UNO-1019

PXA 200MHZ,
64MB RAM, 2 x LAN, 4 x COM
Universal Network Controller

User Manual

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Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

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3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

Step 1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.

Step 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:

a. The power cord or plug is damaged.

b. Liquid has penetrated into the equipment.

c. The equipment has been exposed to moisture.

d. The equipment does not work well, or you cannot get it to work according to the user's manual.

e. The equipment has been dropped and damaged.

f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -

20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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CHAPTER 1

Overview

This chapter gives background information on the UNO-1019. It shows you the UNO-1019 overview and specifications.

Sections include:

- Introduction
- Features
- Hardware Specifications
- Safety Precautions
- Chassis Dimensions

Chapter 1 Overview

1.1 Introduction

Advantech's UNO-1019 is a RISC-grade embedded platform that offers 2 LANs, 4 serial ports and 4 Digital Inputs and Outputs to fulfill user's I/O device expansion. For data storage, UNO-1019 also provides a CompactFlash for data storage.

UNO-1019 comes with a Windows CE 5.0 OS offering a pre-build image on board. Microsoft Windows CE is a compact, highly efficient, real-time operating system designed for embedded systems.

UNO-1019 could operate well under 0 ~ 70° C, its small size and light weight could fit in industrial robust environment.

With these advantage, UNO-1019 is suitable for communication gateway for converting communication protocol, IO control and data storage.

UNO-1019 is a perfect embedded ready platform that can shorten your development time and offer a rich networking interface to fulfill your diverse requirements.

1.2 Features

- Intel XScale PXA-255 200 MHZ Processor
- 64 MB SDRAM on board, 32 MB Flash
- 2 RS-232, 2 RS-232/422/485 serial ports
- Dual 10/100 Mbps Ethernet
- 1 compact flash for data storage
- 4 channel Digital input and output
- 3 channel LED for user define
- Ready platform for WinCE 5.0 build in flash
- Included remote display for easy configuration
- Fanless design for reliable system
- Compact size and light weight
- 0 ~ 70° C wide range operation
- DIN-rail and wall mounting
- Optional serial isolation protection

1.3 Hardware Specifications

General

- Certifications — CE, FCC Class A
- Dimensions (W*H*D) — 46 x 162 x 126 mm
- Enclosure — ABS+PC with solid mounting hardware
- Mounting — DIN35 rail, wall
- Power Consumption — 8.5W
- Power Requirement — 13 W (10 ~ 30 VDC)
- Weight — 400g

System Hardware

- CPU — 32 bit Intel XScale PXA255 200 MHz
- Memory — 64 MB SDRAM
- Indicators — Power, Serial (Tx,Rx), User Define (3 Led)
- Storage — Onboard 32 MB Flash memory
- SSD: — 1 x internal type I/II CompactFlash slot
- Others — Real Time Clock, Watch Dog Timer

System Software

- OS — WinCE 5.0 (in flash memory)
- Remote Display — Advantech DiagAnywhere

Communication

- Serial Ports — 2 × RS-232, 2 x RS-232/422/485 w/ DB9
  Automatic RS-485 data flow control
- Serial Port Speed — RS-232: 300 ~ 115.2 kbps
  RS-422/485: 300 ~ 115.2 kbps
- LAN — 2 x 10/100 Base-T RJ-45 ports

Digital I/O

Digital In	2 Digital Input
	Dry Contact
	Logic level 0 : Open
	Logic level 1 : Close
	Wet Contect
	Logic level 0: +3V max
	Logic level 1: +10VDC to 30VDC
Digital Out	2 Digital Output
	Open Collect to 30V
	200mA max Load
	Power Dissipation 450mW

Environment

• Operating Temperature	0 ~ 70° C (32° ~ 158° F)
• Storage Temperature	-20° ~ 80° C (-4° ~ 176° F)
• Operating Humidity	20 ~ 95% (non-condensing)
• Storage Humidity	0 ~ 95% (non-condensing)

1.4 Chassis Dimensions

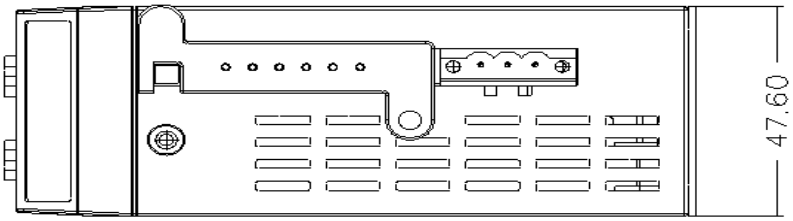


Figure 1.1: UNO-1019 Top View Dimensions

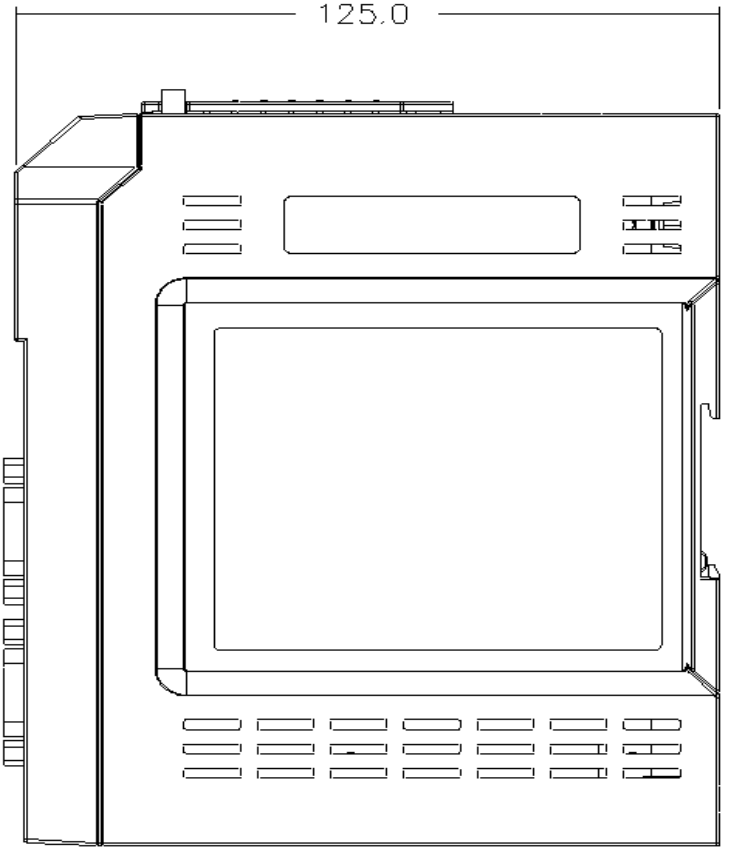


Figure 1.2: UNO-1019 Side View Dimensions

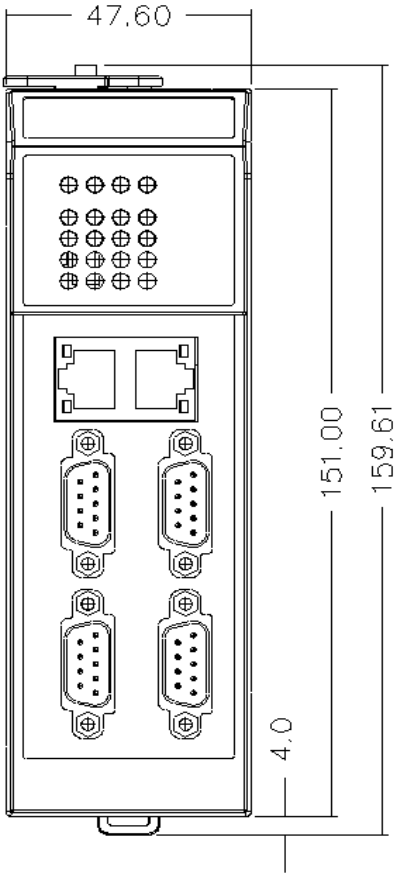


Figure 1.3: UNO-1019 Front View Dimensions

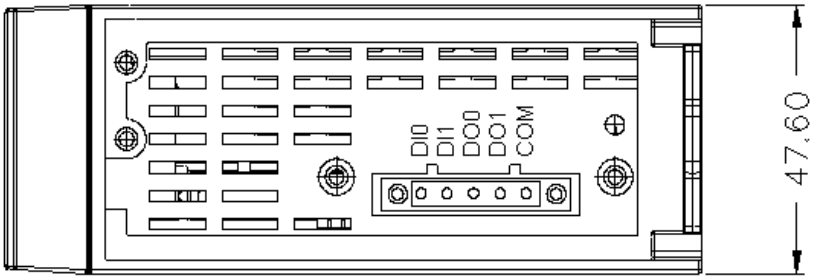


Figure 1.4: UNO-1019 Bottom View Dimensions

CHAPTER 2

Installation

In this chapter, you will be given an overview of the UNO-1019 hardware installation procedures.

Sections include:

- Overview:
- LED
- Network Connections
- Serial Connections
- Power Connections
- Digital Input/Output
- CompactFlash
- Mounting

Chapter 2 Installation

2.1 Overview

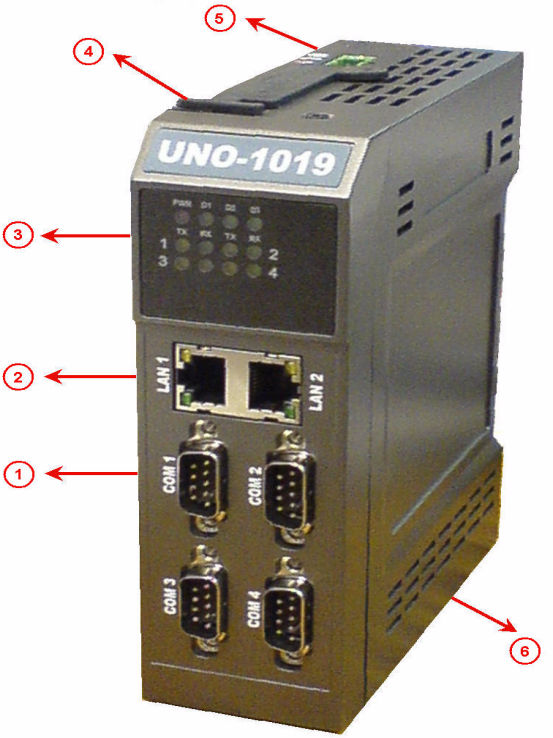


Figure 2.1: UNO-1019 Overview

Item	Description
1	Serial Port
2	Networking port
3	LED
4	CompactFlash slot
5	Power
6	Digital input/output

2.2 LEDs

LEDs to display the power, network, serial and programmable LED status are located on the front panel of UNO-1019, and each of them has its own specific meaning, as shown in the table below.

Table 2.1: UNO-1019 LED Definitions

LED	Color	Status	Description
PWR	RED	On	System power is on
		Off	System power is off
D1~D3	Green	User programmable	
Serial TX	Yellow	On	Serial port is transmitting data
		Off	Serial port is not transmitting data
Serial RX	Green	On	Serial port is receiving data
		Off	Serial port is not receiving data
Networking Link	Green	On	Connected to network
		Off	Not connected to network
		Flash	Data is transmitting/receiving
Networking Speed	Yellow	On	Link to 100 Mbps network
		Off	Link to 10 Mbps network

2.3 Network Connections

UNO-1019 is equipped with 2 x 10/100 Mbps TX Ethernet ports. The Ethernet ports provide standard RJ-45 jack, and LED indicator on front panel shows link (green) and network speed (yellow).

2.4 Serial Connections

2.4.1 Serial Type Selection

UNO-1019 provides 4 serial Com ports, COM1 & COM2 provide RS-232, and COM3 & COM4 provide RS-232/422/485. The default settings of COM3 & COM4 is RS-422/485, and the UNO-1019 could identify RS-422 or RS-485 automatically according to your wiring. If users want to change the serial type, the chassis can be opened and modified.

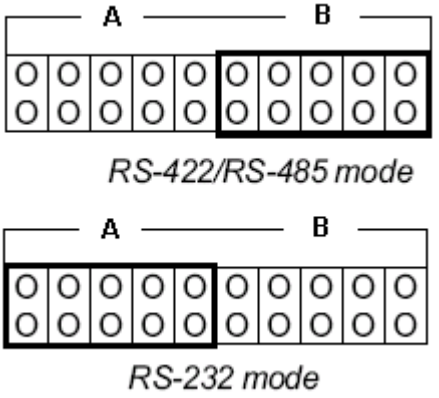


Figure 2.2: COM3 & COM4 Serial Selection

2.4.2 Enable Mode

You could set the Enable mode by using DIP switches (S10). If the switches are set to "Off", the driver automatically senses the direction of the data flow and switches the direction of transmission. No handshaking is necessary. If DIP switches are set to "On," the driver is always enabled, and always in high or low status. Please must select a mode before beginning RS-422 applications.

Default Setting is "Off"

Switch position	Description
On	RS-422 master
Off	RS-422 slave or RS-485 Automatic Direction Control

2.4.3 Terminal Resistor

You can install terminator resistors if necessary to match impedance. Each signal line (Tx+/Tx-/Rx+/Rx-/Data+/Data-). Especially in fields with electric noise, installing terminal resistors is helpful to stabilize communications. Make sure that both sides of the RS-422 or RS-485 communication ports are installed on BUS.

You could install jumpers on JP8 and JP10 to enable terminal resistor (120Ohms) for RS-422 or RS-485 of COM3 and COM4. The detail jumper setting shows as following figure.

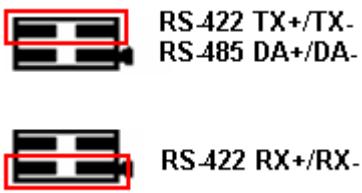
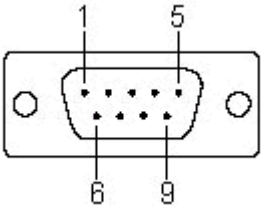


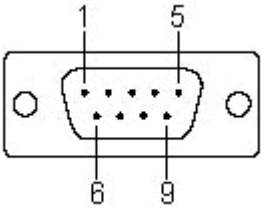
Figure 2.3: COM3& 4 Terminal Resistors (JP8& 10)

Refer to the figure and table below for COM1 & COM2 descriptions.



COM1 & COM2 Pin Assignments	
Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Refer to the figure and table below for COM3 & COM4 descriptions.



COM3 & COM4 Pin Assignments			
Pin	RS-232	RS-422	RS-485
1	DCD	TxD-	Data-
2	RxD	TxD+	Data+
3	TxD	RxD+	-
4	DTR	RxD-	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	RI	-	-

2.5 Power Connections

UNO-1019 supports +10 ~ 30 V_{DC} power inputs. A detailed power pin image is shown below

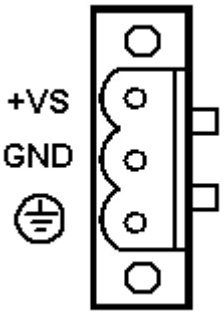


Figure 2.4: Power Pin Assignments

2.6 Digital Input/Output

There are two digital inputs and outputs for UNO-1019.

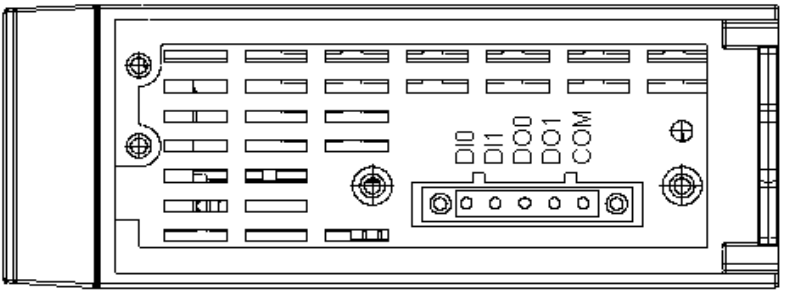


Figure 2.5: Digital I/O Pin Assignments

You can refer to Figures 2.6 & 2.7 for the digital input connection.

UNO-1019 provides 2 ways to use digital inputs function, please refer below figure shows how to connect digital input function.

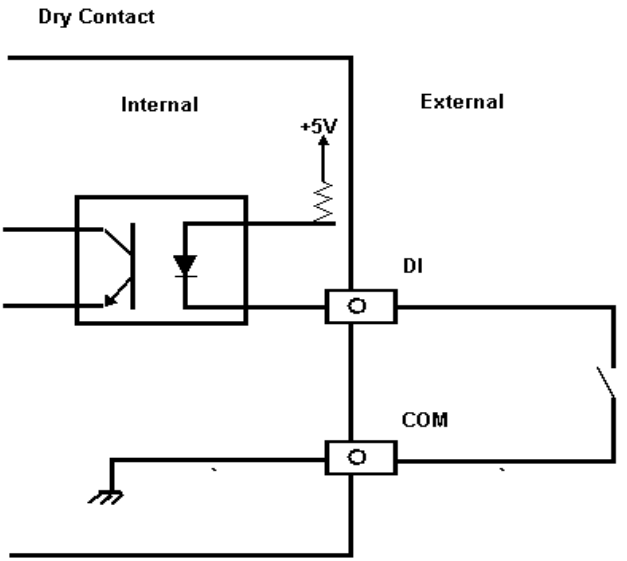


Figure 2.6: Digital Input Connection (Dry Contact)

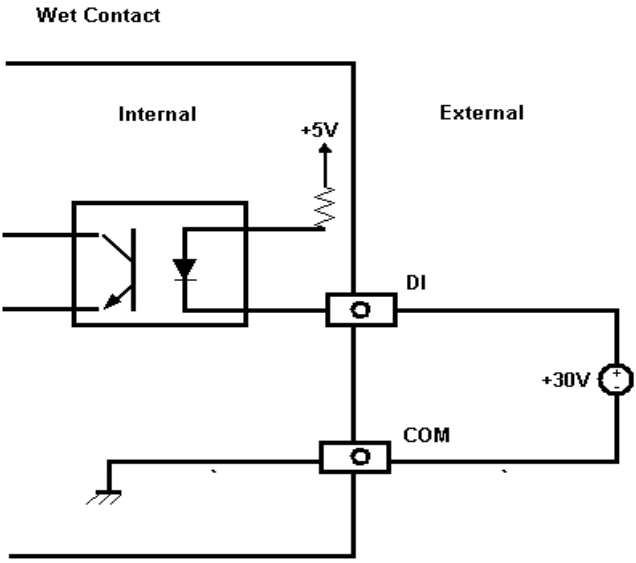


Figure 2.7: Digital Input Connection (Wet Contact)

UNO-1019 also provides digital outputs connection, please refer below figure shows how to connect digital output function. (The default DO status is high)

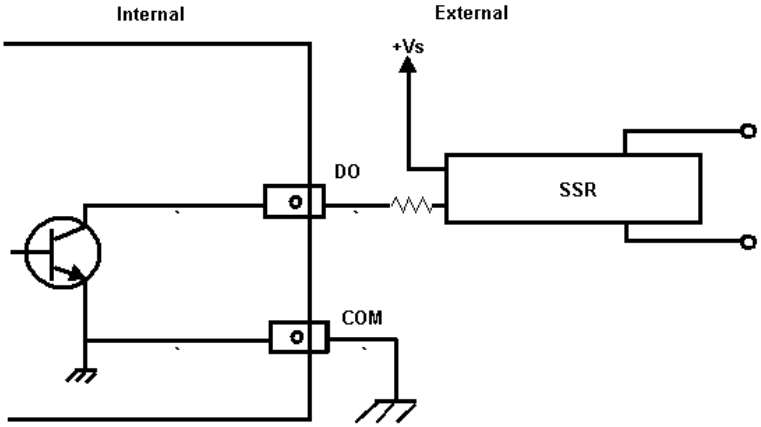


Figure 2.8: Digital Output Connections (Wet Contact)

2.7 CompactFlash

The procedure for installing a CompactFlash card into the UNO-1019 is detailed below, please follow these steps carefully

1. Make sure system power is off
2. Remove the power cord
3. Remove CompactFlash the card door on the top panel of UNO-1019
4. Plug a CompactFlash card into a CompactFlash card slot.

