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DX-2100 Series Industrial 3G Cloud Router User Manual

DIACloud Cloud Platform

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Chapter 1 Product Introduction

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About This Manual

The user manual is suitable for **DX-2100RW-WW**. If you need to use the Delta DX-2100 series products in China areas, please refer to the model name **DX-2100RW-CN** on the Delta website, or contact our branch offices or distributors.

FCC Interference Statement

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 in a residential installation.

This equipment generates radio frequency signal and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Declaration of Conformity

In accordance with the Directives 2004/108/EC*, 2014/30/EU, 2006/95/EC*, 2014/35/EU and 1999/5/EC. The test record, data evaluation and DX-2100RW-WW configurations represented herein are true and accurate under the standards herein specified.

EN 301 511 V9.0.2 (2003-3)

Test Items:

Radiated spurious emissions – MS allocated channel (Clause 4.2.16)

Radiated spurious emissions – MS in idle mode (Clause 4.2.17)

EN 301 908-1 V7.1.1 (2015-03)

EN 301 489-1 V1.9.2 (2011-09)

EN 301 489-7 V1.3.1 (2005-11)

EN 301 489-24 V1.5.1 (2010-10)

Disclaimers and Limitation of Liabilities

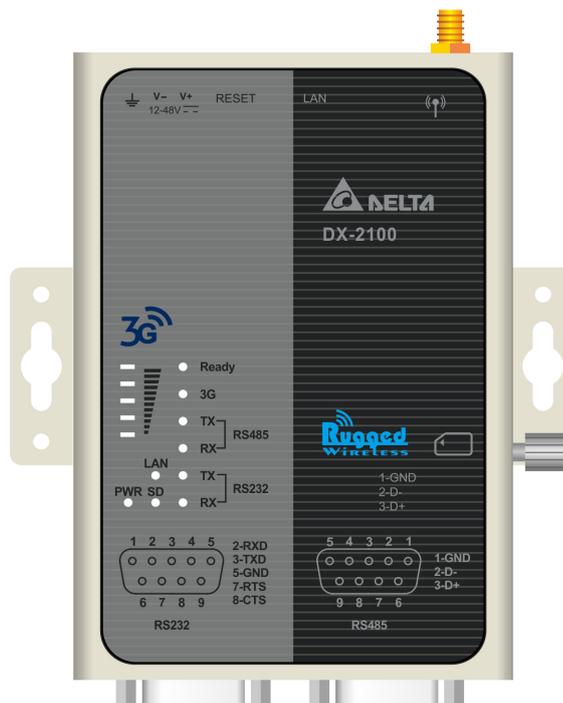
To the maximum extent permitted by law and regardless DELTA be aware or has been advised of the possibility of these damages, DELTA is not liable to any user or anyone else for: (a) any loss of use, data, reputation, goodwill, credit, opportunity, economy or profits, whether or not foreseeable; (b) any special, incidental, indirect, consequential, or punitive damages whatsoever; (c) any losses or damages based on any theory of liability, including breach of contract or warranty, negligence or other tortious action; (d) any losses or damages resulting from use or unable to use the systems or devices to which the Software or Services are incorporated or co-operated; and (e) any losses or damages arising from any other claim or in connection with the use of or access to the Software or Services.

1.1 Product Overview

The DX-2100RW-WW is a single-port 3G industrial router, an Internet of Things wireless communication product of industrial grade. Apart from supporting HSPA+/HSUPA/HSDPA/UMTS, the product is also downward compatible with GSM/GPRS/EDGE mobile network. Moreover, the product is equipped with multiple application interfaces, including Ethernet interface, RS232 serial interface and RS485 serial interface, and thus can satisfy the user's various different application demands.

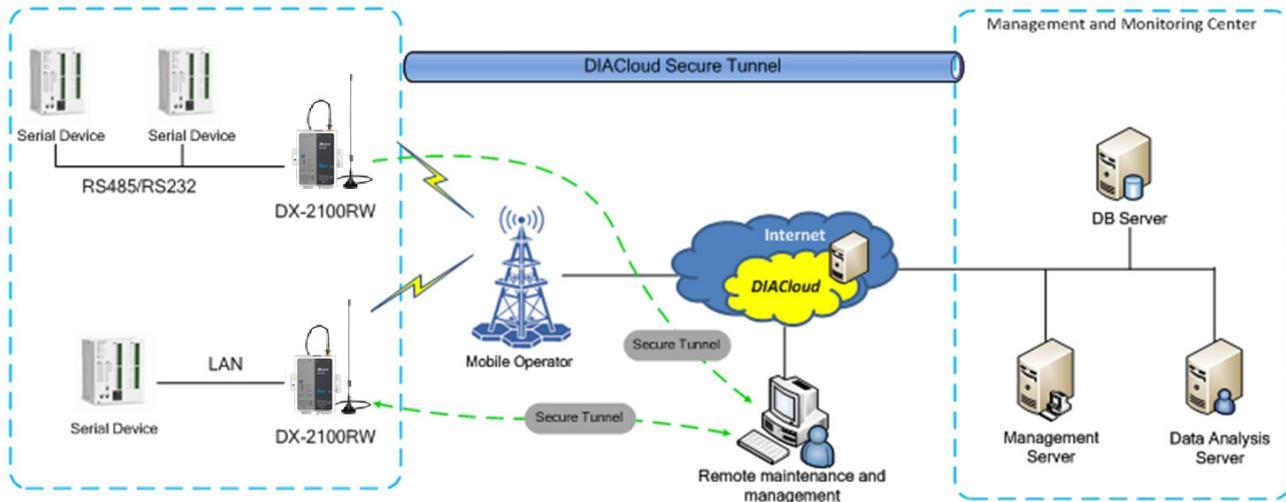
The product supports DIACloud platform services, and by this platform, convenient and efficient point-to-point connection with the router, safe and reliable data transmission, remote device management and configuration, remote firmware upgrading, remote maintenance and other functions can be realized, so as to save the cost of device operation and maintenance for users.

The product can be widely used in the fields requiring mobile network interconnection, such as industrial automation, smart home, intelligent building, smart power grids, mobile video surveillance, intelligent self-service and intelligent transportation.



1.1.1 Network Design

DIACloud platform services supported, users can connect intelligent devices from different locations to the internet with DX-2100RW-WW and use point-to-point connection with the router for a safe and reliable data transmission and additionally save the costs of VPN device operation as well as maintenance. By browsing the web or apps on the handheld computers, managers can check the data and monitor the devices remotely in real-time

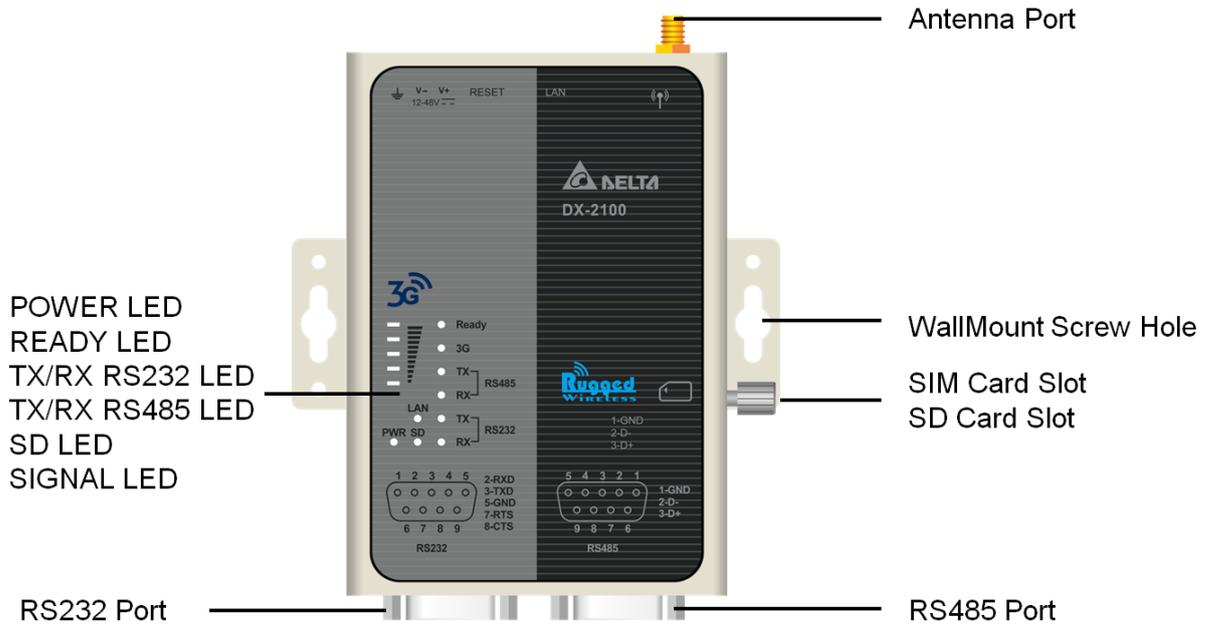


1.1.2 Features

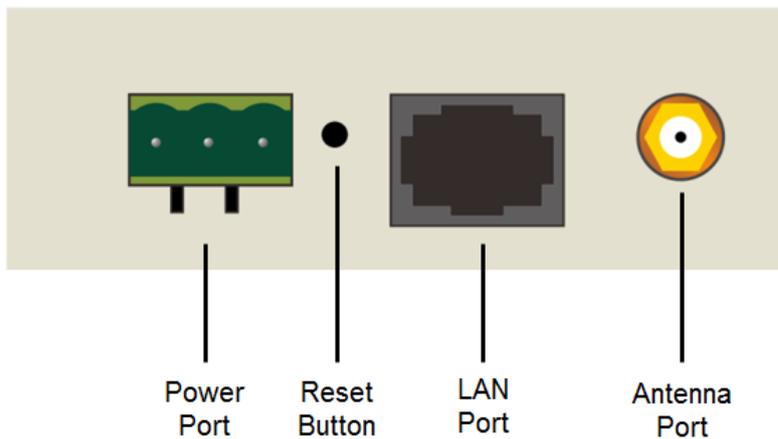
- HSPA+/HSUPA/HSDPA/UMTS: 800/850/900/1700(AWS)/1900/2100 MHz
- GSM/GPRS/EDGE: 850/900/1800/1900 MHz
- Authentication Protocols, CHAP and PAP
- Access Point Name (APN) gateway
- Auto Dial-up Connection
- Provide Dual Port RS232 & RS485 and LAN Port Interfaces for Different Application Demands
- Built-in a Watchdog Timer to Ensure System Stability
- Built-in RTC and Support NTP Server
- Firmware Upgrade Locally and Remotely
- Support Firewall: Stateful Packet Inspection (SPI), Prevent Denial of Service (DoS) Attacks, NAT (Network Address Translation), Port Triggering, Port Mapping, IP Address Filtering, MAC Address Filtering, URL Filtering, DHCP Server, Dynamic DNS, Static Routes, Demilitarized Zone (DMZ)
- Various Protocols, TCP/IP, UDP, ICMP, DHCP, HTTP, DNS, SSH and More
- Modbus TCP, Modbus ASCII and Modbus RTU protocol
- Scheduled Task Management
- Servers for Local Log and Remote Log
- Configurations Backup, Export and Import
- Network Flow Monitoring

- Network Fault Detection and Diagnosis
- DIACloud Service to Secure Point-to-point Data Transmission, to Manage Device Configurations Piece by Piece or in Batch and to Upgrade Firmware Remotely

1.1.3 Front Panel Ports and LEDs

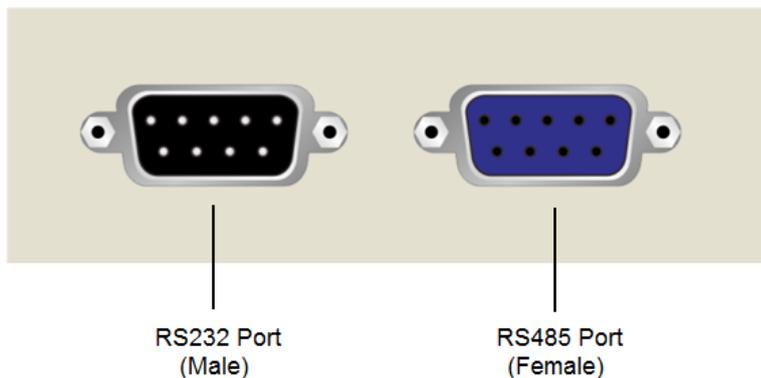


1.1.4 Top Panel



1.1.5 Bottom Panel

1



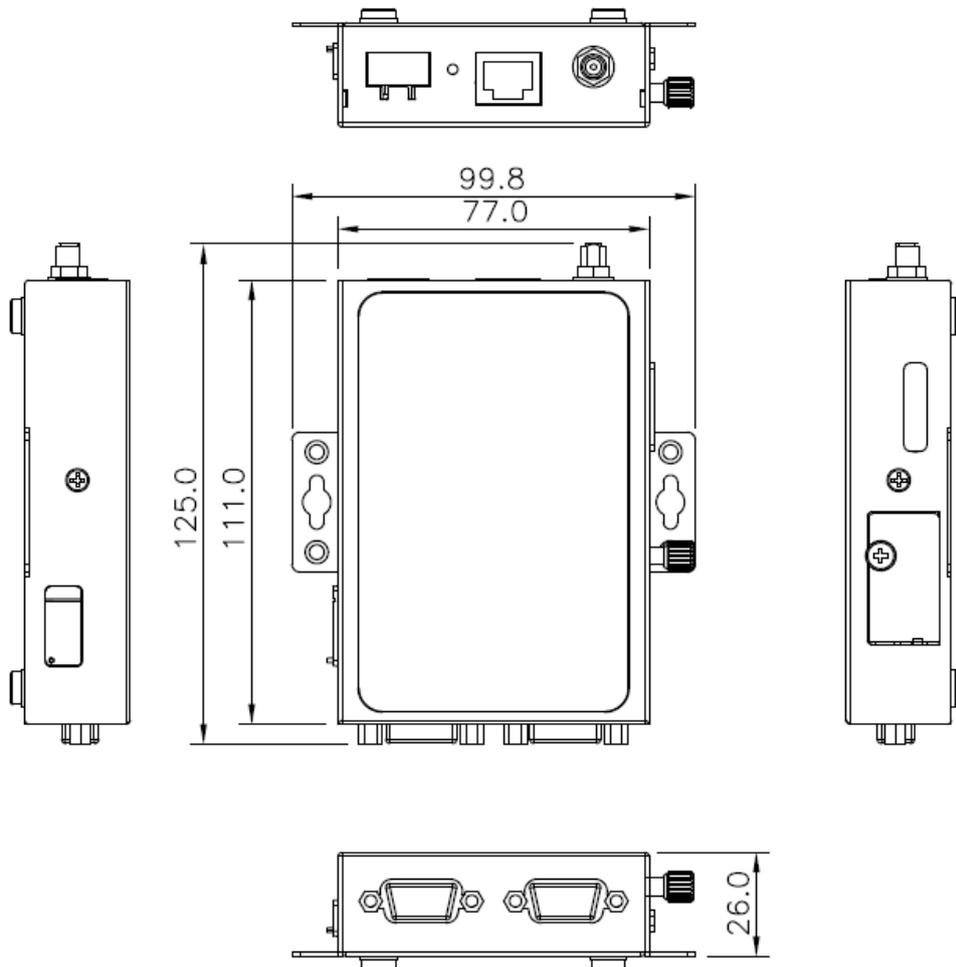
Notice

This router's reset button is on the front panel. By pressing the Reset button, users can reset the router or reset the router to factory default settings. See the instruction below:

- Reset the Router: With the router powered on, press the Reset button and release the button right away.
- Reset to Factory Defaults: With the router powered on, press and hold the Reset button for 3~6 seconds and then release the button.
 - Reset can only be done when the device is running properly.
 - With the router powered on, press and hold the Reset button until all the LEDs go out (except the Power LED). Then release the button and wait the router to reboot to its factory default settings.

1.1.6 Dimension

Unit = mm

1

1.2 Package Checklist

Unpack the package carefully and check the package contents. The package should contain the following items:

- DX-2100RW-WW Industrial 3G Cloud Router x 1
- Quick Installation Guide x 1
- 10/100Mbps Ethernet Cable (100cm) x1
- SMA Antenna (300cm) x 1



Notice

Verify that nothing is missing from the DX-2100RW-WW package by using the check list above. If any item is found missing or damaged, please contact your local sales representative for support.

Chapter 2 User Interface

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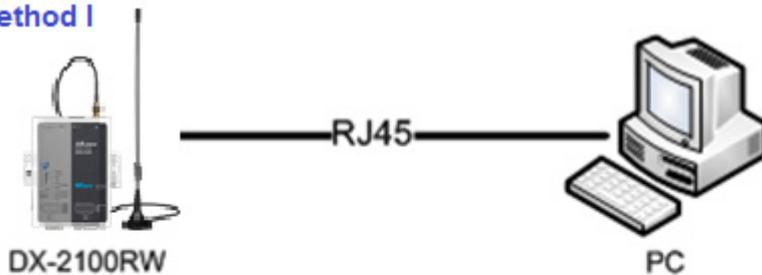
2.1 Web-based GUI Configuration

The DX-2100RW-WW Industrial 3G Cloud Router provides a friendly Web Browser Configuration for users to set up and operate more intuitively.

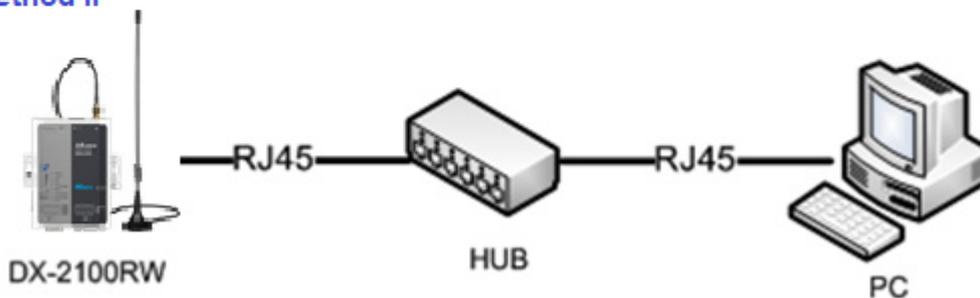
2.1.1 System Connection

Connect the DX-2100RW-WW with a computer directly or via a switch/hub.

Method I



Method II



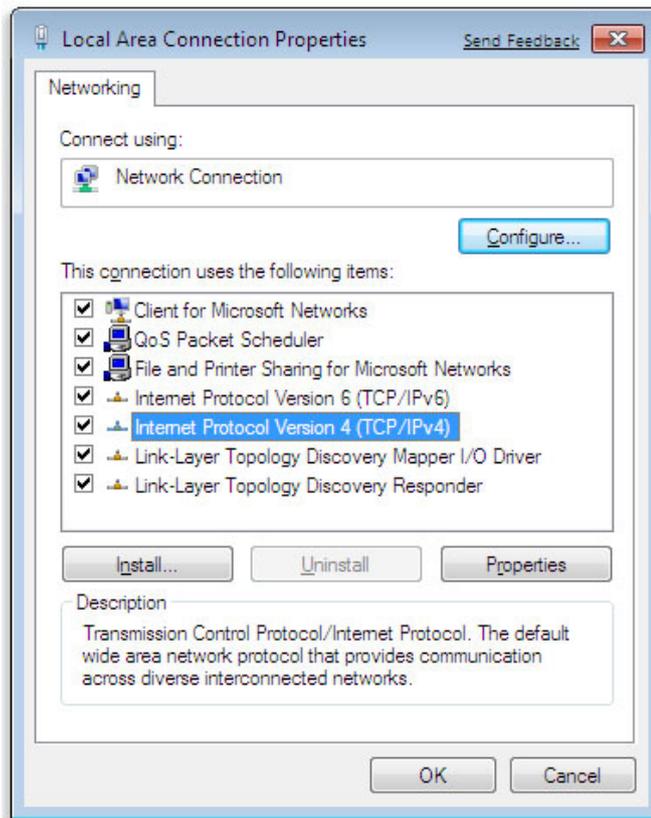
2.1.2 Default IP Address/Account/Password

The default IP address of router is 192.168.5.5. The default account and password is admin/admin.

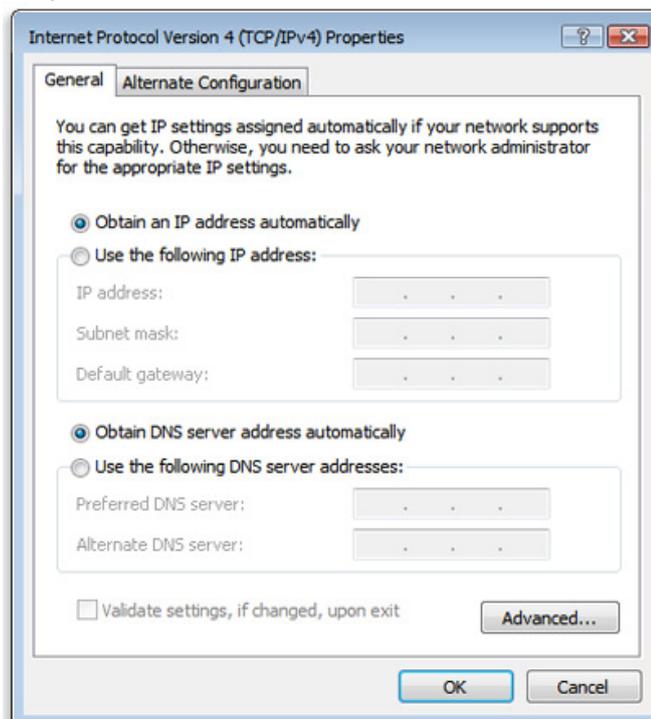
2.1.3 Local Network Setups

After the connection of the local computer and the router is done, you will need to set the network configuration for your computer. There are 2 methods for the setting, we prefer you use the first one:

- **Obtain an IP address automatically by using the router as a DHCP server.**
 1. Open Network Connections by clicking the Start button , and then clicking Control Panel.
 2. Under Network and Sharing Center, click View network connections.
 3. Right-click the connection that you want to change, and then click Properties.  If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
 4. Click the Networking tab. Under This connection uses the following items, click either Internet Protocol Version 4 (TCP/IPv4) or Internet Protocol Version 6 (TCP/IPv6), and then click Properties.



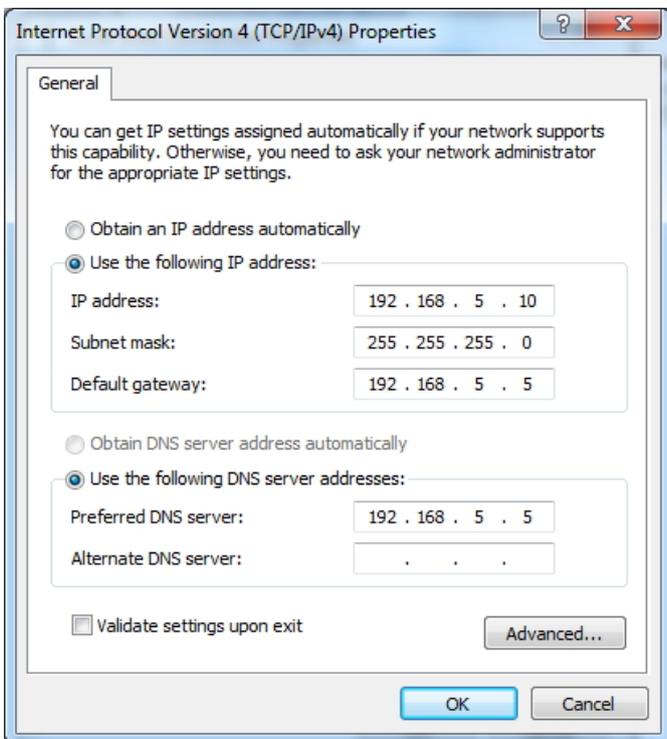
5. Click Obtain DNS server address automatically and then click OK to get a DNS server address automatically using DHCP.



- **Set up the IP address manually.**
(The IP address of the computer should be in the same subnet as the router's.)

Since the router's default IP address is 192.168.5.5 and the subnet mask is 255.255.255.0, the computer's IP address can be set between 192.168.5.1 to 192.168.5.254 except 192.168.5.5. However, you'll need to make sure there are no IP conflicts.

Here, we set the IP address to 192.168.5.10 and the default gateway to 192.168.5.5. For DNS, the usable DNS address can be selected or the address can also be set to 192.168.5.5.

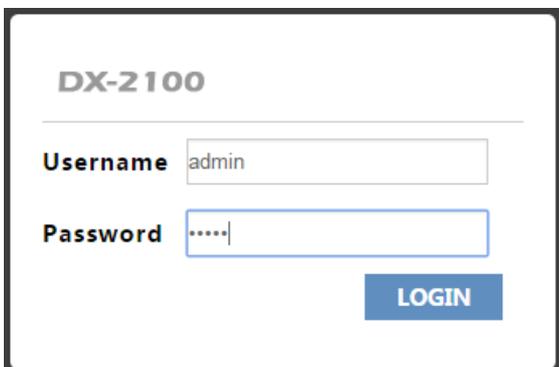


2.1.4 Logging in

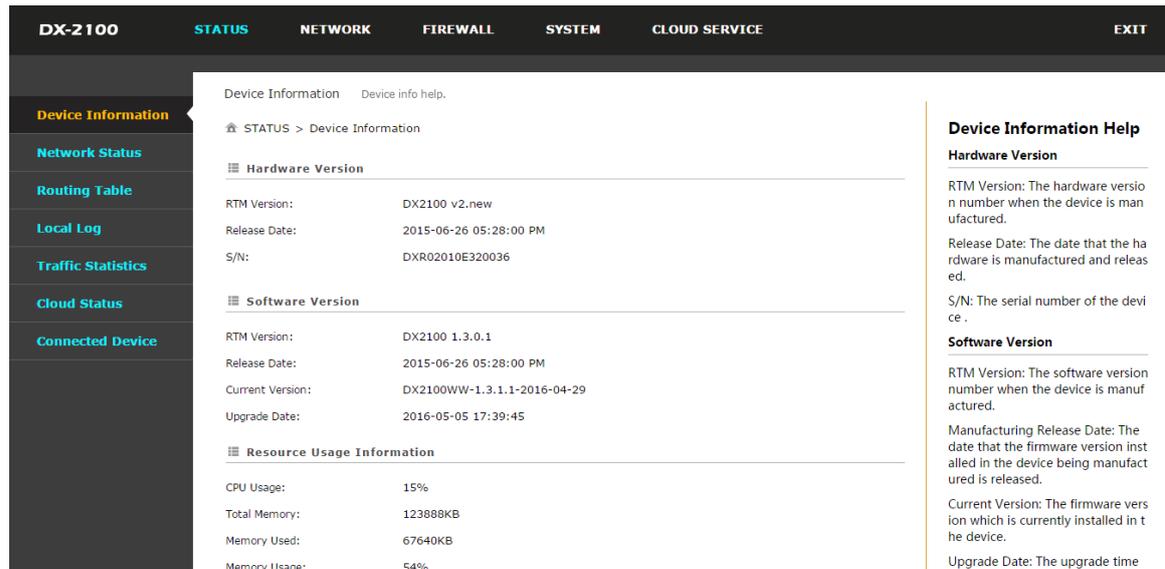
1. Open your Internet Explorer browser and input LAN IP address (Default is 192.168.5.5) in the search bar and then press Enter.



