

## Unitronics UCR routers

### Firewall

In order to allow Unilogic software to download to and monitor the Unistream PLC it is necessary to add some port redirection for ports 22, 3335 & 8001. Port number 5900 should also be added if a remote VNC connection is required. **These redirects are NOT required if a VPN connection has been made to the router (see later).**

Connect to the router web GUI via a browser, the default IP address is 192.168.1.1, user: Admin, password: Admin.

You will be instructed to change the router password, once this is complete select Network > Firewall from the main menu then > Port Forwarding. Add and enable the following four rules and SAVE the changes.

The target PLC IP address is 192.168.1.99

The screenshot shows the Unitronics UCR router web GUI. The top navigation bar includes 'UNITRONICS', 'Status', 'Network', 'Services', 'System', and 'Logout'. The 'Port Forwarding' tab is selected. Below the navigation bar, there are tabs for 'General Settings', 'Port Forwarding', 'Traffic Rules', 'Custom Rules', 'DDOS Prevention', 'Port Scan Prevention', and 'Helpers'. The main content area is titled 'Firewall - Port Forwarding' and contains a sub-header 'Port Forwarding Rules'. Below this is a table with the following columns: Name, Protocol, Source, Via, Destination, Enable, and Sort. The table lists five rules:

Name	Protocol	Source	Via	Destination	Enable	Sort
Enable_SSH_WAN_PASSTHROUGH	TCP	From any host in wan	To any router IP at port 22	Forward to IP 192.168.1.99, port 22 in lan	<input checked="" type="checkbox"/>	Sort, Edit, Delete
VNC	TCP	From any host in wan	To any router IP at port 5900	Forward to IP 192.168.1.99, port 5900 in lan	<input checked="" type="checkbox"/>	Sort, Edit, Delete
Online	TCP, UDP	From any host in wan	To any router IP at port 3335	Forward to IP 192.168.1.99, port 3335 in lan	<input checked="" type="checkbox"/>	Sort, Edit, Delete
Uni API	TCP, UDP	From any host in wan	To any router IP at port 8001	Forward to IP 192.168.1.99, port 8001 in lan	<input checked="" type="checkbox"/>	Sort, Edit, Delete
Enable_HTTP_WAN_PASSTHROUGH	TCP	From any host in wan	To any router IP at port 80	Forward to IP 127.0.0.1, port 80 in lan	<input type="checkbox"/>	Sort, Edit, Delete

You can now communicate with the PLC via the router, if your computer is on the same local area network then use the router LAN address, however if you require a remote connection via the Internet then use the router WAN address which should be a static public address.

The LAN and WAN address of the router can be found from Status > Overview

**UNITRONICS** Status Network Services System Logout

FW ver.: UCR\_R\_17.01.11.2

### Overview

<b>System</b> ⓘ ⓘ	11.3% CPU load
Router uptime	0d 0h 46m 37s (since 2020-07-16, 13:51:24)
Local device time	2020-07-16, 14:38:01
Memory usage	RAM: 86% used    FLASH: 10% used
Firmware version	UCR_R_17.01.11.2

<b>Mobile</b> ⓘ ⓘ	0 dBm
Data connection	Disconnected
State	Unregistered
SIM card status	SIM (not inserted)
Bytes received/sent *	0 B / 16.3 KB

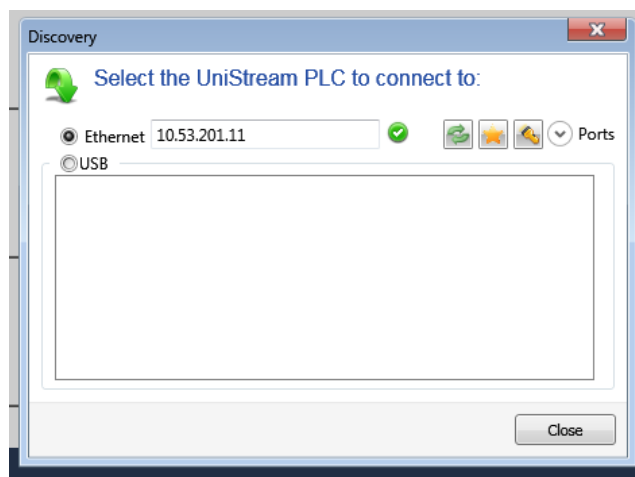
<b>Wireless</b> ⓘ ⓘ	OFF
SSID	N/A
Mode	undefined CH (undefined GHz)