2.8 Mounting

UNO-1019 supports two different mounting methods: Panel & DIN-rail.

2.8.1 Panel Mounting

UNO-1019 can be wall mounted by using the included mounting kit.

First, use the screws included in the package to combine the UNO-1019 and metal mounting kit.

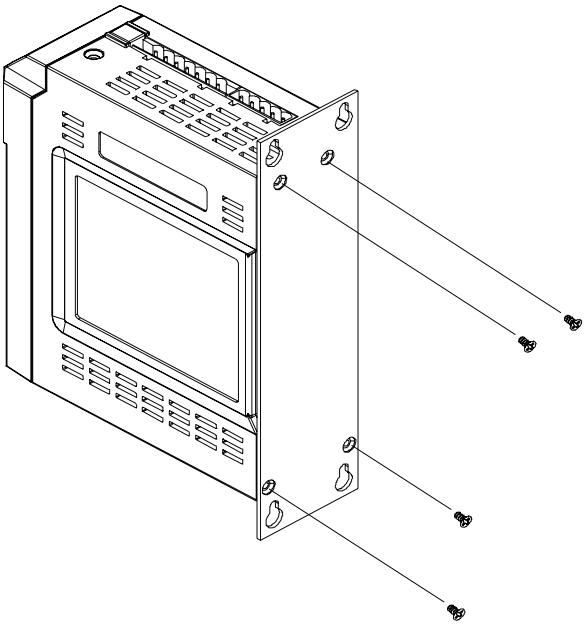


Figure 2.9: Combine the Metal Mounting Kit

Then, screw the whole device to the wall.

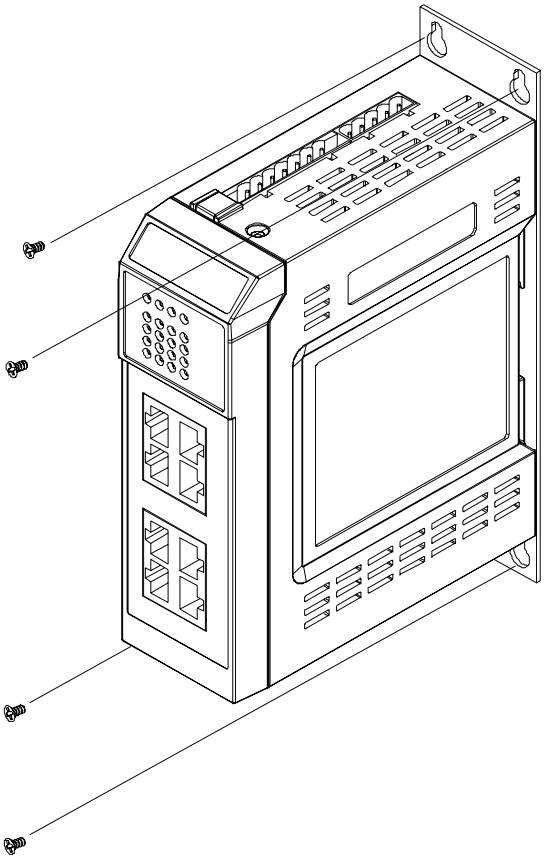


Figure 2.10: Attach UNO-1019 to the Wall

2.8.2 DIN-rail Mounting

You can also mount UNO-1019 on a standard DIN-rail by below steps.

First, pull down the kit in the back of UNO-1019

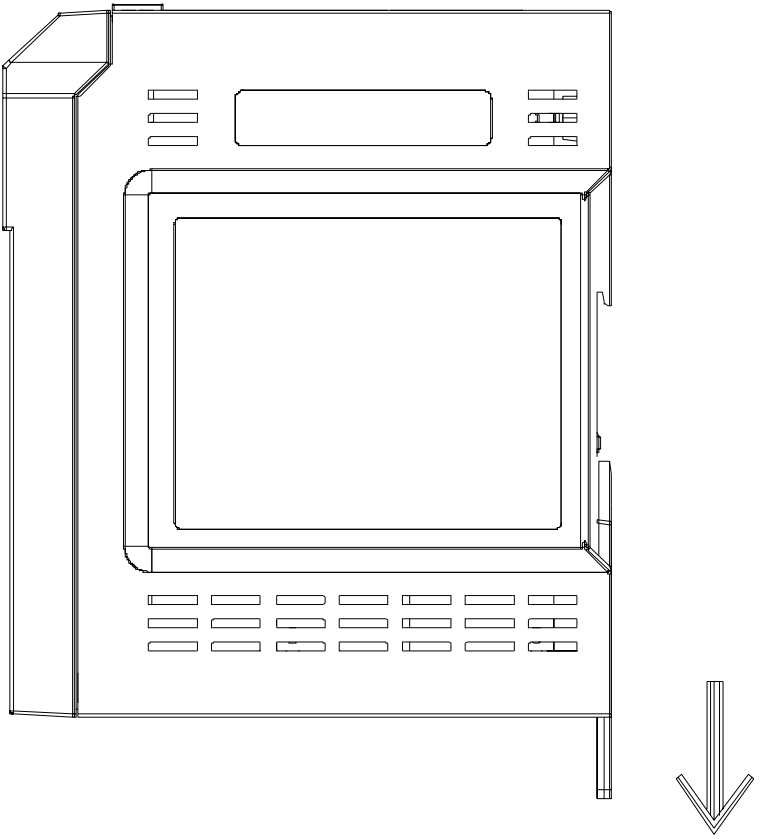


Figure 2.11: Installation to DIN-rail Step 1

Then, hang the UNO-1019 to the DIN-rail with angle of inclination.

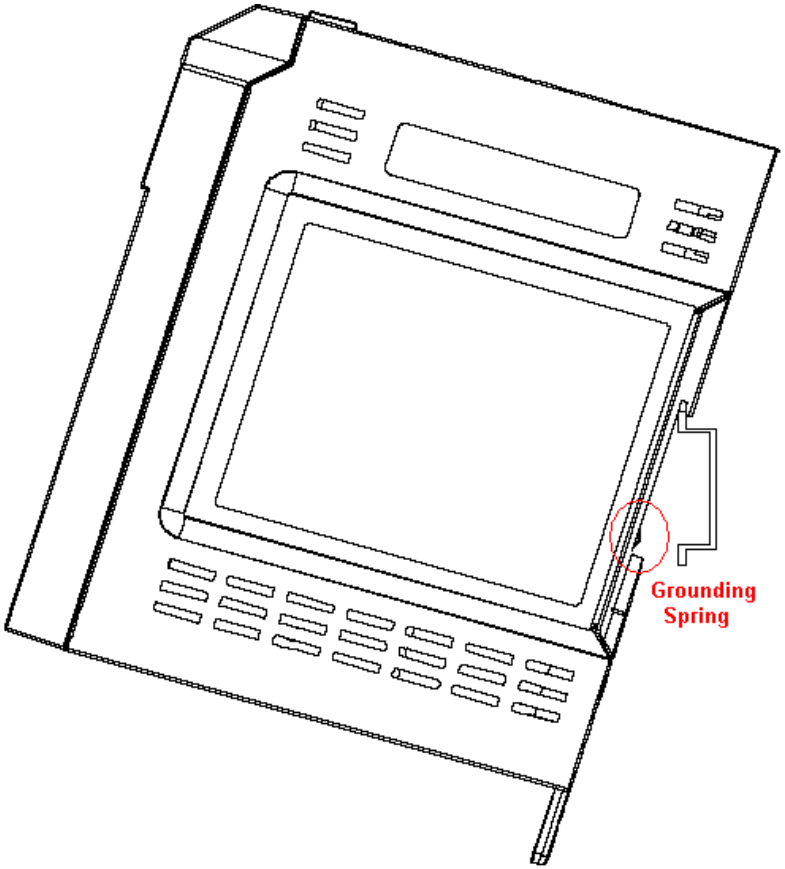


Figure 2.12: Installation to DIN -rail Step 2

Put the UNO-1019 at a right angle with the Din-rail. The grounding spring in the back should be flush with the aluminum rail. Then pull up the kit to wedge the UNO-1019 firmly into place.

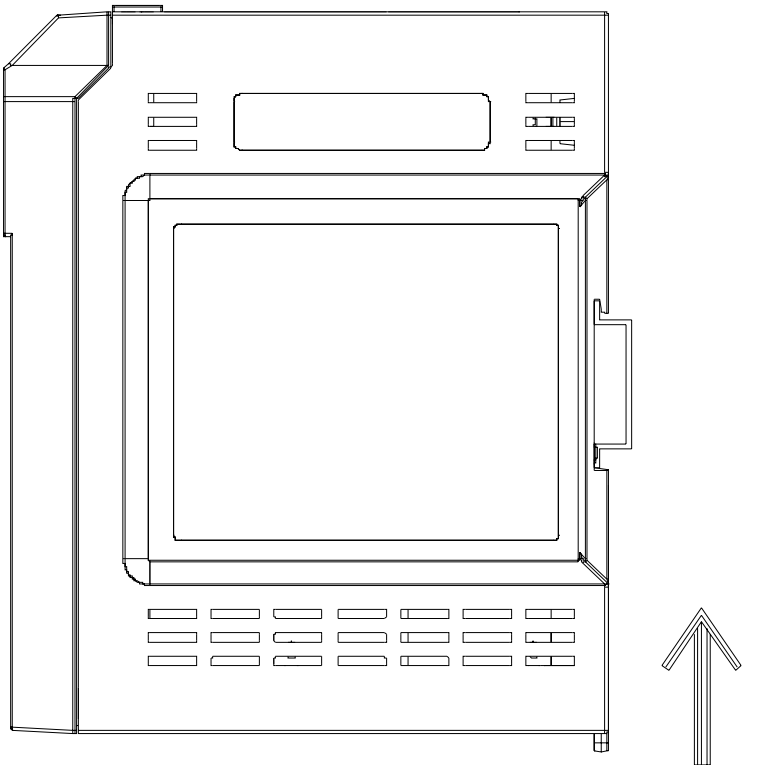


Figure 2.13: Installation to DIN-rail Step 3

CHAPTER 3

Initial Setup

This chapter shows how to initialize the UNO-1019, sections include:

Sections include:

- Initial Procedure
- Configure UNO-1019

Chapter 3 Initial Setup

3.1 Initial Procedure

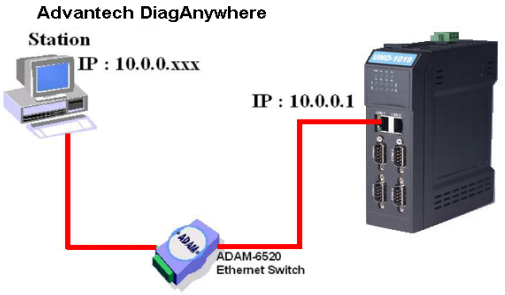
The UNO-1019 offers an easy setup feature: it takes four easy steps for your initial setup before use. Take out the UNO-1019 from the package and follow the steps below for initial setup:

1. Connect all peripheral devices, such as RJ-45 connector of Ethernet connection, RS-232 (Male DB9 connector) and RS-485 connectors.
2. Connect the power cord to the UNO-1019 and plug the other end of the cord into the power outlet, and then UNO-1019 boots up immediately. (IP Default setting : LAN1 is 10.0.0.1, LAN2 is 10.0.0.2)
3. The UNO-1019 default IP is set as 10.0.0.1. Please set the IP of your host computer to be static IP : 10.0.0.XXX for connection with UNO-1019.
4. Using the Advantech DiagAnywhere remote display tool to re-configure the IP of UNO-1019 to meet your network configuration. The path of Advantech DiagAnywhere remote display tool in UNO-1019 CD is "\Advantech DiagAnywhere".

Note: Please refer Advantech DiagAnywhere detail manual in "\Advantech DiagAnywhere" folder

Advantech DiagAnywhere Remote Display Tool

This tool works only with Ethernet connection. It requires that both the computer and the UNO-1019 have the same Subnet Mask. The default IP address for LAN1 is : 10.0.0.1 and the default Subnet mask is: 255.255.255.0. So you can set your computer IP address to 10.0.0.3 and set the Subnet mask to 255.255.255.0.



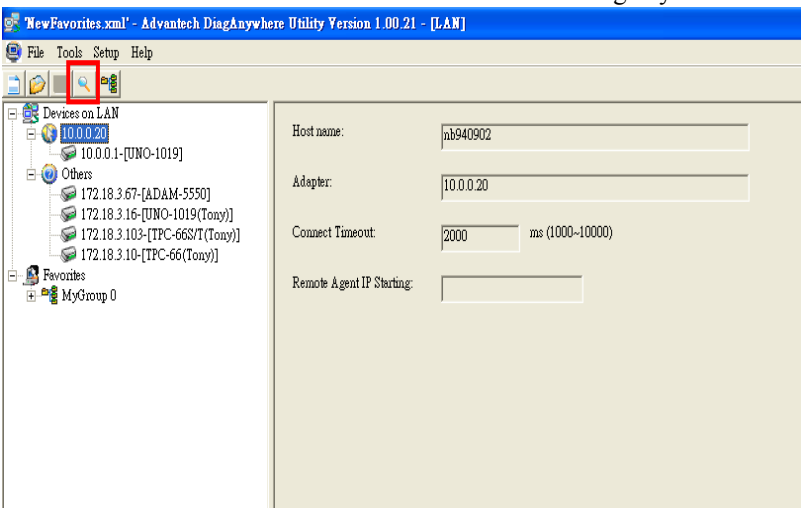
*actually you can set any IP address other than 10.0.0.1 and 10.0.0.2 from 10.0.0.3 to 10.0.0.255 . If you connected you computer and UNO-1019 to a router, don't set your computer IP address the same as the Router's.

Connect UNO-1019 with your computer by using a **crossover** Ethernet cable. Or connect both UNO-1019 and your computer into a hub.

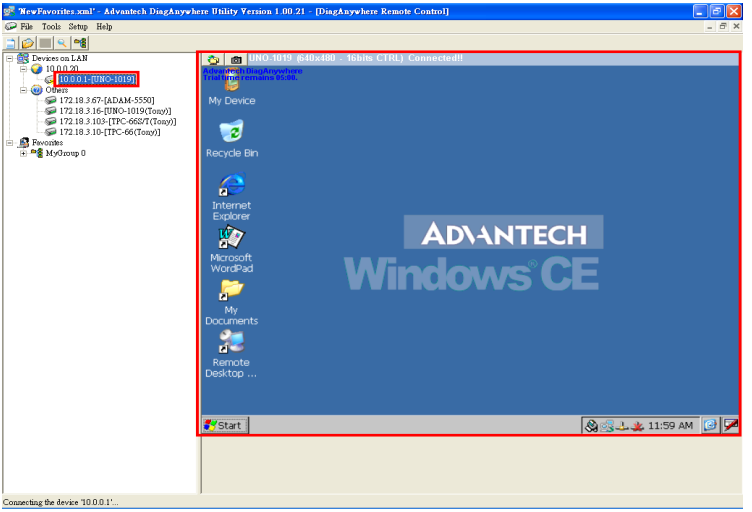
After UNO-1019 boot up, it will broadcast it's IP to the network.Advantech DiagAnywhere remote display tool running on you computer will detect the UDP message that send out by UNO-1019 and show the device name and IP in it's device list. You can select and connect to the device (UNO-1019) in the list as you want.