2. You'll be prompted with the log-in page. Input the user name and the password (Default is admin/admin) and then press Enter to log in to the setup page.



3. After login, you can see the main selection area on the left hand side and the upper area of the page. The detailed settings can be seen on the right hand side of the page.



DX-2100 STATUS NETWORK FIREWALL SYSTEM CLOUD SERVICE EXIT

Device Information Device info help.

STATUS > Device Information

Hardware Version

RTM Version:	DX2100 v2.new
Release Date:	2015-06-26 05:28:00 PM
S/N:	DXR02010E320036

Software Version

RTM Version:	DX2100 1.3.0.1
Release Date:	2015-06-26 05:28:00 PM
Current Version:	DX2100WW-1.3.1.1-2016-04-29
Upgrade Date:	2016-05-05 17:39:45

Resource Usage Information

CPU Usage:	15%
Total Memory:	123888KB
Memory Used:	67640KB
Memory Usage:	54%

Device Information Help

Hardware Version

RTM Version: The hardware version number when the device is manufactured.

Release Date: The date that the hardware is manufactured and released.

S/N: The serial number of the device.

Software Version

RTM Version: The software version number when the device is manufactured.

Manufacturing Release Date: The date that the firmware version installed in the device being manufactured is released.

Current Version: The firmware version which is currently installed in the device.

Upgrade Date: The upgrade time

2.2 DIADevice

DIADevice is a tool for quickly configuring network devices. Users simply connect the DX device to the PC through the network cable. This tool can be used to quickly and easily configure the network setting of the device and complete the device binding DIACloud cloud account.

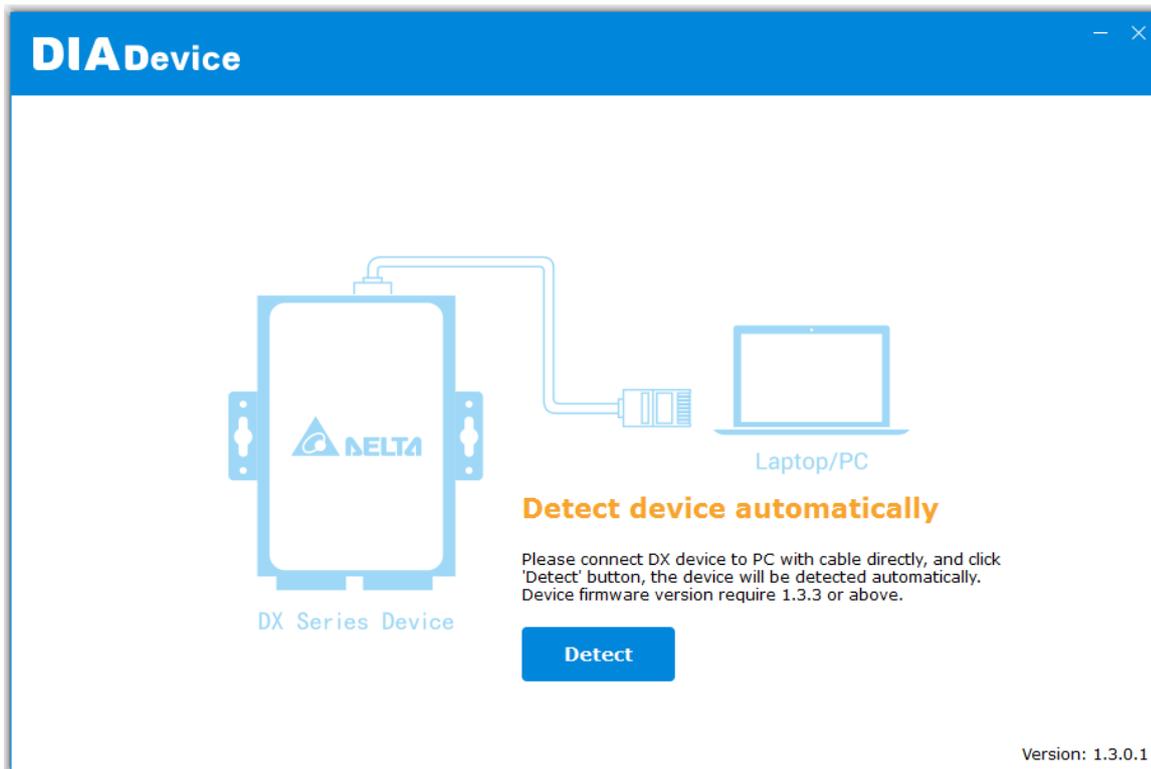
The DIADevice software is included in the latest DIACom software package. From the official website or sales staff to obtain DIACom package. DX-2100 below as an example on how to configure the device through DIADevice.

The following example uses DX-2100 to show you how to configure your device with DIADevice.

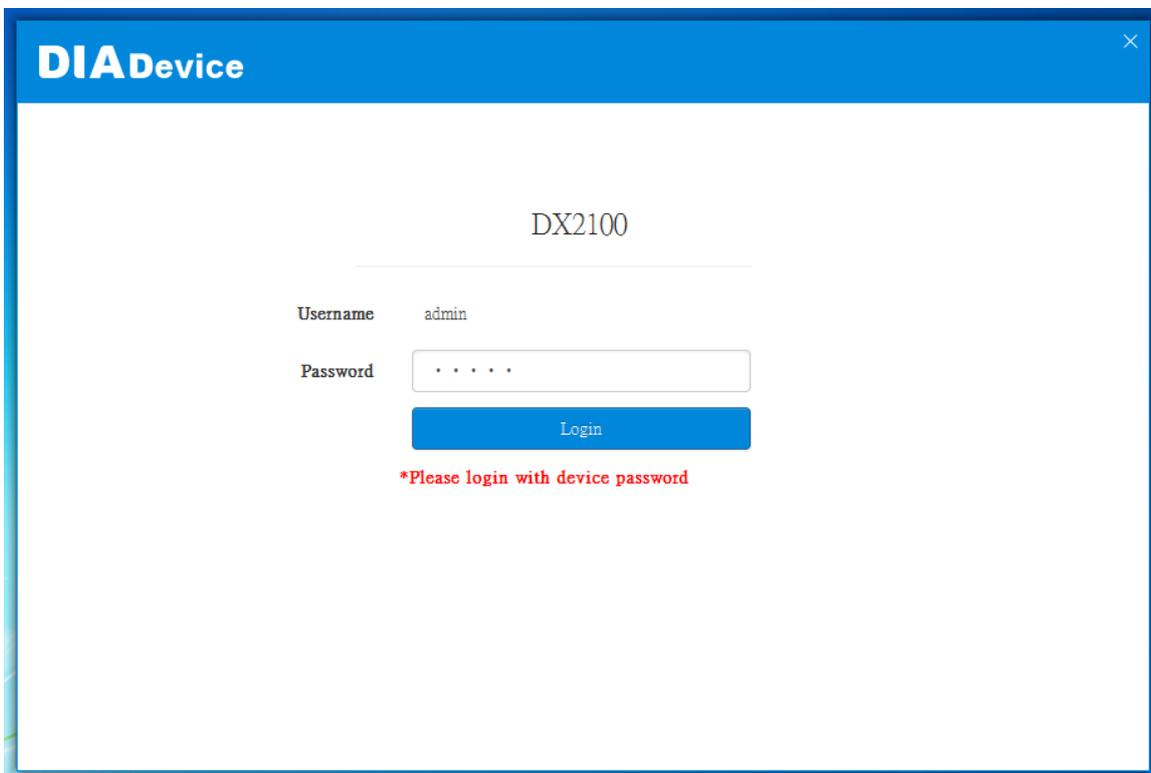
2.2.1 Device Connection and Detection

1. Connect the device to the power supply, and connect the device to the PC using a network cable. Plug the network cable connected to the Internet into the WAN port of the device
2. Run DIADevice software, click "Detect" button.

2



3. After DIACom detects the device, it will automatically go to the login page, and the user needs to enter login password on the login page.



- After passing the authentication, the device information page is displayed, including the basic device information (Device Name, S / N, firmware, LAN IP address), network status, WAN information, and cloud service information

The screenshot shows the 'DIA Device' web interface. On the left is an image of a Delta DX-2100 rugged wireless device. Below the image is the device name 'DX2100_B0B4' and a button 'Open Device Webpage'. On the right, a green checkmark indicates 'Internet Connected'. Below this are two main sections: 'WAN' and 'Cloud'. The 'WAN' section has a 'Network Setting' button and displays IP Address, Subnet Mask (255.255.255.255), and Gateway Address. The 'Cloud' section has a 'Bind Device' button and displays Cloud Account, Secure Tunnel (DeltaNetwork), and Service Status (Enabled). At the bottom, a status bar shows 'Lan IP Address: 192.168.100.100', 'SN: DXR02010F210059', and 'Firmware: DX2100WW-1.3.3.5-2016-11-25'.

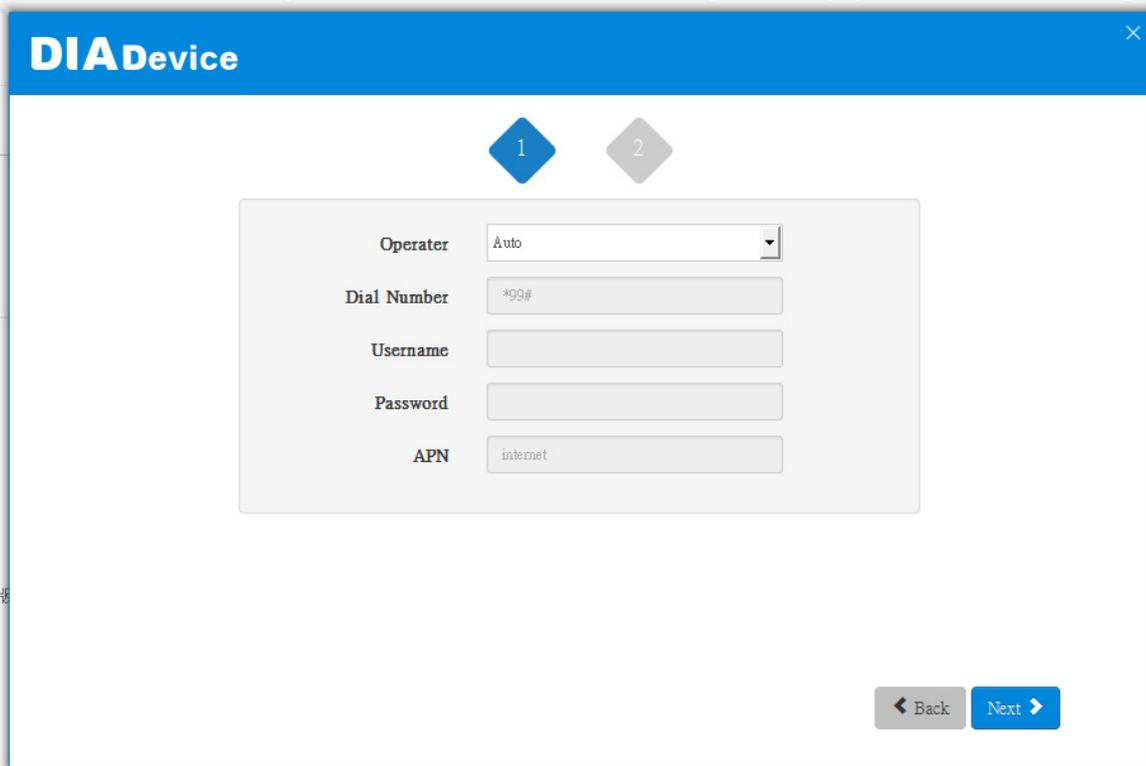
2.2.2 Network Setting

This feature allows you to quickly configure your network in two steps.

- Click "Network Setting"

This screenshot is identical to the previous one, but the 'WAN' section is highlighted with a blue header and a 'Network Setting' button. The 'Cloud' section remains visible below it. The rest of the interface, including the device image and status bar, is the same.

2. The default is automatic. If you can not connect to the Internet using auto-setup, please use manual settings.

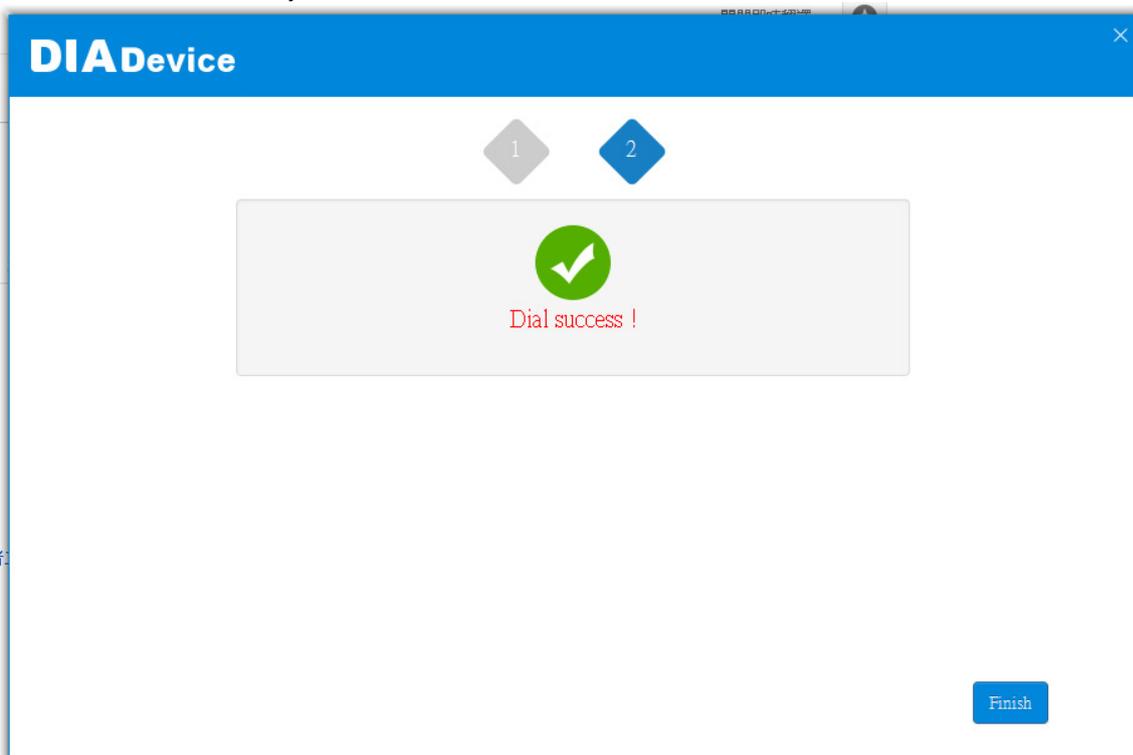


The screenshot shows the 'DIA Device' configuration window. At the top, there are two diamond-shaped step indicators: '1' is highlighted in blue, and '2' is grey. Below them is a form with the following fields:

Operator	Auto
Dial Number	*99#
Username	
Password	
APN	internet

At the bottom right of the form area, there are two buttons: 'Back' with a left arrow and 'Next' with a right arrow.

3. After the device successfully connected to the Internet, the connection was successful.



2.2.3 Bind Device

This feature allows you to quickly bind your device to the DIAcloud in three steps.

1. Click “Bind Device”



The screenshot shows the DIA Device configuration interface. On the left is an image of a DELTA DX-2100 device with the label "DX2100_BOB4" and a button "Open Device Webpage". On the right, there are two configuration panels:

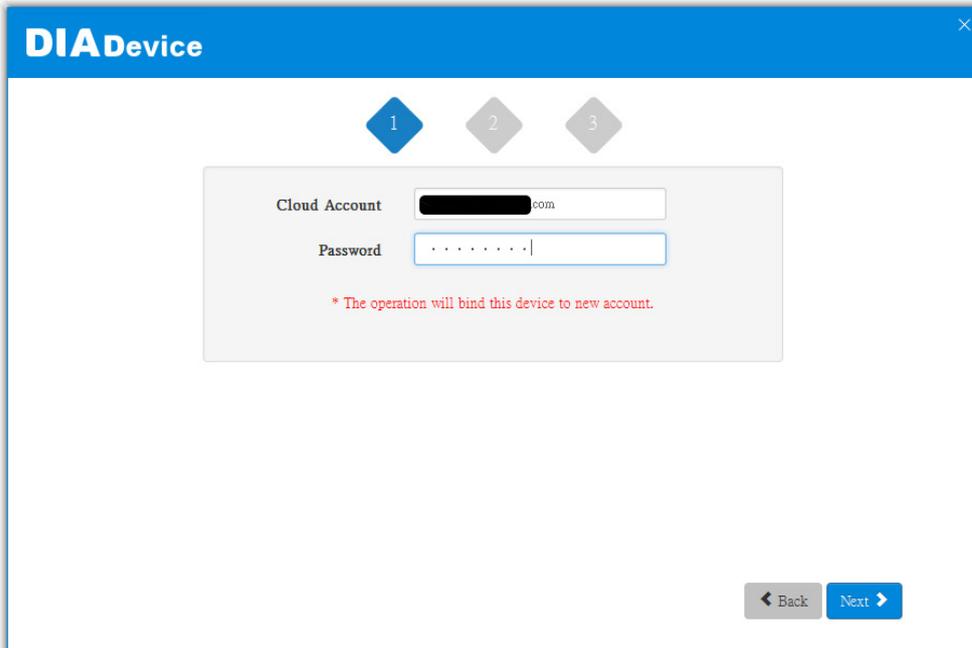
- WAN** (Network Setting):

IP Address	██████████.21
Subnet Mask	255.255.255.255
Gateway Address	██████████.21
- Cloud** (Bind Device):

Cloud Account	██████████@gmail.com
Secure Tunnel	DeltaNetwork
Service Status	Enabled

At the top right, a green checkmark indicates "Internet Connected". At the bottom, status information is displayed: Lan IP Address: 192.168.100.100, SN: DXR02010F210059, Firmware: DX2100WW-1.3.3.5-2016-11-25.

2. Enter the DIAcloud account number and password, and click Next.

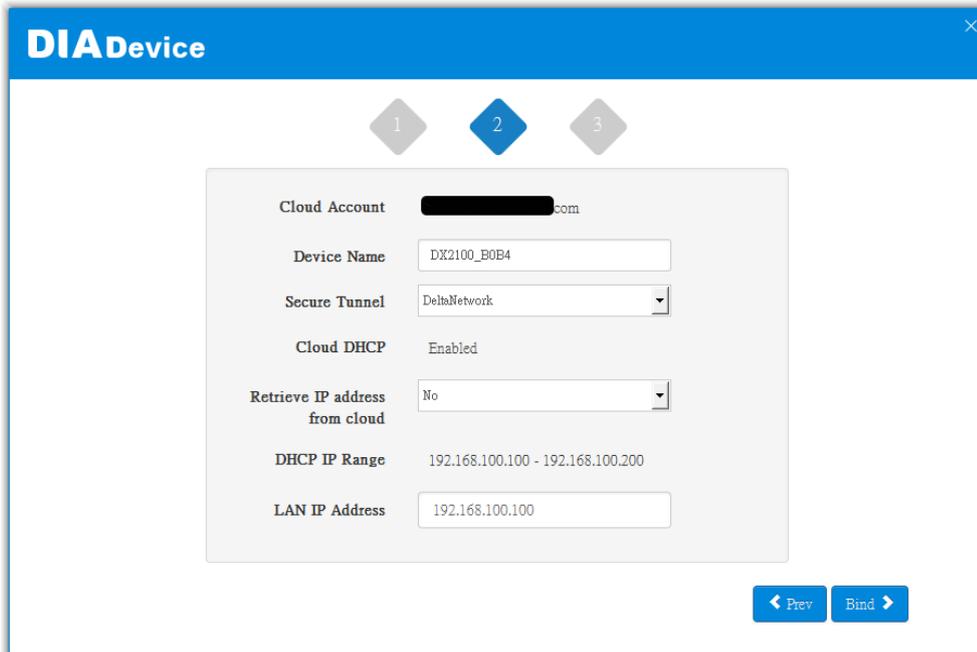


The screenshot shows the DIA Device configuration interface at step 2. At the top, there are three diamond-shaped step indicators: 1 (highlighted in blue), 2 (grey), and 3 (grey). Below them is a form with two input fields:

- Cloud Account**: A text input field containing "██████████.com".
- Password**: A password input field containing ".....|".

Below the form, a red asterisk warning message reads: "* The operation will bind this device to new account." At the bottom right, there are two buttons: "Back" and "Next".

3. After binding configuration is configured, click “Bind” to bind.

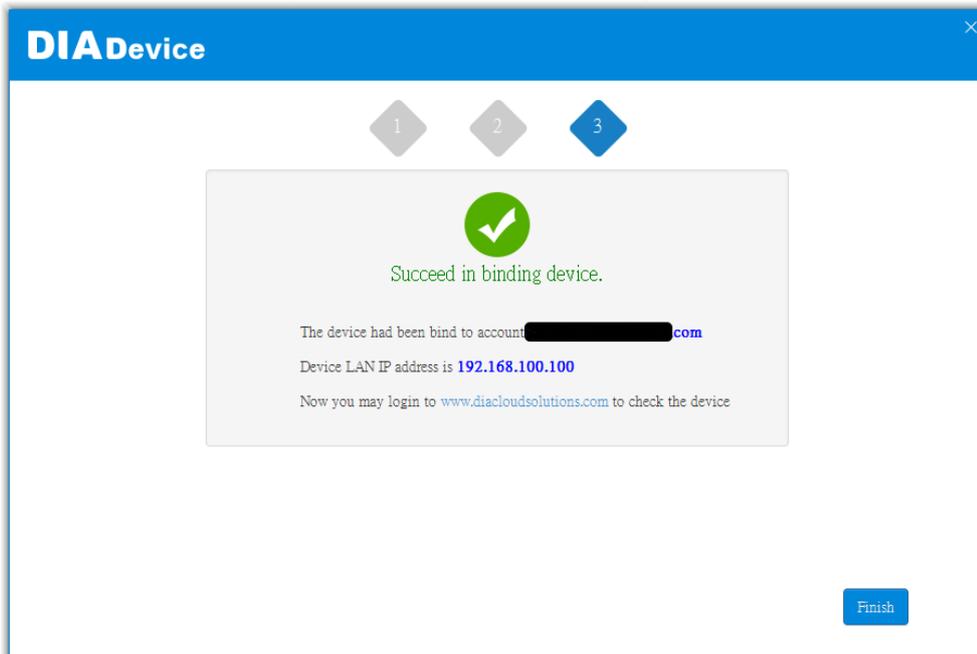


The screenshot shows the 'DIA Device' configuration window. At the top, there are three diamond-shaped step indicators: 1 (grey), 2 (blue), and 3 (grey). The main configuration area contains the following fields and options:

- Cloud Account: [redacted].com
- Device Name: DX2100_B0B4
- Secure Tunnel: DeltaNetwork (dropdown)
- Cloud DHCP: Enabled
- Retrieve IP address from cloud: No (dropdown)
- DHCP IP Range: 192.168.100.100 - 192.168.100.200
- LAN IP Address: 192.168.100.100

At the bottom right, there are two buttons: 'Prev' and 'Bind'.

4. If your device is successfully bound to the cloud, the following screen will appear



The screenshot shows the 'DIA Device' success screen. At the top, the step indicators are 1 (grey), 2 (grey), and 3 (blue). The main content area features a green checkmark icon and the text 'Succeed in binding device.' Below this, it states: 'The device had been bind to account [redacted].com', 'Device LAN IP address is 192.168.100.100', and 'Now you may login to www.diacloudsolutions.com to check the device'. A 'Finish' button is located at the bottom right.

Notice



If the device has been bound to the cloud account, you need to switch to another cloud account binding, you only need to repeat 1-3 steps and then enter the new cloud account you need to bind.

2.2.4 Open Device Webpage

Click open device webpage button, the browser will open the device settings page, the user can set the parameters of RS232 / 485 configuration.



DIA Device

Internet Connected

WAN Network Setting

IP Address	██████████.21
Subnet Mask	255.255.255.255
Gateway Address	██████████.21

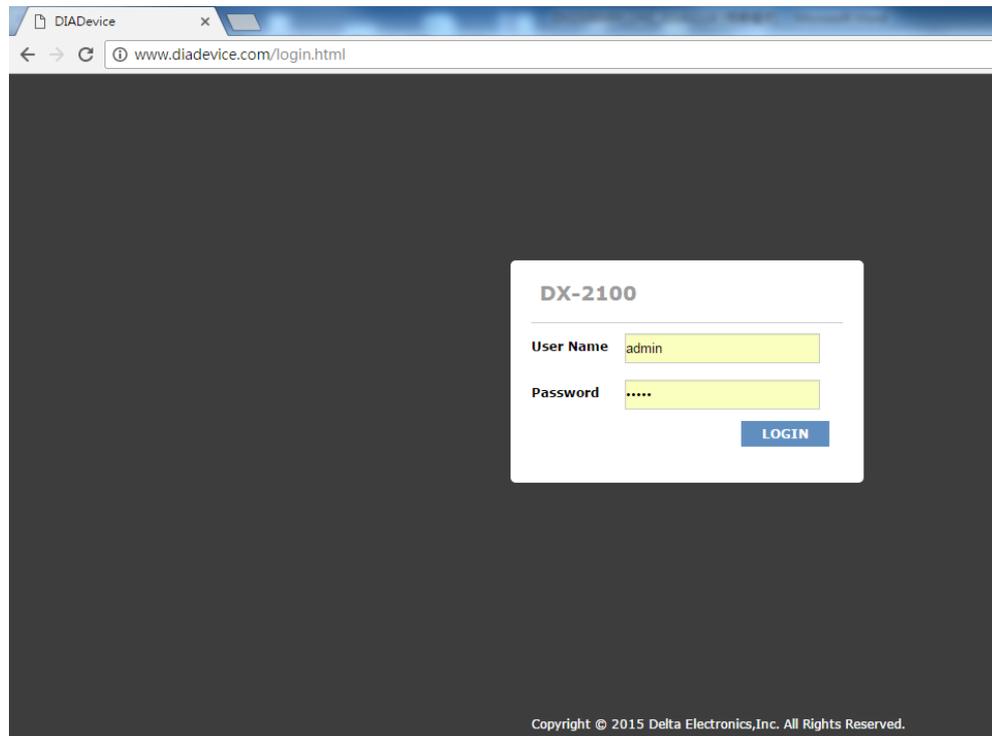
Cloud Bind Device

Cloud Account	██████████@gmail.com
Secure Tunnel	DeltaNetwork
Service Status	Enabled

DX2100_B0B4

Open Device Webpage

Lan IP Address: 192.168.100.100 SN: DXR02010F210059 Firmware: DX2100WW-1.3.3.5-2016-11-25



DIA Device x

www.diadevice.com/login.html

DX-2100

User Name

Password

LOGIN

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Chapter 3 Functions

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3.1 Status

You can view summary or detailed information on the Device Information, Network Status, Routing Table, Local Log, Traffic Statistics, Cloud Status, and Connected Device.

