAC Utility File Help (r [2.0.1.5] Configuration]							

	File Help Configuration
INPAC_	System Setting Ethernet Setting FTP Setting System Information Auto Execution Mu
	Access Login
	FTP Enable Disable
	Allow Anonymous 💿 Enable 🔿 Disable
	Allow Anonymous O Enable O Disable Upload
	Change FTP default download directory \Temp to:
	Setting
	Ext1234567890-=€
	Tab q]w e r t y u i o p []] CAP a s d f g h i k ; '
	WinPAC Utility [2.0.1.5]
	File Help Configuration
	Save
	S <u>a</u> ve and Reboot
	Reboot Without Save
	Restore Default Settings
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.2 The steps to update the WinPAC Utility											
. On WP-8x47	desktop, run the	"WinPAC	_Utility" to ch	eck the W	/inPAC new O	S version.					
WinPAC Utility [2.0.1.5]											
File Help	Configuration					· · · · · · · · · · · · · · · · · · ·					
System Settin	g Ethernet Settin	g FTP Set	ting System In	formation	Auto Execution	Multi-serial	port 💶 🕨				
Slot 0:	Modu	ile Type:	V	VP-844x (9	6MB)						
Slot 1:	Flash	i Type(Syst	em_disk): []	Intel J3 95ns X 1							
Slot 2:	Flash			ntel J3 95n:							
	64-bi	64-bit Serial Number:		01-97-ED-8E-13-00-00-5D							
Slot 3:		ersion:		1.6.0.0 , 2010/06/04 14:54:05							
Slot 4:	Eboo	t Version:	1	1.2.0.17 , 2010/06/04 11:33:30							
Slot 5:	Back	olane Versi	on: [1	1.0.4.0							
Slot 6:	CPU '	Version:	1	1.0.8.0							
Clat 7	WinP	acSDK Ver	sion: 1	.0.9.3							
Slot 7:	WinP	acNet Vers	ion: 1	.2.0.6							
	.NET	Framewor	k Version: 2	.0.7045.00							
	SQL	SQL CE Version: 3.5.5386.0									
	Last	Save Date:	Ν	1onday, Jul	y 05, 2010						
. If not, Downle	oad the WinPAC	_Utility.zij	o and decomp	ress the fi	ie into a folde	er I-&modal-&	kw-winco				

- 3. Copy the decompressed folder into the WinPAC under the directory "\System_Disk\tools\" (refer to Section 1.1 for the ftp method)
- 4. Run the WINPAC_Utility on the WinPAC desktop. Now it's the new version WinPAC Utility.



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1 3 Set up the V	3 Set up the WinPAC as an SNTP Client for the SNTP network time synchronization									
Run the WinPAC Utility. Select "System Setting" tab and click the "Configure" button to open the 'Internet Time" setting window.										
WinPAC Utilit: File Help System Settin System Settin Control of the setting System Setting System Setting	y [2.0.1.5] Configuration Ethernet Settin WinP ustrial Control Pra a Acquisition Sys	g FTP Set W TH AC stem	tting Syste <mark>/elcome</mark> his tool will Display Re	m Information <mark>to use Wi</mark> help you to set esolution : 80	Auto Execution Auto Execution Auto Execution Auto Execution PAC Utilit WinPAC - 800 © * 600 Setting	n Multi-ser Y 0.	al port			
Battery1 : OK		Τa	ask Bar Sett	ing: 📃 Auto H	iide 🛛 🗹 Always	On Top				
Battery2 : OK				Empty	/ Desktop					
Change HTTP	document root dir	ectory \win	idows\www	\www.pub.to:		_				
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STEP 1 : Assign an internet NTP Server

The WinPAC Utility lists some NTP Server IP addresses (as the picture below), user can select the suitable one as the NTP Server to synchronize the time.

If user wants to use his own PC as the NTP Server to be synchronized by the controller, please key in that PC's IP address (Must be a fixed IP), and that PC must be set up as a Time Server. For the information about setting a PC as a NTP Server, please refer to the next section (Section 1.4).