<b>WAN</b> ⓘ ⓘ	Wired
IP address	10.53.201.11
WAN failover status	Failover link is enabled

<b>Local Network</b> ⓘ ⓘ	
IP / netmask	192.168.1.1 / 255.255.255.0
DHCP Leases	0

<b>Remote Management System</b> ⓘ	
Status	-
Connection State	-

Add the appropriate address to Unilogic in the box below.



## VPN Server setup

It is possible to connect to the router using a VPN provided the router has been set to be a VPN server. To set up a PPTP VPN go to Services > VPN > PPTP then select Server from the Role drop down box, add a friendly name and Add New. Tick Enable.

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OpenVPN IPsec GRE Tunnel **PPTP** L2TP SSTP Stunnel

### PPTP

PPTP Configuration

Name	Type	Enable	
UCRVPN	Server	<input checked="" type="checkbox"/>	Edit Delete

Role: Client New configuration name:  Add New

Save

Edit the server instance and tick Enable, add a local IP address which is the router address for the VPN, this can be the same as the LAN address or different. The remote IP address range is the addresses that will be handed out by the router for VPN leases. Add a user name and a password for the connection. The Client IP can be left blank which causes an address from the remote range to be used, or it can be fixed to a different value. Click SAVE.

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OpenVPN IPsec GRE Tunnel **PPTP** L2TP SSTP Stunnel

### PPTP Server Instance: UCRVPN

Main Settings

Enable

Local IP

Remote IP range start

Remote IP range end

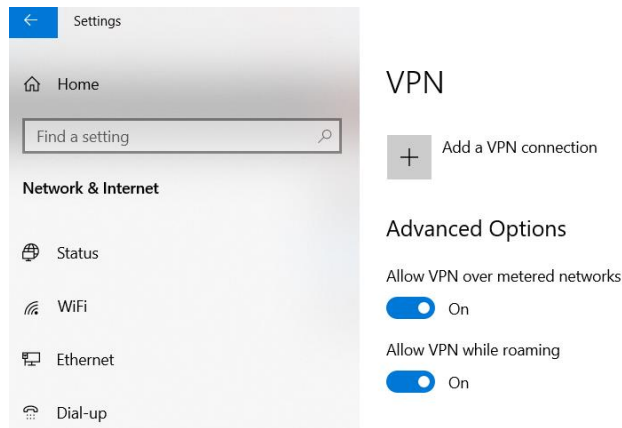
User name	Password	PPTP Client's IP	
<input type="text" value="Tony"/>	<input type="password" value="....."/>	<input type="text"/>	Delete