3.1.1 Device Information

This page shows basic information on the Hardware/Software version and Resource Usage Information.

[HOME](#) STATUS > Device Information

☰ Hardware Version

RTM Version:	DX2100 v2.new
Release Date:	2015-06-26 05:28:00 PM
S/N:	DXR02010E320036

☰ Software Version

RTM Version:	DX2100 1.3.0.1
Release Date:	2015-06-26 05:28:00 PM
Current Version:	DX2100WW-1.3.1.1-2016-04-29
Upgrade Date:	2016-05-05 17:39:45

☰ Resource Usage Information

CPU Usage:	15%
Total Memory:	123888KB
Memory Used:	69812KB
Memory Usage:	56%

- Hardware Version

Item	Description
RTM Version	Release to manufacturing version of the router
Release Date	Hardware release date
S/N	Serial number of the router

- Software Version

Item	Description
RTM Version	Release to manufacturing version of the software
Release Date	Software release date
Current Version	Version number of the software currently used on the router
Upgrade Date	Upgrade time of the software currently used on the router

- Resource Usage Information

Item	Description
CPU Usage	The CPU usage of current router
Total Memory	The total memory on the router
Memory Used	The memory currently used on the router.
Memory Usage	The current ratio of the router usage

3.1.2 Network Status

This page shows basic information on Cellular Network Status and LAN Status.

Cellular Network Status includes the Operator, Signal Strength, Connection Status, Online Duration, Authorization Mode, APN, Telephone Number, IP Address Network Mask, Gateway Address, primary DNS, and Secondary DNS.

LAN Status includes the Device Name, MAC Address, IP Address, DHCP Server, Lease Time and First IP Address.

[STATUS](#) > Network Status

Cellular Network Status

[Connect](#)
[Disconnect](#)

Operator	China Unicom 3G	Signal Strength	3
Connection Status	Online	Online Duration	0day 00:26:44
Authorization Mode	Auto	APN	3gnet
Telephone Number	#	IP Address	10.27.181.193
Network Mask	255.255.255.255	Gateway Address	10.27.181.193
Primary DNS	218.104.128.106	Secondary DNS	58.22.96.66

LAN Status

Device Name	DX2100_B324		
MAC Address	00:30:AB:2D:B3:24		
IP Address	192.168.1.1	Network Mask	255.255.255.0
DHCP Server	Enabled		
Lease Time	One day		
First IP Address	192.168.1.100	Last IP Address	192.168.1.200

3.1.3 Routing Table

This page shows basic information on the routing table, including the Destination, Gateway, Network Mask, HOPS and Network Interface.

STATUS > Routing Table

Destination	Gateway	Network Mask	HOPS	Network Interface
10.64.64.64	0.0.0.0	255.255.255.255	0	ppp0
192.168.1.0	0.0.0.0	255.255.255.0	0	br0
0.0.0.0	0.0.0.0	0.0.0.0	0	ppp0

3.1.4 Local Log

This page shows logs of the router, including the System log, Warning log and the Debug log. You can use the buttons on the right hand side to refresh, clear or download the displayed logs.

STATUS > Local Log

Log Type

Informative log Warning log Debug log

Log Content

Refresh

Clear

Download

Timestamp	Content
May 6 10:09:08	syslog.info syslogd started: BusyBox v1.15.0
May 6 10:09:15	user.info kernel: ip_tables: (C) 2000-2006 Netfilter Core Team
May 6 10:09:17	user.info kernel: ipt_CLUSTERIP: ClusterIP Version 0.8 loaded successfully
May 6 10:09:19	user.info kernel: arp_tables: (C) 2002 David S. Miller
May 6 10:09:22	user.info kernel: usbcore: registered new interface driver usbserial
May 6 10:09:22	user.info kernel: USB Serial support registered for generic
May 6 10:09:22	user.info kernel: usbcore: registered new interface driver usbserial_generic
May 6 10:09:22	user.info kernel: usbserial: USB Serial Driver core
May 6 10:09:22	user.err kernel: cdc_acm 1-1:1.0: This device cannot do calls on its own. It is not a modem.
May 6 10:09:22	user.info kernel: cdc_acm 1-1:1.0: ttyACM0: USB ACM device
May 6 10:09:22	user.err kernel: cdc_acm 1-1:1.2: This device cannot do calls on its own. It is not a modem.
May 6 10:09:22	user.info kernel: cdc_acm 1-1:1.2: ttyACM1: USB ACM device

PREV

1

2

3

...

13

14

15

NEXT

3.1.5 Traffic Statistics

This page shows network traffic information of the router, including the data sent and received over Cellular and LAN. You can use the buttons on the right hand side to refresh or clear the traffic information.

[STATUS](#) > Traffic Statistics

[Refresh](#)[Clear](#)

Traffic Of Cellular Network

Data Sent:	512875 bytes	Data Received:	1535974 bytes
------------	--------------	----------------	---------------

Traffic Of LAN

Data Sent:	2151095 bytes	Data Received:	616166 bytes
------------	---------------	----------------	--------------

3.1.6 Cloud Status

This page shows cloud server information of the router, including the Registration Status, Service Status, and Activated Time.

[STATUS](#) > Cloud Status

Cloud Status

Registration Status:	Not registered
----------------------	----------------

Service Status:	Disabled
-----------------	----------

Activated Time:	N/A
-----------------	-----

3.1.7 Connected Device

This page shows information of the devices connected to the router, including the IP Address, Host Name, MAC Address.

[🏠 STATUS](#) > [Connected Device](#)

Refresh

ID	IP Address	Host Name	MAC Address
1	192.168.1.100	CNXMDNIPC062	3C:97:0E:DE:7B:25

3

3.2 Network

You can set up networks, including the WAN Configurations, LAN Configurations, Static Routing Rules and Dynamic DNS.

3.2.1 Cellular Network Configurations

This page is used for setting up the Cellular Network, including the Operator, Dial-Up Number, User Name, Password, APN, Dial-Up Mode, Authorization Mode, Redial Interval, Redial Times, Max Idle Time, Connection Check Interval, Connection Check Times, and MTU.

Cellular Network

Operator

Dial-Up Number

User Name

Password

APN

Dial-Up Mode

Authorization Mode

Redial Interval (second)

Redial Times (0 means always redial)

Max Idle Time (0 means always online)

Connection Check Interval second (0 means not checked)

Connection Check Times

MTU

Auto Detect

Target Address

Dial Failure To Restart

Save Cancel

Description	Default
Operator	
Select Auto or Others for the Operator from the dropdown list. <ul style="list-style-type: none"> Auto: the system will detect the operator from the inserted SIM card and set up accordingly. Others: users can set up the operator manually. 	AUTO
Dial-Up Number	
This number is provided by the operator. When "Auto" is selected, the system will set the number up automatically and users cannot change the setting.	*99#
User Name	
This name is provided by the operator. When "Auto" is selected, the system	N/A

Description	Default
will set the name up automatically and users cannot change the setting.	
Password	
This password is provided by the operator. When "Auto" is selected, the system will set the password up automatically and users cannot change the setting.	N/A
APN (Access Point Name)	
This APN is provided by the operator. When "Auto" is selected, the system will set the APN up automatically and users cannot change the setting.	3gnet
Dial-Up Mode	
Options are : <ul style="list-style-type: none"> • Always online: stay connected and once a disconnection is detected, the router will redial to connect automatically. • On-demand connection: redial when connection to the internet is on demand. • Manual connection: users dial to connect and when it fails to connect, it will not redial. 	Always online
Authorization Mod	
Options are "Auto", "PAP" and "CHAP".	Auto
Redial Interval	
Set up the time to redial when the system fails to connect. This will only be executed when the option "Always online" or "On-demand connection" is selected.	30
Redial Times	
Set up the maximum redial time, 0 indicating infinity. This will only be executed when the option "Always online" or "On-demand connection" is selected.	5
Max Idle Time	
Set up the maximum idle time. When the idle time exceeds the set value, the router will disconnect and then redial, 0 indicating not to disconnect.	180
Connection Check Interval	
Set up the connection check interval. Check the connectivity, if the connection is lost, it will redial automatically, 0 indicating not to check the connectivity.	60
Connection Check Times	
Set up the connection check times, 0 indicating infinity. Once a disconnection is detected, and the option "Always online" or "On-demand connection" is selected, the router will redial according to the set value in the Redial Times.	5

Description	Default
MTU	
Maximum Transmission Unit is the largest packet that can be transmitted over packet based networks.	1492
Auto Detect	
If the connection is dropped, a ping test will launch automatically.	Enable
Target Address	
Set the IP/domain of the server that program will do a ping testing.	www.DIACloudSolutions.com
Dial Failure To Restart	
Enable or disable the function if the dial failure will be in the default time to restart device.	Disable

3.2.2 PIN Management

The SIM card operator set the PIN LOCK can use this feature to view or unlock PIN LOCK

- If the SIM card operator does not set the PIN LOCK as shown below

🏠 NETWORK > PIN Management

☰ PIN Management

SIM Card Status SIM card normal

- If the SIM card operator has set the PIN LOCK as shown below

🏠 NETWORK > PIN Management

☰ PIN Management

SIM Card Status PIN locked

Remaining Attempts 3

PIN (4-12,number)

Remember My PIN (Use this PIN to verify in next reboot)

- The verification fails, it will display as below.

 PIN verify failed, please input correct PIN code !

PIN Management display the status of SIM card, and set PIN code if need

 NETWORK > PIN Management

 PIN Management

SIM Card Status PIN locked

Remaining Attempts 1

Please sure to input the correct PIN code for it is the last chance, or you will ask the help of operator to solve it

!

PIN (4-12,number)

Remember My PIN (Use this PIN to verify in next reboot)

Save

Cancel

- The verification passes, it will display as below.

 NETWORK > PIN Management

 PIN Management

SIM Card Status SIM card normal

Remember My PIN (Use this PIN to verify in next reboot)

Save

Cancel

Notice



- If you enter the wrong PIN three times, your SIM card will become locked.
- Once SIM card is blocked, you need PUK code to unlock it or find operator's help.

3.2.3 LAN Configurations

This page is used for setting up the LAN, including the Device Name, IP Address, Network Mask, and DHCP Server.

[🏠 NETWORK](#) > LAN Configurations

☰ LAN Configurations

Device Name	<input type="text" value="DX2100_B324"/>
IP Address	<input type="text" value="192.168.1.1"/>
Network Mask	<input type="text" value="255.255.255.0"/>
DHCP Server	<input type="text" value="Enable"/>
Address Lease Time	<input type="text" value="One day"/>
First IP Address	192.168.1. <input type="text" value="100"/>
Last IP Address	192.168.1. <input type="text" value="200"/>
STP	<input type="text" value="Disable"/>

Description	Default
Device Name	
Set up a device name for your router. The name shall be composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	DX2100 + “_” + “the last four digits of Mac address”
IP Address	
Set up an IP address for your device.	192.168.1.1
Network Mask	
Set up the LAN network mask.	255.255.255.0
DHCP Server	
If DX router uses DHCP to assign IP addresses automatically on your network, you can specify the IP address range and lease time for the clients on your network. Once the DX router have bound the DIACloud and enabled the DIACloud DHCP, the DHCP in DX router will be disabled automatically.	Enable
Address Lease Time	

Description	Default
To set up the address lease time so that a client doesn't hold an IP address indefinitely. It allows for a mechanism to gracefully reuse DHCP addresses. Options here are 1 to 3 days.	One day
First IP Address	
To increase the number of addresses available to clients, you can change the Start Address.	192.168.1.100
Last IP Address	
To increase the number of addresses available to clients, you can change the End Address.	192.168.1.200
STP	
STP is a network protocol that builds a logical loop-free topology for Ethernet networks. The basic function of STP is to prevent bridge loops and the broadcast radiation that results from them. If this STP is enabled, the traffic usage will increase about 15Mbit in 24 hours.	Disable

3.2.4 Static Routing Rules

This page is used for setting up the Static Routing, including the Rule Name, Network Interface, Enabled, Destination IP, Network Mask, Gateway Address and Metric. Click the "Add A Rule" to add static routing rules.

[🏠 NETWORK > Static Routing Rules](#)

Add A Rule

ID	Enabled	Name	Destination	Gateway	Network Interface
----	---------	------	-------------	---------	-------------------

After clicking the "Add A Rule" , you will see the following page.

🏠 NETWORK > Static Routing Rules

☰ Add A Rule

Rule Name	<input type="text"/>
Network Interface	WAN ▼
Enabled	Yes ▼
Destination IP	<input type="text"/>
Network Mask	<input type="text"/>
Gateway Address	<input type="text"/>
Metric	2 (2~15)

Save

Back

Description	Default
Rule Name	
Set up a name for your rule. The name shall be composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	N/A
Network Interface	
For a specific network destination address, select the network interface of the router for sending data package. Options are LAN and WAN.	WAN
Enabled	
Activate the static routing functionality.	Yes
Destination IP	
Set up a Destination IP address for your device.	N/A
Network Mask	
Set up the subnet mask corresponding to the destination network segment. If the final destination of the routing is a single host, please type in 255.255.255.255.	N/A
Gateway Address	
Set up the next-hop routing address.	N/A
Metric	
Set up the hops. The number of hops that are passed for reaching the destination address. One hop indicates passing one router passed. The range is 2~15.	2

3.2.5 Dynamic DNS

This page is used for setting up the Dynamic DNS Settings, including the Dynamic DNS, Service Provider, Domain User Name, Password, and the Refreshing Interval.

[🏠 NETWORK](#) > [Dynamic DNS](#)

☰ Dynamic DNS Settings

3

Dynamic DNS

Service Provider

Domain

User Name

Password

Refreshing Interval (120~86400s)

Description	Default
Dynamic DNS	
Dynamic Host Configuration Protocol allows you to obtain an IP address automatically from your router. You can enable or disable this functionality.	Disable
Service Provider	
Select the dynamic domain service provider. Options are www.DynDNS.org and www.NOIP.com	www.DynDns.org
Domain	
The domain applied for to the corresponding dynamic domain service provider.	N/A
User Name	
The name of the user registered at the corresponding dynamic domain service provider.	N/A
Password	
The corresponding password to the registered user.	N/A
Refreshing Interval	
Set up the time for the router to update its public network IP from the dynamic domain service provider. The value range is 120~86400 sec.	86400

3.3 Firewall

You can set up firewall configurations, including the Firewall Settings, DMZ Settings, Port Forward, Port Trigger, URL Filter, MAC Filter, and IP Filter.

3.3.1 Firewall Settings

This page is used for setting up the basic firewall settings, including the SPI firewall switch, WAN Ping response, LAN SSH function and WAN SSH.

[🏠 FIREWALL > Firewall Settings](#)

☰ Basic Firewall Settings

Firewall	Enable ▼
WAN Ping	Not responded ▼
LAN SSH	Enable ▼
WAN SSH	Disable ▼

Save

Cancel

Description	Default
Firewall	
The SPI Firewall keeps track of the state of network connections travelling across it, protecting your Internet connection against Internet threats and Denial of Service (DoS).	Enable
WAN Ping	
It creates a filter that your router not to respond to Ping command and prevents other users on the internet from pinging your pc and gaining your IP address.	Not responded
LAN SSH	
Set up whether to allow LAN end to connect with the router via SSH.	Enable
WAN SSH	
Set up whether to allow WAN end to connect with the router via SSH.	Disable

3.3.2 DMZ Settings

This page is used for setting up the DMZ server.

[🏠 FIREWALL > DMZ Settings](#)

☰ DMZ Settings

DMZ Server

DMZ Host IP Address

Save

Cancel

Description	Default
DMZ Server	
Demilitarized zone (DMZ) is a special segment of the local network reserved for servers accessible from the Internet, adding an additional layer of security.	Disable
DMZ Host IP Address	
Set up the IP address for the DMZ host.	N/A

3.3.3 Port Forward

This page is used for setting up the port forward, including configuring the Network Services, Service Name, Protocol, Public Port, Server Port, and Server IP Address.

Click the "Add A Portforward Rule" to add port forwarding entries to the router.

[🏠 FIREWALL > Port Forward](#)

Add A Portforward Rule

ID	Service Name	Protocol	Public Port	Server Port	Server IP Address
----	--------------	----------	-------------	-------------	-------------------

After clicking the "Add A Portforward Rule" , you will see the following page.

🏠 FIREWALL > Port Forward

☰ Add A Portforward Rule

Network Services

Service Name

Protocol

Public Port (1~65534)

Server Port (1~65534)

Server IP Address 192.168.1.

3

Description	Default
Network Services	
Select the common network services. Refer to the following common service list for optional values.	Customized
Service Name	
Set up the service name for port forwarding. The name is composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	N/A
Protocol	
Set up the protocol type for port forwarding.	TCP/UDP
Public Port	
Set up the public port for port forwarding. The port range is 1~65534. A Public port should be less than or equal to the server port.	Single Port
Server Port	
Set up the server port for port forwarding. The port range is 1~65534. A server port should be greater than or equal to the public port. When the public port is set to a Single Port, the server port can only be set to a Single Port. When the public port is set to a Port Range, the server port can be set to a Single Port or a Port Range. And when the public port is set to a single port, all the port will be forwarded to ONE single port. Examples of different port forwarding settings: 1:1 Public Port <input type="text" value="Single Port"/> <input type="text" value="1001"/> (1~65534) Server Port <input type="text" value="Single Port"/> <input type="text" value="80"/> (1~65534) N:1	Single Port

Description		Default
Public Port	A Port Range ▼ 1001 - 1008 (1~65534)	
Server Port	Single Port ▼ 80 (1~65534)	
N:N		
Public Port	A Port Range ▼ 1001 - 1008 (1~65534)	
Server Port	A Port Range ▼ 1001 - 1008 (1~65534)	
Server IP Address		
Set up the server IP address that applies to the port mapping rule.		192.168.1.*

3

Common Service List for Port Forwarding			
Service name	Protocol	Starting Port	Ending Port
Customized	TCP, UDP, TCP/UDP	1~65534	1~65534
FTP	TCP	20	21
HTTP	TCP	80	80
ICUII	TCP	23566	23566
IP_PHONE	TCP	6670	6670
NetMeeting	TCP	1720	1720
News	TCP	119	119
PPTP	TCP/UDP	1723	1723
Telnet	TCP	23	23
Quakell/III	TCP/UDP	27960	27960
Real-Audio	TCP	6970	7170

3.3.4 Port Trigger

This page is used for setting up the port trigger, including configuring the Service Name, Service User, Service Type, Trigger Port, Protocol Role, Begin Port, End Port, and Status.

Port triggering is port forwarding with an on/off switch for the ports that have been forwarded. Have data flow out of a trigger port or not by enabling or disabling this functionality. Set up the time for the Port Trigger Timeout and click "Save" to save the setting.

Click the "Add A Trigger Rule" to add port trigger entries to the router.

[🏠 FIREWALL > Port Trigger](#)

Port Trigger Port Trigger Timeout Minute

ID	Service Name	Service Type	Inbound Connection	Service User	Status
----	--------------	--------------	--------------------	--------------	--------

After clicking the "Add A Trigger Rule", you will see the following page.

[🏠 FIREWALL > Port Trigger](#)

☰ Add A Trigger Rule

Service Name

Service User

Service Type

Trigger Port (1~65534)

----- Inbound Connection

Protocol Role

Begin Port (1~65534)

End Port (1~65534)

Status

Description	Default
Service Name	
Set up the service name for port triggering. The name is composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	N/A
Service User	
Select the service user to apply the port triggering rule.	Any Address

Description	Default
Service Type	
Set up the protocol type for port triggering.	TCP
Triggering Port	
Set up the triggering port. The port range is 1~65534.	N/A
Protocol Role	
Set up the protocol type for the inbound connection.	TCP/UDP
Begin port	
Set up the starting port for the inbound connection. The port range is 1~65534.	N/A
End Port	
Set up the ending port for the inbound connection. The port range is 1~65534.	N/A
Status	
Enable/disable the port triggering functionality.	Disabled

3.3.5 URL Filter

This page is used for setting up the URL Filter, including configuring the URL Address, LAN IP Address and Status.

URL Filter is used to block particular website from the local network. Select Enable/Disable to activate/deactivate this functionality. Click the "Add An URL Address" to block the URL.

[🏠 FIREWALL > URL Filter](#)

URL Address Filter Disable ▾ Save Add An URL Address

ID	URL Address	LAN IP Address	Status
----	-------------	----------------	--------

After clicking the "Add An URL Address" , you will see the following page.

[🏠 FIREWALL > URL Filter](#)

☰ Add URL

URL Address

LAN IP Address Any address ▾

Status Enabled ▾

Save Back

Description	Default
-------------	---------

Description	Default
URL Address	
Manually input the URL address that you'd like to block, for example www.baidu.com.	N/A
LAN IP Address	
Set up the LAN IP address that you'd like to block. Options are "Any Address", "Single Address" and "Address Range".	Any Address
Status	
Enable/disable the URL Filter functionality.	Enabled

3.3.6 MAC Filter

This page is used for setting up the MAC Filter, including configuring the MAC Address, Device Name and Status.

MAC Filter is used to block particular MAC address from the local network. Select Enable/Disable to activate/deactivate this functionality. Click the "Add A MAC Address" to block the MAC Address.

[🏠 FIREWALL > MAC Filter](#)

MAC Filter

ID	MAC Address	Device Name	Status
----	-------------	-------------	--------

After clicking the "Add A MAC Address" , you will see the following page.

[🏠 FIREWALL > MAC Filter](#)

☰ Add A MAC Address

MAC Address

Device Name

Status

Description	Default
MAC Address	
Manually input the MAC address that you'd like to block.	N/A
Device Name	
Set up the device name corresponding to the set MAC address.	N/A
Status	
Enable/disable the MAC Filter functionality.	Enabled

3.3.7 IP Filter

This page is used for setting up the IP Filter, including configuring the Source IP, Source Port, Destination IP, Destination Port, Protocol and Status.

IP Filter is used to block particular IP address from the local network. Select Enable/Disable to activate/deactivate this functionality. Click the "Add An IP Address" to block the IP Address.

[HOME](#) FIREWALL > IP Filter

IP Filter Disable ▾ Save Add An IP Address

ID	Source IP Address Range	Source Port Range	Range Of Destination IP Address	Range Of Destination Port	Protocol	Status
----	-------------------------	-------------------	---------------------------------	---------------------------	----------	--------

After clicking the "Add An IP Address" , you will see the following page.

[HOME](#) FIREWALL > IP Filter

Add An IP Address

Source IP Any address ▾
 Source Port Any port ▾
 Destination IP Any address ▾
 Destination Port Any port ▾
 Protocol TCP/UDP ▾
 Status Enabled ▾

Save Back

Description	Default
Source IP	
Set up the source IP.	Any Address
Source Port	
Set up the source port where the datagram came from.	Any port
Destination IP	
Set up the destination IP.	Any Address
Destination Port	
Set up the destination port where the datagram is going to.	Any port
Protocol	
Set up the protocol type for the IP Filter.	TCP/UDP
Status	

Description	Default
Enable/disable the URL Filter functionality.	Enabled

3.4 System

You can set up the system configurations, including the User Management, Time Zone Configurations, RS232, RS485, Modbus TCP, Log Setting, Firmware Upgrade, Backup & Restore, Scheduled Jobs, Network Diagnosis, System Reboot, Event Management, and Register Management.

3.4.1 User Management

You can change the administrator password and set session timeout here. The password must be a combination of 5 to 12 characters, numbers and/or underline symbols.

SYSTEM > User Management

User Management

Old Password

New Password

The password must be a combination of 5 to 12 characters,numbers and underline marks

Confirm Password

Save Cancel

Session Timeout Setting

Session Timeout: (10-1440 min) Save

Description	Default
Old Password	
Input the original password.	admin
New Password	
Input the new password you'd like to use. The password length should be 5-12 digits and is composed of lowercase letters, uppercase letters (case sensitive), numerals 0-9 and underline.	N/A
Confirm Password	
Again input the password you'd like to use to double confirm there is no typo.	N/A
Session Timeout	
Session timeout is an expired time limit for a logged in user which as been inactive for a period of time. Setting range is from 10 to 1440 minutes	30

3.4.2 Time Zone Configurations

You can change the current time of the device. Use the dropdown list to select the correct time zone for your device.

🏠 SYSTEM > Time Zone Settings

The current time of device 2016-08-17 10:48:32

Time Zone Settings ▼

Description	Default
The current time of device	
Here shows the current time of your device.	N/A
Time Zone Setting	
Select the operating time zone of your device: GMT-12:00 - GMT+13:00.	N/A

3.4.3 RS232

RS232 (Recommended Standard - 232) is a telecommunication standard for binary serial communications between devices. You can set up the configurations for RS232, including Baud Rate, Data Bits, Stop Bits, Parity Bits and Flow Control.

🏠 SYSTEM > RS232

☰ RS232

Working Mode ▼

Baud Rate ▼

Data Bits ▼

Stop Bits ▼

Parity Bits ▼

Flow Control ▼

RS232

Working Mode

Baud Rate

Data Bits

Stop Bits

Parity Bits

Flow Control

Modbus ID

Modbus Mode

Modbus Timeout (ms)

SYSTEM > RS232

RS232

Working Mode

Baud Rate

Data Bits

Stop Bits

Parity Bits

Flow Control

Modbus ID

Modbus Mode

Modbus Timeout (ms)

Read/Write Configuration

Scan Interval (ms)

- When communicate with PLC of Delta, the starting address can be set as the internal register number. For example, input 0 for register D0.
- The acceptable address range of this device is from 2048 to 4095 in decimal.