Execute the Advantech DiagAnywhere tool in configuration computer:

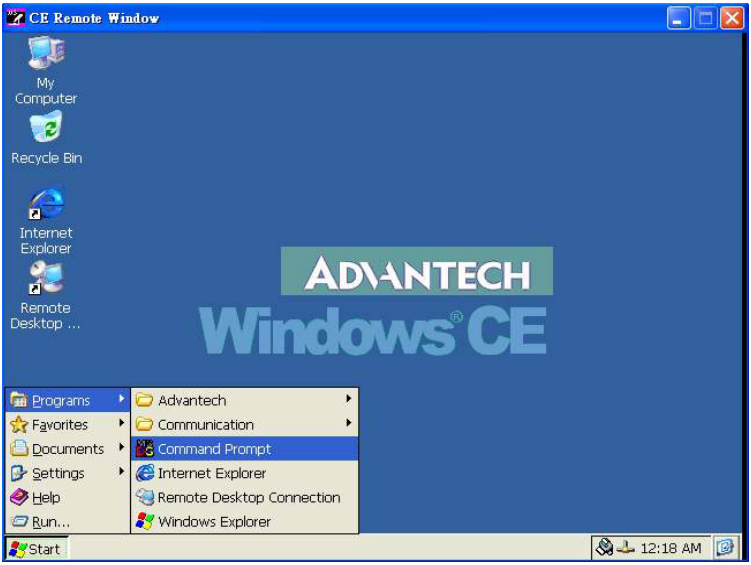
Execute "Search the LAN" function in Advantech DiagAnywhere tool

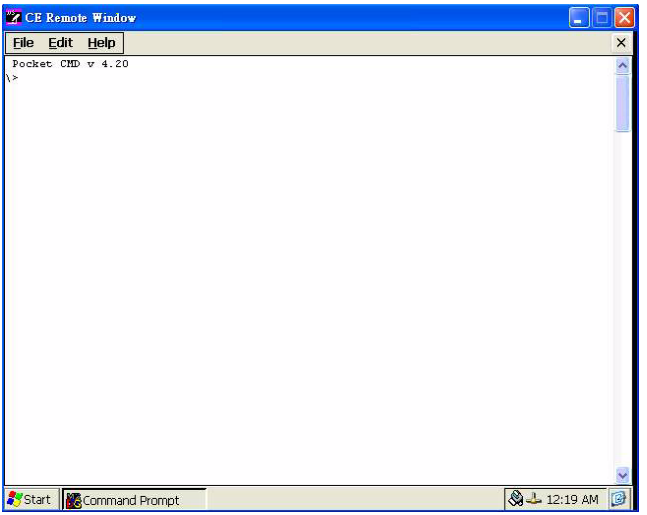


You could see the 10.0.0.1 IP, and then click it, it will connect with UNO-1019. The UNO-1019 desktop will be shown in right part in Advantech DiagAnywhere remote display tool :

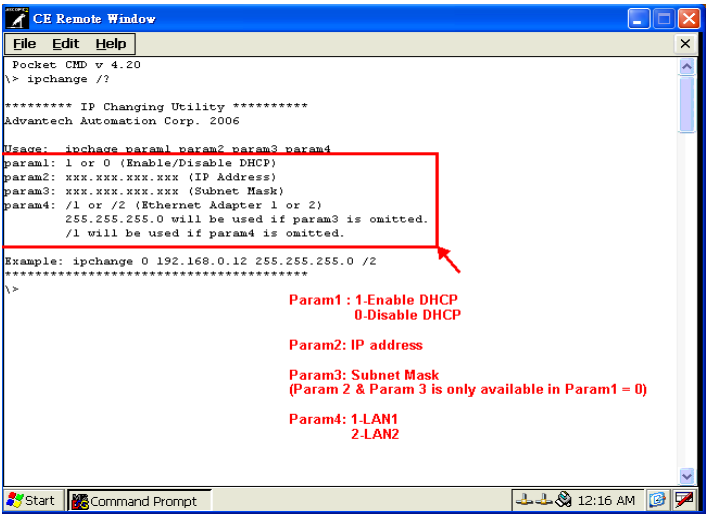


Please go to the “Command Prompt” for network IP setting

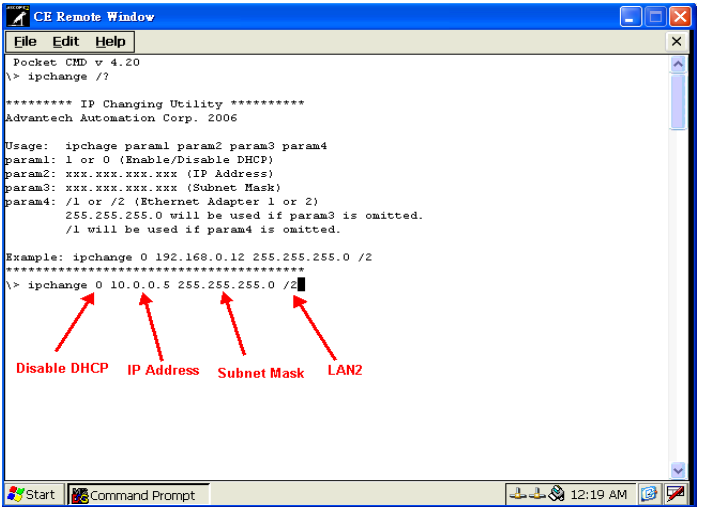




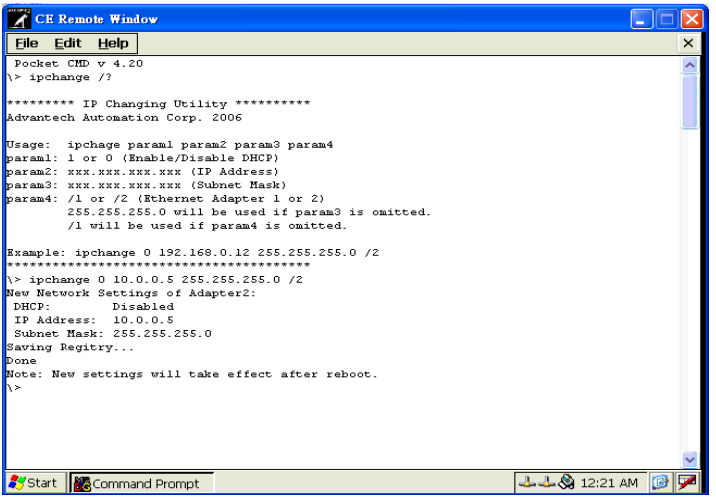
User can use “ipchange” command for IP change setting in command prompt mode. Please type “ipchange /?” for command reference.



If LAN1 of UNO-1019 will be set as DHCP, the ipchange 1/1 will be used as set up command. If LAN2 of the UNO-1019 will be set as the specific IP address, the setting command should be as following :



Press “Enter”, the remote display will show the following message.



Wait for the “Saving Registry Done” to make sure the IP change setting work is successfully done.

Power on the UNO-1019 module again to reboot the WinCE for new IP address implement.

Note: The Advantech DiagAnywhere remote display tool is only used for the configuration work. It wasn't design to run a long time to be used as the remote monitoring tool.

Note: The Advantech DiagAnywhere in UNO-1019 driver CD is only trail version, which has 5 minutes limitation, you could re-execute Advantech DiagAnywhere for another 5 minutes or contact Advantech Local sales representative for puchasing a formal Advantech DiagAnywhere remote display tool.

CHAPTER 4

Advanced Applications

This Chapter will provide detailed explanations of the UNO-1019's Advanced Applications

Sections include:

- Inserting a CompactFlash Card
- ActiveSync Connection
- Remote Access Configuration
- Autorun Configuration
- Application Development Procedure
- Saving Your Settings
- Network Administration User Guide

Chapter 4 Advanced Applications

4.1 Inserting a CompactFlash Card

The procedure for installing a CompactFlash card into the UNO-1019 is as follows, please follows these steps carefully.

1. Remove the power connector to power off the UNO-1019
2. Remove the CF slot cover.
3. Plug a CompactFlash card with user's OS and application program into a CompactFlash card slot on board.
4. Plug in the CD slot cover for protecting the CF card.
5. Connector the power connector to re-power on the UNO-1019

Note: How to update the WinCE 5.0 Image for UNO-1019?

Please follow the above steps to plug in the CF card with image (the image file is put in the path:\UNO-1019\Image of UNO-1019 CD. please copy the image file from CD to CF card and please be noticed the format of the CF card must be FAT16) then wait for 5 minutes for rebooting the UNO-1019 with new image.

4.2 ActiveSync Connection

- Using a null-modem cable connect UNO-1019 COM1 with one of COM port on your computer
- Install Microsoft ActiveSync software on your computer and make the serial port you want connect with UNO-1019 available for ActiveSync (see ActiveSync help for details).

Note: UNO-1019 will use 115200 as it default BaudRate for the ActiveSync connection. If your ActiveSync program never accept a connection at this BaudRate before, you' might get a timeout. Since it needs to scan from low to high BaudRate, if that takes too long, UNO-1019 will stop trying connect to your computer. So, its better to use another CE device which has a display to connect to you Desktop through ActiveSync at 19200 BaudRate first. Thus ActiveSync on your desktop PC will remember this Baud Rate, and next time when UNO-1019 try to connect to it at this Baud Rate, it'll connect easily.

ActiveSync Connection

The tool is used for the application program on-line programming/debug requirement. User has to install the Microsoft ActiveSync program in configuration computer first. For the detail operating procedure of ActiveSync, please follow the steps by steps operating guide.

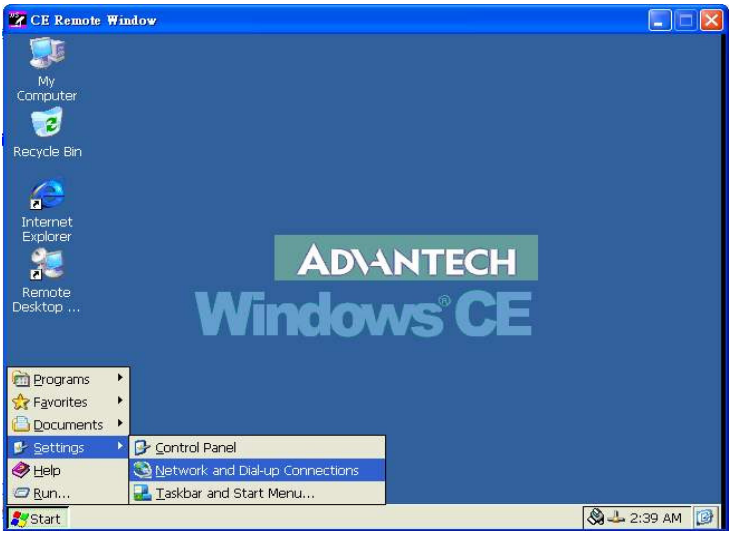
Step 1 : Setting Up ActiveSync in a Configuration Computer

1. Insert UNO-1019 CD into the configuration computer.
2. Install UNO-1019 Software Development Kit for eVC++ from below path: \UNO-1019\SDK
3. Install Microsoft ActiveSync 4.1 from below path: \ActiveSync
4. Please connect the ActiveSync cable (Null Modem cable, Advantech part no. : 1703093000) to COM1 of UNO-1019 and the COM port of configuration computer for ActiveSync communication.

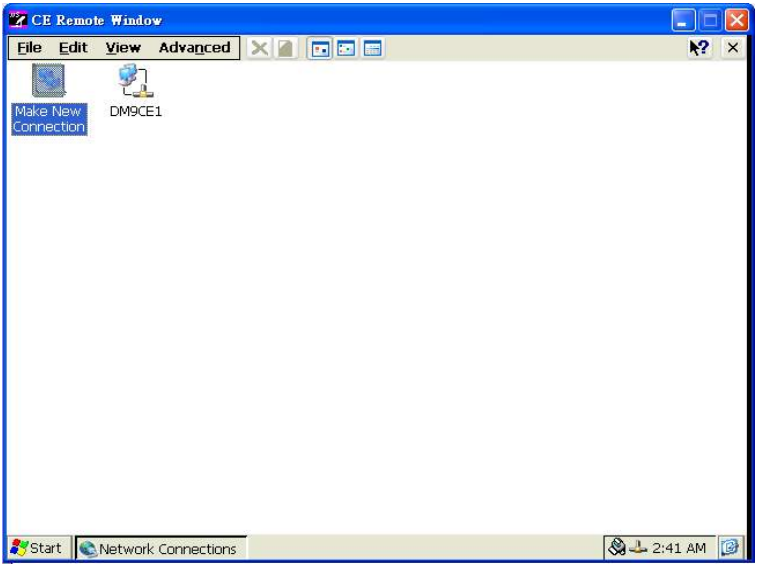
Step 2 : Connect the UNO-1019 via uScope through Ethernet.

Step 3 : Configure COM1 of UNO-1019

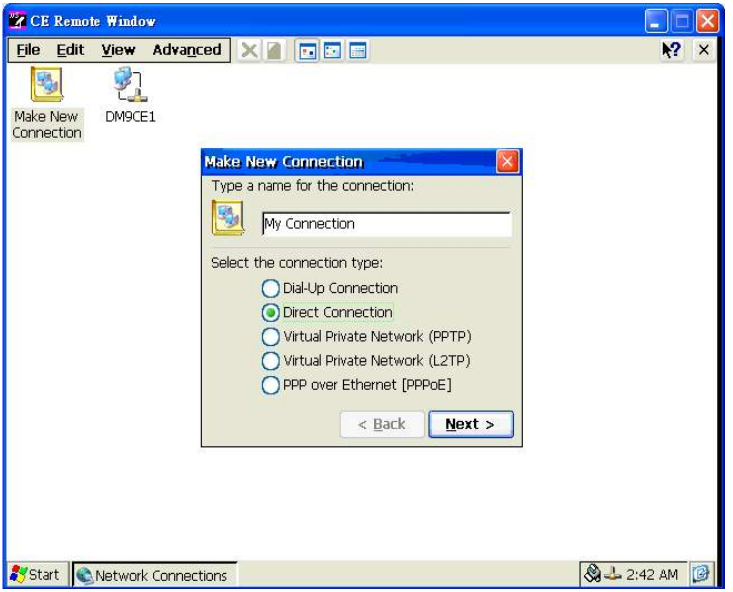
Press Start of task bar of window system and select "**Settings**" / "**Network and Dial-up Connections**".



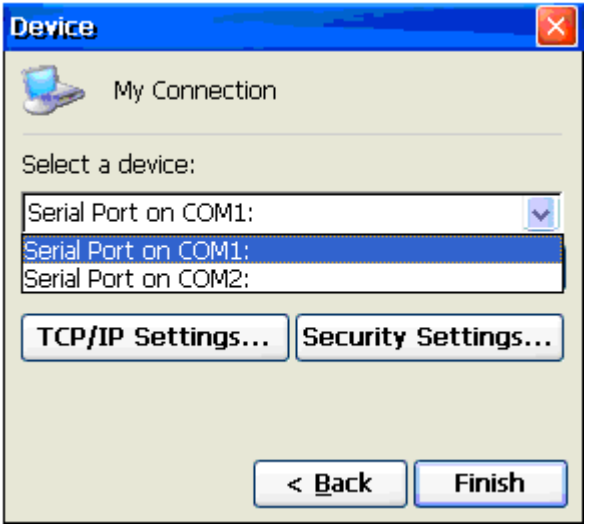
1. Click the icon "**Make New Connection**"



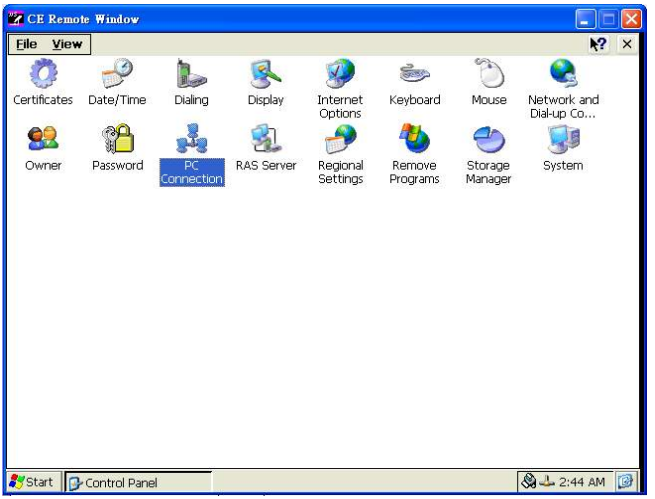
Select the connection type: **Direct Connection**, then press Next



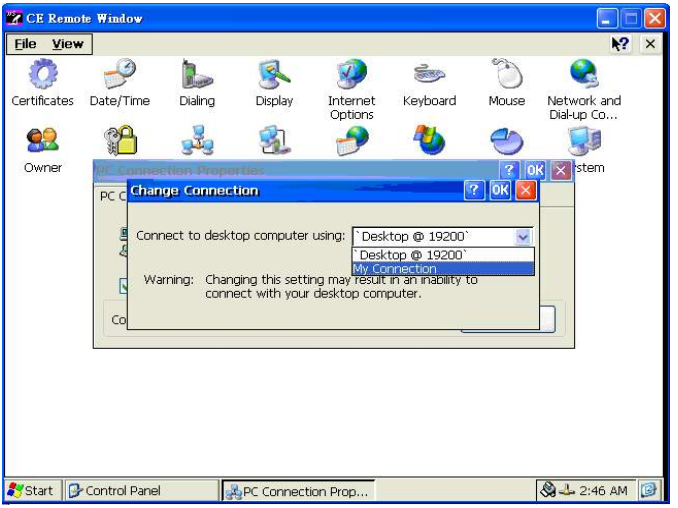
2. Choose the COM port of UNO-1019.



3. Press Start / Settings / Control Panel, and then “PC Connection”.



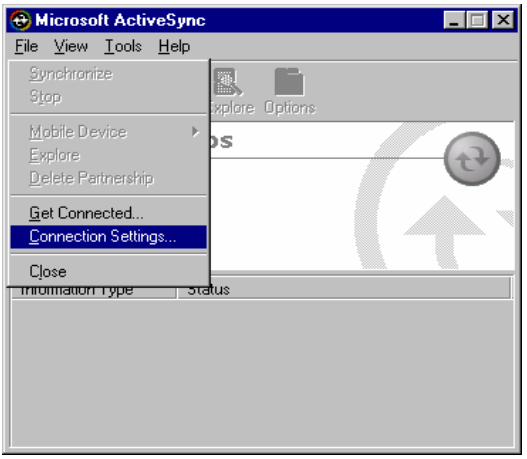
4. Click Change button to choose your network communication. In this example, change the network to “**My Connection**”.



