



How to set up VPN access to an Embedded WebLink controller connected to the Internet by ADSL

Cylon's Embedded WebLink, a basic BMS supervisor for single-fieldbus UnitronUC32 sites, can be used to supervise remote sites over the Internet using a VPN connection.

CYBERSECURITY DISCLAIMER:

This product is designed to be connected to and to communicate information and data via a network interface. It is your sole responsibility to provide and continuously ensure a secure connection between the product and your network or any other network (as the case may be). You shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, secure VPNs, application of authentication measures, encryption of data, installation of anti-virus programs, etc.) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB Ltd and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

In order to start supervising the remote site (assuming the site has been properly configured and is powered-up and servicing) it is necessary to:

1. Connect the Remote Site ethernet network to the Internet using an ADSL modem,
2. Connect the supervisor PC to the Internet, using leased-line, ADSL, GPRS or analog modem dialup,
3. Create a VPN connection between the Supervisor PC network and the Remote Site's Communications Controller.

The following document gives detailed procedures for these steps, along with some testing and troubleshooting techniques to use on the PCs that will be used to supervise the remote BMS site.

Note: The BMS site must be properly installed and engineered, and also must be in operation ('servicing') in order for Embedded WebLink to be able to supervise the site.

1 Connect the Remote Site ethernet network to the Internet

Use an ADSL modem to connect the Remote Site to the Internet. Refer to the modem documentation and/or your Internet Service Provider for details about how to do this.

Connect a **3Com OfficeConnect** VPN Firewall model **3CR870-95** between the Network and the ADSL modem.

2 Connect the Supervisor PC to the Internet

Use any standard internet connection, such as leased-line, ADSL, GPRS or analog modem dialup to connect the Supervisor PC to the Internet.

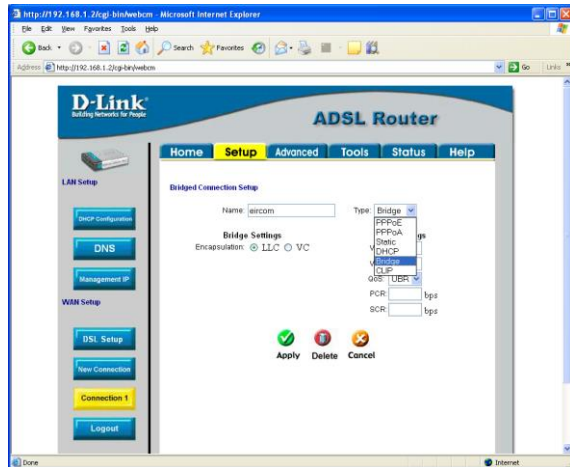
3 Create a VPN connection between the Supervisor PC and the Remote Site's Communications Controller.

To connect the Local and Remote Sites by VPN, you must first configure the Firewall on the Remote site (using a PC that is connected to the Firewall), then set up a new Network Connection on the Supervisor PC.

Remote Site - Configure the Firewall

1. Ensure that your ADSL modem is set to "Bridge mode".

Please refer to your modem manual for details about how to do this on your particular system.

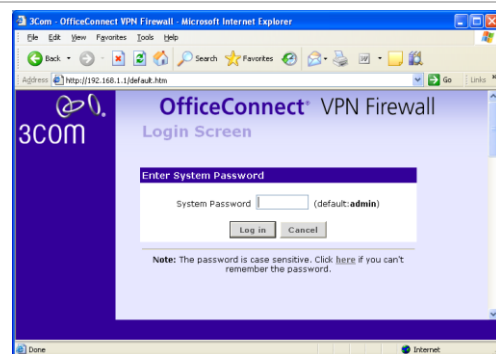


2. Use a standard Ethernet cable to connect the ADSL modem to the "Ethernet Cable/DSL" port on the **3Com OfficeConnect** VPN Firewall model **3CR870-95**
3. Connect a PC to any of the other ports on the **3Com OfficeConnect** VPN Firewall and enter the IP address of the firewall into Internet Explorer

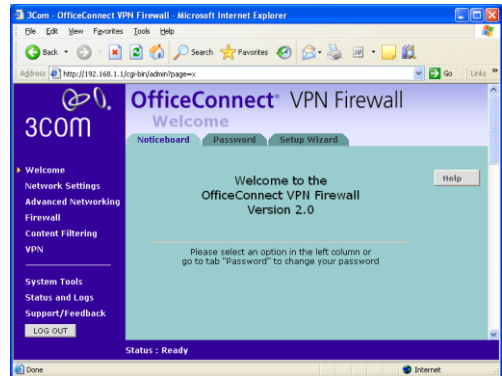
Note: the default IP address of the **3COM OfficeConnect** is 192.168.1.1.