Row Number	Read/Write	Slave ID	Controller	Address Type	Slave Starting Address	Device Starting Address (\$2048-\$4095)	Length (1-123)	Operation
1	<input type="text" value="Read/Write"/>	2	Delta DVP PLC	D	10	\$2048	1	Delete
2	<input type="text" value="Read/Write"/>	3	Others(HEX)	W(HEX)	010b	\$2049	1	Delete

SYSTEM > RS232

RS232

Working Mode

Baud Rate

Data Bits

Stop Bits

Parity Bits

Flow Control

Modbus ID

Modbus Mode

Modbus Timeout (ms)

Read/Write Configuration

Scan Interval (ms)

- The acceptable address range of this device is from 2048 to 4095 in decimal.

Add Mappings

Row Number	Read/Write	Slave ID	Controller	Address Type	Slave Starting Address	Device Starting Address (\$2048-\$4095)	Length (1-64)	Operation
1	Read/Write	0	MITSUBISHI PLC	W(HEX)	0	\$2048	2	Delete

Save Cancel

Description	Default	
Working Mode		
<p>Select the working mode for the current active serial port.</p> <ul style="list-style-type: none"> Transparent mode: This mode is suitable for uploading and downloading data remotely via the serial port. Slave mode: This mode is suitable for the PLC to perform the read/ write tasks on the open register of the DX-2100RW-WW. Master mode: This mode is suitable for the DX-2100RW-WW to perform the read/write tasks on the open register of the PLC. MC Master mode: This mode is suitable for the DX-2100RW-WW to perform the read/write tasks on the open register of the MITSUBISHI FX series PLC via serial port. Close: Disable this functionality. 	Close	
Parameters of COM	Baud Rate	
	Set up the baud rate for the serial port. Options are 2400, 4800, 9600, 19200, 38400, 57600 and 115200.	9600
	Data Bits	
Set up the data bits for the serial port.	8	

	Description	Default
	<ul style="list-style-type: none"> • Transparent mode: 7, 8 • Slave mode: 8 	
	Stop Bits	
	Set up the stop bits for the serial port. Options are 1 and 2.	1
	Parity Bits	
	Set up the parity bits for the serial port. Options are None, Odd and Even.	None
	Flow Control	
	Set up the flow control. Options are None, XON, XOFF, RTS, and CTS.	None
Slave/Master/MC master Mode	Modbus ID	
	Set up the MODBUS ID. The value is between 1 and 247.  It's not editable in MC master mode.	1
	Modbus Mode	
	Set up the communication mode for the device. Device support ModBus RTU, ModBus ASCII and MC ASCII.	ModBus RTU
	Modbus Timeout	
	Set up the timeout timer from 200ms to 3000ms. If the set value is out of range, it will be automatically changed to its maximum or minimum value.	200ms
Master/MC master Mode	Scan Interval	
	Set up the time for scan interval, ranging from 20ms to 60000ms.	30000ms
	Read/Write	
	Set up the access permissions for the mapped register address; <ul style="list-style-type: none"> • Read-only: The device regular read data from appointed registers in the slave, but will not update the data to the slave • Write-only: The device update the data to the slave when the registers values was changed, but will not read the data from the slave • Read/write: The device regular read data from appointed registers in the slave, will update the data to the slave when the registers values is changed. 	Read/Write

Description	Default
Slave ID	
Set up the corresponding slave communication port. The value is between 1 and 247.  It's fixed to 0 in MC master mode.	N/A
Controller	
In master mode, device types options are: <ul style="list-style-type: none"> • Delta PLC: Use this option for Delta DVP / AH / AS series PLCs • Other: Use this option for non-Delta PLCs. HEX means hexadecimal address, DEC means decimal address. • MITSUBISHI PLC: This option for MITSUBISHI PLC only 	Delta DVP PLC
Address Type	
In master mode, it depending on the selected controller type change: <ul style="list-style-type: none"> • Delta PLC: The address type is "D" • Other: The address type is "W" • MITSUBISHI PLC: The address type is "D" 	D
Slave Starting Address (decimal)	
Set up the slave starting address for read/write the registers in a PLC. <ul style="list-style-type: none"> • Delta PLC: Enter the internal D register number. If you need to read / write D0, please enter 0 here. • Other: Enter the Hexadecimal or Decimal actual address. For example: Holding Register: 400100, take 0100 (decimal) that is 64 (hex).  DX supports the Holding Register : 400001~465535 (Decimal) <ul style="list-style-type: none"> • MITSUBISHI PLC: Enter the internal D register number. If you need to read / write D0, please enter 0 here. 	N/A
Device Starting Address (decimal)	
Set up the device starting address (decimal, input range is from \$2048 to \$4095). \$ specifies that the match must start at the beginning of a Device Starting Address.	N/A
Length (1-123)	
Here displays the number of the continuous	N/A

Description	Default
address followed by the default mapped address.	
Add Mappings	
Click the button to add mappings; the data mapping can be set to 200.	N/A
Edit	
Click an item of register mapping forms that can be edited.	N/A
Operation	
The added mappings can be deleted here.	N/A

3.4.4 RS485

RS485 (Recommended Standard - 485) is a telecommunication standard for binary serial communications between devices. You can set up the configurations for RS485, including Baud Rate, Data Bits, Stop Bits, Parity Bits, and many more.

🏠 SYSTEM > RS485

☰ RS485

Working Mode

Baud Rate

Data Bits

Stop Bits

Parity Bits

🏠 SYSTEM > RS485

☰ RS485

Working Mode	<input type="text" value="Slave mode"/>
Baud Rate	<input type="text" value="9600"/>
Data Bits	<input type="text" value="8"/>
Stop Bits	<input type="text" value="1"/>
Parity Bits	<input type="text" value="None"/>
Modbus ID	<input type="text" value="1"/>
Modbus Mode	<input type="text" value="ModBus RTU"/>
Modbus Timeout	<input type="text" value="200"/> (ms)

Save

Cancel

SYSTEM > RS485

RS485

Working Mode

Baud Rate

Data Bits

Stop Bits

Parity Bits

Modbus ID

Modbus Mode

Modbus Timeout (ms)

Read/Write Configuration

Scan Interval (ms)

- When communicate with PLC of Delta, the starting address can be set as the internal register number. For example, input 0 for register D0.
- The acceptable address range of this device is from 2048 to 4095 in decimal.

Add Mappings

Row Number	Read/Write	Slave ID	Controller	Address Type	Slave Starting Address	Device Starting Address (\$2048-\$4095)	Length (1-123)	Operation
1	Read/Write	2	Delta DVP PLC	D	20	\$2049	1	Delete
2	Read/Write	3	Others(HEX)	W(HEX)	010c	\$2050	1	Delete

Save

Cancel

Description	Default	
Working Mode		
Select the working mode for the current active serial port. <ul style="list-style-type: none"> Transparent mode: This mode is suitable for uploading and downloading data remotely via the serial port. Slave mode: This mode is suitable for the PLC to perform the read/ write tasks on the open register of the DX-2100RW-WW. Master mode: This mode is suitable for the DX-2100RW-WW to perform the read/write tasks on the open register of the PLC. Close: Disable this functionality. 	Close	
Parameters of COM	Baud Rate Set up the baud rate for the serial port. Options are 2400, 4800, 9600, 19200, 38400, 57600 and 115200.	9600
	Data Bits Set up the data bits for the serial port. <ul style="list-style-type: none"> Transparent mode: 7, 8 Master or Slave: 	8

Description		Default
	7 (ModBus ASCII), 8 (ModBus RTU)	
	Stop Bits	
	Set up the stop bits for the serial port. Options are 1 and 2.	1
	Parity Bits	
	Set up the parity bits for the serial port. Options are None, Odd and Even.	None
Modbus ID		
	Set up the MODBUS ID. The value is between 1 and 247.	1
Modbus Mode		
	Set up the communication mode for the device. The Device supports ModBus RTU and ModBus ASCII.	ModBus RTU
Modbus Timeout		
	Set up the timeout timer from 200ms to 5000ms. If the set value is out of range, it will be automatically changed to its maximum or minimum value.	200ms
Master Mode	Scan Interval	
	Set up the time for scan interval, ranging from 20ms to 60000ms.	30000ms
	Read/Write	
	Set up the access permissions for the mapped register address; <ul style="list-style-type: none"> • Read-only: The device regular read data from appointed registers in the slave, but will not update the data to the slave • Write-only: The device update the data to the slave when the registers values was changed, but will not read the data from the slave • Read/write: The device regular read data from appointed registers in the slave, will update the data to the slave when the registers values is changed. 	Read/Write
	Slave ID	
	Set up the corresponding slave communication port. The value is between 1 and 247.	N/A
	Controller	
Device types: <ul style="list-style-type: none"> • Delta PLC: Use this option for Delta DVP / AH / AS series PLCs 	Delta DVP PLC	

Description	Default
<ul style="list-style-type: none"> Other: Use this option for non-Delta PLCs. HEX means hexadecimal address, DEC means decimal address. 	
Address Type	
Depending on the selected controller type change: <ul style="list-style-type: none"> Delta PLC: The address type is "D" Other: The address type is "W" 	D
Slave Starting Address (decimal)	
Set up the slave starting address for read/write the registers in a PLC. <ul style="list-style-type: none"> Delta PLC: Enter the internal D register number. If you need to read / write D0, please enter 0 here. Other: Enter the Hexadecimal or Decimal actual address. For example: Holding Register: 400100, take 0100 (decimal) that is 64 (hex).  DX supports the Holding Register : 400001~465535 (Decimal)	N/A
Device Starting Address (decimal)	
Set up the slave starting address for read/write the registers in a PLC. Set up the device starting address (decimal, input range is from \$2048 to \$4095). \$ specifies that the match must start at the beginning of a Device Starting Address.	N/A
Length (1-123)	
Here displays the number of the continuous address followed by the default mapped address.	N/A
Add Mappings	
Click the button to add mappings; the data mapping can be set to 200.	N/A
Edit	
Click an item of register mapping forms that can be edited.	N/A
Operation	
The added mappings can be deleted here.	N/A

3.4.5 Modbus TCP

This page allows users to set whether to enable Modbus TCP client mode and set relevant parameters.

SYSTEM > Modbus TCP

Modbus TCP

Working Mode

*4 modbus TCP servers supported at most

Row Number	Server IP	Server Port	Response Timeout(ms)	Scan Interval(ms)	Operation
------------	-----------	-------------	----------------------	-------------------	-----------

SYSTEM > Modbus TCP

Modbus TCP Client Setting

Server IP
 Server Port
 Response Timeout (ms)

Read/Write Configuration

Scan Interval (ms)

- When communicate with PLC of Delta, the starting address can be set as the internal register number. For example, input 0 for register D0.
- The acceptable address range of this device is from 2048 to 4095 in decimal.

Row Number	Read/Write	Slave ID	Controller	Address Type	Slave Starting Address	Device Starting Address (\$2048-\$4095)	Length (1-123)	Operation
1	Read/Write	2	Delta DVP PLC	D	30	\$2051	1	Delete

Description	Default	
Working Mode		
<ul style="list-style-type: none"> Closed: Only Modbus TCP server works. And supports up to 32 Client to connect. Modbus TCP Client (Master): Modbus TCP server + Modbus client work at the same time. MODBUS TCP Client supports to connect to 4 different servers at most. 	Close	
Modbus TCP Client	Server IP	
	Set up the IP address of a PLC in the Modbus TCP Client mode	N/A
	Server Port	
Set up the server port of a PLC in the Modbus TCP Client mode	502	
Response Timeout		

Description		Default
	Set up the timeout timer from 50ms to 100000ms. If the set value is out of range, it will be automatically changed to its maximum or minimum value. The default is 300ms.	300
Scan Interval		
	Set up the time for scan interval, ranging from 20ms to 60000ms; the default is 3000ms.	30000
Add Mappings	Read/Write	
	Set up the access permissions for the mapped register address; <ul style="list-style-type: none"> • Read-only: The device regular read data from appointed registers in the slave, but will not update the data to the slave • Write-only: The device update the data to the slave when the registers values was changed, but will not read the data from the slave • Read/write: The device regular read data from appointed registers in the slave, will update the data to the slave when the registers values is changed. 	Read/Write
	Slave ID	
	Set up the corresponding slave communication port. The value is between 1 and 247.	N/A
	Controller	
	Device types: <ul style="list-style-type: none"> • Delta PLC: Delta DVP / AH / AS series PLCs use this option. • Other: Use this option for non-Delta DVP / AH / AS series PLCs. HEX means hexadecimal address, DEC means decimal address. 	Delta DVP PLC
	Address Type	
	Depending on the selected controller type change: <ul style="list-style-type: none"> • Delta PLC: The address type is "D" • Other: The address type is "W" 	D
	Slave Starting Address	
Set up the slave starting address for read/write the registers in a PLC. <ul style="list-style-type: none"> • Delta PLC: Enter the internal D register number. If you need to read / write D0, please enter 0 here. 	N/A	

	Description	Default
	<ul style="list-style-type: none"> Other: Enter the Hexadecimal or Decimal actual address. For example: Holding Register: 400100, take 0100 (decimal) that is 64 (hex). <p> DX supports the Holding Register : 400001~465535 (Decimal)</p>	
	Device Starting Address	
	Set up the device starting address (decimal, input range is from \$2048 to \$4095). \$ specifies that the match must start at the beginning of a Device Starting Address.	N/A
	Length (1-123)	
	Here displays the number of the continuous address followed by the default mapped address.	N/A
	Operation	
	Delete the selected mapped address.	N/A
	Add Mappings	
	Click the button to add mappings; the data mapping can be set to 200.	N/A
	Edit	
	Click to select the records from the mapped address to edit.	N/A
	Operation	
	The added mappings can be deleted here.	N/A

3.4.6 Log Settings

This page is used for configuring the log settings, including Log to Console, Remote Log Service, Remote Log Server Address, and Port of Remote Log Server.

SYSTEM > Log Settings

Log Settings

Log To Console

Remote Log Service

Remote Log Server Address

Port Of Remote Log Server (1~65534)

Save Cancel

Description	Default
Log to Console	
Set up the log to the console port.	No
Remote Log Service	
Enable/disable the remote log service.	Disable
Remote Log Server Address	
Set up the remote log server address	N/A
Port of Remote Log Server	
Set up the remote log server port, ranging from 1 to 65534.	514

Notice

 Remote log service is used for qualified engineers to check the device remotely when errors occurred. With this service, there is no need to log in to the device, device logs can be exported to the remote log server. The server should support the syslog protocol. When this functionality is enabled, it will take up some resources. Do not enable this functionality disabled, unless it's necessary.

3.4.7 Firmware Upgrade

This page is used for upgrading the system.

🏠 SYSTEM > Firmware Upgrade

☰ Firmware Upgrade

DO NOT turn off the power supply or reboot the device during the upgrade process. Please select the correct firmware package which is consistent with the device model, otherwise the device may be damaged !

(Before upgrade the firmware, please backup the settings and data. Please contact the local dealers or manufacturers when failed to upgrade the firmware)

Select Firmware

Description	Default
Select Firmware	
Click "Browse" to select the new firmware file.	N/A
Upgrade	
Click "Upgrade" to upgrade firmware. The device will reboot after the upgrade is done.	N/A

3.4.8 Backup & Restore

This page is used for backing up and restoring the configurations.

🏠 SYSTEM > Backup & Restore

☰ Backup & Restore

Device configurations can be backed up and saved to local PC

Configuration restoration will remove the current settings in the device and restore the configurations in your .cfg file

Select .Cfg File

Configurations will be reset to the factory default settings, device will be reboot after the reset

Description	Default
Backup	
Click "Backup" to save the device configurations on your computer.	N/A
Restore	

Description	Default
Click “Browse” to select the backup file and then click “Restore” to restore the configurations. The device configuration will be restored to the previous version and the device will reboot after the restoring is done.	N/A
Restore To Factory Default	
Click “Restore To Factory Default” to reset the configurations to the factory defaults. The device will reboot after the reset is done.	N/A

3.4.9 Scheduled Jobs

This page is used for scheduling job configurations, including ADD A New Job, Export Job List, and Import Job List.

🏠 SYSTEM > Scheduled Jobs

Add A New Job		Export Job List	Import Job List	Browse...
ID	Job Name	Job Type	Timestamp	Enabled

3.4.9.1 Add A New Job

Click “Add A New Job” , and then you will see the following page. Follow the instruction to add a new scheduled job.

🏠 SYSTEM > Scheduled Jobs

☰ Add A New Job

Job Name

Enabled

Time Configurations

Recurring Job Hour Minute

Date Year Month Day

Job Type

Save

Cancel

Description	Default
Job Name	
Set up a name for your scheduled job. The name shall be composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	N/A
Enable	
Select “Enable” to activate this functionality.	Enable

Description	Default
Recurring Job	
The scheduled job can be done Once, Every day, Every week, or Every month. And the specific time can be further defined.	Once 01:00
Date	
Select a specific date to perform the scheduled job.	2015.01.01
Job Type	
Select one of the job type for the scheduled job. <ul style="list-style-type: none"> • Restart device • Enable DIACloud Service • Disable DIACloud Service 	Restart device

3

3.4.9.2 Export Job List

Click "Export Job List" to export the scheduled jobs for future usage.

🏠 SYSTEM > Scheduled Jobs

ID	Job Name	Job Type	Timestamp	Enabled
----	----------	----------	-----------	---------

3.4.9.3 Import Job List

Click "Chose file" to select the scheduled jobs file you have saved and then click "Import Job List" to import the scheduled jobs you have set before.

🏠 SYSTEM > Scheduled Jobs

ID	Job Name	Job Type	Timestamp	Enabled
----	----------	----------	-----------	---------

3.4.10 Network Diagnosis

This page is used for diagnosing the network status; methods are Ping Test and Route Trace.

🏠 SYSTEM > Network Diagnosis

☰ Network Diagnosis

Diagnosing Method

Host Name/IP Address

3

Description	Default
Diagnosing Method	
Select the Diagnosing Method; options are Ping Test and Route Trace.	Ping Test
Host Name/IP Address	
Select the domain name or IP address of the server that you want to test. The default options are www.google.com, www.yahoo.com, www.MSN.com, www.amazon.com, www.wikipedia.org, www.facebook.com, www.diacloudsolutions.com and others. When user choose others, user can input the domain/IP manual.	www.diacloudsolutions.com
Start	
Click "Start" to start the network diagnosing. While running the network diagnosing, the settings cannot be changed.	N/A

3.4.11 System Reboot

This page is used for manually rebooting the system. Click "Restart Device" and the system will reboot.

🏠 SYSTEM > System Reboot

☰ System Reboot

The network will be temporarily shut down during system reboot, please wait!

3.4.12 Privilege Management

Privilege management use in order to set the white list of phone numbers and the device operation can be triggered via the specific SMS text from the white list of phone numbers.

You can fill in the target mobile phone number and press 'Send' button to test the Short Message function of the device.

The SMS commands listed below:

Function	SMS Command	Description
SMS Query commands	"ZLCX" or "zlcx"	List all SMS commands and explanations.
Status Query	"ZTCX" or "ztcx"	Discover the router's current status information, including the following: 1. Cellular network state 2. Firewall state 3. DIACloud state
Restart Device	"CQLY" or "cqly"	Restart the router
Enable cellular network	"KQBH" or "kqbh"	Dial-up the router to internet
Disable cellular network	"DKBH" or "dkbh"	The router disconnects from the internet
Enable DIA cloud service	"KQVD" or "kqvd"	DIA cloud service enables on the router
Disable DIA cloud service	"GBVD" or "gbvd"	DIA cloud service disables on the router

🏠 SYSTEM > Privilege Management

Short Message Center Number

Send Short Message Test

☰ Short Message Control Gateway

ID	Name	Telephone Number	Operation Privileges	Enabled	Short Message Reply	Operation
----	------	------------------	----------------------	---------	---------------------	-----------

☰ Short Message Control PLC

ID	Name	Telephone Number	Enabled	Short Message Reply	Operation
----	------	------------------	---------	---------------------	-----------

☰ Control List Of Event Management

ID	Name	Telephone Number	Email	Operation
----	------	------------------	-------	-----------

Currently, there are three the main SMS settings: 1. Short Message Control Gateway. 2. Short Message Controlling PLC. 3. Control List of Event Management. Setting interface as follows:

🏠 SYSTEM > Privilege Management

☰ **Add A New Short Message Control User**

Name

Telephone Number -

Enabled ▾

Short Message Reply ▾

Operation Privileges

- Restart device
- Status query
- Short message query commands
- Enable DIA cloud service
- Disable DIA cloud service
- Enable cellular network
- Disable cellular network

🏠 SYSTEM > Privilege Management

☰ **Add A New Short Message User Controlling PLC**

Name

Telephone Number -

Enabled ▾

Short Message Reply ▾

🏠 SYSTEM > Privilege Management

☰ **Add A New User Of Event Management**

Name

Telephone Number -

Email

Description	Default
-------------	---------

Description	Default	
Short Message Center Number		
Input the short message center number supported by this SIM card, the input format is: "+" "country code" "short message center number". Example: +8613800100500	N/A	
Send Short Message Test		
Confirm SMS module related functions are executed correctly, you can send a function test message to the specified number to send a test message to verify the relevant settings are correct. The input format is as follows: <ul style="list-style-type: none"> • Country Code: "+" "Country Code". • Cell phone number: 13800100500. Example: +8613800100500	N/A	
Add A Telephone Number	ID	
	The maximum allow the 10 phone numbers	N/A
	Name	
	Set up a name for phone number, The name shall be composed of letters, numbers and underline, starting with a letter or number. The maximum string length is 32 bytes.	N/A
	Telephone Number	
	Set up a telephone number and country code which can receive the alarm message. The input format is as follows: <ul style="list-style-type: none"> • Country Code: "+" "Country Code". • Cell phone number: 13800100500. Example: +8613800100500	N/A
	Enabled	
	Set up the permission to enable or disable	Yes
	Short Message Reply	
	When the router receives the SMS commands, the router will response a confirmed message.	Yes
Email		
Set up an Email address to receive the alarm message. This setting work with The Event management.	N/A	
Edit		
Edit the existing event	N/A	
Delete		
Delete the existing event	N/A	
Export The List		
Export the event of SMS	Fixed_sms_control_list.cfg	

Description	Default
Import A List	
Import the event of SMS to the router	N/A

3.4.13 Event Management

This page is used for setting up 3 types of events, Communication Verification, Alarm Event and SMS Queries Event.

- **Communication Verification:** when this option is selected, the router will monitor and check if this channel is trustable to ensure a safe communication between a router and a PLC via MODBUS TCP, MODBUS ASCII or MODBUS RTU.

🏠 SYSTEM > Event Management

☰ Event Management

Event Type

Input Expression



The expression is the numeric expression in C, the syntax complies with standard C programming syntax. The expression can be a single variable itself, or a constant, or a single variable equation. The name of the variable is limited to be "A", the expression can be: (A+100)*45

The operators that the expression supports are as below:

Operators	Types	Examples	Description
+	Arithmetic operator	A+100	Addition
-	Arithmetic operator	A-100	Subtraction
*	Arithmetic operator	A*100	Multiplication
/	Arithmetic operator	A/100	Division
&	Logic operator	A&A+100	Logic AND
	Logic operator	A A+100	Logic OR
()	Bracket operator	(A+100)*45	Change operation order
^	XOR operation	A^100	XOR operation

- **Alarm Event:** users can set up the Alarm Name, Alarm Description, Alarm Criteria, Target Receiver and Operation.

SYSTEM > Event Management

Event Management

Event Type Alarm event ▼



Add

Alarm Name	Alarm Description	Alarm Criteria	Target Receiver	Operation
------------	-------------------	----------------	-----------------	-----------

Click "Add" button to create new alarm event and click "Details" to edit the existing event and use "Delete" button to delete the selected event. Click "Copy" to duplicate the event.

SYSTEM > Event Management

Alarm Event

Alarm Name Alarm1

Alarm Description Alarm form 2048

Alarm Criteria {\$2048}>1

Event Interval 1 (0~6000)minute

Repeat Times 1 (0~999)times

Alarm Status Enable ▼

Alarm Content

Time Date Name Description Clear

```
{Date} {Time} Alarm form 2048, the value of 2048 is {2048}
```

Target Receiver Steven_Li

Save
Back

Description	Default
Alarm Name	
Input an alarm name. The name shall be composed of numbers, English letters, uppercase and lowercase. The maximum string length is 32 bytes.	N/A
Alarm Description	
The alarm description shall be composed of numbers, English letters, uppercase and lowercase. The maximum string length is 50 bytes.	N/A
Alarm Criteria	
Setup the alarm trigger condition. The format of alarm variable is {\$number 0-4095}, the alarm criteria can be a single alarm variable, or a formula of one or	N/A

Description	Default
several alarm criteria. For example, the formula can be: {\$2048}>100	
Event Interval	
The time interval of alarm sending	0
Repeat Times	
The repeated times of alarm sending	0
Alarm Status	
Enable or disable this alarm setting	Enable
Alarm Content	
<p>Set up the information shown on the alarm contents. The content of the alarm will be sent to the target when alarm criteria are met. The information order can be self-defined.</p> <ul style="list-style-type: none"> • Time: the time when the alarm occurred • Date: the date when the alarm occurred • Name: the name of the occurred alarm • Description: the description of the occurred alarm <p>For example: Register \$2048 represents electrical voltage, the value of register \$2048 is 10, and the alarm content is set as: {Date} {Time} Voltage = {\$2048}, then the alarm content received by users will be: 2016/06/01 10:00:00(currently time) Voltage = 10. The maximum content length is 160 characters.</p>	N/A
Target Receiver	
Set up the recipient. User can maintain the list by 【Control List Of Event Management】 in Privilege Management function.	N/A

- SMS Queries Event: user can declare a query event, when the mobile number in the Control List of event send a query message, system will reply the special content to the mobile number.