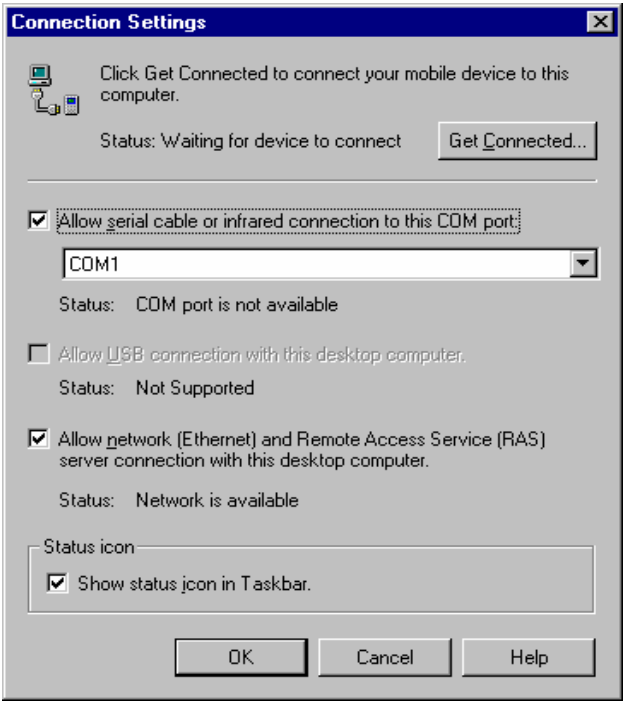
Step 4 : Setting Up the Communication Environment of the Host

1. Double click the icon **ActiveSync**.

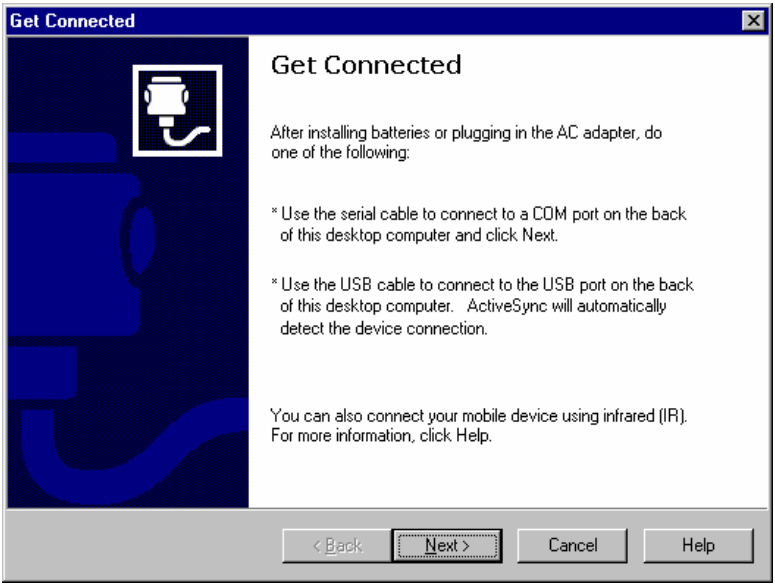
2. Select File/Connection Settings



3. Configure the connection settings as below.

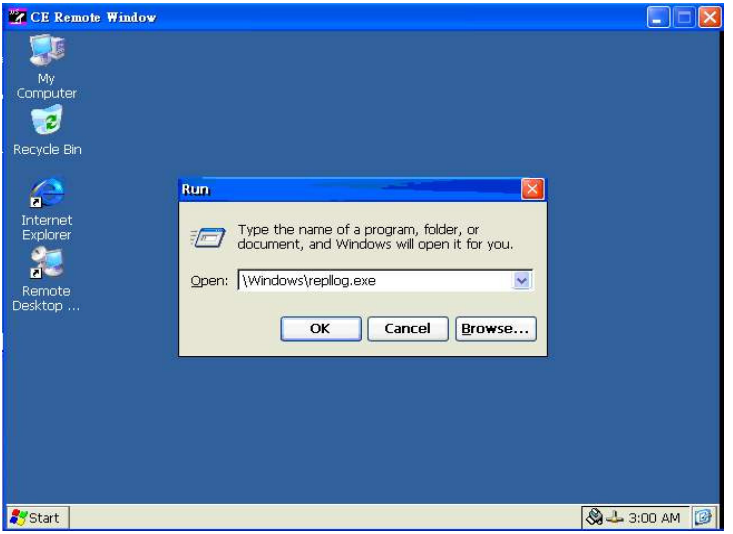


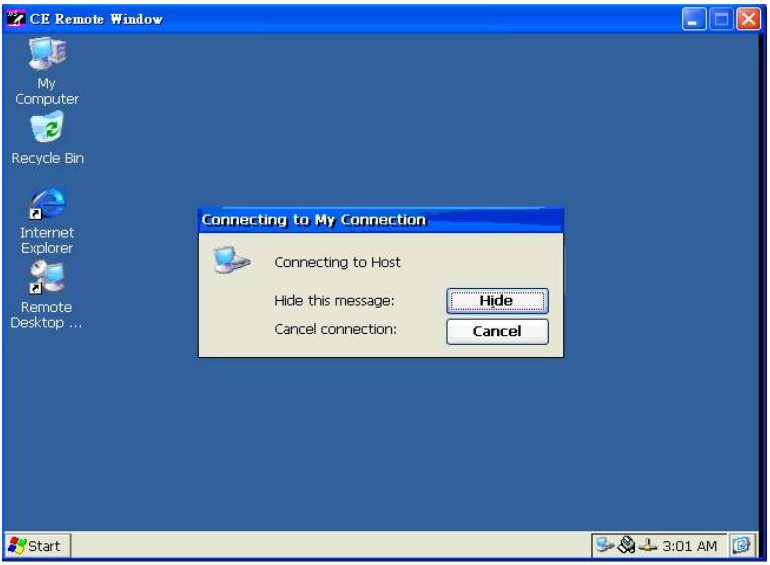
4. After you configure the connection setting, it will show the below dialog window when you press Get Connected



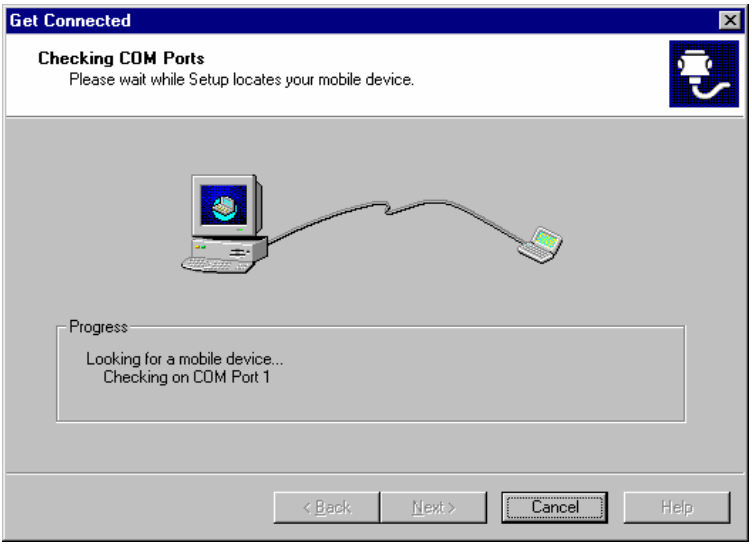
Note: Don't click Next button at this time.

5. Press Start/ Run of UNO-1019; enter the \windows\repllog.exe in the command line of and press OK button

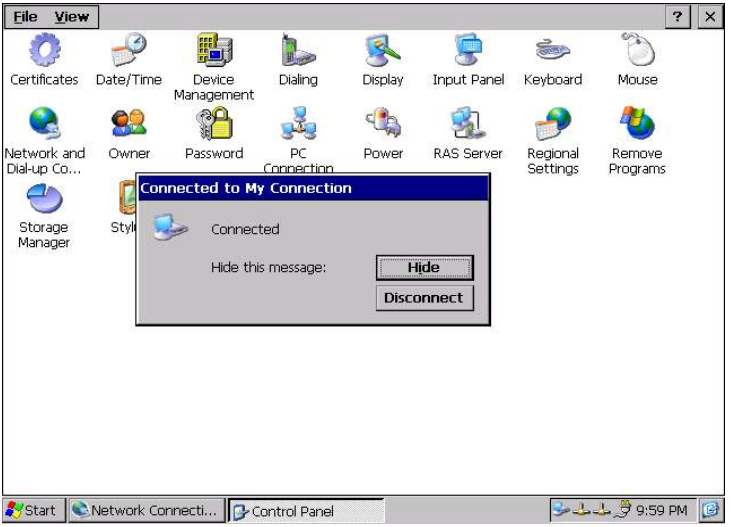




6. Now, press the Next button in the "**Get Connected**" dialog in the host. It will build the connection between UNO-1019 and host.



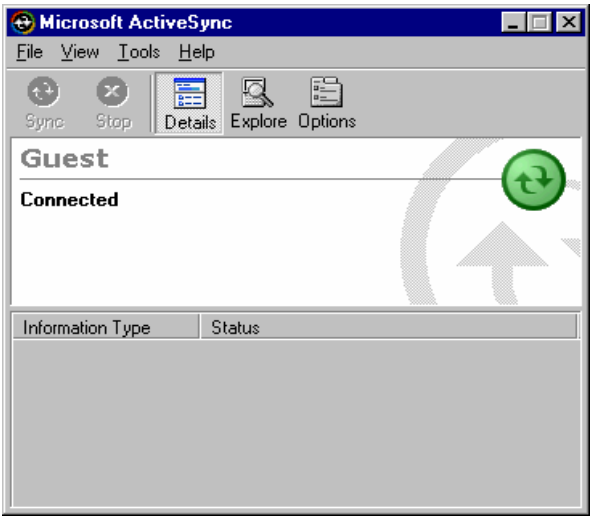
7. If the connection between UNO-1019 and the host has been established, you will see below message in UNO-1019.



8. If the connection between UNO-1019 and the host has been established, you will see below message in the host.

Select **No**, then press Next button.

After the New partnership setting, it will show the below dialog window in the host.

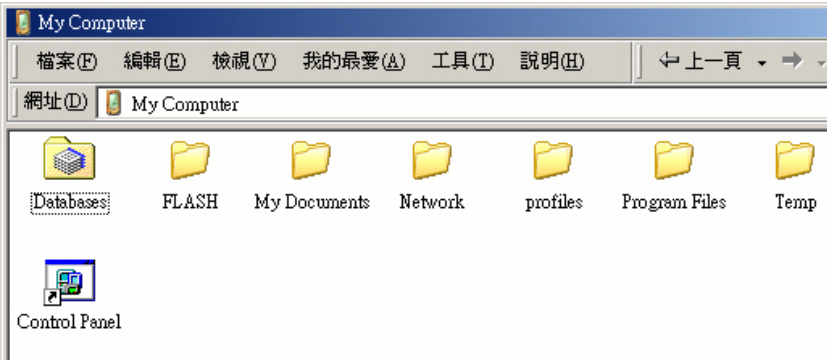


9. Press Explore button in Microsoft ActiveSync window, it will pop up the Mobile Device window to display the file resources and information of UNO-1019 as below:

For example, if you click the icon “My Documents’”, you will see the content of storage in UNO-1019.

Begin Transferring Files from the PC to UNO-1019

Double click “My Computer” in “Mobile Device” for file translation.



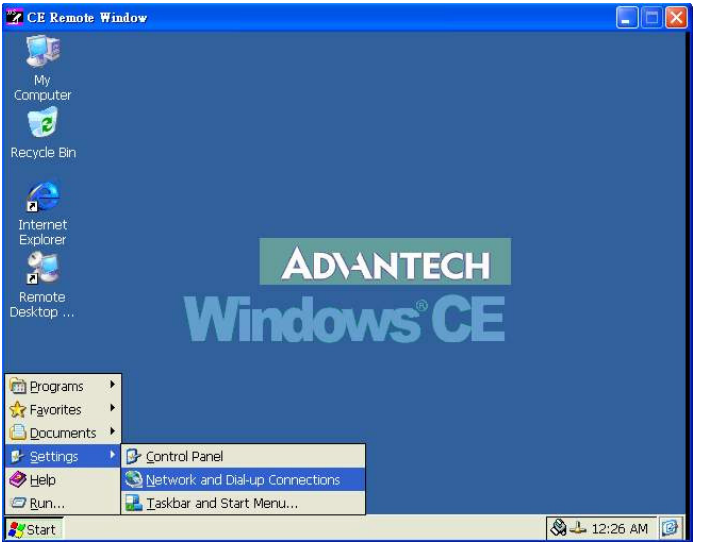
4.3 Remote Access Server Configuration

UNO-1019 provides “Remote Access Services” which offers the possibilities for remote network and user to have TCP/IP access local mail servers, access to database, web servers or other Intranet services.

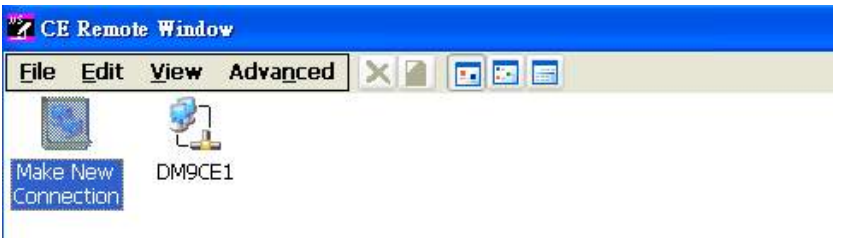
The following description introduces how to set the dial-up and dial-in configuration.

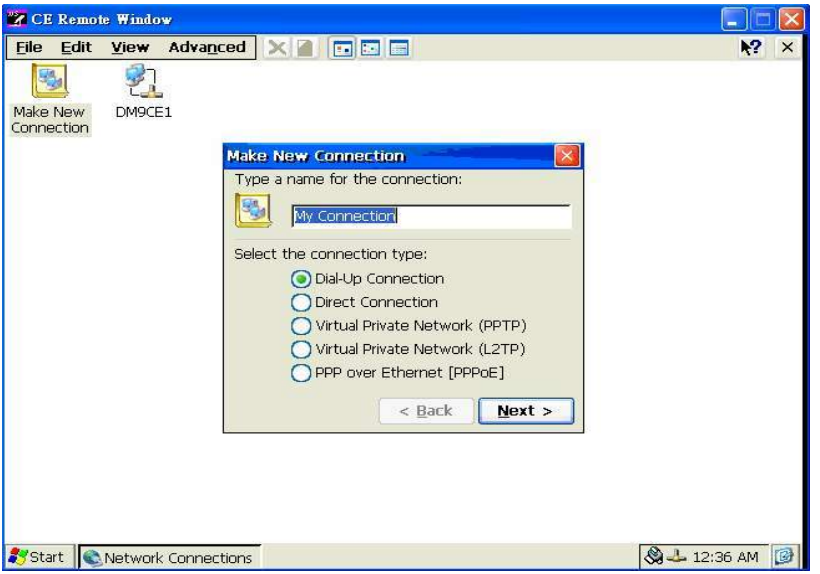
Dial-up Configuration

1. Press start of task bar of window system and select “Settings” / “Networking and Dial-up Connections”

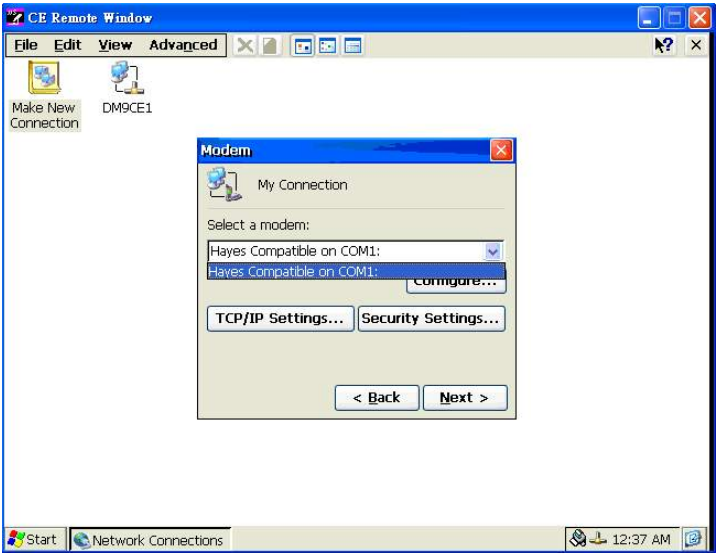


2. Double click “Make New Connection”, then a dialog window will pop out. Select Dial-Up Connection and press Next >.

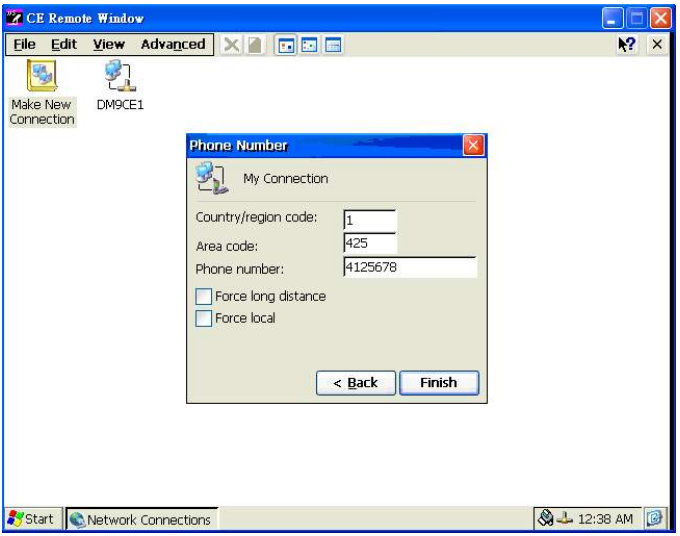




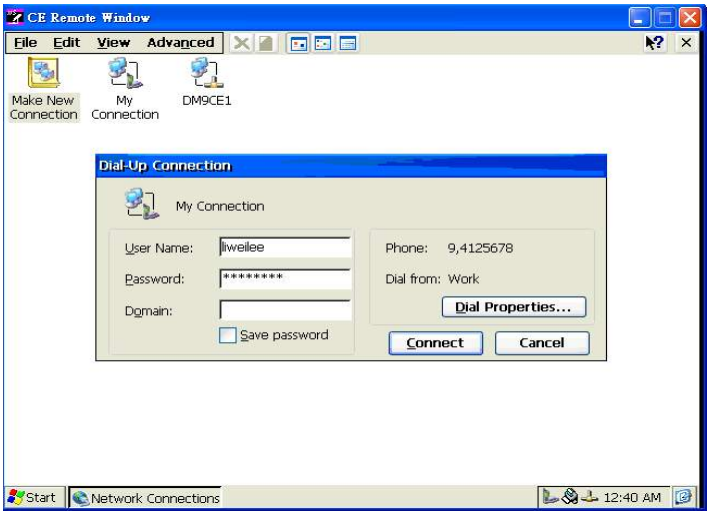
3. Setup the device according to the specification of the modem and press Next >.

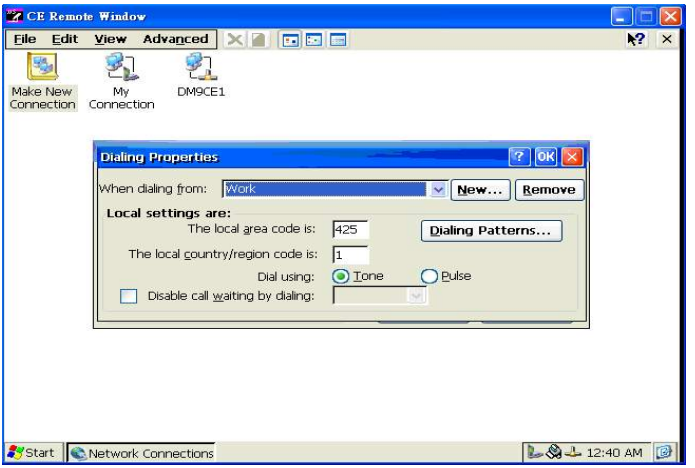


Enter the telephone number in the “Phone Number” window. Press Finish button to complete the dial-up configuration.