Make sure that the network settings (especially subnet mask) on your PC are configured to allow access to this address

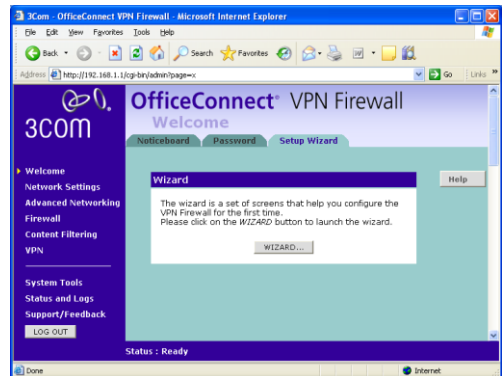
4. Enter the system password and click the "Log in" button.



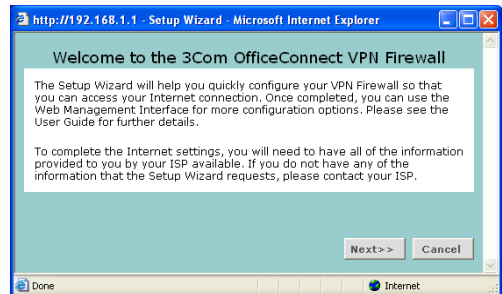
5. Select the **“Setup Wizard”** tab.



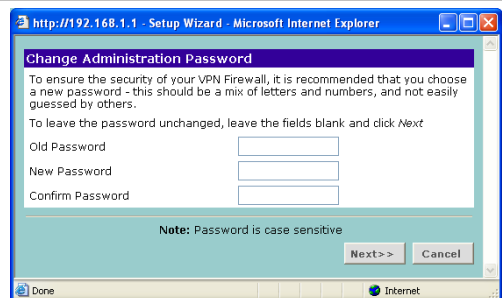
6. Click on the **“WIZARD”** button



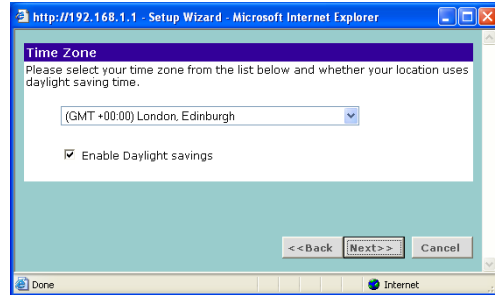
7. Click the **“Next >>”** button



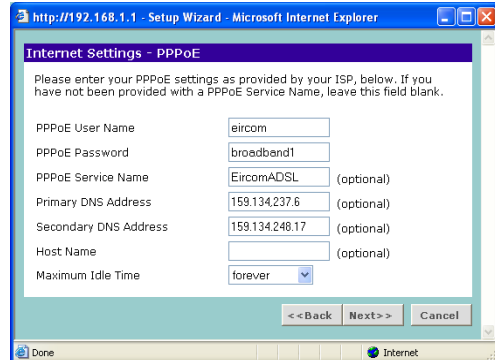
8. Change the admin password if required, and click the **“Next>>”** button.



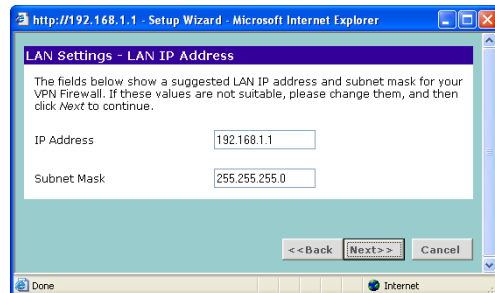
- It is not necessary to change the time zone, so click the **"Next>>"** button.



- Enter the PPPoE settings as provided by your Internet Service Provider.
- If this firewall is only going to be used by Embedded WebLink, you do not need to enter the DNS addresses or the Host Name.
- Click the **"Next>>"** button.



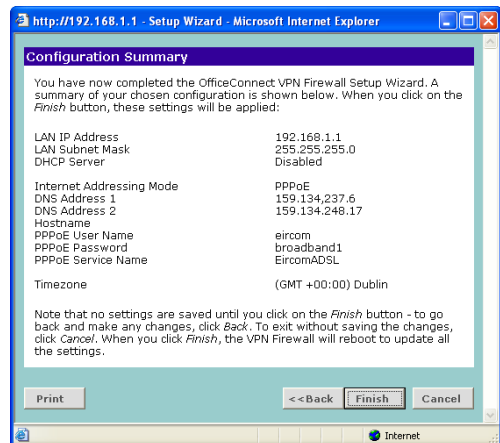
- In this example we are using the private subnet 192.168.1.x. If your network administrator has given you a different subnet, enter it here.
- Click the **"Next>>"** button.