🏠 SYSTEM > Event Management

☰ Event Management

Event Type

SMS Queries Event ▼



Add

Query Name	Query Description	Query Content	Target Receiver	Operation
query1	query value for 2048...	{Date} {Time} query ...	Steven_Li	Details Delete

🏠 SYSTEM > Event Management

☰ SMS Queries Event

Query Name

Query Description

Query Content

Target Receiver Steven_Li

3

Description	Default
Query Name	
Input an query name. The name shall be composed of numbers, English letters, and underline. The maximum string length is 9 characters. For example, after you create a query event name query1, you can send a message with content #MSG#query1 to device SIM card number, then it will reply you the content you setup in the event.	N/A
Query Description	
The query description shall be composed of numbers, English letters, uppercase and lowercase. The maximum string length is 50 bytes.	N/A
Query Content	
<p>Set up the information shown on the alarm contents. The content of the alarm will be sent to the target when alarm criteria are met. The information order can be self-defined.</p> <ul style="list-style-type: none"> • Time: the time when the alarm occurred • Date: the date when the alarm occurred • Name: the name of the occurred alarm • Description: the description of the occurred alarm <p>For example: Register \$2048 represents electrical voltage, the value of register \$2048 is 10, and the alarm content is set as: {Date} {Time} Voltage = {\$2048}, then the query content received by users will be: 2016/06/01 10:00:00(currently time) Voltage = 10. The maximum content length is 95 characters.</p>	N/A
Target Receiver	
Set up the recipient. User can maintain the list by 【Control List Of Event Management】 in Privilege Management function. System only response the query from receiver list.	N/A

 **Notice**
 {} is a special system symbol, which is used to reference system variables or system registers, like \${Time}, \${Date} or \${Number 0 - 4095}. Please use it with caution.

3.4.14 Register Management

This page is used for setting up the rules of register data upload to Cloud. Click "Add" to set a new rule. Click "Edit" to modify the existing rule. Click "Delete" to delete the existing rule.

SYSTEM > Variable Management

Add Variables

ID	Variable	Alias	Length	Upload To Cloud	History Data
----	----------	-------	--------	-----------------	--------------

The address segment 2048~4095 can be self-defined. The Start address, Length, Uploaded to Cloud or not and keep history or not can be set up.. After clicking "Add", the following page will show up.

SYSTEM > Register Management

Add Registers

Register Start Address
 Length
 Uploaded To Cloud
 Keep History

Save Back

Description	Default
Register Start Address	
This rule will effect from which register address. The allowable range is 2048~4095. Start with \$.	N/A
Length	
How many register will be effect by this rule. Input range: 1-2048.	N/A
Uploaded To Cloud	
Whether to upload the variable information to Cloud.	Yes
Keep History Data	
This function will keep or overwrite the history data when the register values are uploaded to Cloud. <ul style="list-style-type: none"> Yes: The existed register values in the cloud WON'T be overwritten by the new uploaded register values. 	No

Description	Default
<ul style="list-style-type: none"> No: The existed register values in the cloud CAN be overwritten by the new uploaded register values. 	



Notice
When the values in the register changes, the results will be uploaded to cloud.

3.5 Cloud Service

3.5.1 Cloud Configuration

3

In this page, user can assign the cloud account which will be used to connect to DIACloud by device. Input the user name, the password and click “Verify”. Refer to Chapter 4 for DIACloud account registration.

1. Login with your DIACloud account then click the “Verify” button to authenticate with DIACloud server.

[🏠 CLOUD SERVICE > Cloud Configurations](#)

☰ Cloud Configurations

User Name:

Password:

2. After authentication successfully, the cloud configurations will show up then the user can modify the secure tunnel and device name.

[🏠 CLOUD SERVICE > Cloud Configurations](#)

☰ Cloud Configurations

User Name:

Password:

Secure Tunnel: ▼

Device Name:

Secure Tunnel DHCP: Not available

When DHCP server in the secure tunnel network is not available, the IP address of the secure tunnel will be the LAN IP, if you want to change it ,please go to LAN configuration web page

Device IP:

Network Protocol: ▼

3. The user also can set IP address manually.

Get IP From Cloud	<input type="text" value="No"/>
Cloud IP Range:	192.168.200.100 - 192.168.200.200
Cloud Netmask:	255.255.255.0
Device IP:	<input type="text"/>

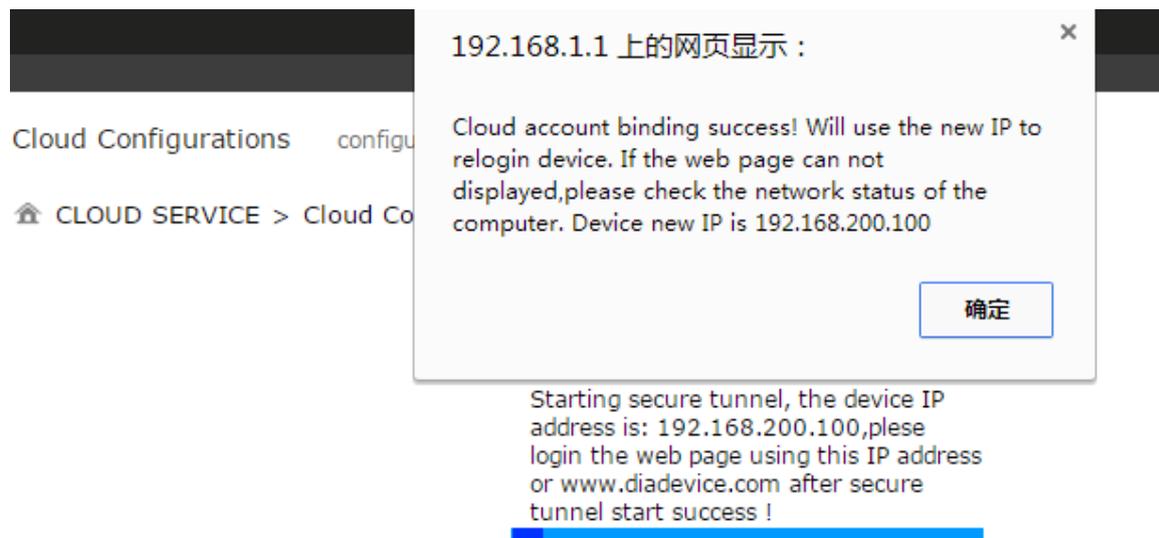
(Device IP should be in the same subnet with cloud IP)

- Click the "Bind" button, the DX router will bind with DIACloud server and established a secure tunnel between DIACloud server and the DX router. Meanwhile a new IP will assigns to DX router from DIACloud server (assign from the cloud HDCP server or a user specified).

[HOME](#) CLOUD SERVICE > Cloud Configurations

Cloud account register success, starting
secure tunnel,please wait.....

- Your browser will access to the DX router with new IP address automatically if DIACloud account binds with DIACloud server successfully. Please make sure a PC and DX router are in the same subnet; otherwise PC will not be able to access to the DX router.



- If the network is in the poor condition, The binding process could be successfully but the Service Status is shown "Disable".

🏠 CLOUD SERVICE > Cloud Configurations

User Name: ██████████@163.com

Registration Status: Registered Unbind

Service Status: Disabled Enable

Secure Tunnel: default

Device Name: DX2100_E9A4

Secure Tunnel DHCP: Not available

Device IP: 192.168.5.5

Network Protocol: UDP ▾

7. In this situation, the browser will access with 192.168.1.1 and the service status will be “Disable”. You can re-enable the service status to rebuild the secure tunnel again in cloud configurations.
8. When the service status is shown “Enable”, that means the DIACloud service is activated on DX-2100RW-WW. The user also can get the related information in cloud platform.

🏠 CLOUD SERVICE > Cloud Configurations

User Name: ██████████@163.com

Registration Status: Registered Unbind

Service Status: Enabled Disable

Secure Tunnel: default

Device Name: DX2100_E9A4

Secure Tunnel DHCP: Not available

Device IP: 192.168.5.5

Network Protocol: UDP

9. Click the “Unbind” button, DX-2100RW-WW will remove the registered account in DIACloud.

Description	Default
User Name	
Set up the name for the DIACloud account.	N/A
Password	
Set up the password for the account.	N/A
Verify	

Description	Default
Check if the username and the password are matched.	N/A
Secure Tunnel	
Select the device under the account to join in a certain secure tunnel network group. For secure tunnel related settings, go to http://www.DIACloudsolutions.com/	Default
Device Name	
Set up the name for the device	N/A
Secure Tunnel DHCP	
When secure tunnel DHCP server is available, and the IP address is allocated by the DHCP server in secure tunnel network, the IP address of this device can be found in the cloud portal.	N/A
Get IP From Cloud	
When selecting "Yes", IP address can be obtained by the cloud. When selecting "No", the IP address can be manually set.	Yes
Network protocol	
Set the network protocol of the security tunnel. Options are TCP and UDP. <ul style="list-style-type: none"> • UDP: UDP has a faster data transfer speed. If the network is not lost packet, please use this option • TCP: When the network packet loss is serious, it is recommended to select TCP. After binding the cloud account, you can still change this option, but you must disable the cloud service before changing. When the agent is turned on, the user can only select TCP. 	UDP
Cloud IP Range	
Display the Cloud IP Range. The Cloud IP Range is depended on the secure tunnel setting. For the secure tunnel setting, please refer to 5.2.5 Tunnel Network.	N/A
Cloud Netmask	
Display the Cloud Netmask. The Cloud Netmask is depended on the secure tunnel setting. For the secure tunnel setting, please refer to 5.2.5 Tunnel Network.	N/A
Device IP	
User can assign an IP address manually; remember that IP address should be the same subnet as the secure tunnel setting. For the secure tunnel setting, please refer to 5.2.5 Tunnel Network.	N/A

Notice

- Users can log-in to <http://www.DIACloudSolutions.com/> and register for a DIACloud account.
- In rare case, you can't access the web because the computer did not refresh the IP

and DNS after the activation, please re-plug the cable to resolve the issue.

3.5.2 Secure Tunnel Firewall

In this page, user can set up the firewall for the secure tunnel.

🏠 CLOUD SERVICE > Secure Tunnel Firewall

☰ Multicast Setting

Allow Multicast In Secure Tunnel

☰ Firewall Settings

Firewall Of Secure Tunnel

ID	MAC Address	Operation
----	-------------	-----------

🏠 CLOUD SERVICE > Secure Tunnel Firewall

☰ Add A MAC Address

MAC Address

Description	Default
Allow multicast in secure tunnel	
Set the security tunnel, whether to allow multicast transmission of the nature of the packet. Options: Allowed, not allowed	Yes
Firewall of secure tunnel	
Set up the specified MAC device will be allow or forbid to transmit the data in the secure tunnel. Options as below: <ul style="list-style-type: none"> • Disable: Disable this function. • Black List: If the network device's MAC address is blacklisted, these devices will NOT be able to transmit packets to the secure tunnel • White List: If the network device's MAC address is blacklisted, these devices will be able to transmit packets to the secure tunnel. 	Disable
Add	
Add a new MAC address into the list.	N/A

3.5.3 Cloud Log

Any information about cloud event can be exported from this function

🏠 CLOUD SERVICE > Cloud Log

☰ Cloud Log Level

Cloud Log Level

Error ▼

Save

Cloud log level will take effect when you restart the relative module.

☰ Download Cloud Log

Select The Module:

Uploader ▼

Download

Description	Default
Cloud Log Level	
<p>You can set different levels of log messages and saved to export to the engineering staff to view. Options as below (Level from low to high):</p> <ul style="list-style-type: none"> • Trace: The TRACE Level designates finer-grained informational events than the DEBUG • Debug: Fine-grained informational events that are most useful to debug an application • Info: The INFO level designates informational messages that highlight the progress of the application at coarse-grained level. • Warm: The WARN level designates potentially harmful situations. • Error: The ERROR level designates error events that might still allow the application to continue running. • Fatal: The FATAL level designates very severe error events that will presumably lead the application to abort. 	<p>Error</p>
Select Log Level	
<p>Specify to download the cloud service module log. Options as below:</p> <ul style="list-style-type: none"> • Uploader: Data upload module • Secure Tunnel: Secure Tunnel module • Binding: Account binding module 	<p>Uploader</p>

3.6 SD Card Quick Configuration

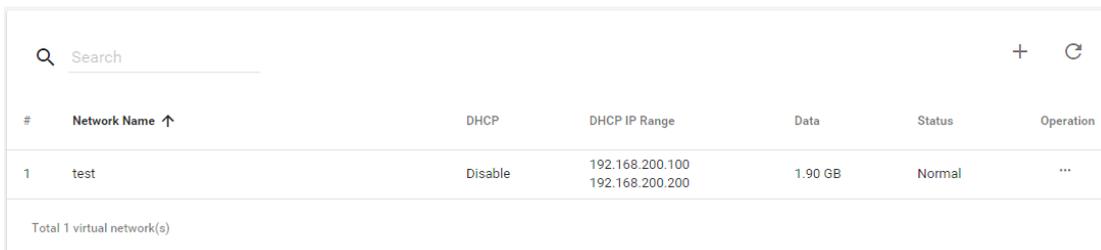
DX-2100RW provides the multiple quick configurations via SD Card.

- Upgrade the device firmware
- Import the device configuration
- Active the device with the DIACloud account.

The SD Card quick configurations will triggers by the following file is created in the SD card after the DX-2100RW reboots:

- The upgrade-package file 'DX2100_UpgradelImage_NorFlash_XXXX_XXXX.bin'
- The device configuration files 'backup.cfg'. (Please refer 3.4.8 Backup & Restore)
- The cloud configuration file 'Provision.bin' (Please refer to the following steps).

1. Go to the DIACloud platform (DIACloudSolutions.com).
2. Log in the DIACloud webpage and click "SECURE TUNNELS"
3. Click to select the Network which you'd like to use and then click the  to see and check the details.
4. Click the  to download the generated Provision.bin to the local computer.



#	Network Name ↑	DHCP	DHCP IP Range	Data	Status	Operation
1	test	Disable	192.168.200.100 192.168.200.200	1.90 GB	Normal	...

Total 1 virtual network(s)



Network Name
default

DHCP

DHCP IP Start

5. Copy Provision.bin file to SD card.

Power off the device and then insert the SD card into the device (SD card slot below the SIM card slot, on the right side of the device). Turn on the device and it will automatically bind. Check the SD card status indicator to see if the binding is successful.

The following beep codes are for SD Card Quick Configurations, its definition that the various combinations of the configuration file exist on SD card. (✘ – fail, ✓ - success or not this operation)

Beep Code	Upgrade.bin	backup.cfg	Provision.bin
1 long	✘	✓	✓

1 long, 1 short	√	×	√
1 long, 2 short	×	×	√
1 long, 3 short	√	√	×
1 long, 4 short	×	√	×
1 long, 5 short	√	×	×
1 long, 6 short	×	×	×
None	√	√	√

Notice



- Name rule for BIN file: Provision.bin
- Please do not change the file name of firmware upgrade-package.
- Please do not create the two different upgrade-package file in SD Card. In order to avoid the upgrading process fails.
- At least a 10-minute interval of separation between the two SD Card Quick Configuration

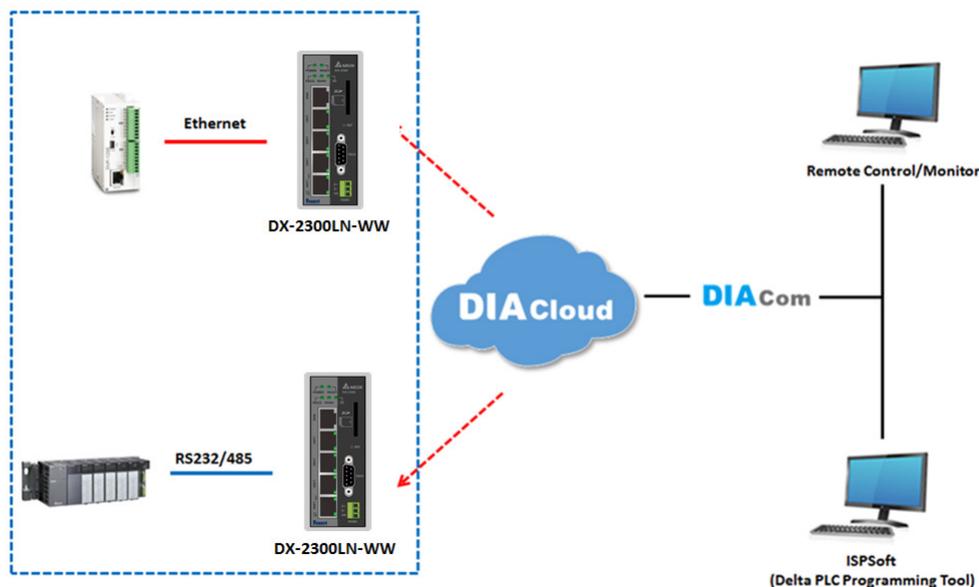
Chapter 4 DIACom

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4.1 Introduction to DIACom

DIACom allows you to create a secure tunnel between your PC and router, making it possible for your PC to communicate remotely with the devices connected to the router. Thus engineers can control, monitor, operate, program and diagnose the device remotely whenever there is internet connectivity.



Notice



- DIACloud provides you with cloud services, including the connected device management, secure tunnel network creation, data upload/download, and directional transmission.
- If you need to configure or monitor your controller, you will need to install programmable logic controller software, for example WPLSoft/ISPSOft for Delta PLC.

4.1.1 Select a Suitable Firmware Version

Find a suitable DIACom firmware version according to the following table below for your router.

Corresponding Table:

Device Model	Firmware Version
DX-2100	V1.3.3.0 or above
DX-2300	V1.3.3.0 or above



Notice

If the device firmware is lower than 1.3.3.0, please use DIACom 1.2.8.0 or lower.

4.1.2 DIACom Installation

Obtain the DIACom firmware package from the official website or from our sales representative. Administrator privileges are required to run and install the package. Uninstall older versions of DIACom before downloading new DIACom firmware package.



Notice

DIACom supports Windows XP, Windows 7 (32-bit and 64-bit) and Windows 8 (32-bit and 64-bit).

4.1.3 DIACloud Account Registration

1. Before registration, you should have a valid email account. (DIACloud uses your email address as your account.)
2. Open the DIACloud web page (<http://www.DIACloudSolutions.com>). The system will redirect you to the registration page:

The screenshot shows the DIACloud registration page. At the top, there is a blue header with the 'DIACloud' logo on the left and a globe icon on the right. Below the header is a white registration form. The form contains two input fields: 'Email *' and 'Password *', both with red asterisks indicating they are required. Below these fields is a 'Remember Me' checkbox, which is currently checked. At the bottom of the form is a grey 'LOGIN' button. Below the form, there are two links: 'CREATE AN ACCOUNT' and 'FORGOT PASSWORD?'. The entire page is set against a blue background.



Notice

*Click  at the upper right corner to change the interface language to English.

3. Input your email address, password and other relevant information on the registration page. Select "I Agree" and click "CREATE AN ACCOUNT".

DIA Cloud

Email *

Password *

Confirm Password *

Person Enterprise

Name *

Country

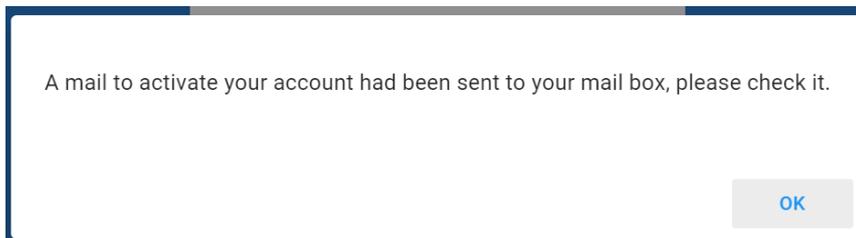
Verification Code * 6E216

I Agree **AGREEMENT**

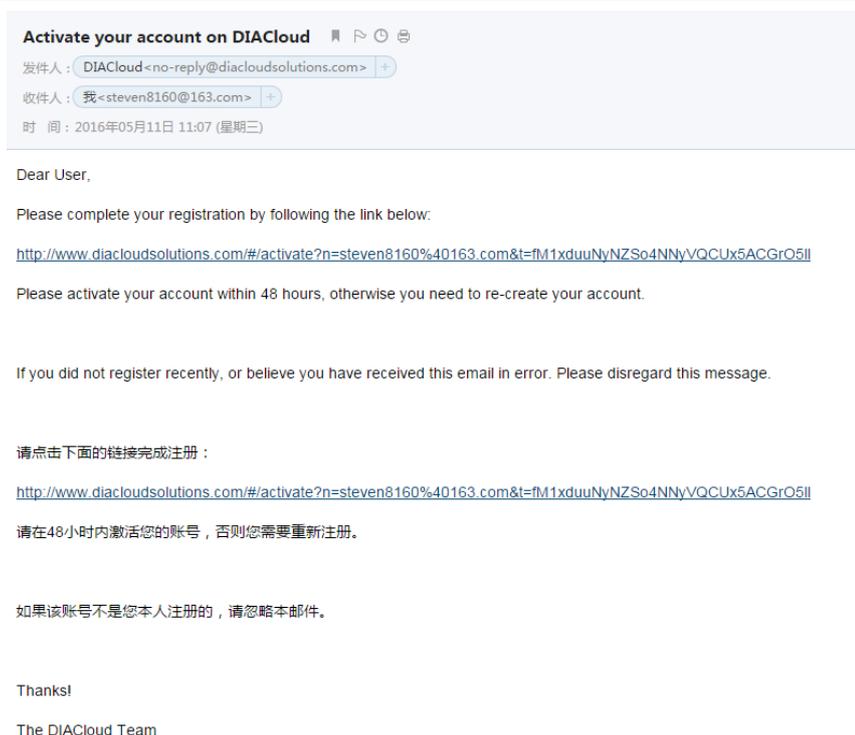
CREATE AN ACCOUNT

Already have an account? **LOGIN**

4. After clicking “CREATE AN ACCOUNT”, a congratulation page will be prompted and an activation email will be sent to the email address you have used as your DIA Cloud account.



5. You will find an activation email sent from no-reply@diacLOUDSOLUTIONS.COM in your email box. Open the email, click “here” link in the email and complete DIA Cloud account activation operation. And you will be redirected to the DIA Cloud login page. Input your account and password to log in to the DIA Cloud.



4.1.4 Bind DIACloud Account

Follow the steps blow to bind your DIACloud Account.

1. Local Network Setups: Please refer to Chapter 2.1 to 2.1.3 Web-based GUI Configuration for more information.
2. Bind DIACloud Account: Please refer to Chapter 3.5 Cloud Service for more information.

Notice

- **Secure Tunnel:** Secure tunnel is a virtual network. Users can set up several groups of secure tunnel for easier device management.
- **Device Name:** the serial number + “_” + “Mac address” of the device is the device name by default.
- **Get IP From Cloud:**
 - When selecting “Yes”: The system will assign an IP address for the device according to the Secure Tunnel settings and the availability of the IP addresses. Take note of the assigned IP address, it will be used when logging to the DIACloud.
 - When selecting “No”: The IP address can be manually set.

Secure Tunnel DHCP:	Available
Get IP From Cloud	<input type="button" value="No"/>
Cloud IP Range:	192.168.200.100 - 192.168.200.200
Cloud Netmask:	255.255.255.0
Device IP:	<input type="text"/>

(Device IP should be in the same subnet with cloud IP)

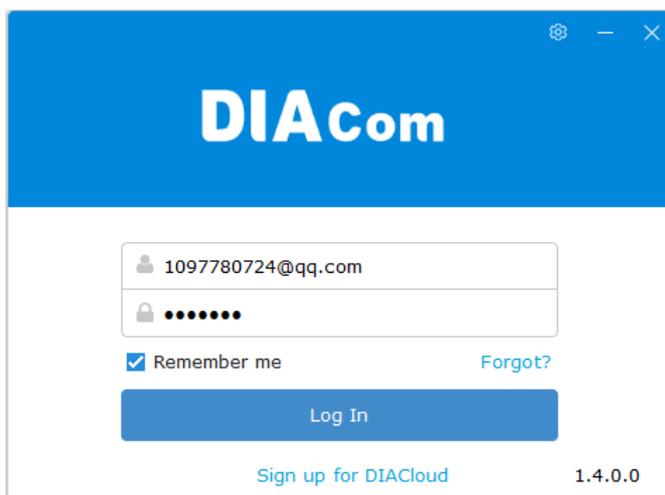
The IP address of the DX-2100 Series and the WAN of your connected PC should be in different network segments.

4.2 DIACom Operation

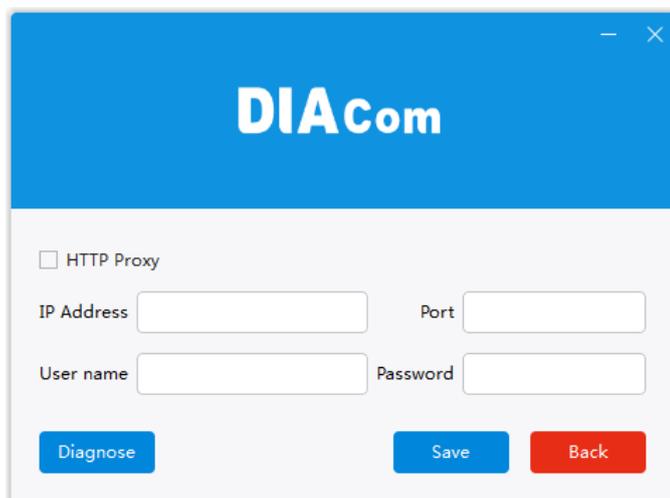
4.2.1 Setup a Secure Tunnel

Make sure there is internet connectivity, before creating a secure tunnel between your local PC and router via the DIACom. Http Proxy and Port Agent are configurable in DIACom network setting function, you can set it to avoid the possible limitation.

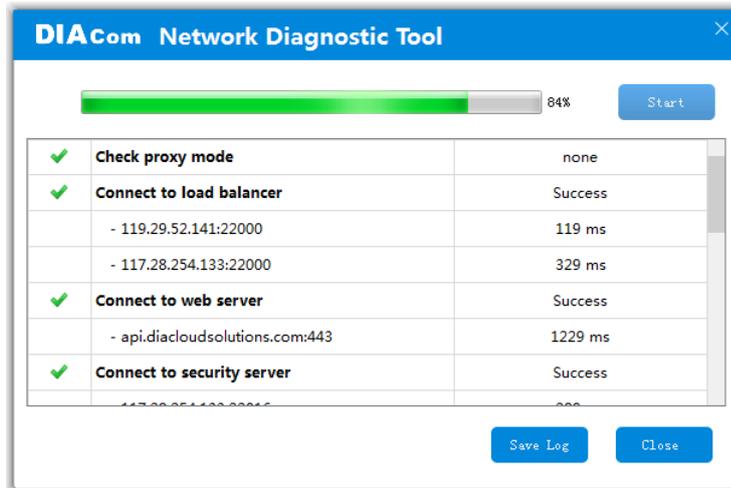
1. Run DIACom and log in with your router's cloud account.