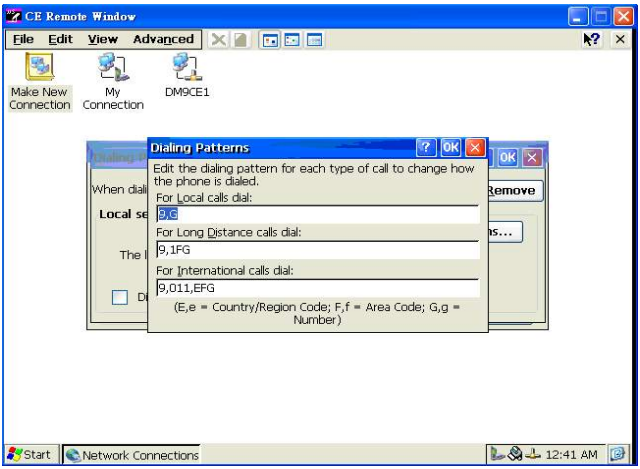
4. Press start of task bar of window system and select “Setting” ‡ “Networking and Dial-up connections”. Double click the new connection that you made previously (it is RAS Connection in this case), and it will pop out the “Dial-Up Connection” dialog window. Enter your user name / password, then press Dial Properties.



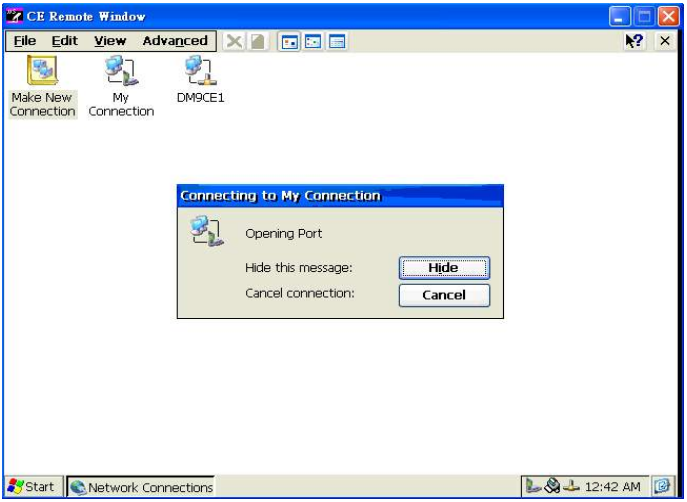


5. Press Dialing Patterns button in the Dialing Properties window. Edit the dialing pattern for each type of call to change how the phone is dialed.

Note: *Country/Region Code, please enter "E" or "e"*
Area Code, please enter "F" or "f"
Number, please enter "G" or "g"

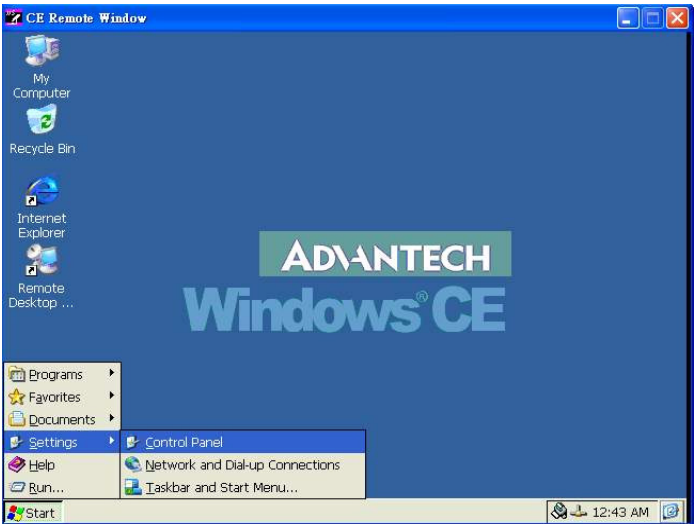


6. Double click My Connection and press Connection button to build a PPP connection.

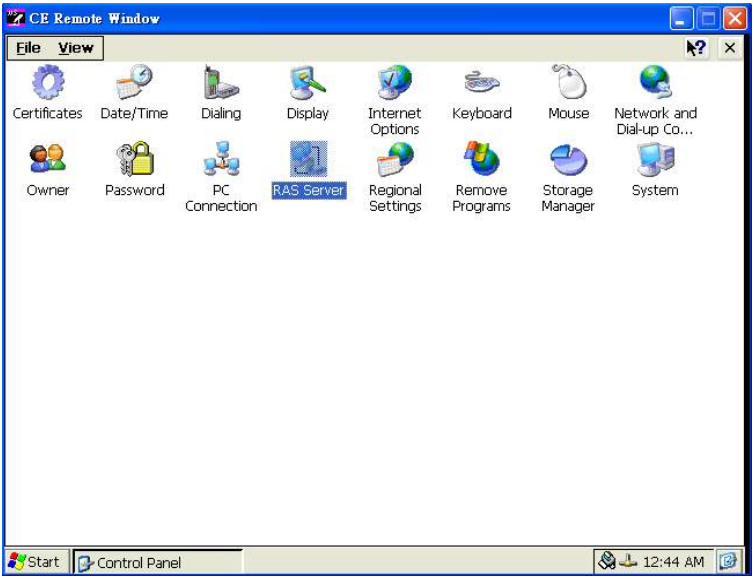


Dial-in Configuration

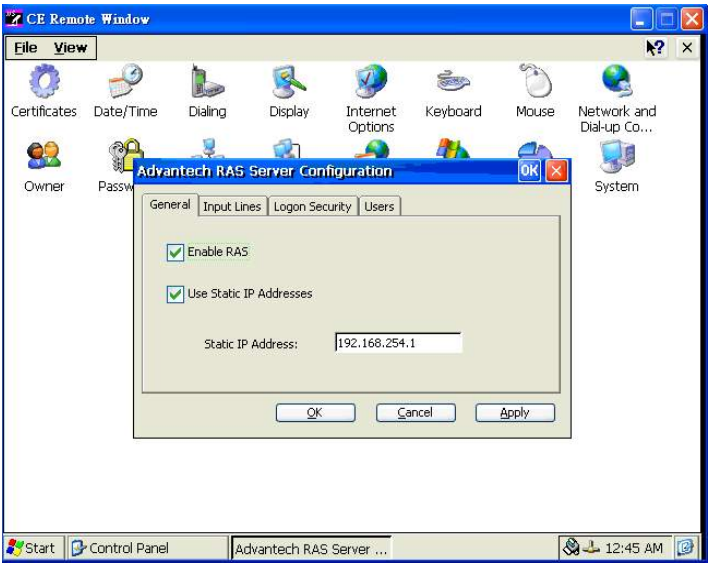
1. Press start of task bar of window system and select “Setting” / “Control Panel”.



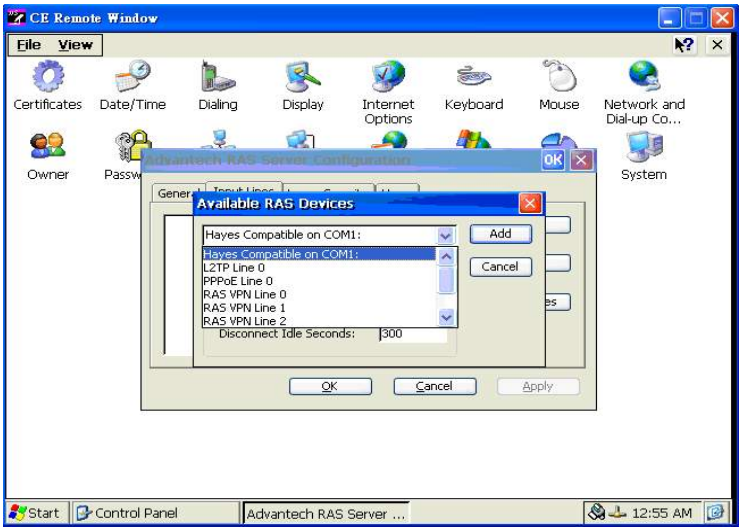
2. Double click the RAS Server icon from Control Panel.



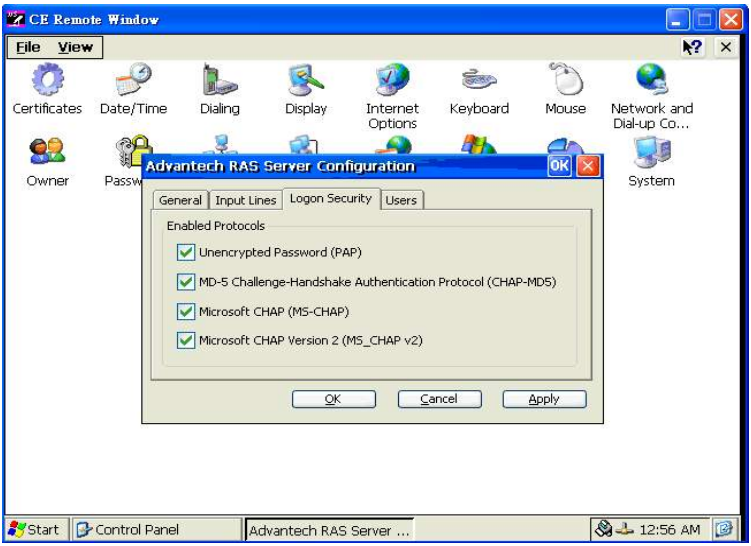
3. Select the “General” tab under “Advantech RAS Server Configuration”. Select “Enable RAS”, “Use Static IP Address” and enter a specified IP in Static IP Address blank.



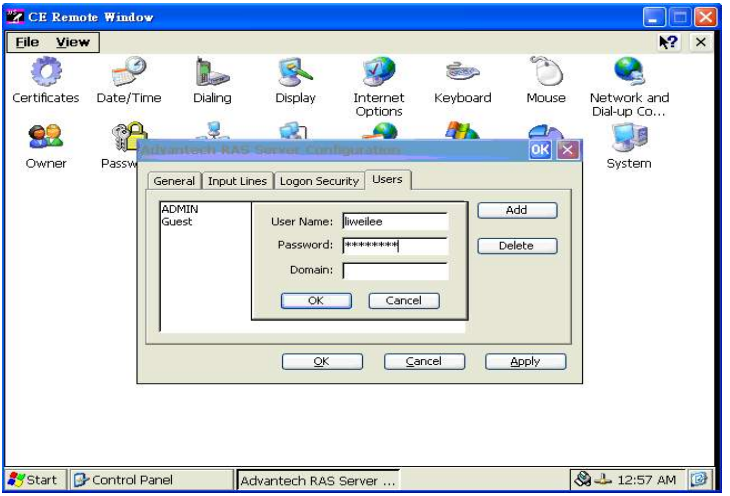
4. Select the “Input Lines” tab under “Advantech RAS Server Configuration”. Click Add button to setup the input line according to the available RAS device.



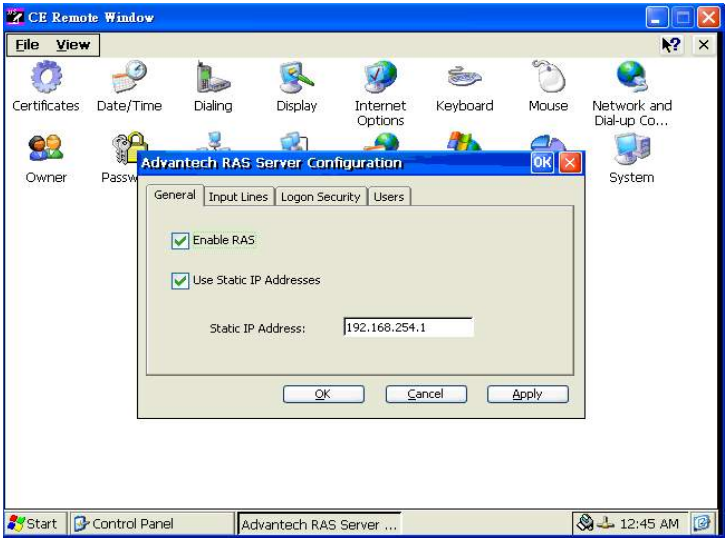
5. Select the “Logon Security” tab under “Advantech RAS Server Configuration”. Select security protocol if necessary.



6. Select the “Logon Security” tab under “Advantech RAS Server Configuration”. Add a new account for remote access services.



7. After all settings are completed, press Apply button and then it will pop up the RasConfig dialog window. Press Yes button to save registry setting to storage card.



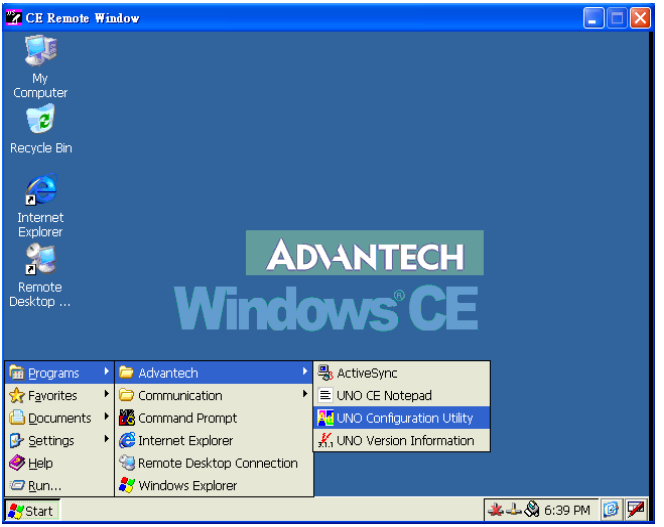
RAS configuration procedure is completed and you can access UNO-1019 via remote device.

4.4 Autorun Configuration Note

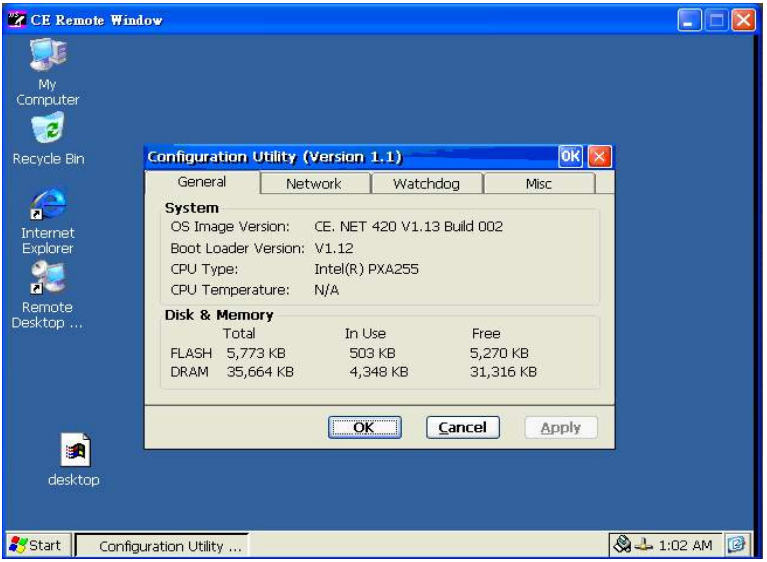
This document introduces how to execute applications automatically when you boot UNO-1019 up.

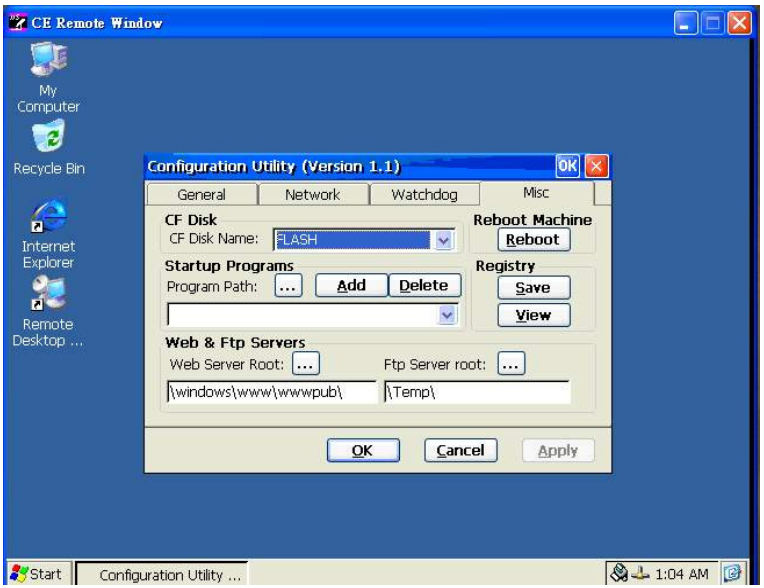
Autorun Configuration Procedure

1. Execute the “UNO Configuration Utility”

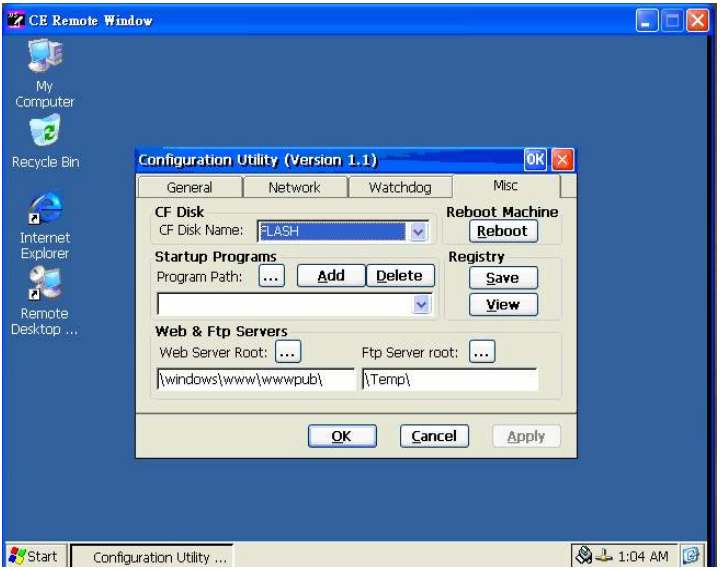


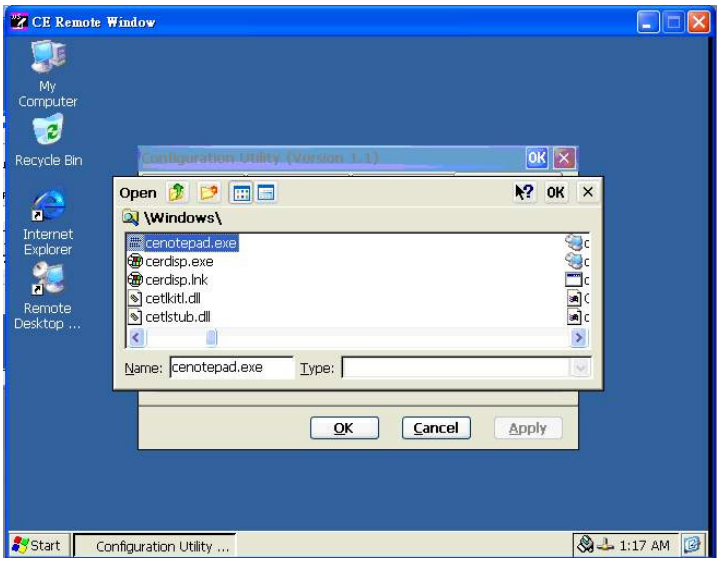
2. Go to the “Misc” page in UNO Configuration Utility.