Add

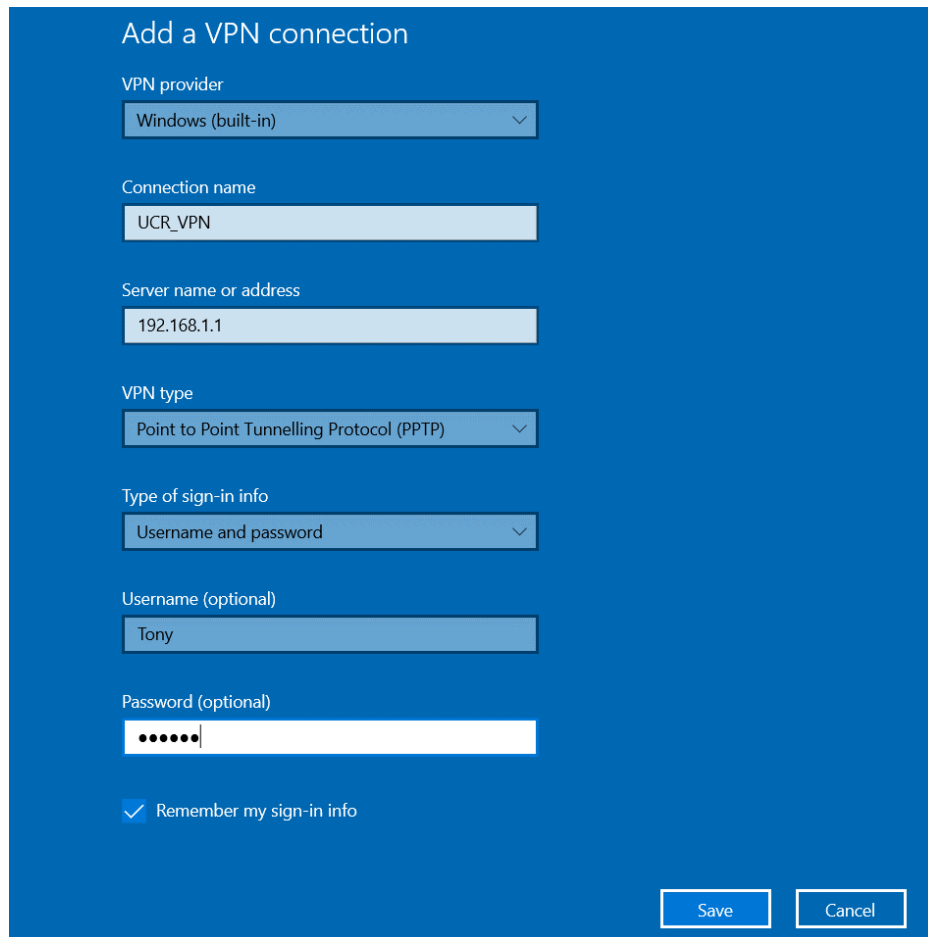
Back to Overview Save

## VPN Client setup

To set up the VPN client in Windows 10 enter Settings in the task bar search window, then when Settings opens search for Add VPN in the settings search window.



Select Add a VPN connection and fill out the dialog box as below.

A screenshot of the 'Add a VPN connection' dialog box in Windows. The background is blue. The form contains the following fields: 'VPN provider' (dropdown menu with 'Windows (built-in)' selected), 'Connection name' (text box with 'UCR\_VPN'), 'Server name or address' (text box with '192.168.1.1'), 'VPN type' (dropdown menu with 'Point to Point Tunneling Protocol (PPTP)' selected), 'Type of sign-in info' (dropdown menu with 'Username and password' selected), 'Username (optional)' (text box with 'Tony'), and 'Password (optional)' (password field with six dots). At the bottom left, there is a checked checkbox for 'Remember my sign-in info'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Note that the Server name or address needs to be the router WAN address for remote access via the Internet, or the LAN address for remote access via a local area network.

## **VPN Operation**

If a VPN connection is made to the router the client computer is allocated an IP address by the router for the same subnet range as the router LAN settings. There is, therefore, no need for any port redirection within the router.

## **Comms loss protection**

The network towers on a mobile network can only handle so many SIM cards at any one time, if a registered SIM card is inactive for a long period of time then it can be 'dropped' by the tower resulting in loss of communication. This dropping is not normally apparent and may not be noticed for long periods of time.

The UCR routers offer three tools to help work round this dropping by the network operator.

### **SIM Idle Protection**

The router periodically switches to the secondary SIM card to prevent the network operator from blocking the SIM due to inactivity.

### **Periodic reboot**

Reboots the router at certain fixed times regardless.

### **Ping reboot**

Reboots the router if a designated server fails to respond to a defined number of pings.

Default gateway matters – needs to be router or possibility that Unilogic ping hangs.

Router init – make sure SMS enabled in router.