2. Click  to go into network setting page if need be.



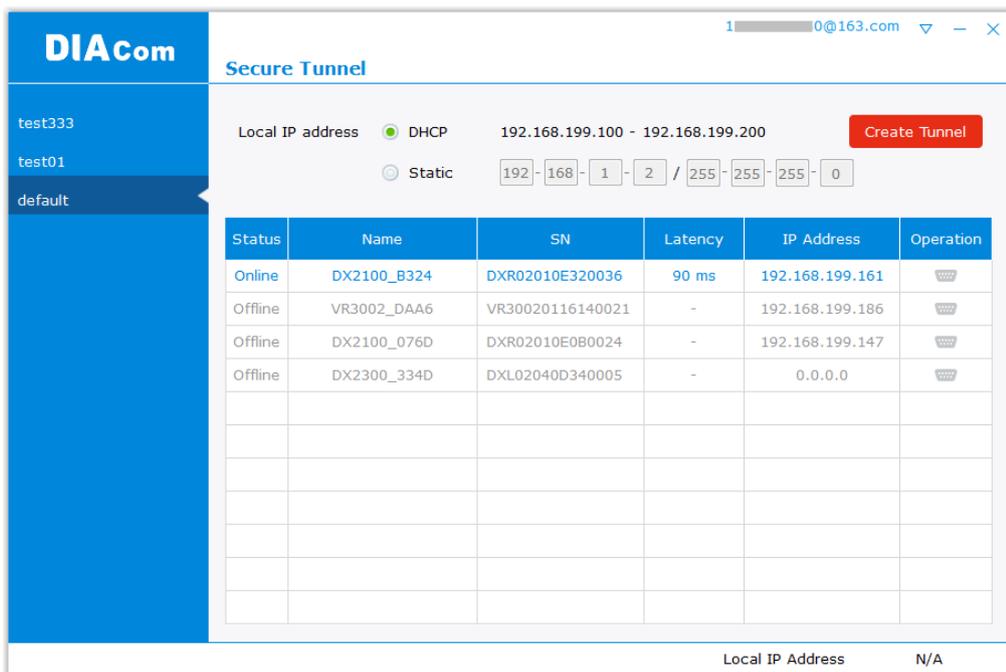
- **Http proxy:** Please fill in the proxy server address, port, username and password if the LAN needs to set the proxy to access the Internet. Click "Save" button to enable the config.
- **Diagnose:** The user can click the Diagnostic button to test the current internet settings, whether to connect to the DIACloud server



Notice

- DIACom will automatically determine whether the port agent needs to enable.
- Make sure that the external network port 80 and port 443 are opened and can access any network domains and IP addresses

3. After the login is successful, the software displays the security tunnel page. The security tunnel list is displayed on the left side of the page, and the network information of the security tunnel and the device list are displayed on the right. Users can choose to use DHCP or manually set the cloud IP address
 - **DHCP:** Obtain an IP address from Cloud automatically when Cloud DHCP function is available.
 - **Static:** Manually set the IP address, the IP should be in the same subnet with DX device



Notice

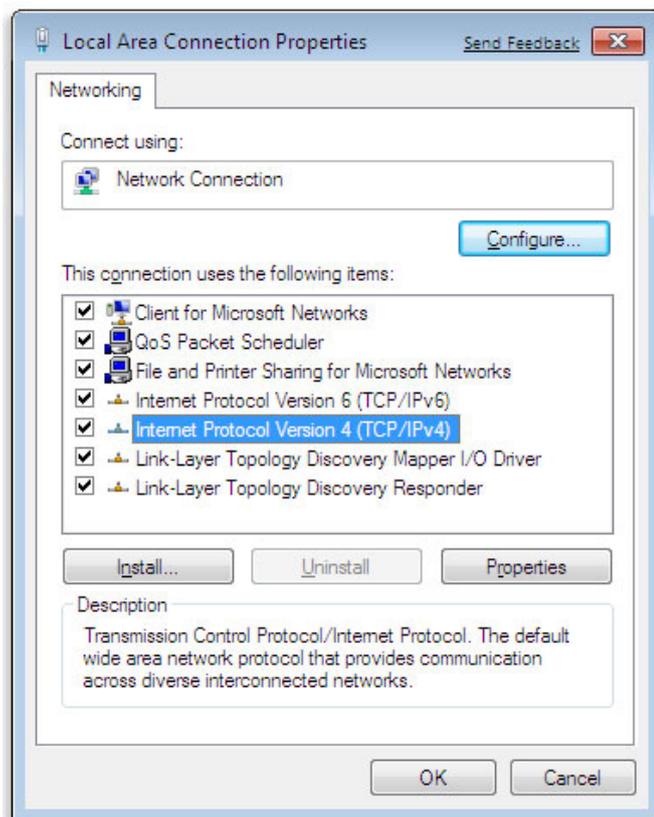
If it is found that the static IP address is configured from DIACom, the IP address of the local IP address in the bottom right corner will be different from the original setting. Please change according to the following settings.

1. Go to Network and Sharing Center and click on the DIACom Ethernet Adapter for your network connection.

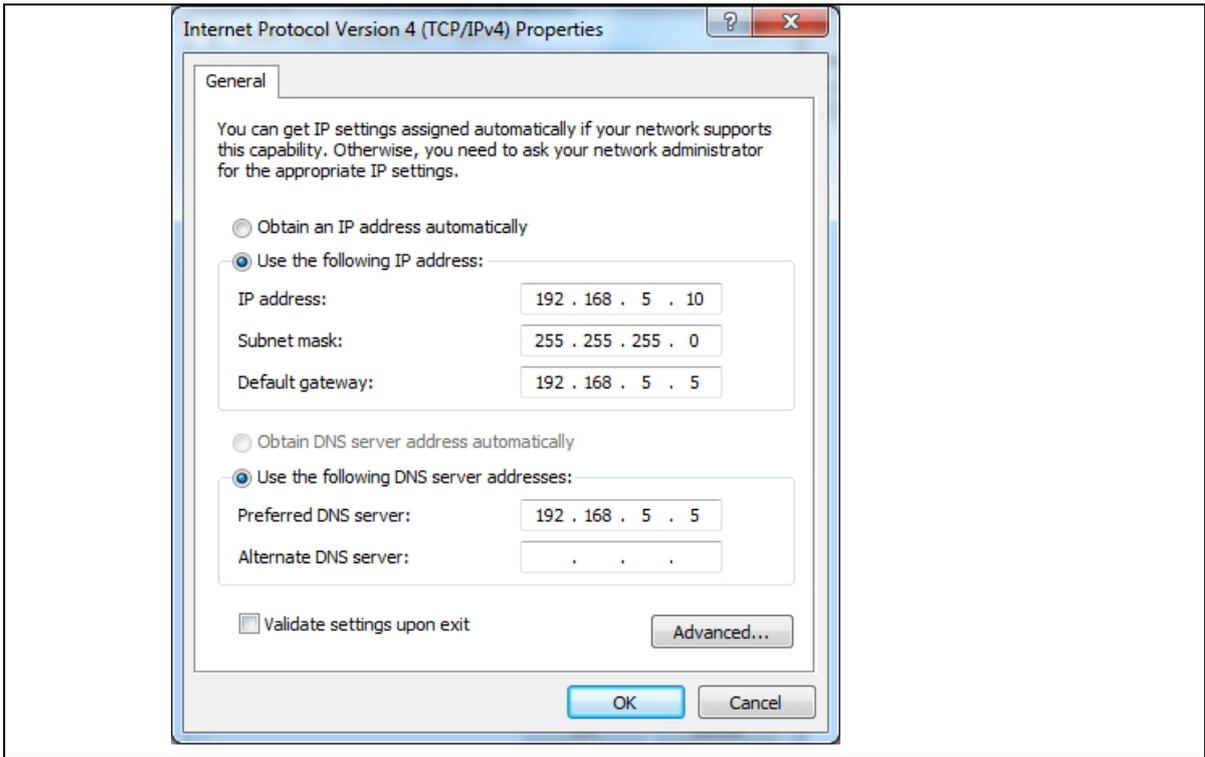


2. Right-click, then click Properties.
3. Click the Networking tab. Under This connection uses the following items, click either Internet Protocol Version 4 (TCP/IPv4) .

4

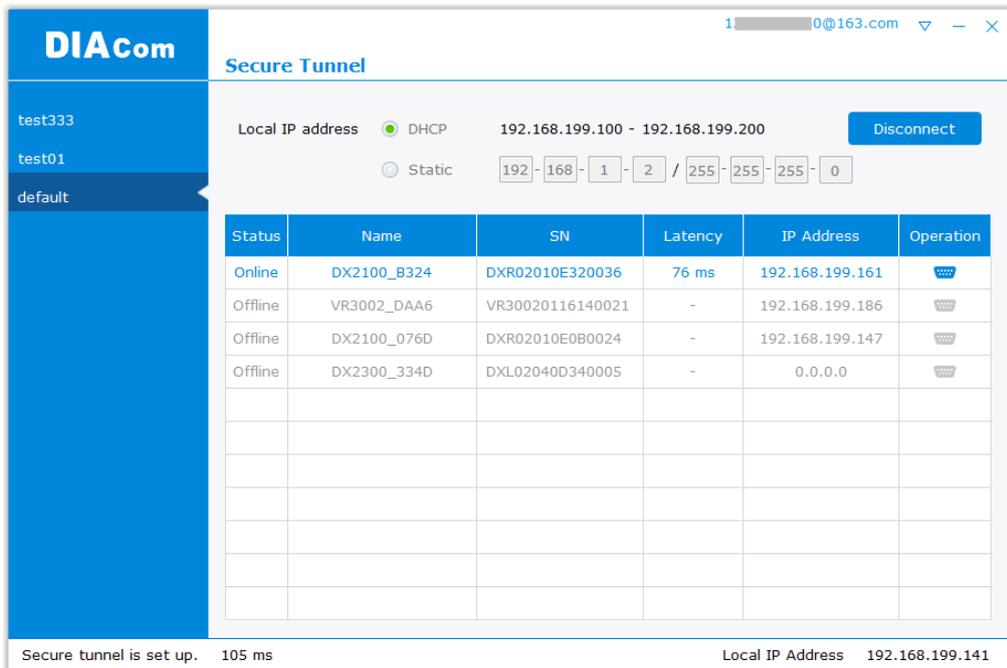


4. Set the IP address of the local computer manually. However, you'll need to make sure there are no IP conflicts.



4

4. After the configuration is complete, click the Create Tunnel button to establish a connection with the specified tunnel.
5. The following information is displayed: tunnel connection status, local delay to the DIACloud cloud server, and the IP address used by the local virtual network adapter. The details are as follows:



6. After successful connection with the cloud, the local computer will be able to use debugging tools or monitoring software to debug, monitor, and program the remote network interface

devices. In addition, you can remotely configure the router's router page (click the device in the device list Of the IP address) of the router for remote configuration.

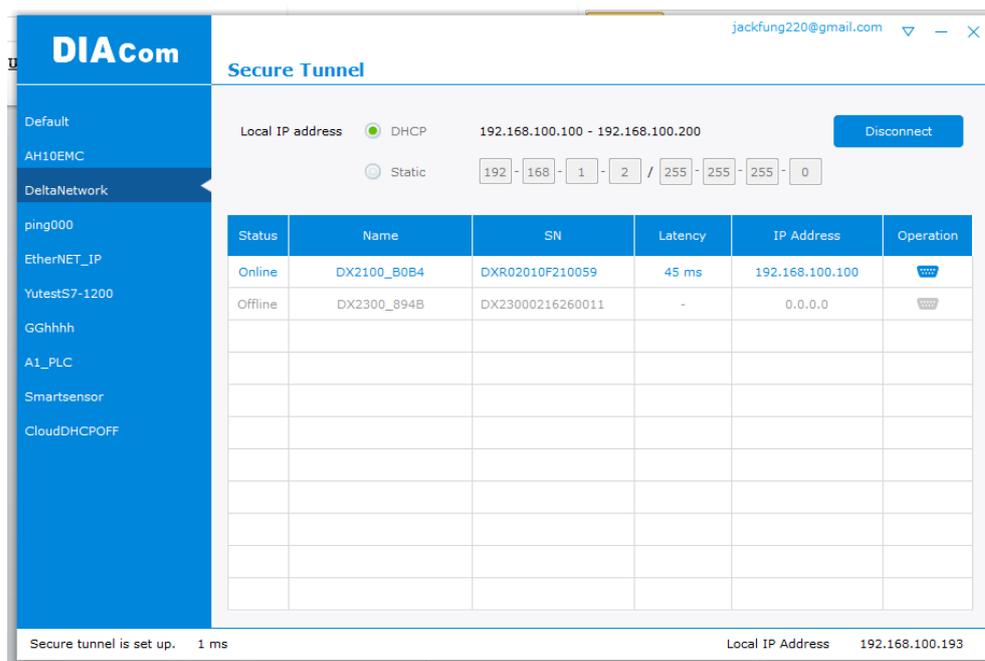
Notice



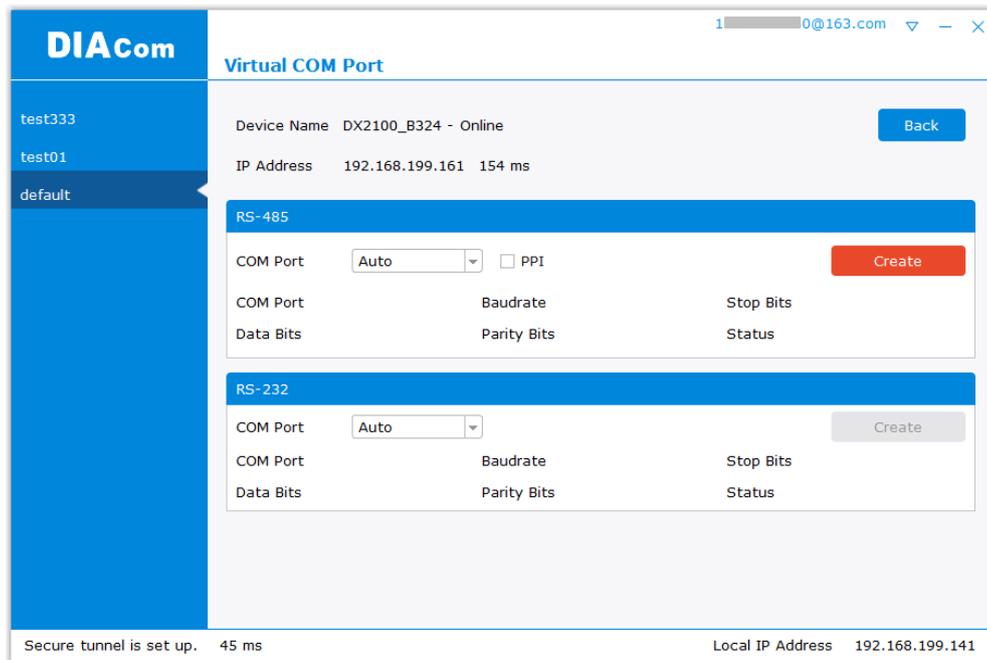
- You can create different groups of secure tunnels, divide different devices into groups according to their needs, and implement group management devices
- To avoid the virtual network card IP network segment and the local computer network card of the actual network to avoid the same network conflict
- After the secure tunnel is successfully connected, you must first disconnect the current connection to select another security tunnel,

4.2.2 Create a Virtual Serial-Port

To debug a remote serial device, click the icon  at the back of the corresponding remote device to enter the Create Virtual Serial Interface

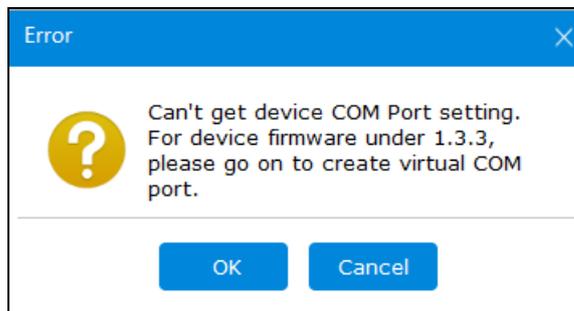


The latest device firmware (V1.3.3) supports RS-232 and RS-485 at the same time in the transparent mode, the interface as shown below:



Notice

- If the device's RS-232 / RS-485 is not operating in Transparent mode, the corresponding button is grayed out.
- DIACom will prompt an error message if the FW version of DX is under V1.3.3.



- When RS-232 or RS-485 works in Transparent mode, click on the [Create Serial Port] button on RS-485 to create a virtual serial port.

4.2.3 Remote Control and Monitoring via DIACom

4.2.3.1 Via a LAN Port

If your router is connected to remote devices via a LAN port, you can use the configuring/monitoring software on your local computer to configure and monitor after opening a virtual tunnel. Some program would require the IP addresses of your remote device. Simply input the required information in the configuring/monitoring software and then you can configure and monitor the connected device remotely.

4.2.3.2 Via a RS232/RS485 Port

After opening a virtual tunnel, you will need to follow the setups below before using WPLSoft or other configuring/monitoring software on your local computer to configure and monitor the connected device remotely.

1. Click IP address in the DIACom device list or open a browser and input the IP address of the router which is connected to your remote device on the search bar and then log in.
2. Go to the System setup page, select the setup option RS232 or RS485 and input the required information to set up. Make sure the parameters are consistent with your remote device.

- Working Mode : Transparent mode
- Parameters of COM (Baud Rate, Data Bits, Stop Bits, Parity Bits, Flow Control)

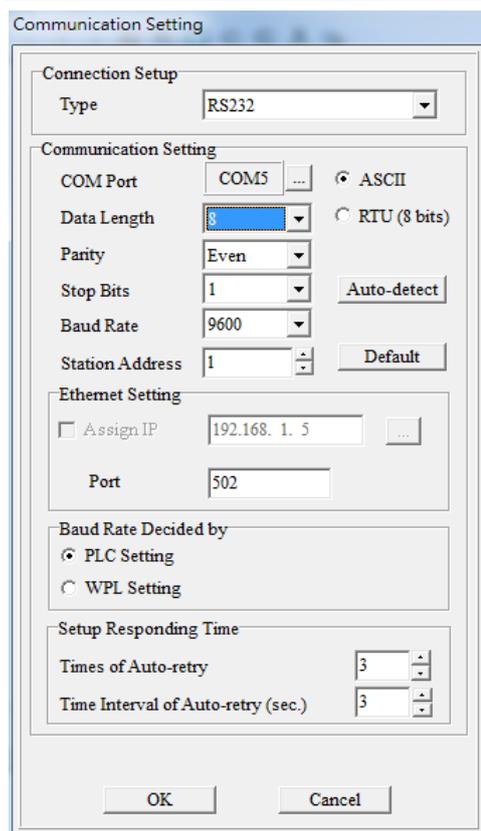
Working Mode	Transparent mode ▾
Baud Rate	9600 ▾
Data Bits	8 ▾
Stop Bits	1 ▾
Parity Bits	None ▾
Flow Control	None ▾

3. Go back to the DIACom and click  to create a virtual tunnel. Once the creation is done, the virtual serial-port number will show up on the same page. Users can use it to configure and monitor the connected device remotely. Click “Delete” to delete the virtual serial-port.

Notice

 If the PLC is Siemens S7-200, you can select the “PPI” in the DIACom to support PPI protocol.

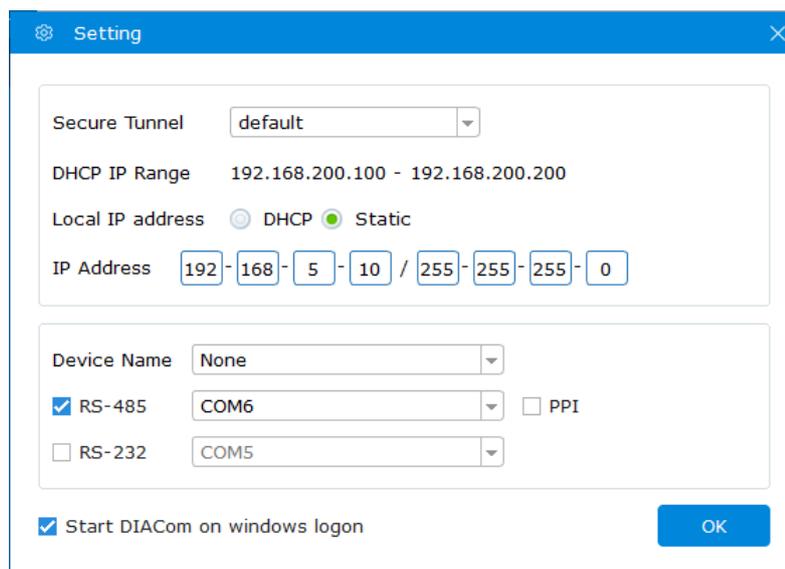
4. Open the WPLSoft to check if the COM parameters are consistent with the settings on your router. When these parameters are consistent, you can use the WPLSoft to configure/monitor your device remotely.



4.2.4 Automation Startup

The user can set Automation Startup for DIACOM, The setting steps see blow.

1. Login to DIACom.
2. Click on the icon button  in the upper right corner of the windows, and select "Settings".
3. Boot automatically log in the required configuration is as follows. Users can set according to your needs. If you only need DIACom to connect the security tunnel automatically, the device list, RS-485 and RS-232 do not need to be set.



4. Check " Start DIACom on windows logon ", and click "OK" button to save the settings.

Notice



- Login must be checked "remember password", otherwise DIACom can not be activated automatically
- Confirm that the IP / Serial Port settings do not cause conflicts

Chapter 5 DIACloud

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5.1 Introduction to DIACloud

DIACloud Web is a web portal of DIACloud cloud platform. Users can check the status of connected industrial device through DIACloud Web, browse data that has been collected, receive warnings, notices and other messages that are sent by cloud platform, create and manage sub-account and virtual safety network and check login and interface logging, to improve the manageability of devices, optimize the device performance and efficiency, save the operation cost and enhance the service quality.

5.1.1 Select a Suitable Firmware Version

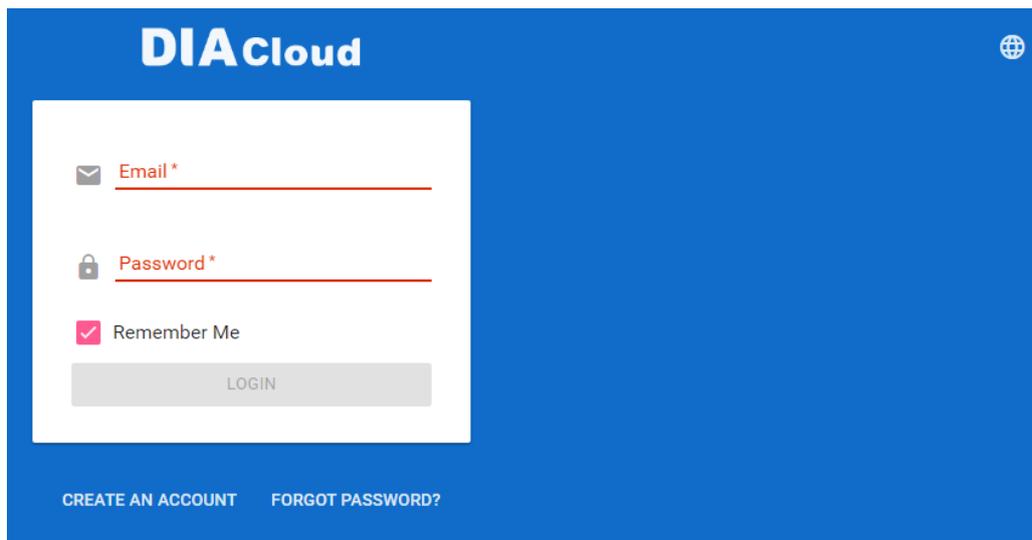
Please confirm that your Firmware version of router meets the requirements in the following table before use:

Device Model	Firmware Version
DX-2100	V1.3.0.1 or above
DX-2300	V1.0.0.1 or above

5.2 Instructions for DIACloud

5.2.1 Register and Login

1. Open the DIACloud web page (<http://www.DIACloudSolutions.com>). If you have got an account, input your account and password in the following page to log in; if you have not got an account, click "CREAT AN COUNT" to register. Then the system will redirect you to the registration page:

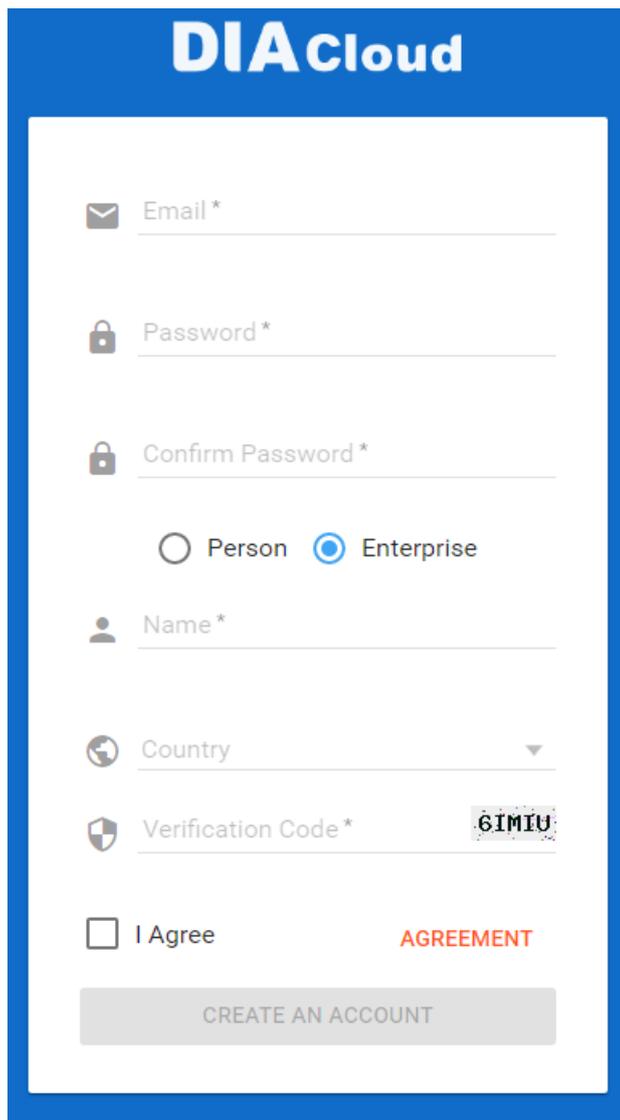


2. Input your email address, password and other relevant information on the registration page. Select "I Agree" and click "CREATE AN ACCOUNT". Pls insure your region information is correct, otherwise it maybe cause problem in payment when you extend your service.