CE Remote Window
My Computer
Recycle Bin
Internet Explorer
Remote Desktop ...
desktop
Configuration Utility (Version 1.1)
OK
General
Network
Watchdog
Misc
System
OS Image Version: CE. NET 420 V1.13 Build 002
Boot Loader Version: V1.12
CPU Type: Intel(R) PXA255
CPU Temperature: N/A
Disk & Memory
Total
In Use
Free
FLASH 5,773 KB 503 KB 5,270 KB
DRAM 35,664 KB 4,348 KB 31,316 KB
OK
Cancel
Apply
Start
Configuration Utility ...
1:02 AM


CE Remote Window
My Computer
Recycle Bin
Internet Explorer
Remote Desktop ...
Configuration Utility (Version 1.1)
OK
General
Network
Watchdog
Misc
CF Disk
CF Disk Name: FLASH
Reboot Machine
Reboot
Startup Programs
Program Path: ...
Add
Delete
Registry
Save
View
Web & Ftp Servers
Web Server Root: ...
Ftp Server root: ...
\windows\www\wwwpub\
\Temp\
OK
Cancel
Apply
Start
Configuration Utility ...
1:04 AM

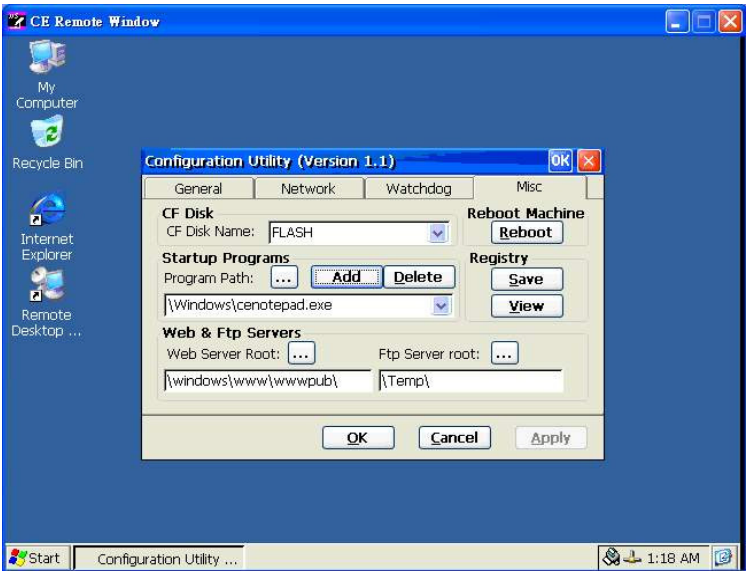
3. Click on the “Program Path” bottom for selecting the program for Auto-Run setting..

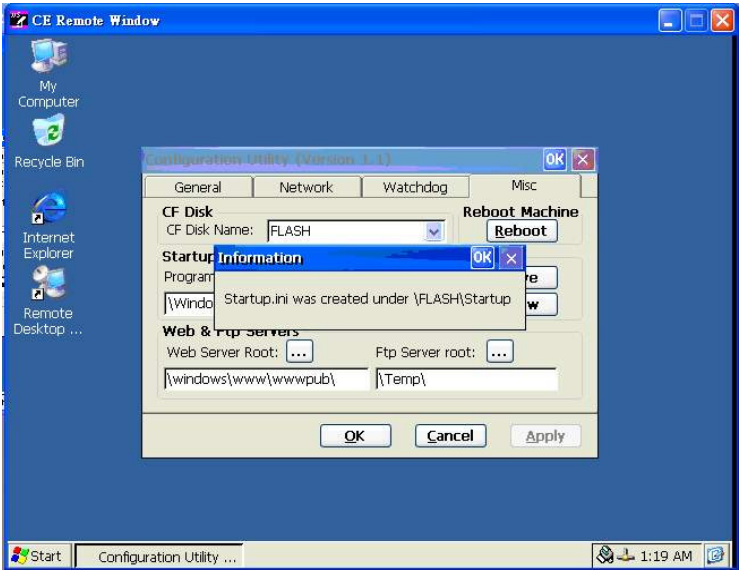




Please choose the program then press “OK”.

4. Click on the “Add” bottom to set the program for Auto-Run action.





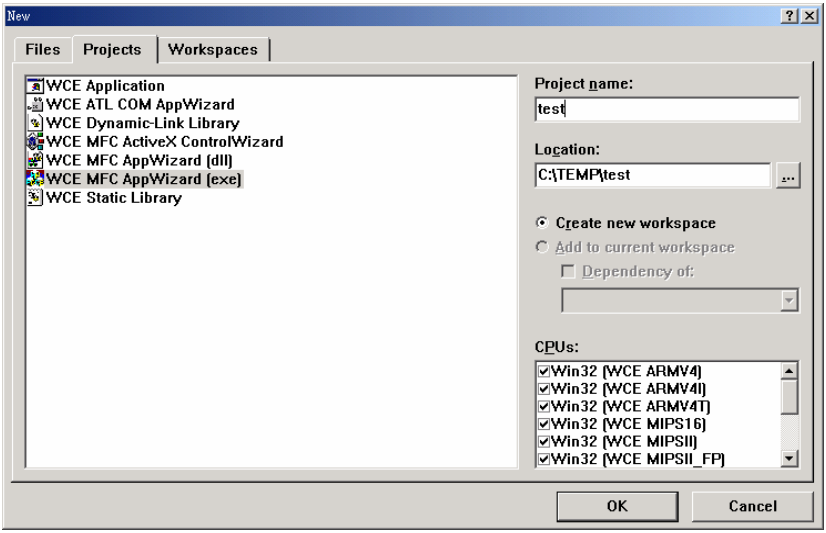
The UNO Configuration Utility will add the selected program in Auto-Run requirement. Please press “OK” to finish the configuration.

4.5 Application Development Procedure

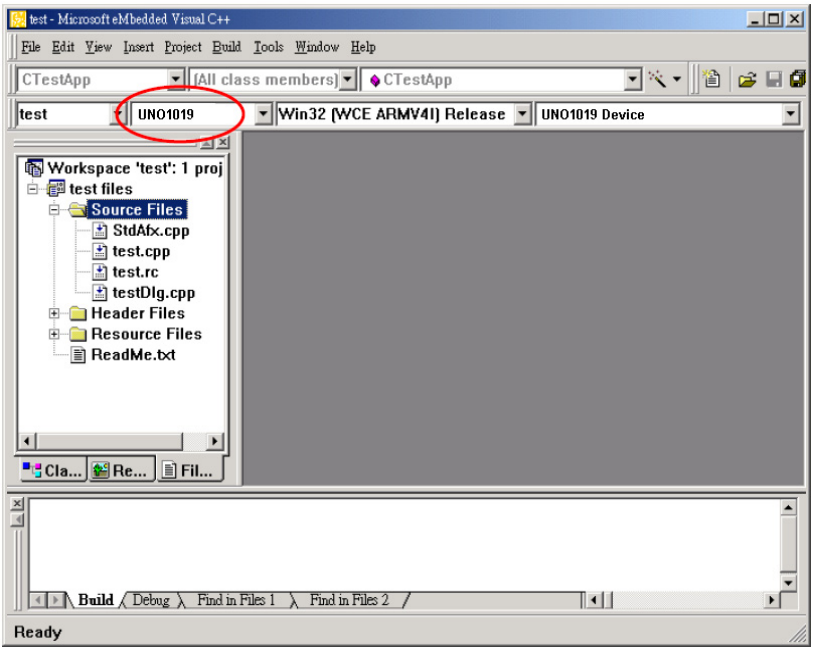
UNO-1019 provides Software Development Kit (SDK) and a built-in runtime library; you can use your existing windows-based programming skills to develop applications easily and rapidly through those tools. This document introduces how to develop custom application step by step.

4.5.1 Application Development Procedure

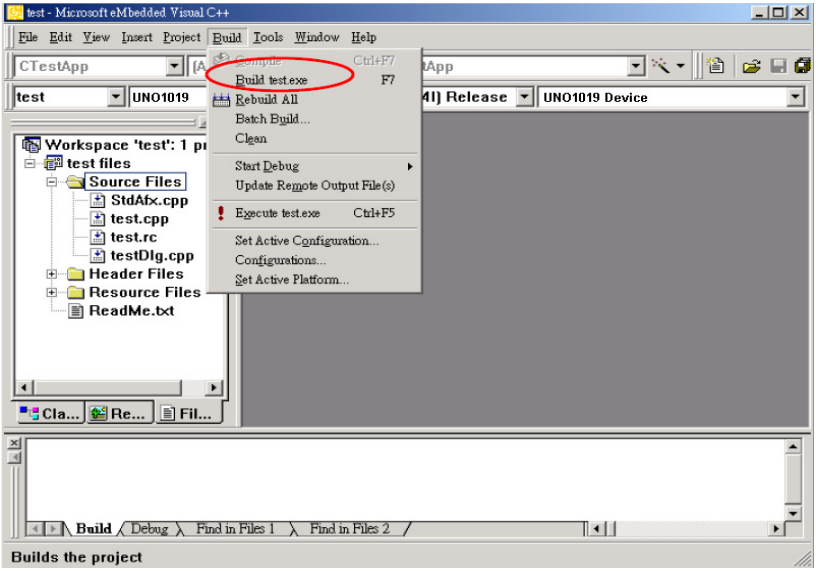
1. Install Microsoft eMbedded Visual C++ V4.00 with Service Pack 2 The Microsoft eMbedded Visual C++ tool is a desktop development environment for creating applications and system components for Windows CE .NET-powered devices. This version features new capabilities such as C++ exception handling, Run Time Type Information (RTTI), and a plethora of new debugger functionalities. Before you begin to develop your application, you must install Microsoft eMbedded Visual C++ first.
2. Insert UNO-1019 CD into the CD-ROM in the host PC.
3. Install UNO-1019 Software Development Kit for eMbedded Visual C++ from below path:
   \UNO-1019\SDK
4. Install Microsoft ActiveSync 4.1 from below path:
   \ActiveSync
5. Build the connection between the host and UNO-1019 via ActiveSync. Further information about ActiveSync, please refer to "ActiveSync Connection".
6. Execute eMbedded Visual C++.
7. Select "File" ‡ "New" to open a new project. Select your project type in the left blank of window and enter the new project name / location in the right side of window. Please note that CPU type must select Win32 (WCE ARMV4I).



8. Select “UNO-1019” in the main window of Visual C++ .



9. After you complete above configuration procedure, you can start to develop your application. Press “Build”/ “Build xxx.exe” to compile your program to .exe file and download it to UNO-1019.



10. If you want to execute your program, press “Build” / “Execute xxx.exe” and then the program will be executed in UNO-1019.

4.5.2 Watchdog Timer

There is a built-in watchdog timer in UNO-1019. Users can utilize the WDT driver with standard WIN32 API to implement the watchdog function in their applications. To use the watchdog driver, firstly user must open it via the name, “WDT1:”, then use DeviceIOControl function to access the watchdog hardware. The introduction below includes the definition of DeviceIOControl and its parameters as well as an example.

How to Use the Control Code

There are 6 control codes for the operation codes in the WDT driver.

1. IOCTL _WDT_ENABLE:

Enable the Watchdog timer on your application. By default, if the Watchdog timer is enabled, the WDT driver will automatically reload the timeout counter after a specified period and your application does not need to trigger the strobe periodically for masking the timeout, unless use IOCTL_WDT_REBOOT to stop this automatic strobe triggering.

lpInBuffer : unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

2. IOCTL _WDT_DISABLE:

Disable the Watchdog time on your application.

lpInBuffer : unsed.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

3. IOCTL_WDT_STROBE:

Trigger strobe signal to reload watchdog timeout counter. If your application uses IOCTL_WDT_ENABLE to enable the Watchdog first and then sends IOCTL_WDT_REBOOT to the WDT driver, your application must trigger the Watchdog once during the Watchdog timer period. If your application has not triggered at the specified period, the device will reboot automatically.

lpInBuffer: unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

4. IOCTL_WDT_GETTIMEOUT:

Get the Watchdog timeout value.

lpInBuffer: unused.

nInBufferSize: unused.

lpOutBuffer: The DWORD pointer to your Watchdog timeout setting. The Watchdog timeout setting is just a number. 0 means 2 seconds, 1 means 5 seconds, 2 means 10 seconds, 3 means 15 seconds, 4 means 30 seconds, 5 means 45 seconds, 6 means 60 seconds, 7 means 120 seconds, 8 means 300 seconds, 9 means 600 seconds, 10 means 900 seconds, others means the maximum 1140 seconds. The default setting is 5 seconds.

nOutBufferSize: unused.

5. IOCTL_WDT_SETTIMEOUT:

Set the Watchdog timeout value.

lpInBuffer : The DWORD pointer to your Watchdog timeout setting. The Watchdog timeout setting is just a number. 0 means 2 seconds, 1 means 5 seconds, 2 means 10 seconds, 3 means 15 seconds, 4 means 30 seconds, 5 means 45 seconds, 6 means 60 seconds, 7 means 120 seconds, 8 means 300 seconds, 9 means 600 seconds, 10 means 900 seconds, others means the maximum 1140 seconds. The default setting is 5 seconds.

nInBufferSize:.unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

6. IOCTL_WDT_REBOOT:

If you want your application to trigger the Watchdog by itself, please use IOCTL_WDT_REBOOT to notify the WDT driver. Otherwise, the WDT will trigger itself automatically.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

DeviceIOControl

This function sends a control code directly to a specified device driver, causing the corresponding device to perform the specified operation.

BOOL DeviceIoControl(

HANDLE hDevice,

DWORD dwIoControlCode,

LPVOID lpInBuffer,

DWORD nInBufferSize,

LPVOID lpOutBuffer,

DWORD nOutBufferSize,

LPDWORD lpBytesReturned,

LPOVERLAPPED lpOverlapped);

Parameters:

. hDevice

[in] Handle to the device that is to perform the operation. Call the Create-File function to obtain a device handle.

. dwIoControlCode

[in] Specifies the control code for the operation. This value identifies the specific operation to be performed and the type of device on which the operation is to be performed. No specific values are defined for the dwIo-ControlCode parameter. However, the writer of a custom device driver can define IOCTL_XXXX control codes, per the CTL_CODE macro. These control codes can then be advertised, and an application can use these control codes with DeviceIoControl to perform driver specific functions.

. lpInBuffer

[in] Long pointer to a buffer that contains the data required to perform the operation. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not require input data.

. nInBufferSize

[in] Size, in bytes, of the buffer pointed to by lpInBuffer.

. lpOutBuffer

[out] Long pointer to a buffer that receives the output data for the operation. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not produce output data.

. nOutBufferSize

[in] Size, in bytes, of the buffer pointed to by lpOutBuffer.

. lpBytesReturned

[out] Long pointer to a variable that receives the size, in bytes, of the data stored into the buffer pointed to by lpOutBuffer. The lpBytesReturned parameter cannot be NULL. Even when an operation produces no output data, and lpOutBuffer can be NULL, the DeviceIoControl function makes use of the variable pointed to bylpBytesReturned. After such an operation, the value of the variable is without meaning.

. lpOverlapped

[in] Ignored; set to NULL.

. Return Values

Nonzero indicates success. Zero indicates failure. To get extended error information, call GetLastError.

Examples

```
#define IOCTL_WDT_ENABLE
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x900,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_WDT_DISABLE
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x901,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_WDT_STROBE
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x902,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_WDT_GET_TIMEOUT
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x903,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_WDT_SET_TIMEOUT
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x904,
METHOD_BUFFERED, FILE_ANY_ACCESS)
```

```
#define IOCTL_WDT_REBOOT
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x905,
METHOD_BUFFERED, FILE_ANY_ACCESS)

HANDLE m_hWDT=NULL;
TCHAR szClassName[60];

// assign the WDT driver name
wsprintf(szClassName, TEXT("WDT1:"));
// Open the WDT driver
m_hWDT = CreateFile(szClassName,
GENERIC_READ|GENERIC_WRITE, 0, NULL, OPEN_EXISTING,
FILE_ATTRIBUTE_NORMAL, NULL);
if ( m_hWDT == INVALID_HANDLE_VALUE ) {
DebugMsg(CString("WDT driver fail"));
return;
}

DWORD dwTemp;
DWORD nIndex=2;

// Set the Watchdog Timer as 10 seconds. Number 2 means 10 seconds.
DeviceIoControl(m_hWDT, IOCTL_WDT_SET_TIMEOUT, &nIndex,
sizeof(nIndex), NULL, 0, &dwTemp, NULL);

// Enable the Watchdog timer
DeviceIoControl(m_hWDT, IOCTL_WDT_ENABLE, NULL, 0, NULL,
0, &dwTemp, NULL);

// Activate timeout reboot
DeviceIoControl(m_hWDT, IOCTL_WDT_REBOOT, NULL, 0, NULL,
0, &dwTemp, NULL);
```

```
While (1) {
// do your job here.
Sleep(8000);
DeviceIoControl(m_hWDT, IOCTL_WDT_STROBE, NULL,0, NULL,
0, &dwTemp, NULL);
}

DeviceIoControl(m_hWDT, IOCTL_WDT_DISABLE, NULL, , NULL,
0, &dwTemp, NULL);

CloseHandle(m_hWDT);
```

4.5.3 DIO, LED and Buzzer

UNO-1019 has 2 DI(Digital Input) , 2 DO(Digital Output), 3 LED and a Buzzer. Users can access these resources via the built-in Advantech IO Service driver named “ADV1:”.The follows are the descriptions and examples of the usable DeviceIoControl codes in this driver:

How to Use the Control Code

There are 11 control codes for the operation codes in DIO, LED, and Buzzer (driver).