If the assigned NTP Server for time synchronization is over the Internet in a different network domain, the user has to set up the "Default Gateway" for the WinPAC controller. Please refer to the Section 1.5 for the setup information.

Internet Time								
Step1: Server: Step2: Autoupdat	pool.ntp.org							
Step3:	time.windows.com							
Automatically synchronize with an internet time server								
Update Now								
Step 4:Go to "File">"Save and Reboot" to enable driver								
Auto update runn	ing							

STEP 2 : Assign the auto-update frequency

The unit for the update frequency time is minute. If setting to update once a day (24 hours), please enter 1440 minutes. The minimum update frequency is 5 minutes.

Internet: Time			×
Step1: Server: pool.ntp.org		~	
Step2: Autoupdate Frequency:	1440	minute	
Step3:			
Automatically synchronize with	h an interne	t time server	r
Update N	low		
Step 4:Go to "File">"Save an driver	id Reboot" ti	o enable	
Auto update running			
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STEP 3 : Check th 1. Check the box uncheck the b 2. Click "Update	ne box for auton for automaticall box, that will stop Now" to update Intern Step1: Step2: Step3: V Aut	natically s y synchro o the SNTI the settin et Time Server: Autoupdat	pool.ntp.org	n e interne e synchro ose the w 1440 n interne	t time server sonization function funct	set above (Ste tion for the P	≘p1). If AC.
			Update Now	,			
	Step 4 driver	:Go to "File	e">"Save and F	Reboot" ta	o enable		
	Auto u	odate runn	ing				
After restarting, requently as the WinPAC Utility	the WinPAC will setting.	automati	cally synchroni	ze with t	the internet ti	me server an	d update
File Help	Configuration						
Save Save and Re Reboot <u>Wi</u> th Restore Defa E <u>x</u> it	boot nout Sa ault Setting WinPA	g FTP Se	tting System Inf Velcome to u his tool will help Display Resolu	formation JSE Wi you to set tion : [80	Auto Execution Auto Execution	n Multi-serial <mark>y</mark> 0.	port
	ustrial Control Pr ta Acquisition Sys	oducts stem			Setting]	
Battery1 : Ok	(Т	ask Bar Setting:	Auto H	lide 🛛 🗹 Always	On Top	
Battery2 : Ok				Empty	/ Desktop		
	document root dir	ectory (wir	ndows\www\wwv	vpub to:	Catting	1	
Configure the	synchronization w	ith a time :	server	Configur	e	J	
			Co. Itd Techn	ical Doc	ument		

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STEP 5 : After rebooting, test the SNTP Automatically Synchronize

After rebooting, the service for automatically synchronizing with the internet time server will execute and update the system time after connecting to the internet.

If you need to update the time immediately, please click "Update Now" button to update the system time immediately.

Internet Time	
Step1: Server: pool.ntp.org	
Step2: Autoupdate Frequency: 1440 minute	9
Step3:	
Automatically synchronize with an internet time se	erver
Update Now	
Step 4:Go to "File">"Save and Reboot" to epable driver	
Auto update running	