Notice

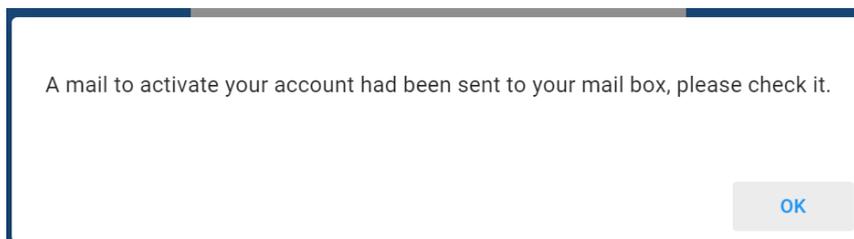


Click  at the upper right corner to change the interface language to English or Chinese.

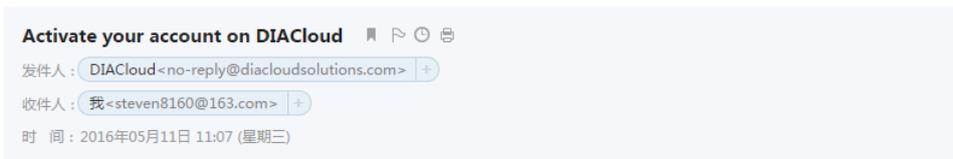


The screenshot shows the DIACloud account creation interface. It features a blue header with the 'DIACloud' logo. Below the header, there are several input fields: 'Email *', 'Password *', 'Confirm Password *', 'Name *', and 'Country'. There are also radio buttons for 'Person' and 'Enterprise', with 'Enterprise' selected. A 'Verification Code *' field is present with a sample code '61MIU'. At the bottom, there is a checkbox for 'I Agree' next to the word 'AGREEMENT' in red, and a grey 'CREATE AN ACCOUNT' button.

3. After clicking "CREATE AN ACCOUNT", a congratulation page will be prompted and an activation email will be sent to the email address you have used as your DIACloud account.



4. You will find an activation email sent from no-reply@DIACloudSolutions.com in your email box. Open the email, click "here" link in the email and complete DIACloud account activation operation. And you will be redirected to the DIACloud login page. Input your account and password to log in to the DIACloud.



Dear User,

Please complete your registration by following the link below:

<http://www.diacLOUDSOLUTIONS.COM/#/activate?n=steven8160%40163.com&t=fM1xduuNyNZSo4NNyVQCUx5ACGrO5II>

Please activate your account within 48 hours, otherwise you need to re-create your account.

If you did not register recently, or believe you have received this email in error. Please disregard this message.

请点击下面的链接完成注册：

<http://www.diacLOUDSOLUTIONS.COM/#/activate?n=steven8160%40163.com&t=fM1xduuNyNZSo4NNyVQCUx5ACGrO5II>

请在48小时内激活您的账号，否则您需要重新注册。

如果该账号不是您本人注册的，请忽略本邮件。

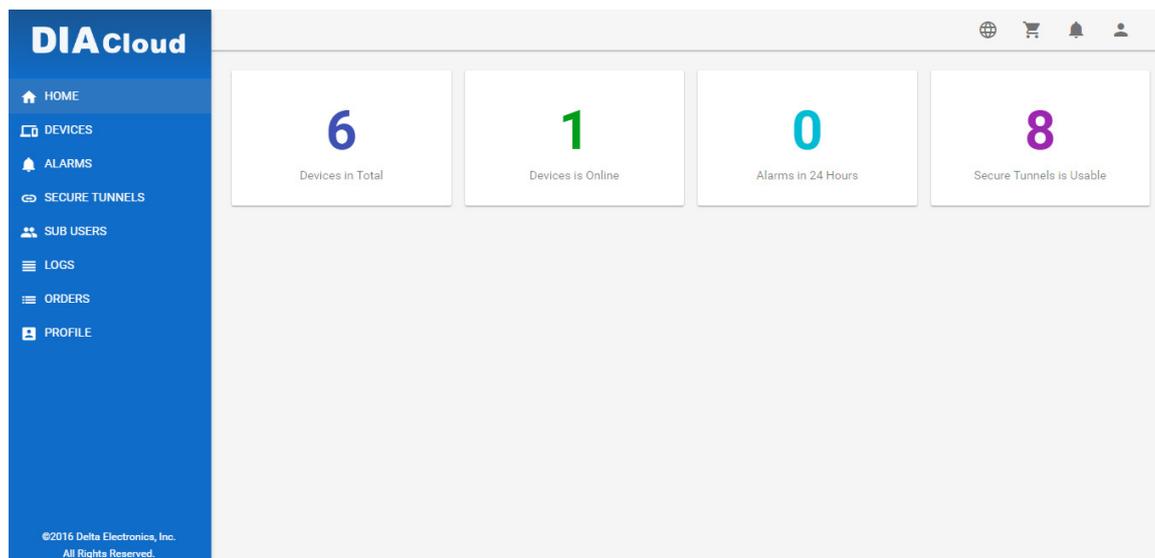
Thanks!

The DIACloud Team

5. Open the DIACloud web page (<http://www.DIACloudSolutions.com>). Log in using your account that you have registered.

5.2.2 Home

The Home Page will show up after login.



Item	Description
Menu	User can switch to corresponding function through menu on the left.
Devices Total	The number of total devices
Devices is Online	The number of total online devices
Alarms in 24 Hours	The number of alarms in Recently 24 hours
Secure Tunnel is Usable	It will show the number of Secure Tunnel groups under the account.
	Switching among the Chinese and English
	Show the service package you selected, user can add package to shopping cart through Devices function and Profile function.
	Show the alarm message(s) in latest 7 days
	Show the profile or logout

Online payment process as below:

1. After click , it will show the detail information in shopping cart.

Shopping Cart ↻					
#	Package Name	Unit Price	Number	Price	Operation
1	DX-Service-T1GB-WW (SN : DX21000216140002) Data traffic fee of 1-year package for 1G bytes extra traffics per month between device and DIACloud	\$ 0.01	4	\$ 0.04	
2	DX-Service-S1MB-WW Cloud Storage fee of 5-years package for 200MB storage space in one account	\$ 0.01	1	\$ 0.01	
Total 2 item(s) in Cart				Total Price	\$ 0.05 CHECKOUT

2. Click CHECKOUT to generate an order. DIACloud provides the follow types of invoices.
 - No need For Invoice
 - Electric Invoice
 - Paper Invoice

Confirm Order

Order Detail

DX-Service-T1GB-CN (SN : DXR02010F270086)	¥200	x1
---	------	----

Total Price: **¥ 200**

Invoice

No need for Invoice
 Electric Invoice
 Paper Invoice

Invoice Title(The name of your company) *

Email *

[BACK TO CART](#)
 [CONFIRM ORDER](#)

3. Click [CONFIRM ORDER](#), we accept PayPal payments and process credit cards on your order forms.

Payment Method

Total to pay now **\$ 0.05**

[PAY NOW](#)

5.2.3 Devices

It will switch to page of device list after clicking “Devices” in navigation bar.

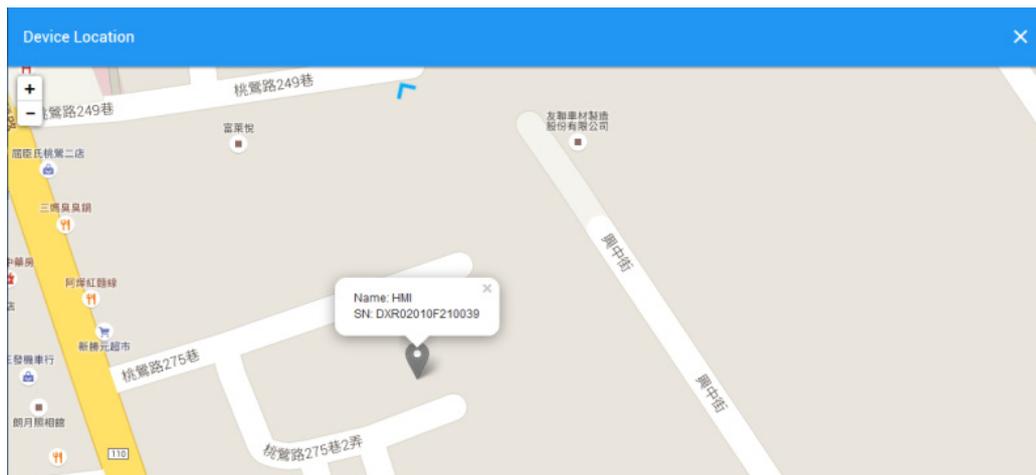
#	Status ↓	Device Name	SN	Device Type	Storage Usage	Data Usage	Created	Operation
1	online	DX2100_B0B4	DXR02010F210059	DX2100	0.00 MB	0.00 MB	2016-10-17 09:09	...
2	offline	DX2100_F0D3	DXR02010F270038	DX2100	0.00 MB	0.00 MB	2016-07-22 12:36	...
3	offline	DX2300_894D	DX23000216260012	DX2300	0.00 MB	0.00 MB	2016-07-28 22:31	...
4	offline	DX2300_89AB	DX23000216260059	DX2300	0.00 MB	0.00 MB	2016-09-08 13:34	...
5	offline	DX2300_894B	DX23000216260011	DX2300	0.00 MB	0.00 MB	2016-11-14 10:54	...
6	offline	sey1	DX23000216260048	DX2300	0.00 MB	0.01 MB	2016-11-18 15:16	...

Total 6 Device(s)

Item	Description
<input style="width: 80%;" type="text"/>	You can filter the device base on you input the key word of the device name.

 All	Filter base on tunnel group, show all devices or only show the devices under user specified tunnel group.
Devices List	Show the list of device. The information include device's name, device's SN, device's type, storage usage, data usage, the time of binding device. <ul style="list-style-type: none"> Green represents that the device is on-line Gray represents the device is off-line.
	<ul style="list-style-type: none"> : Represents that all device is displayed currently, and you can switch to on-line device list after clicking this icon. : Represents that on-line device is displayed currently, and you can switch to list of on-line device after clicking this icon.
	Show relevant position information of device.
	Refresh pages
...	Show detail information of the device

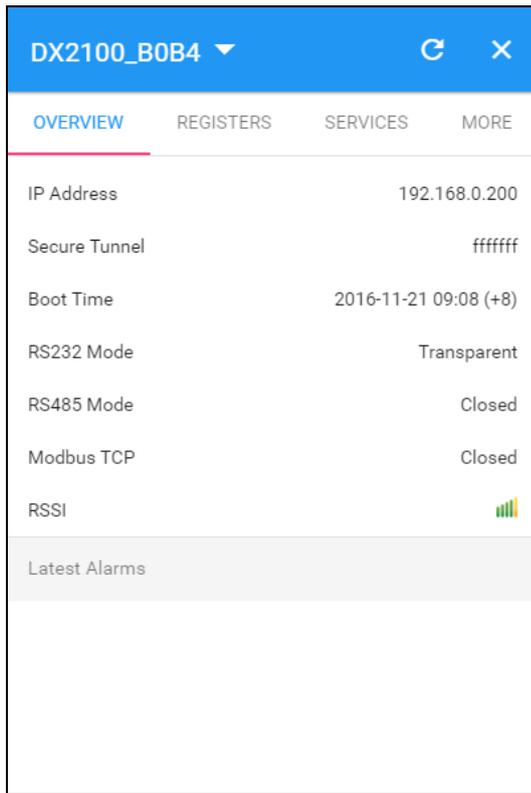
- : It will show relevant position information of device after you click “”, which is shown as follows:



It will show the device name and SN of the device after clicking position icon in the map. When there is large number of device of user, it will switch to corresponding device when user clicks blue arrows at the edge of the map.

- : More detail information about device will be shown after clicking  under the “Operation” at the most right side of device list:

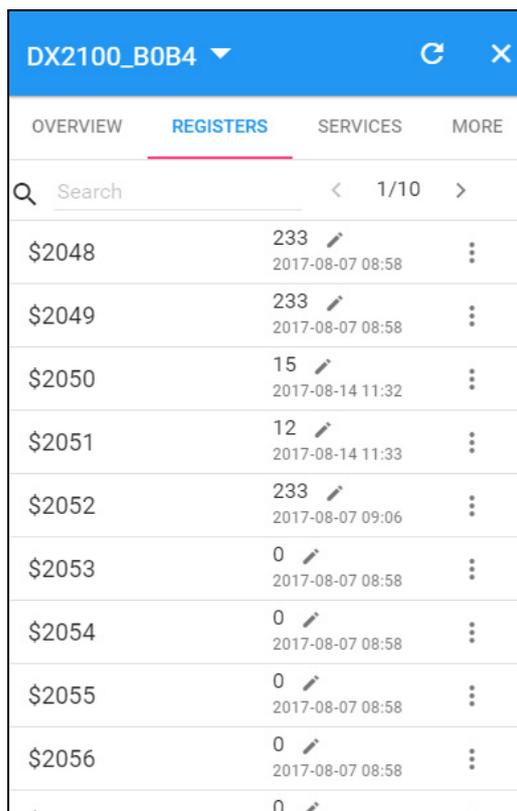
- OVERVIEW:** The page will show the basic information of the device and latest alarm message.



5

Item	Description
Operation zone of device	<p>It represents that device is on-line if background color is blue, and device is off-line if it is gray.</p> <ul style="list-style-type: none"> • DX2100_B0B4 ▼ : Show device names; it can switch device after clicking the drop down arrow. •  : Realize refresh of device data on operation page. •  : Close the operation page.
Page switching	<p>Operation is divided into 4 pages:</p> <ul style="list-style-type: none"> • Overview • Registers • Package • More <p>Different buttons are used to switch different pagers.</p>
Basic information zone	<p>Basic information is shown in Overview page.</p> <ul style="list-style-type: none"> • IP Address: it means the IP that has been bound for device; • Tunnel Network: it means virtual network that has been bound to device; • Boot Time: it means the boot time of device; • RS232 Mode: work modes of RS232, including transparent transmission mode and slave station mode; • RS485 Mode: work modes of RS 485, including transparent transmission mode, slave station mode and master station mode; • Modbus TCP: work modes of Modbus TCP, including Modbus TCP Server,

	<p>Modbus TCP Client and Closed</p> <ul style="list-style-type: none"> ● RSSI: it means signal strength of device which contains 5 bars; the larger the number of green bars is, the stronger the signal strength is;
Latest Alarms	<p>The latest five Alarm of the current device. “ <p>2. REGISTER: The page will show and manage register value that uploaded from DX production.</p> </p>

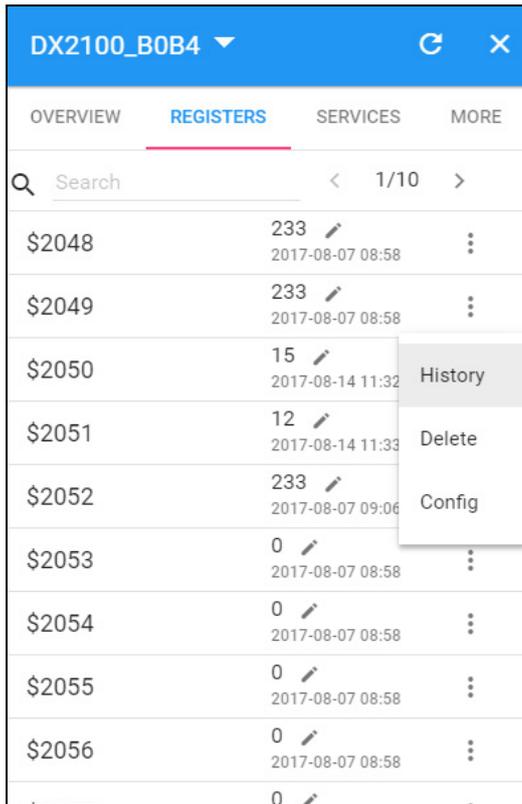


5

Item	Description
 Search	The filtering function displays a list of keywords that match specific register.
	Click  and add the corresponding register and register value, then click “SAVE” button. DIACloud server will send the corresponding data to the device.
< 1/205 >	“<” Pervious page · “>” Next page · “1/205” show the current page of register table and the total amount of register table page.
Register Table	Show the register table, registers show a maximum of 10 posts per page.
Register Name	Show the register name, when you do not make an alias configuration in the register, the register number is displayed; an alias configuration in the register will be displayed after you configure the alias

Register Value	Show the current register value and data transfer time.
⋮	You can view the current register of historical data or delete the current register; it can also be configured register. P.S. If this register is not set to remember history (device configuration page), the menu does not appear [History] after clicking ⋮ icon.

The History and Config options will be shown after clicking ⋮



5

Item	Description
History	It represents trend chart of historical data
Delete	User can delete the all data of this register
Config	User can customize name of register and content returned.

- **History** : The following figure will be shown after clicking “History”:



Item	Description
Date Start	Set the Date Start and query the historical data for a specific time
Date End	Set the Date End and query the historical data for a specific time
Register Value History Diagram	The latest trend chart of value of register;
Time Axis	User can change time scope of historical data by sliding “  ”.
	Export the data to XLS.file.

- **Config** : The following information will be shown after clicking “Config”

Register Configuration
✕

Register Address
2050

length
Word ▼

Alias Name *
\$2050

function(val) {
JavaScript Template
return val;
}

<

>

SAVE

Item	Description									
Length	<p>Length can be set to Word, DWord and Float.</p> <ul style="list-style-type: none"> DWord: DWord needs to use two DX internal registers. For example: \$2050 and \$2051 are set to DWord and it will combin to \$2050, \$2050 will be LOW Byte and \$2051 will be HIGH Byte. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">\$2050</td> <td style="width: 30%;">786447 </td> <td style="width: 40%; text-align: right;">2017-08-14 11:33 </td> </tr> <tr> <td colspan="3" style="border-top: 1px solid gray; height: 5px;"></td> </tr> <tr> <td>\$2052</td> <td>233 </td> <td style="text-align: right;">2017-08-07 09:06 </td> </tr> </table> </div> <ul style="list-style-type: none"> Float: Float needs to use two DX internal registers. For example: \$2050 and \$2051 are set to DWord and it will combin to \$2050, \$2050 will be LOW Byte and \$2051 will be HIGH Byte. 	\$2050	786447	2017-08-14 11:33				\$2052	233	2017-08-07 09:06
\$2050	786447	2017-08-14 11:33								
\$2052	233	2017-08-07 09:06								
Alias Name	The user can set the name of the register to be displayed in the "Alias Name"									
function(val)	function(val) is used for convert the register value, and the grammar of function-supported JavaScript is similar.									

There are two examples for “function (val)”.

- Example 1 :** If you want to show the wind speed as 10m/s. (Data +unit, such as: speed 10m/s).
Input the code: `return val+"m/s"` in function (val){...} as the following picture and save the configuration.

Register Configuration
✕

Register Address
2050

length
Word ▼

Alias Name*
wind speed

function(val) {
JavaScript Template
`return val+"m/s";`

}

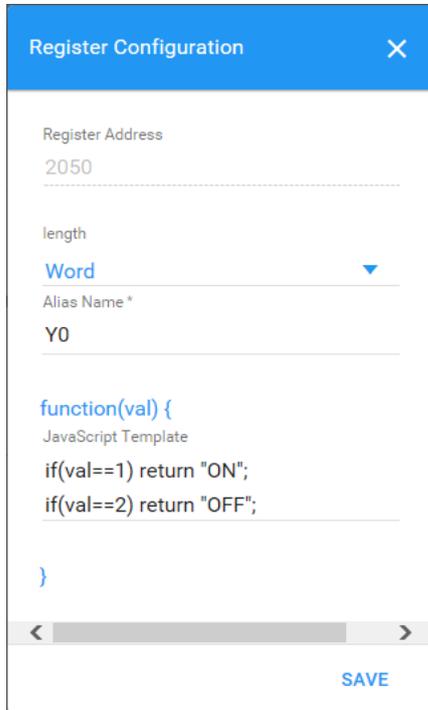
<

>

SAVE

- **Example 2:** If you want to convert the register value to the text such as the register value of 1 shows the text as 'NO'; register value of 2 shows the text as 'OFF'

Input the code in function (val) {...} as the following picture and Click "Save" button.



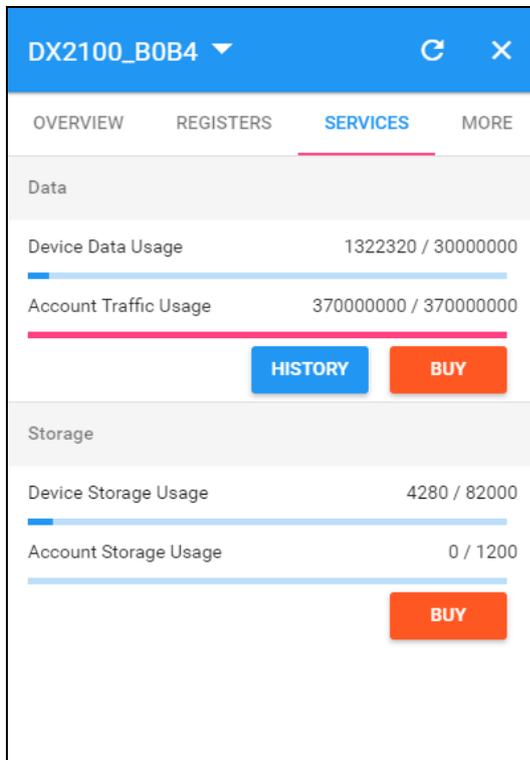
The screenshot shows a dialog box titled "Register Configuration" with a close button (X) in the top right corner. The dialog contains the following fields and code:

- Register Address:** 2050
- length:** Word (selected from a dropdown menu)
- Alias Name*:** Y0
- JavaScript Template:**

```
function(val) {  
  if(val==1) return "ON";  
  if(val==2) return "OFF";  
}
```

At the bottom of the dialog, there is a "SAVE" button and a horizontal scrollbar.

3. **SERVICES:** This page shows the Device Data Usage, Device Storage Usage and Account Storage Usage for users.



5

Item	Description
Data	<ul style="list-style-type: none"> • Device Data Usage: Show device traffic usage till now and total capacity. • Account Traffic Usage: <ol style="list-style-type: none"> 1. Account traffic is the total amount of traffic showing additional purchases. 2. Account traffic can be shared with all devices under your account. 3. Before the device traffic is exhausted cloud traffic, the account traffic will not be used. • BUY: User can purchase more traffic package for this account if need. After successful payment, the moment is ready for use. • HISTORY: Show the Data Usage History in past 12 months.
Storage	<ul style="list-style-type: none"> • Device Storage Usage: Show device storage usage till now and total capacity • Account Storage Usage: <ol style="list-style-type: none"> 1. Account storage is the total amount of traffic showing additional purchases. 2. Account storage can be shared with all devices under your account. 3. Before the device storage is exhausted storage space, the account storage will not be used.

- BUY : User can purchase more traffic package for this account if need. After successful payment, the moment is ready for use.

- After Click the BUY in Data field, it will show the traffic package select page. User can add a package to cart or pay it direct.

Add To Cart
×

DX-Service-T1GB-WW

Data traffic fee of 1-year package for 12G bytes extra traffics one year between device and DIACloud

Unit Price: \$ 0.01

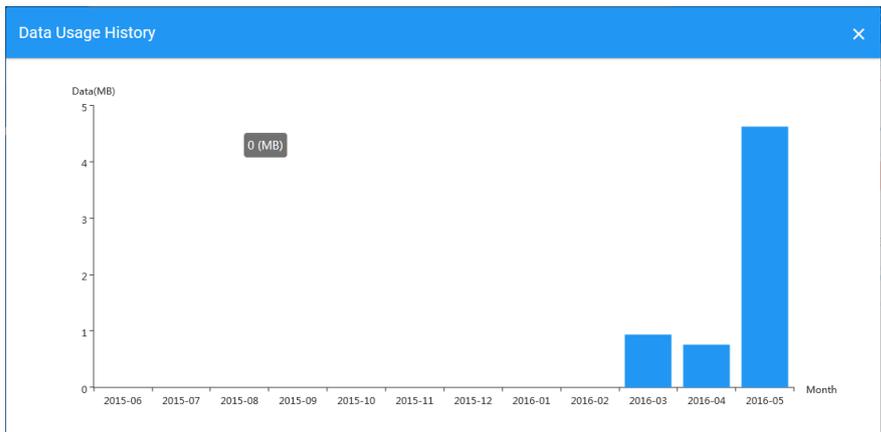
Expired: 2018-08-14

Package Name
DX-Service-T1GB-WW ▼

Number *
1

ADD TO CART
CHECKOUT

- After Click the HISTORY, it will show the Data Usage History in past 12 months.



- After Click the BUY in Storage field, it will show the storage package select page. User can add a package to cart or pay it direct.

Add To Cart
✕

DX-Service-S1MB-WW

Cloud Storage fee of 5-years package for 200MB storage space in one account

Unit Price: \$ 0.01

Expired: 2022-08-13

Package Name
DX-Service-S1MB-WW ▼

Number*
1

ADD TO CART
CHECKOUT

4. **MORE:** This page will show the Serial Number, Software Version, Hardware Version, and IMEI for users.