1. ADV_IOCTL_READ_DI:

Read the Digital Input value.

lpInBuffer : unsed.

nInBufferSize: unused.

lpOutBuffer: The BYTE pointer to the current DI value. BIT0 indicates DI_0 state; BIT1 indicates DI_1 state.

nOutBufferSize: User provided output buffer size.

2. ADV_IOCTL_WRITE_DO:

Write value out the Digital Output.

lpInBuffer : The BYTE pointer to the DO value that is requesting to write out. BIT0 indicates DO_0 state; BIT1 indicates DO_1 state.

nInBufferSize: User provided input buffer size.

lpOutBuffer: unsed.

nOutBufferSize: unsed.

3. ADV_IOCTL_READ_DO:

Read the written Digital Output value.

lpInBuffer : unsed.

nInBufferSize: unsed.

lpOutBuffer: The BYTE pointer to the current DO value. BIT0 indicates DO_0 state; BIT1 indicates DO_1 state.

nOutBufferSize: User provided input buffer size.

4. ADV_IOCTL_TURN_ON_LED1:

Turn LED1 on.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

5. ADV_IOCTL_TURN_OFF_LED1:

Turn LED1 off.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

6. ADV_IOCTL_TURN_ON_LED2:

Turn LED2 on.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

7. ADV_IOCTL_TURN_OFF_LED2:

Turn LED2 off.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

8. ADV_IOCTL_TURN_ON_LED3:

Turn LED3 on.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

9. ADV_IOCTL_TURN_OFF_LED3:

Turn LED3 off.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

10. IOCTL_PLAY_BUZZER:

Make the buzzer start beeping.

lpInBuffer : The DWORD pointer to the number of mini-seconds to play.

nInBufferSize: User provided input buffer size.

lpOutBuffer: unsed.

nOutBufferSize: unsed.

11. IOCTL_STOP_BUZZER:

Stop the buzzer that is playing.

lpInBuffer :unused.

nInBufferSize: unused.

lpOutBuffer: unused.

nOutBufferSize: unused.

DeviceIOControl

This function sends a control code directly to a specified device driver, causing the corresponding device to perform the specified operation.

BOOL DeviceIoControl(

HANDLE hDevice,

DWORD dwIoControlCode,

LPVOID lpInBuffer,

DWORD nInBufferSize,

LPVOID lpOutBuffer,

DWORD nOutBufferSize,

LPDWORD lpBytesReturned,

LPOVERLAPPED lpOverlapped);

Parameters:

. hDevice

[in] Handle to the device that is to perform the operation. Call the Create-File function to obtain a device handle.

. dwIoControlCode

[in] Specifies the control code for the operation. This value identifies the specific operation to be performed and the type of device on which the operation is to be performed. No specific values are defined for the dwIo-ControlCode parameter. However, the writer of a custom device driver can define IOCTL_XXXX control codes, per the CTL_CODE macro. These control codes can then be advertised, and an application

can use these control codes with DeviceIoControl to perform driver specific functions.

. lpInBuffer

[in] Long pointer to a buffer that contains the data required to perform the operation. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not require input data.

. nInBufferSize

[in] Size, in bytes, of the buffer pointed to by lpInBuffer.

. lpOutBuffer

[out] Long pointer to a buffer that receives the output data for the operation. This parameter can be NULL if the dwIoControlCode parameter specifies an operation that does not produce output data.

. nOutBufferSize

[in] Size, in bytes, of the buffer pointed to by lpOutBuffer.

. lpBytesReturned

[out] Long pointer to a variable that receives the size, in bytes, of the data stored into the buffer pointed to by lpOutBuffer. The lpBytesReturned parameter cannot be NULL. Even when an operation produces no output data, and lpOutBuffer can be NULL, the DeviceIoControl function makes use of the variable pointed to bylpBytesReturned. After such an operation, the value of the variable is without meaning.

. lpOverlapped

[in] Ignored; set to NULL.

. Return Values

Nonzero indicates success. Zero indicates failure. To get extended error information, call GetLastError.

Examples

```
#define ADV_IOCTL_READ_DI
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x900,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_READ_DO
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x902,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_WRITE_DO
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x904,
METHOD_BUFFERED, FILE_ANY_ACCESS)

#define ADV_IOCTL_TURN_ON_LED1
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x930,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_TURN_OFF_LED1
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x931,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_TURN_ON_LED2
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x932,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_TURN_OFF_LED2
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x933,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_TURN_ON_LED3
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x934,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define ADV_IOCTL_TURN_OFF_LED3
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x935,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_PLAY_BUZZER
```

```
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x950,
METHOD_BUFFERED, FILE_ANY_ACCESS)
#define IOCTL_STOP_BUZZER
CTL_CODE(FILE_DEVICE_UNKNOWN, 0x951,
METHOD_BUFFERED, FILE_ANY_ACCESS)



HANDLE hDev;
DWORD i, dwGot, dwNumReturned;

// LED & IO Test Program.

hDev = CreateFile( _T("ADV1:"),                 // Pointer to the name of
the port
        GENERIC_READ | GENERIC_WRITE, //Access (read-write)
mode
        0,                      // Share mode
        NULL,                   // Pointer to the security attribute
        OPEN_EXISTING,          // How to open the serial port
        0,                      // Port attributes
        NULL );                 // Handle to port with attribute

if (!hDev)
{
   printf("Can't load ADV1 driver properly!\r\n");
   return 0;
}

for(i=0; i<20; i++)
{
   if( i & 0x01 )
   {
```

```
        dwGot |= 0x01;  // set Dout_0 high
        dwGot |= 0x02;  // set Dout_1 high
        printf("Set Dout_0 high, Set Dout_1 high ...\r\n");
    }
    else
    {
        dwGot &= ~0x01;  // set Dout_0 low
        dwGot &= ~0x02;  // set Dout_1 low
        printf("Set Dout_0 low, Set Dout_1 low ...\r\n");
    }
    if( !DeviceIoControl (hDev, ADV_IOCTL_WRITE_DO, &dwGot, 4,
NULL, 0, &dwNumReturned, NULL) )
    {
        printf("ADV_IOCTL_WRITE_DO failed! exit.\r\n");
        break;
    }


    if( !DeviceIoControl (hDev, ADV_IOCTL_READ_DI, NULL, 0,
&dwGot, 4, &dwNumReturned, NULL) )
    {
        printf("ADV_IOCTL_READ_DI failed! exit.\r\n");
        break;
    }


    if( dwGot & 0x01 )
    {
        DeviceIoControl(hDev, ADV_IOCTL_TURN_ON_LED1, NULL,
0, NULL, 0, NULL, NULL);
    }
    else
    {
```

```
      DeviceIoControl(hDev, ADV_IOCTL_TURN_OFF_LED1, NULL,
0, NULL, 0, NULL, NULL);
   }

   if( dwGot & 0x02 )
   {
      DeviceIoControl(hDev, ADV_IOCTL_TURN_ON_LED2, NULL,
0, NULL, 0, NULL, NULL);
   }
   else
   {
      DeviceIoControl(hDev, ADV_IOCTL_TURN_OFF_LED2, NULL,
0, NULL, 0, NULL, NULL);
   }

   Sleep(1000);
}

CloseHandle(hDev);
```

4.6 Saving Your Settings

Once you made changes for UNO-1019, you may need run RegSave.exe to save Windows CE system Registry to CF card or on-board flash disk to keep your settings. See Registry Saving section for detail.

Registry Saving

Running RegSave.exe to save system Registry to CF card or on-board Flash. you can specify command line parameter for RegSave.exe shown as below:

RegSave [-f] [-s] [-fs]

[-f] : Save Registry to Flash and CF card

[-s]: RegSave will not display any message despite whether the action is succeeded or not.

[-fs]: combination of [-f] and [-s]

If you're running RegSave.exe without parameter, it will only save Registry to CF card and it will display message to notify you whether the Registry has been successfully saved.

4.7 UNO-1019 Network Administration User Guide

Advantech's UNO-1019 series is a built-in Windows CE solution offering a pre-configured image with optimized onboard device drivers. WinCE is a compact, high-efficient and hard real-time operating system that is designed for embedded systems without HDD limitation.

UNO-1019 remote administration is a powerful function, which allow users connect to filed-site UNO-1019 by standard browser and configure UNO-1019's network and system settings remotely.

UNO-1019 remote administration includes two major functions; network administration and system administration.

Network administrationWith UNO-1019 well-configured, user can connect to local network or public network (Internet).

4.7.1 Network Administration

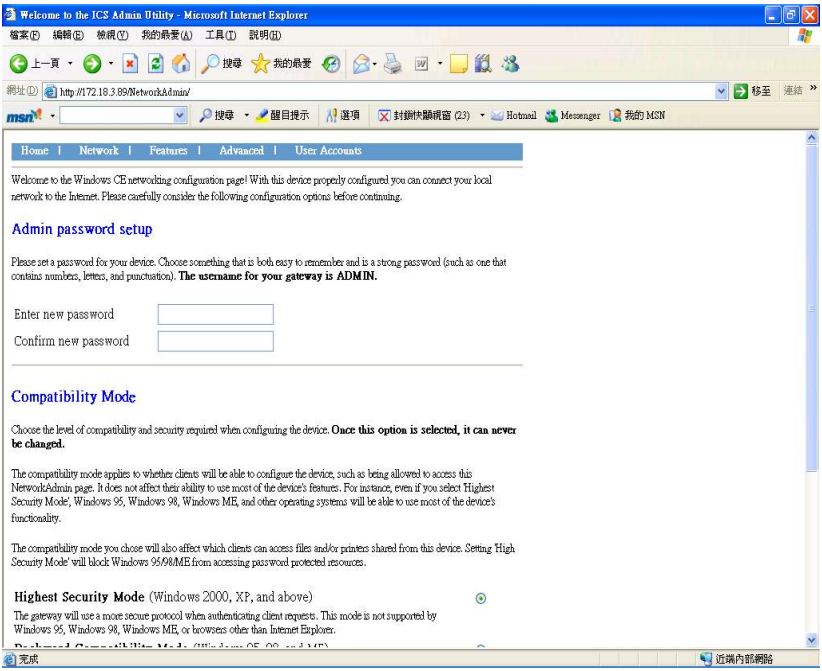
Following steps introduces how to connect the UNO-1019 by standard browser, and configure the field-site UNO-1019's network setting remotely.

1. Execute standard browser (for instance, Internet Explorer), and enter UNO-1019 (which you would like to connect)'s IP address as below,

IP address/networkadmin

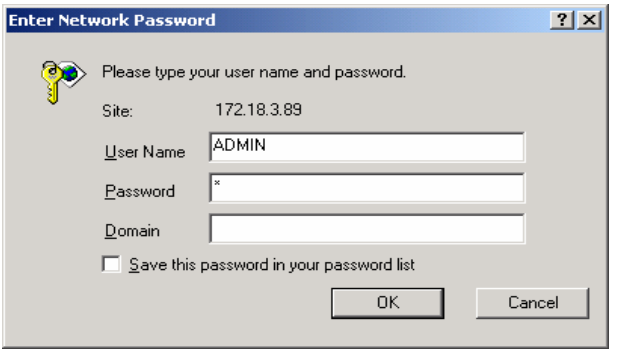
Instance: 172.18.3.89/networkadmin

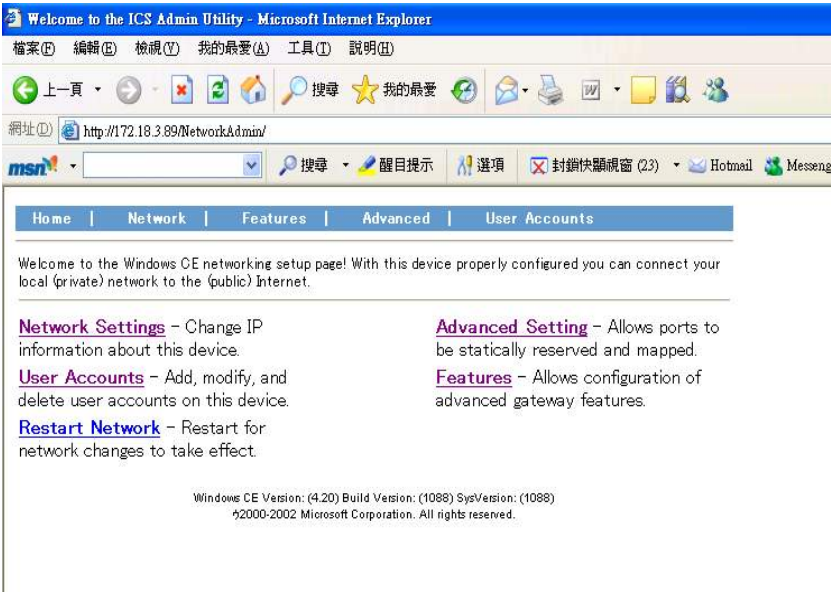
2. System will ask you to enter password when you login UNO-1019 first time.



Note: The default user name is ADMIN

3. Connect to the UNO-1019 again, and the system will ask you to enter user name and password. After authorization, you will enter Windows CE networking setup page.





Network Settings

Change IP information about the UNO-1019.

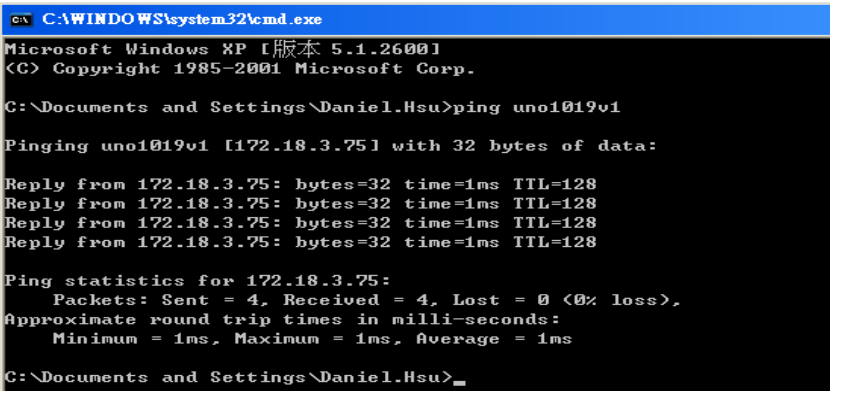
1. Change device name

Enter proper device name and press Submit button.

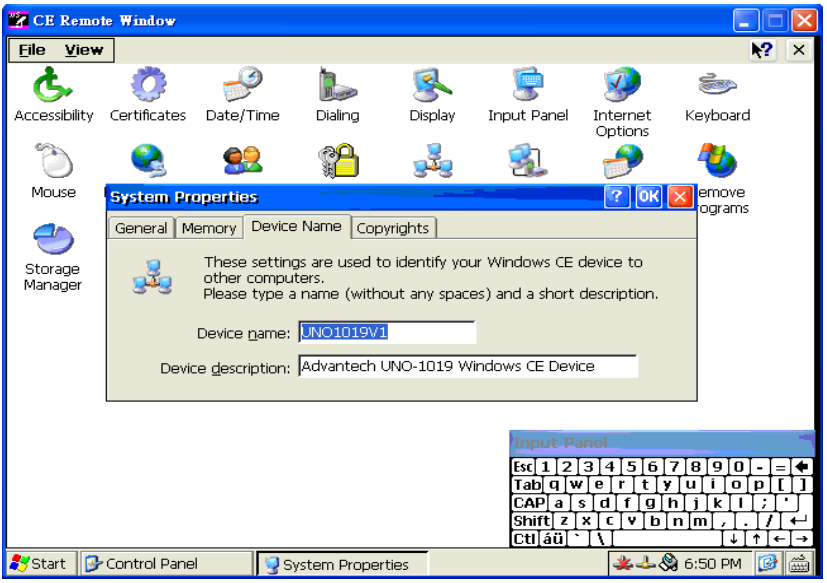
Please MUST change UNO-1019's device name at your first usage.

But after you change UNO-1019's device name, please don't ever change device name back to UNO-1019, it's not permitted for WinCE OS

Note: When you change the device name, UNO-1019 will need some time to register to DNS (Domain Name Server) automatically. If you would like to search this UNO-1019 next time, you can search it by device name instead of IP address.



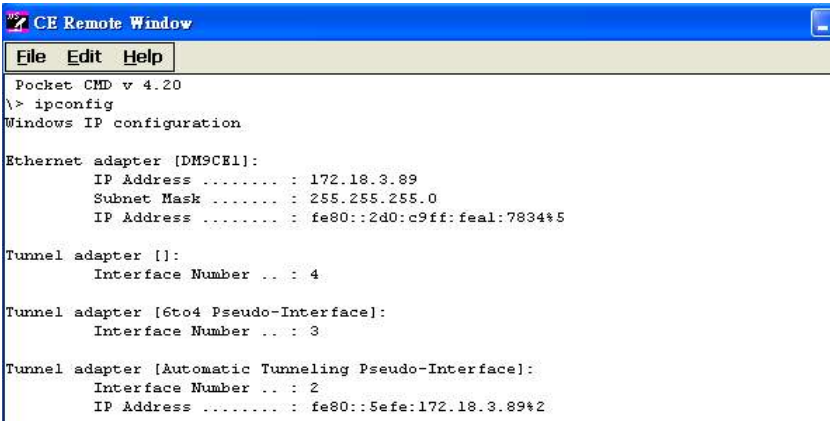
Note: You also could find device name in WinCE's "setting" / "Control Panel" / "System" 's device name tag. You could see below picture for referrence.



IPV6

If you want to enable “IPV6”, please check “Enable IPV6” and press Submit button.

System will ask you to restart UNO-1019, the UNO-1019 will support IPV6 after restarting.

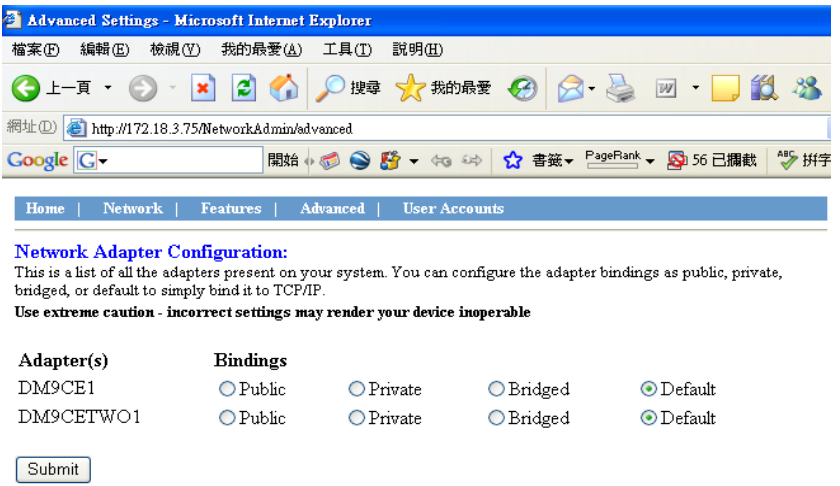


Advanced Setting

"Advanced setting" allows ports to be statically reserved and mapped.