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1.4 How to set up	o a Windows XP	PC as the	e SNTP Se	erver to t	est th	e WinPAC SN	TP Client		
Prepare a Windov	Prenare a Windows XP PC for the WinPAC SNTP client to synchronize the time								
			• • • •						
STEP 1: Enable	and set up the	NTP Serve	er of Wir	ndows XF	PC PC				
1. Run "Regist On PC, select	 Run "Registry Editor" On PC, select [Start] > [Run] and enter "regedit ", then click "OK". 								
執行 ● 「」 輸入: 開啓(①: ■ 2000	 執行 ② ▲ 輸入程式、資料夾、文件或網際網路資源的名 編 Windows 會自動開啓。 開啓(①): pegedit 確定 取消 瀏覽(B) 								
2. Enable NTP S	erver								
The NTP Serve	r in a normal Wi	ndows XF	PC is de	efault ena	bled.				
Left Window: Please change HKEY_LOCAL_I Right window: The most right If it is (0), it me Change "Value	Left window: Please change to the following directory. HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpServer\ Right window: The most right "Data" number of "Enabled" is (1). It means the NTP Server is enabled. If it is (0), it means the NTP Server is disabled. Please right click "Enabled", select "Modify". Change "Value" to become "1", and then click "OK".								
🥑 登錄編輯程式							[
檔案(E) 編輯(E) ■ 第 我的電腦 ● HKEY_C ● HKEY_C ● HKEY_L ● HKEY_L ● HKEY_L ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY_C ● ● HKEY ● ● ● ● ● ● ● ● ● ●	校視(V) 我的最愛(A) CLASSES_ROOT CURRENT_USER OCAL_MACHINE DWARE URITY IWARE IEM ControlSet001 ControlSet002 CurrentControlSet ControlSet002 CurrentControlSet Control Enum Hardware Profiles Services	說明(H) 4CD0-BE41-50	004588	名稱 ab (預設值) BB AllowNor ab DIName BE Enabled BB InputProv	nstandard /ider	X預型 REG_SZ REG_DWORD REG_DWORD REG_DWORD	資料 (數值未設定) 0x00000001(C:\WINDOWS 0x00000001(1) Nsvstem 32/w 9 1) 0)	
我的電腦'HKEY_LOCAL_MACHINE'SYSTEM'CurrentControlSet'Services\W32Time\TimeProviders'NtpServer									
		ICP DAS	Co., Ltd.	Technica	l Docu	ment			



STEP 2: Restart Windows Time Service

- 1. On Windows XP PC Desktop, click [Start] > [Run]
- 2. Enter "net stop w32time && net start w32time", then click "OK".

User also can operate by mouse in the window. Please right click [My Computer] > left click [Computer Management] > [Service] > double click [Windows Time] to stop/start the "Windows Time Service", and set it to "Automatically".

<mark>9. Computer Management</mark> 9. 檔案(F) 執行(A) 檢視(V ← → 1 1 回 留 2 国 4) 視窗(W) 說明(H) ?│▶ ■ II ■▶					< < <
■ 電腦管理 (本機) □ 5 系統工具	🖏 服務					
 □ 事件檢視器 □ 共用資料夾 □ 本機使用者和詳組 □ 刻 效能記錄及警示 □ 影 裝置管理員 	Windows Time 停止服務 重新啓動服務	名稱 Yahool Updater World Wide Web Publishing Workstation WMI Performance Adapter	描述 Keeps your favorite Yahoo! software up Provides Web connectivity and administr Creates and maintains client network con Provides performance library informatio	狀態 啓動類 已啓動 自動 已啓動 自動 已啓動 自動 已啓動 自動 こ 部 日動	型 <u>登入身分</u> 本機系統 本機系統 本機系統 本機系統	^
 ○ 目 frux ● 御 印除式存放裝置 ● 磁碟重組工具 ● 磁碟管理 ● 服務日確用程式 ● 服務 ● 服務 ● 電索引服務 ● 電索引服務 ● 電索引服務 	描述: Maintains date and time synchronization on all clients and servers in the network. If this service is stopped, date and time synchronization will be unavailable. If this service is disabled, any services that explicitly depend on it will fail to start.	Windows Time Windows Time Windows Management Instrumen Windows Management Instrumen Windows Installer Windows Installer Windows Insteller Windows Driver Foundation - Us Windows Driver Foundation - Us Windows Audio	Maintains date and time synchronization Drates windows tytetua riayer informatios Provides a common interface and object Adds, modifies, and removes application Provides inage acquisition services for s Provides network address translation, add Manages user-mode driver host processes Manages audio devices for Windows-bas Enables Windows-based programs to cre	已容動 日動 日 日 <td>本機系統 本機系統 本機系統 本機系統 本機系統 本機系統 本機系統 本機系統</td> <td>></td>	本機系統 本機系統 本機系統 本機系統 本機系統 本機系統 本機系統 本機系統	>
	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩					



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3. Give a name "NTP Server", set up the port number "123" and select "UDP". Click "OK" to exit.