DX2100_B0B4 ▼
↻
✕

OVERVIEW
REGISTERS
SERVICES
MORE

Serial Number	DXR02010F210059
Software Version	DX2100WW-1.3.3.1-2016-11-14
Hardware Version	DX2100 v3
IMSI	466974400866952

DELETE

Item	Description
Serial Number	Serial number of device
Software Version	Version information of software
Hardware Version	Version information of hardware
IMSI	International Mobile Subscriber Identification Number.
DELETE	Delete binding relationship between device and the account. Device needs to be un-bund after clicking this button, and user can

	recover the device by rebinding.
--	----------------------------------

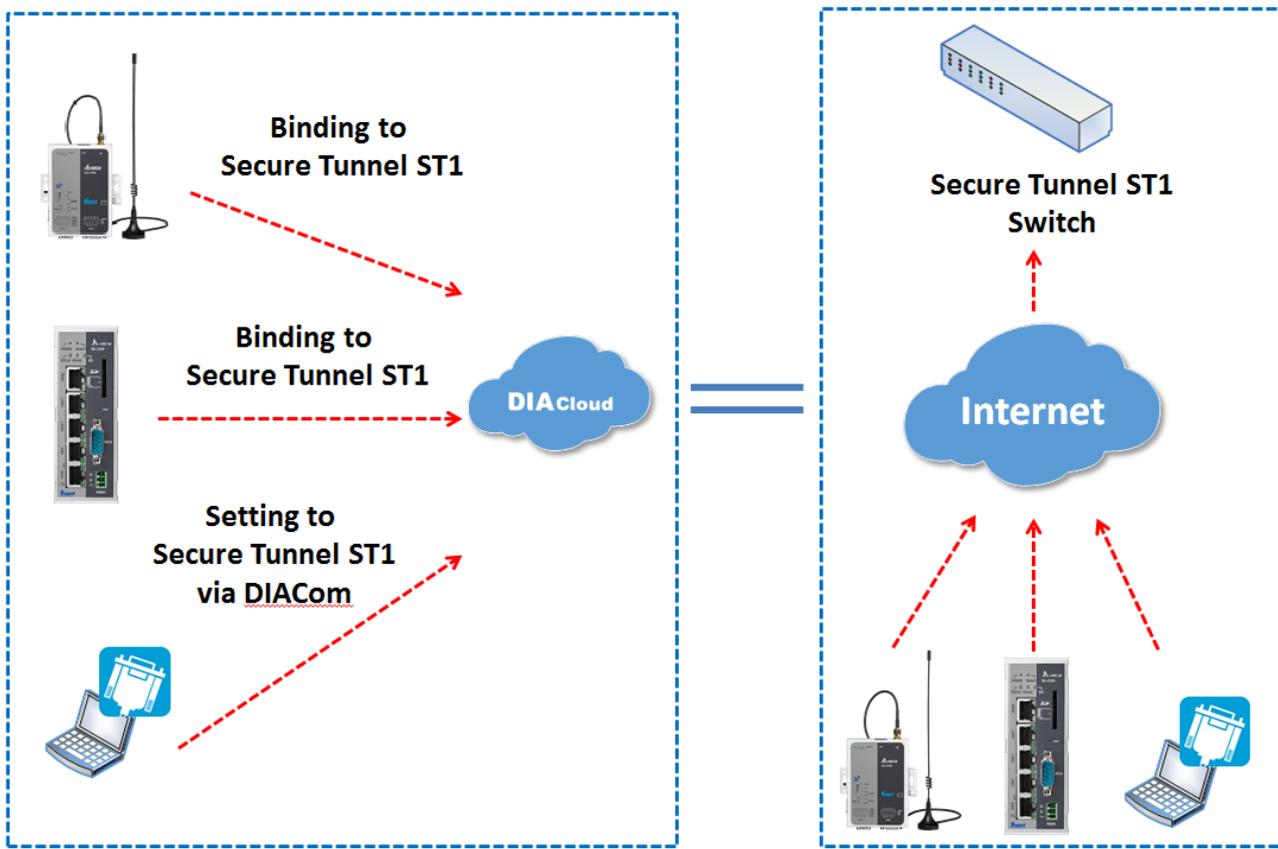
5.2.4 Alarm

Click the Alarm in the left menu. The warning information in the latest 7 days will be shown in this page. The warning information includes name and serial number of device, content of warning, status of email that is being sent (green“” represents that the email has been sent successfully, and red represents fail.), time of warning and content record of warning.

#	Device Name	Alarm Message	Status	Created
1	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /1418:18:28 MS300 has been stopped, please contact the relevant member!!!		2016-03-14 18:18:31
2	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /1418:16:25 MS300 has been stopped, please contact the relevant member!!!		2016-03-14 18:16:41
3	HMI DXR02010F210039	0 1 2016/03/14 18:15:42		2016-03-14 18:16:15
4	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /0913:28:10 MS300 has been stopped, please contact the relevant member!!!		2016-03-09 13:28:12
5	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /0913:27:57 MS300 has been stopped, please contact the relevant member!!!		2016-03-09 13:28:01
6	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /0913:26:46 MS300 has been stopped, please contact the relevant member!!!		2016-03-09 13:26:50
7	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /0913:24:22 MS300 has been stopped, please contact the relevant member!!!		2016-03-09 13:24:32
8	HMI DXR02010F210039	0 1 2016/03/09 13:20:16		2016-03-09 13:20:47
9	VFDControl DXR02010F210059	!!!!!!!!WARNING!!!!!!!!!!!! VFD Status : Emergency Stopped Time : 2016/03 /0913:01:37 MS300 has been stopped, please contact the relevant member!!!		2016-03-08 19:01:42

5.2.5 Secure Tunnels

Secure Tunnel is an important concept in DIACloud. Its objective is to realize virtual Switch across Internet; when device is bound to this network, it will be equivalent to adding device with one LAN port; when PC operates DIACom and creates a virtual network, PC and the device will be under the same switch at this time. It is shown as follows



5

Users can manage the tunnel network in this page. Interface is shown as follows:

#	Network Name ↑	DHCP	DHCP IP Range	Status	Operation
1	DeltaNetwork	Enable	192.168.200.100 192.168.200.200	Normal	...
2	HM2016	Enable	192.168.199.100 192.168.199.200	Normal	...

Total 2 tunnel network(s)

tem	Description
🔍 Search	Search the existed tunnel network
Tunnel network List	List all tunnel network under this account
+	Add a new tunnel network
🔄	Refresh the tunnel network list
...	Edit the tunnel network

Item	Description
Tunnel Network Information	The detail information of tunnel network: <ul style="list-style-type: none"> • Network Name: User can enter a name of tunnel network. • DHCP Option: Automatic IP Address Assignment by DIACloud. • DHCP IP Start: it represents the beginning IP in automatic IP distribution address pool of DIACloud • DHCP IP End: it represents the ending IP in automatic IP distribution address pool of DIACloud.
	If the DHCP of this tunnel network is enabled, click  will export configurations include DIACloud Servier /account /Tunnel networks info to a file (default file name Provision_vlnname_date_time.bin). Note: Detail configuration, please refer to 3.2 SD Card Quick Installation .
	Delete the current tunnel network
	Close the current operation window.
	Save the configuration of tunnel network

5.2.6 Sub Users

All accounts that are registered through register page of DIACloud (<http://www.DIACloudSolutionscom/#/signup>) are main accounts. Every main account can create sub-account, and users can realize power separation and grouping management of device by conducting authorization for virtual network and DIACom by sub-account. Use can conduct addition and operation for sub-account through the “Sub Users” page.

#	Account ↑	Login to EthDirect	Status	Created	Operation
1	3208467055@qq.com	Disabled	Activated	2016-02-24 20:02:29	...
2	444386414@qq.com	Enabled	Activated	2015-10-27 22:04:34	...
3	shinewaker@sina.cn	Enabled	Activated	2016-02-25 17:06:26	...
4	test_iot@126.com	Enabled	Activated	2016-02-29 17:35:54	...
Total 4 user(s)					

Item	Description
Search	Search the sub users.
Sub Users List	Show the list of all sub users in main account.
+	Add a sub user.
	Refresh the list of sub users.
...	Modify the access control of the tunnel network.

- ... : User can modify the access control of the tunnel network.

Account*
✖

Edit register

Login to DIACom

Secure Tunnels

Project1

Test_Hangzhou

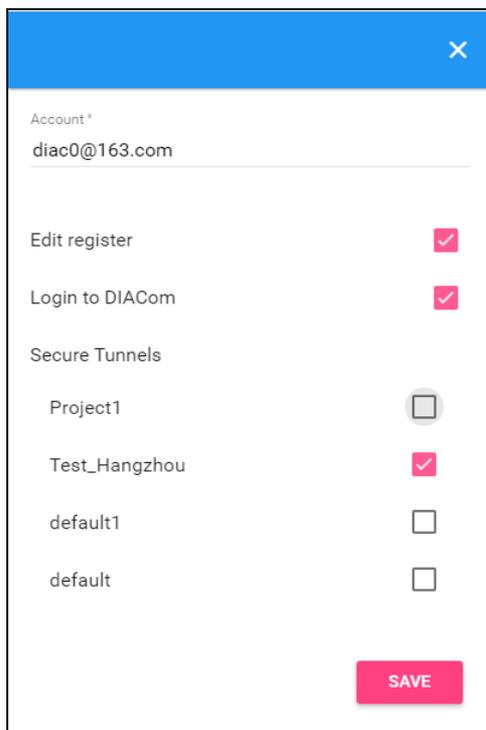
default1

default

Item	Description
Sub Users Information	<ul style="list-style-type: none"> • Edit register: Allow the Sub User to modify register

	<ul style="list-style-type: none"> • Login to DIACom: Allow the sub user to access the DIACom if the option is enabled. • Tunnel Network: Allow the sub user to access the Tunnel Network if the option of Tunnel Network is checked.
	Delete a sub user.
	Close the current operation window.

-  : User can add sub users after clicking the “+” in the page, and. The following interface will be shown after clicking the “+” in the page:



1. Fill in corresponding account information and conduct authorization for it.
2. The system will send an activation email which is attached with random login password to email box of sub user. The account status is “Un-activated” now.
3. Goto the mailbox, click the hyperlink to complete account activation operation, then sub user can login DIACloud with new account.
4. The page will link to the following page after clicking the activation link in the email:

Activate your account on DIACloud Inbox x



DIACloud <no-reply@diacLOUDSOLUTIONS.COM>
to me ▾

3:40 PM (0 minutes ago) ☆ ↶ ▾

Dear User,

Please complete your registration by following the link below:

<http://www.diacLOUDSOLUTIONS.COM/#/activate?n=ww7843673%40gmail.com&t=I8SmPDnpyl24XV6llncjZJ5hbGSSUAE>

Please activate your account within 48 hours, otherwise you need to re-create your account.

If you did not register recently, or believe you have received this email in error. Please disregard this message.

请点击下面的链接完成注册：

<http://www.diacLOUDSOLUTIONS.COM/#/activate?n=ww7843673%40gmail.com&t=I8SmPDnpyl24XV6llncjZJ5hbGSSUAE>

请在48小时内激活您的账号，否则您需要重新注册。

如果该账号不是您本人注册的，请忽略本邮件。

Thanks!

The DIACLOUD Team

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- When user login to DIACLOUD with main account and the sub user that we created has been activated.

5.2.7 Logs

This page will show the web operation information of some users. It includes: login IP, setup of register, API interface call of DIACLOUD and other information.



#	User Name	Log Content	Created
1	13616061750@163.com	push reg , cmd = 21300,1,2049,556	2016-04-01 11:12:41
2	13616061750@163.com	Login from 211.97.130.218	2016-04-01 11:11:36
3	13616061750@163.com	Login from 218.66.157.46	2016-04-01 10:45:41
4	13616061750@163.com	Login from 211.97.130.218	2016-04-01 10:43:23
5	13616061750@163.com	Edit tunnel network, id= 1247, name = test02, dhcp = 1	2016-04-01 10:38:20
6	13616061750@163.com	Logout	2016-04-01 10:37:55
7	13616061750@163.com	Login from 218.66.157.46	2016-04-01 10:37:54
8	13616061750@163.com	Login failed. username=13616061750@163.com from ip=218.66.157.46	2016-04-01 10:37:48
9	13616061750@163.com	Login failed. username=13616061750@163.com from ip=218.66.157.46	2016-04-01 10:37:41
10	13616061750@163.com	Login failed. username=13616061750@163.com from ip=218.66.157.46	2016-04-01 10:37:35

10 ▾ 1 - 10 / 1134 |< > >|

5.2.8 Orders

In this page, user can check his all orders. Continue to pay for the unpaid orders or cancel the unpaid orders.

#	Order NO.	Amount	Created	Status	Operation
1	120160506042313747581	\$ 100	2016-05-06 16:23:13	Wait for Payment Order Detail	PAY Cancel
2	120160506042243779488	\$ 99.99	2016-05-06 16:22:43	Wait for Payment Order Detail	PAY Cancel
3	120160506110245733298	\$ 99.99	2016-05-06 11:02:45	Wait for Payment Order Detail	PAY Cancel
4	120160505060220111921	\$ 0.01	2016-05-05 18:02:20	Finished Order Detail	
5	120160505052319041416	\$ 0.01	2016-05-05 17:23:19	Finished Order Detail	
6	120160505052149784903	\$ 0.01	2016-05-05 17:21:49	Finished Order Detail	
7	120160505052038875275	\$ 0.01	2016-05-05 17:20:39	Finished Order Detail	
8	120160505051413353285	\$ 0.01	2016-05-05 17:14:13	Finished Order Detail	
9	120160505051019658664	\$ 0.01	2016-05-05 17:10:20	Wait for Payment Order Detail	PAY Cancel
10	120160505050752270363	\$ 0.01	2016-05-05 17:07:52	Wait for Payment Order Detail	PAY Cancel

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Item	Description
Order Detail	View the order detail information
PAY	Pay for the unpaid order
Cancel	Cancel the order, order will remove from the list.

- Order detail

Order Detail			
#	Package Name	Unit Price	Number
1	DX-Service-S1MB-WW Cloud Storage fee of 5-years package for 200MB storage space in one account	\$ 0.01	x1
			Total Price \$ 0.01

- Payment Method: Currently, we only support PayPal payment for the world wide user.

Payment Method

Total to pay now **\$ 99.99**



[PAY NOW](#)

5.2.9 Profile

In this page, QR Code of user, Package info, password management and other information will be shown.

Profile



Account [REDACTED]@126.com

Login to DIACom Enabled

Country United States

PACKAGE INFO
CHANGE PASSWORD

Account Storage Usage 0.00 MB / 0.00 MB

[BUY](#)

Account Traffic Usage 370.00 MB / 370.00 MB

[BUY](#)

Item	Description
QR Code	You can get the part information of user by using DIACloud APP and scanning QR Code.
Account	The current account information.
Package info	<ul style="list-style-type: none"> Show account traffic/storage usage till now BUY User can purchase more traffic/storage package for this account if need <p> Account traffic/storage will share to all devices under this account.</p>
Change Password	<p>Change the password of DIACloud user account.</p> <p>Note: parts of old users use password in 6 digits; the new password has been increased to 8 digits to improve safety of their accounts.</p>

Change Password page as below

Profile



Account ██████████@126.com
Login to DIACom Enabled
Country United States

[PACKAGE INFO](#) [CHANGE PASSWORD](#)

Account Storage Usage 0.00 MB / 0.00 MB [BUY](#)

Account Traffic Usage 370.00 MB / 370.00 MB [BUY](#)

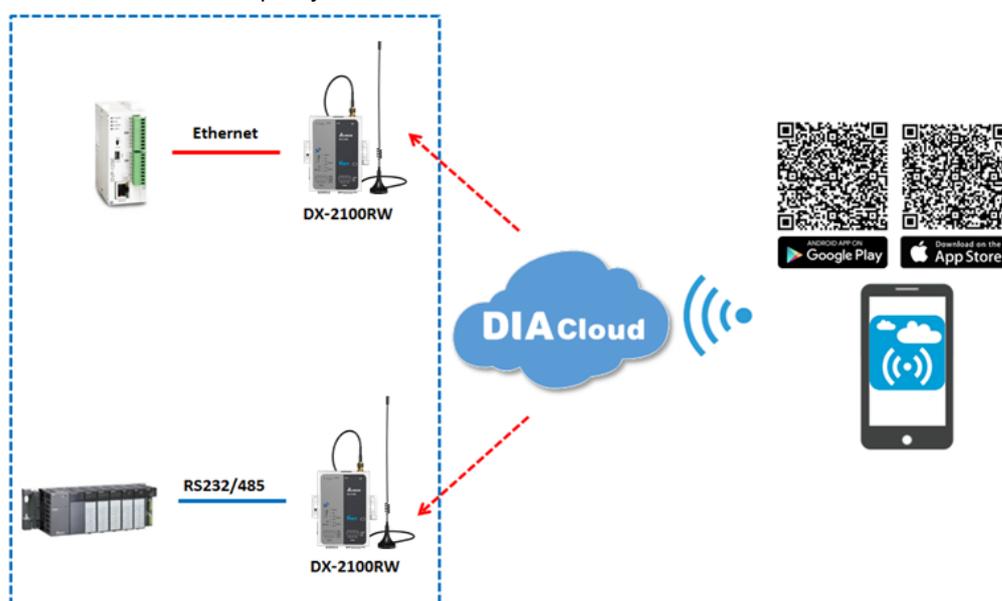
Chapter 6 DIACloud APP

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6.1 Introduction to DIACloud APP

DIACloud APP is the client software of DIACloud cloud platform running on mobile devices. The APP supports both iOS and Android mobile system, it enables users to view the field data collected, the locations of the field devices, and the alarms/notifications pushed by the industrial IOT cloud platform, so that keep users posted anytime and anywhere, and therefore improve the manageability of devices, optimize the device performance and efficiency, save the operation cost and enhance the service quality.



6.1.1 Select a Suitable Firmware Version

The APP can support the devices below:

Device Model	Firmware Version
DX-2100	V1.3.0.1 or above
DX-2300	V1.0.0.1 or above

6.1.2 DIACloud APP Installation

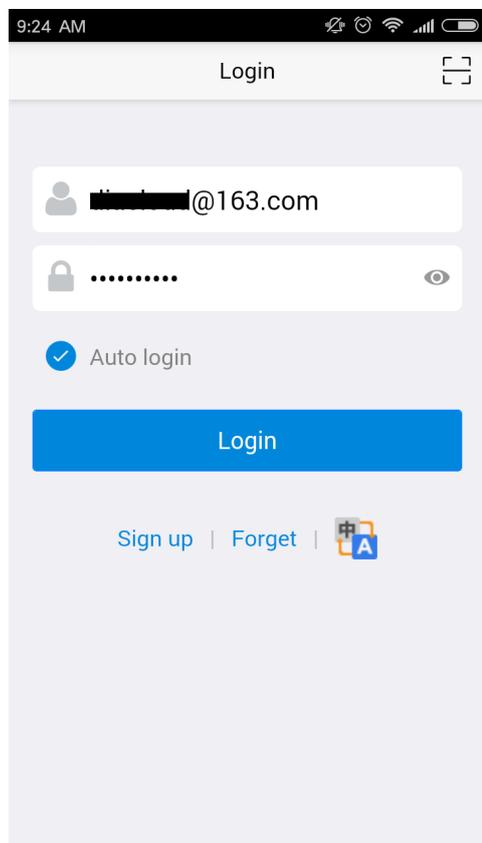
The DIACloud APP is available on Google Play and Apple APP Store.

Mobile Device	OS Version
Android	4.4.0 or above
iPhone	6.2.0 or above

6.2 DIACloud APP Function

6.2.1 DIACloud APP Login

Enter the DIACloud account and password, then click the “Sign in” button to login the APP. Click the “Sign up” to register an account if you don’t have one.

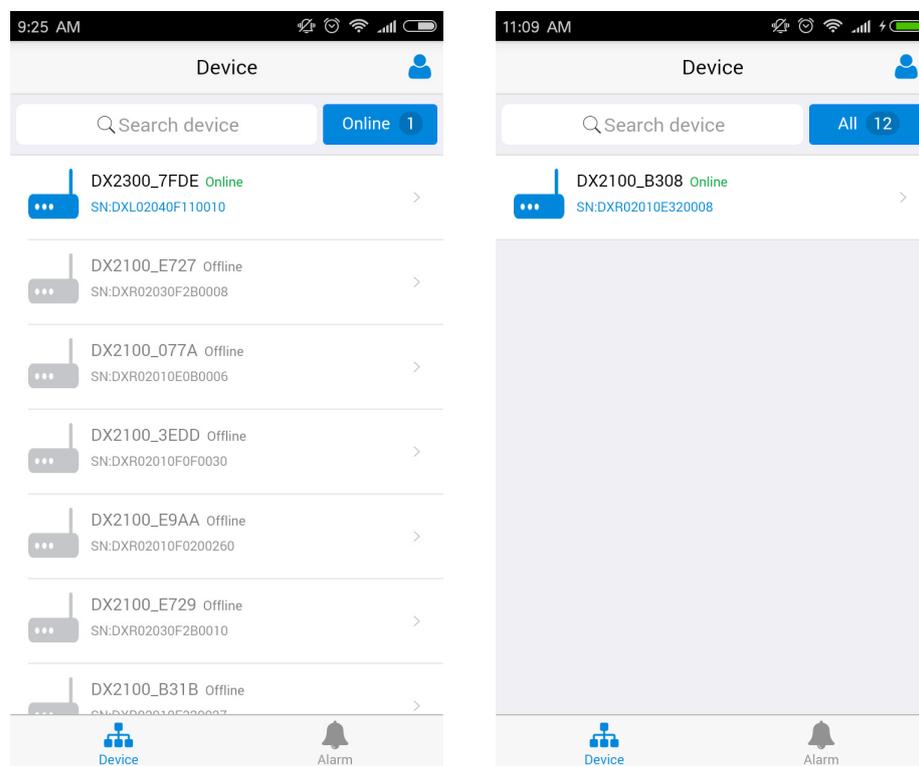


6

Item	Description
	Scan QR code, the QR code is generated by DIACloud Web portal, which carries the user name and password information. By scanning the QR code, user won't need to input user name. By default, the APP will connect the default DIACloud server in the cloud, if the APP is to connect other servers, QR code should be scanned to provision the APP.
	DIACloud account, Email format
	The password of DIACloud account, click  to see what are you input
Auto Login	Save the password and login the APP automatically
Login	Login to App
Sign up	Create a new DIACloud account
Forget	Reset the password if you forget it.
	Switch the language.

6.2.2 Device List

Device list will be shown after user login the APP.

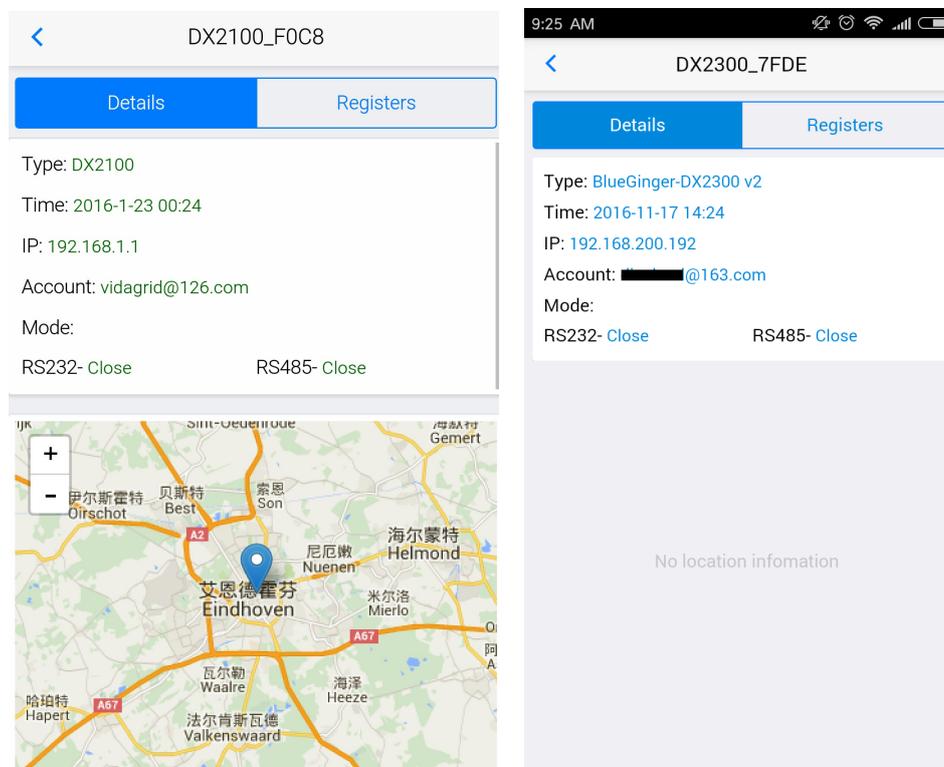


Device tab and alarm tab will be shown in the APP. In the device tab, the device information will be shown, include the value of registers of the remote device. And the value of the register can be changed in the APP as well. In the alarm tab, users can read the alarm messages.

Item	Description
	Logoff or exit App
Search	Search device base on key word
All/Online	<ul style="list-style-type: none"> Click "ALL" to show all device Click "Online" only show online device. Digit at the back is the all/online device count.
Device list	Display device online/offline status, device name, device serial number. Click it will go into device detail page
	Switch to device list page
	Switch to alarm list page.

6.2.3 Device Details

Device details will be shown by selecting a device in the device list.



Item	Description
Type	Type of the device
Time	The time when the device is online.
IP	IP Address of the device
Account	DIACloud account activating the device.
Mode	The working mode of RS485 and RS232.- <ul style="list-style-type: none"> RS232: Transparent transmission mode or Slave mode RS485: Transparent transmission mode / Slave mode / Master mode
Map	Showing the location of the device on the map P.S. DX-2300 Series doesn't support this function.

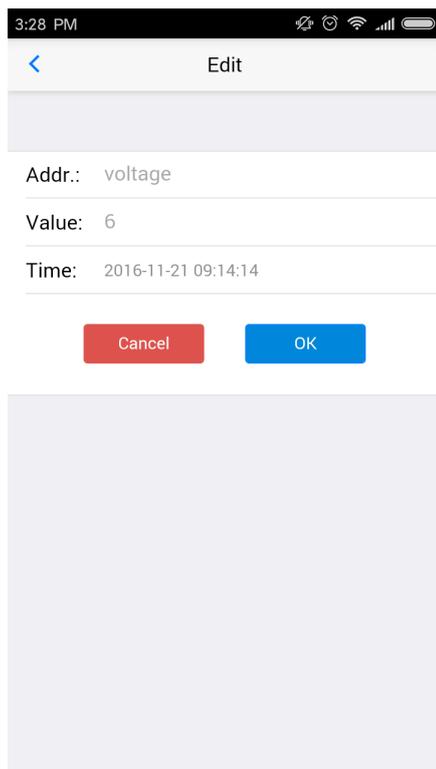
6.2.4 Registers View

Click [Register] on the device details page to switch to the register page

In the register page, the user can browse the collected data. The register data can be refreshed by the pull-down screen. When the number of registers is large, you can pull up the screen to display more data.

Addr.	Value	
电压	6	
2049	0	
2050	6	
2051	0	
2052	0	
2053	0	
2054	1446	
2055	0	
2056	0	

Item	Description
	Refresh the register data.
	Edit the register value.



Click “ok” button, the register value will be pushed to the device.

6.2.5 Alarm List

Alarm criteria can be set on the device configuration web page. When the alarm criteria are met, the device will send out alarm messages. User can click the “Alarm” tab to read the alarm messages. When there are new alarm messages, the number of the unread messages will be shown on the icon .

- Alarm tab will be shown by clicking icon , the alarm messages in Red are unread messages. Digit in parentheses is the number of alarm messages.
- Pull down the APP to refresh the alarm list.