System will list all of the adapters present on the UNO-1019. You can configure the adapter bindings as public, private, bridged, or default to simply bind it to TCP/IP.

Caution: Incorrect settings may render the UNO-1019 inoperable.



User Accounts

"User Accounts" function allows you to add, modify and delete user accounts on this UNO-1019. "ADMIN" is the only account allowed to manage account information

Note: *The account we manage here is for network service such as File server ,FTP,Telnet and Web server, but NOT "ACCESS THIS ADMIN WEBPAGE"*

1. Create a User Account

<1-A> Enter a user name in the "Create a new …" field, and press Create.

<1-B> Enter a password, and press Create Account button.

<1-C> System will create a user account according to your information.

If you would like to change the password of this user account, please press Modify button behind the user name.

If you would like to delete the user account, please press Delete button behind the user name.

2. Create a Group

<2-A> Enter a group name in the “Create a new” field, and press Create.

<2-B> If you want to choose which users are members of group, please press Modify button behind the group name.

Set the box next the user’s name to have them be part of this group.

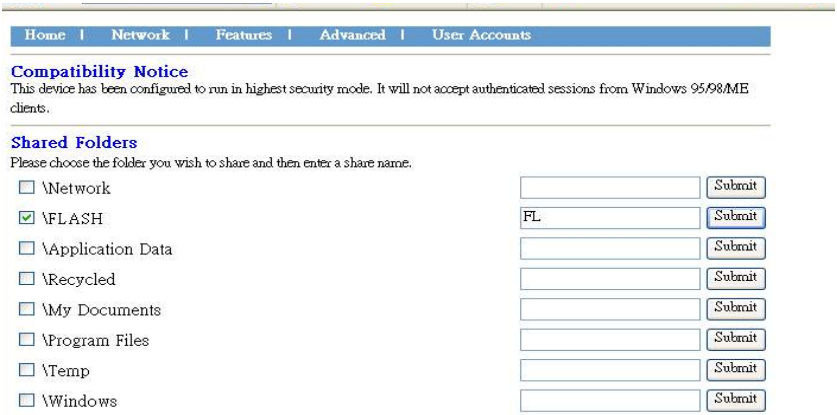
<2-C> If you want to delete a group, please press Delete button behind the group name.

Features

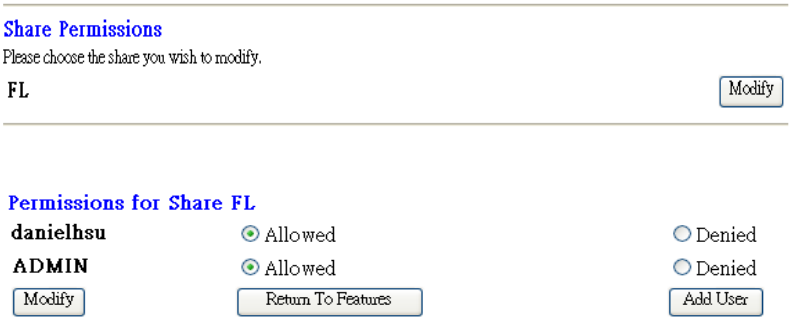
Allows configuration of advanced gateway features. You can configure the File server, FTP server, Telnet server and Web Server Administration accordingly.

4.7.2 File Server

<A-1> Choose the folder in UNO-1019 you wish to share and then enter a share name then press “Submit”.



<A-2> Press "Modify" to set up share permissions, choose the account who will use file server function, then click "Allowed" then press "Modify".



<A-3> You could use browser to access device name and test file server function

Note: *If you want to use password to protect UNO file server, please key in your ADMIN password, chossing "PWD Enabled" and click "Submit", every time you access file server, UNO file sever will ask you a password of account to enable file accessing.*

Disable ALL Passwords

If you disable passwords *ALL* shares (file and print) will be available to anyone on the network.

ADMIN Password:

PWD Enabled PWD Disabled Submit

Creating a Network Disk

Windows CE provides the command to enable remote network disk as a local disk.

<Command>

Usage:

net use [<local name of folder on UNO-1019>|*] [<remote name>] [/user:<username>] [/d]

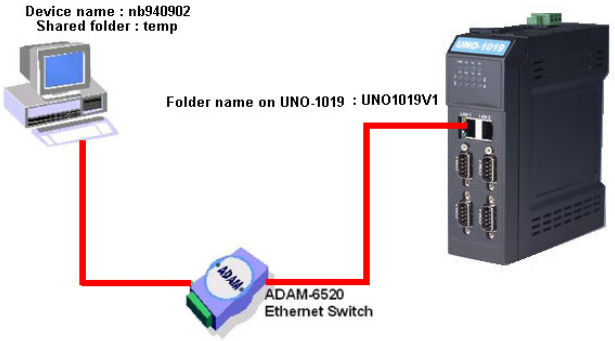
or

net view <computername> | /DOMAIN:<domainname>

<Description>

[/d] Disable network disk

<Instance>



1. Share the “temp folder” in the remote site (nb940902) to authorized users, and set the permissions (read/write).

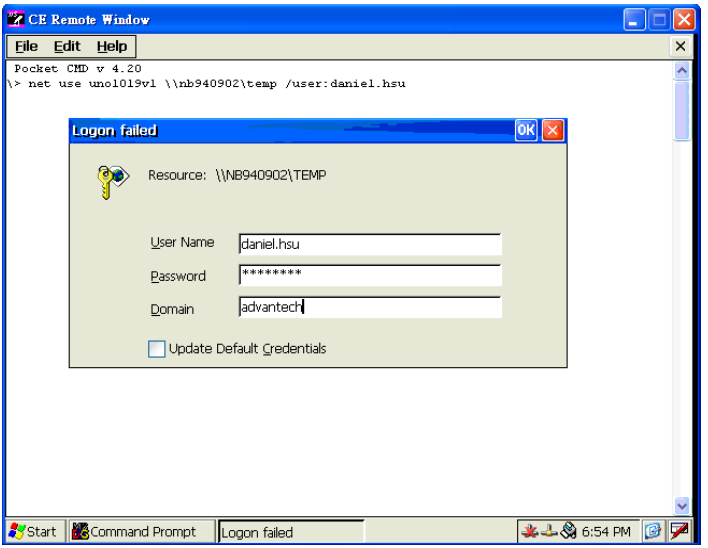
<EX> Remote Windows PC: <Computer name> = nb940902

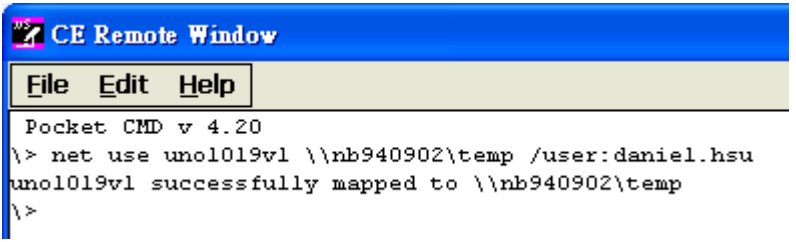
<Shared folder name> = temp

<Authorized user name> = daniel.hsu

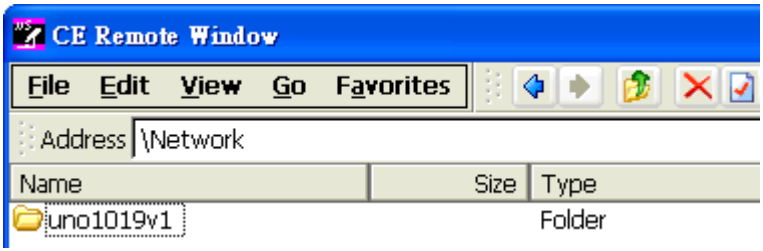
2. Execute the blow command by local UNO-1019's command prompt, and system will ask you to enter your user name, password and domainif you would like to save your user name and password as "default user", please check "Update Default Credentials".

<EX> net use UNO1019V1\\nb940902\temp /user:daniel.hsu





3. The remote network disk (Ex:\\nb940902\temp) will launch in the local UNO-1019's "Network" folder.



If you want to delete this folder on UNO-1019 , you could execute the command as below

<EX> net use UNO1019V1 \\nb940902\temp /user:daniel.hsu /d

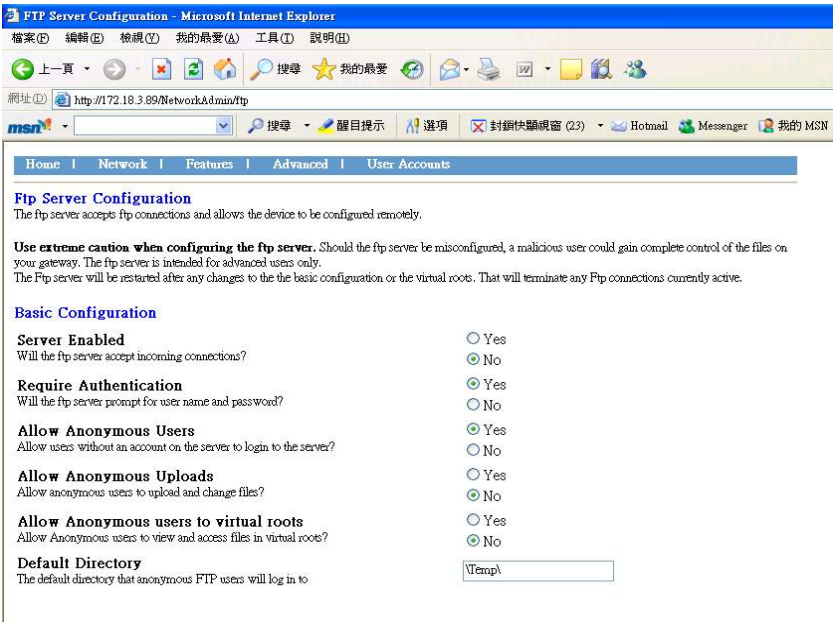
4.7.3 FTP Server

The FTP server accepts ftp connections and allows the UNO-1019 to be configured remotely.

Basic Configuration

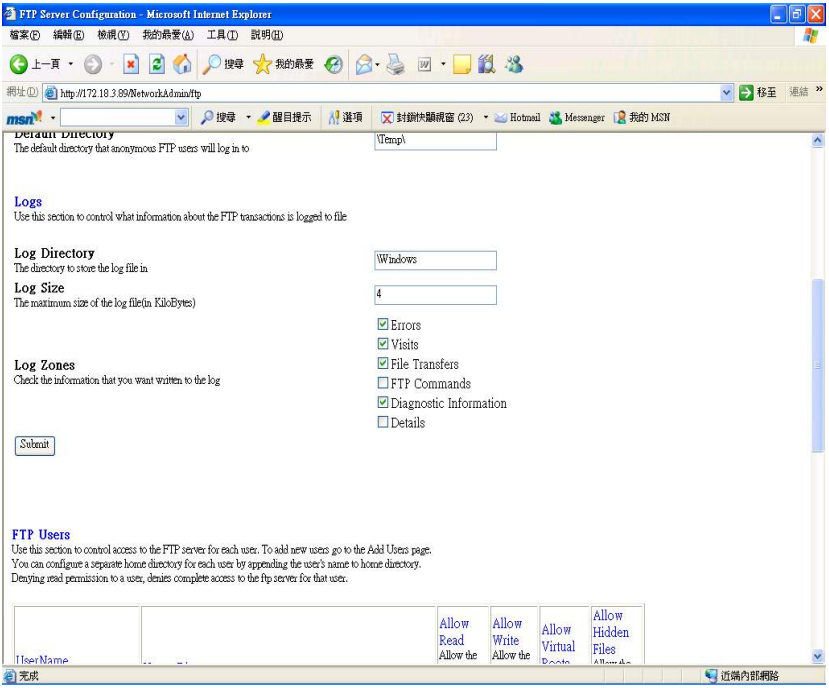
You can set following items in Basic Configuration field..

- *Server Enabled*- Will the FTP server accept incoming connections?
- *Require Authentication*- Will the FTP server prompt for user name and password?
- *Allow Anonymous User*s- Allow users without an account on the server to login to the server?
- *Allow Anonymous Uploads*- Allow anonymous users to upload and change files?
- *Allow Anonymous User to Virtual Roots*- Allow anonymous users to view and access files in virtual roots?
- *Default Directory*- The default directory that anonymous FTP users will log in to.



Logs

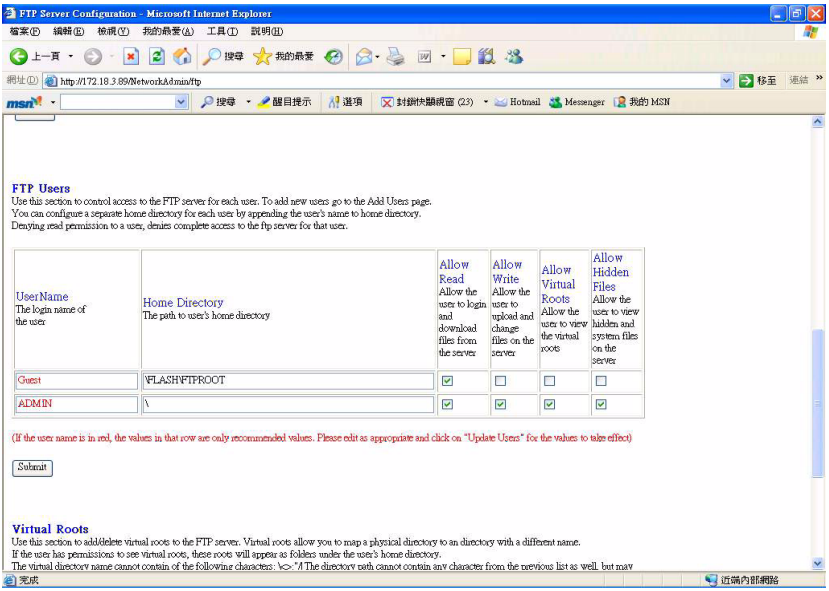
Use Logs section to control what information about the FTP transactions is logged.



FTP Users

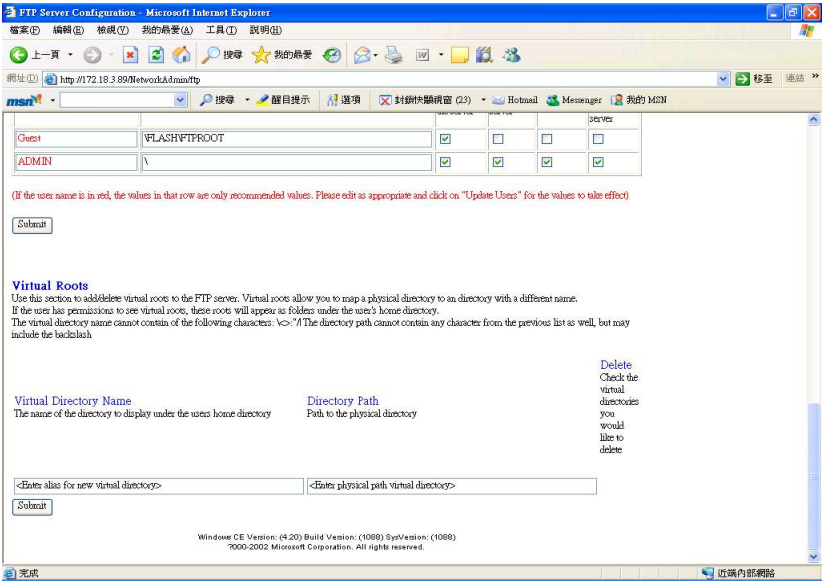
Use FTP Users section to control access to the FTP server for each user. To add new user, please go to the “User Account” page.

You can configure a seprate home directory for each user by appending the user’s name to home directory. Denying read permission to a user, denies complete access to the FTP server for that user.



Virtual Roots

You can add/delete virtual roots to the FTP server. Virtual roots allow you map a physical directory to and directory with a different name.



4.7.4 Telnet Server

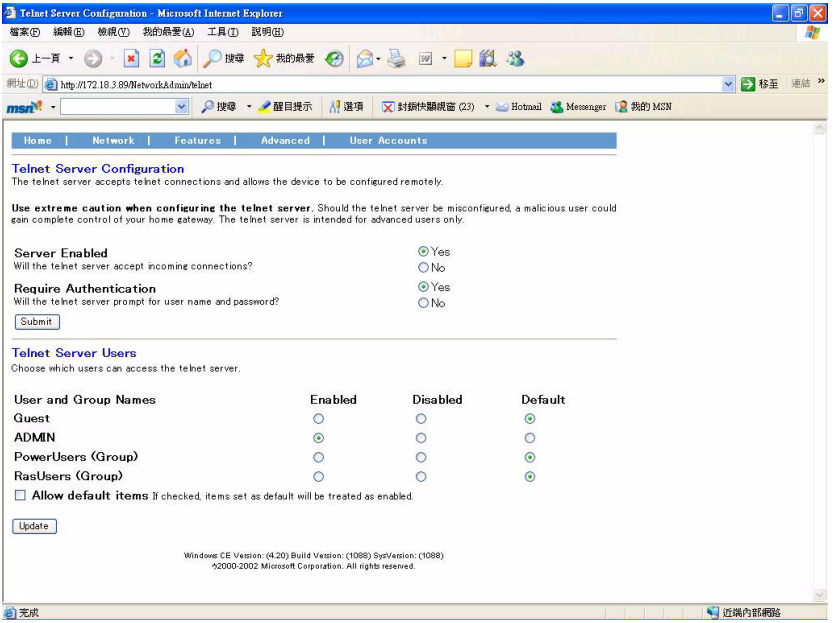
The telnet server accepts telnet connections and allows the UNO-1019 to be configured remotely.

Telnet Server Configuration

- Server Enabled- Will the telnet server accept incoming connections?
- Require Authentication- Will the telnet server prompt for user name and password?

Telnet Server Users

Choose which users can access the telnet server.



4.7.5 Restart Network

Restart for network change to take effect. To make the changes you have made take effect immediately, please press “Restart Networking” button, and then the home gateway networking services will be restart.