-	新增連接埠		\mathbf{X}					
	使用這些設定值透過 Windows 防火牆來開啓連接埠。要尋找連接埠編 號和通訊協定,請參閱您要使用的程式或服務的文件。							
	名稱(N):	NTP Server						
	連接埠編號(P):	123						
		OTCP(<u>T</u>)) UDP(U)					
	開啓連接埠會有哪	哪些風險?						
	變更領域(C))	確定 取消					

STEP 4 : Assign the fixed IP address to the Time Service PC

As the Time Service computer of the network time synchronization for the WP-8x47, the PC must use the fixed IP, and must has the same IP address as the IP assigned in setting the Server of WP-8x47. Only when the setting is the same, the Server and the Client can communicate with each other to achieve the network time synchronization.

For instance, in this example, the SNTP Server is set a fixed IP address, "192.168.1.190"; therefore, the assigned IP in setting WinPAC the client's server is the same as "192.168.1.190".

STEP 5 : Testing

After setting SNTP Server, we can test with the SNTP Client – WP-8x47. Please refer to the Section 1.3, the setting IP of "Server" column must be the IP of this Server PC and then test WP-8x47.

WinPAC Utilit	y [2.0.1.5]
File Help	Configuration
System Settin	g Ethernet Setting FTP Setting System Information Auto Execution Multi-
	Welcome to use WinPAC Utility This tool will help you to set WinPAC - 8000. Internet Time Step1: Server: 192.168.1.190 Step2: Autoupdate Frequency: 5 Step3: Automatically synchronize with an internet time server
Battery1 : OK	Update Now Always On Top
Battery2 : OK Change HTTP \windows\ww	Step 4:Go to "File">"Save and Rebuct" to enable driver Auto update running Setting
Configure the	synchronization with a time server Configure
•	
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Author	Eva li	Version	1.2	Date	Nov.2011	Page	14 / 14			
1.5 How to set	up the Gateway	y, IP and [ONS Server for	PAC						
If the PAC's SNTP Client is synchronizing the time with the Time Server over the Internet in a different network domain, the user has to set up the "Default Gateway" and "DNS Server" for the controller.										
The Steps: ** L	Ising the XPAC a	s the exar	nple							
1. On the deskto	op of WinPAC, c	lick [Start] > [Settings]	>[Netv	vork and Dual	-up Connectio	ons]			
2. Double click [P Double click [P	CI-FETCE581] (X CI-FETCE58 <mark>2</mark>] ca	PAC's LAN an setup L	N1) to open the AN2. For norm	e <mark>LAN1</mark> se al setting	etting window g, one LAN is e	r. enough.				
3. The PAC's IP ar to your PAC, ir DHCP accepte	nd "Default Gate n this example: 2 d. If the LAN2 is	eway" can 192.168.1 enabled,	be set here. P .1. (ISaGRAF a _l please set it as	lease set oplication a fixed l	t up your "Def n must use the IP also.)	ault Gateway e fixed IP add	" according ress, no			
	File Zoom Display Tools Help File Edit Yiew Advanced Image: Construction Make New PCI- FETCE5B1 PCI- FETCE5B2									
	PCIVFETCE5B1	L' Settings	;			ок ×				
	IP Address Na An IP address automatically a computer. If y does not autor IP addresses, a administrator fi and then type provided.	me Servers can be ssigned to f your networ matically ass ask your net or an addre: it in the sp	this · /k ign work ace Default <u>G</u>	n an IP add y an IP add s: ask: ask: ateway:	ress via DHCP dress 192.168.1. 255.255.255. 192.168.1.	192 0 1				
4. Click "Name Servers" page to set the "Primary DNS". The DNS Server address of Google is "8.8.8.8", and the DNS Server address of Chunghwa Telecom Co., Ltd. is "168.95.1.1". You can fill a suitable address for your PAC.										
	IP Address Nat Name server ac automatically a is enabled on t You can specif WINS or DNS r space provided	me Servers ddresses ma ssigned if D his adapter y additional esolvers in t l,	iy be Primary <u>D</u> HEP Secondar the Primary <u>V</u> Secondar	NS: y D <u>N</u> S: {INS: y WINS: 8				
After setting up, click "OK" and restart the controller.										
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