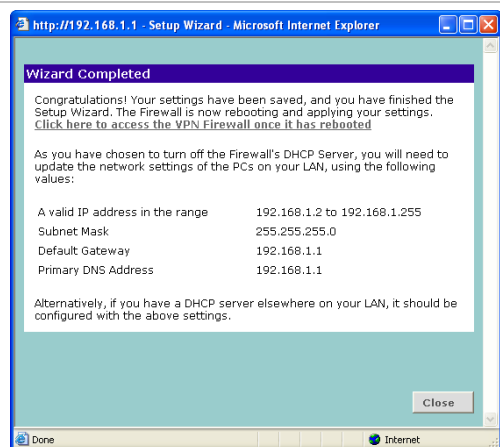
- If you are only using the **OfficeConnect** for Embedded WebLink, turn off the LAN side DHCP server by selecting **"Do not enable the DHCP server"**



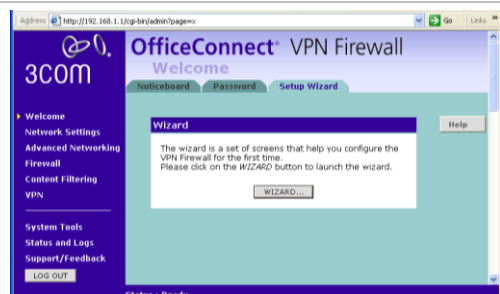
16. Click the "**Finish**" button, and allow the firewall to reboot.



17. The the firewall reboots, it will display the "**Wizard Completed**" page. Click the "**Close**" button.



18. This will return you to the main browser window. Select **VPN** from the menu at the left-hand side of the screen.

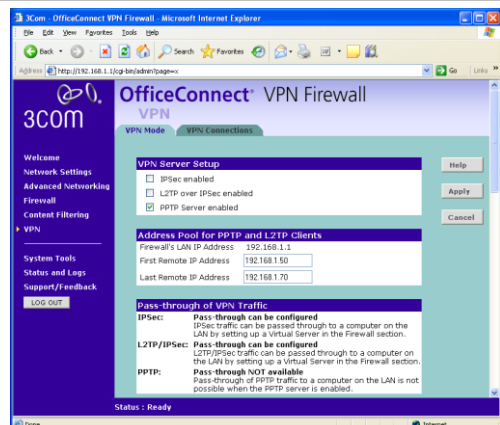


19. In the **VPN Mode** tab, select "PPTP Server enabled"

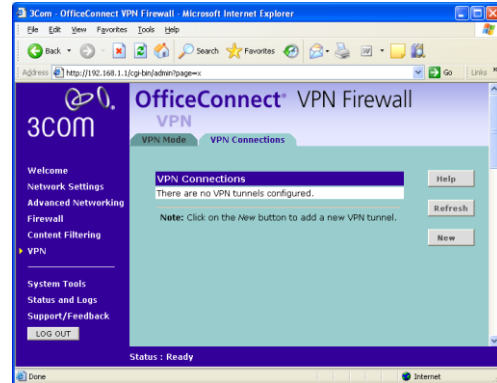
20. If you are using the 192.168.1.x subnet (as in this example), leave the default settings for the "**Address Pool**".

21. Click "**Apply**" to save the settings.

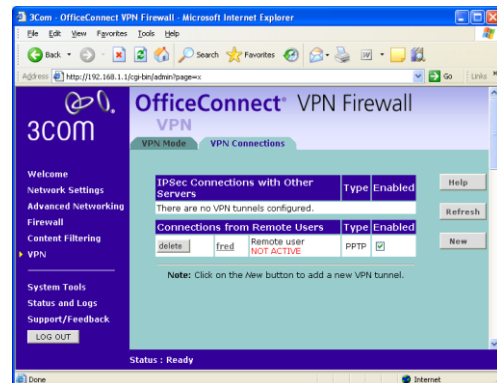
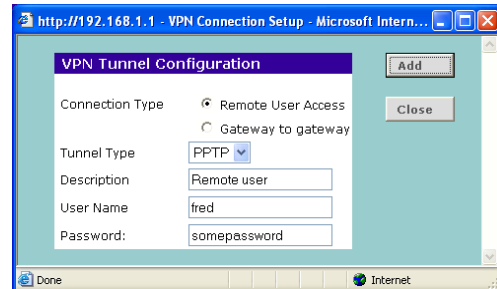
22. when the settings have been saved, click on the "**VPN Connections**" tab.



23. In the "VPN Connections" tab, click on the "New" button.

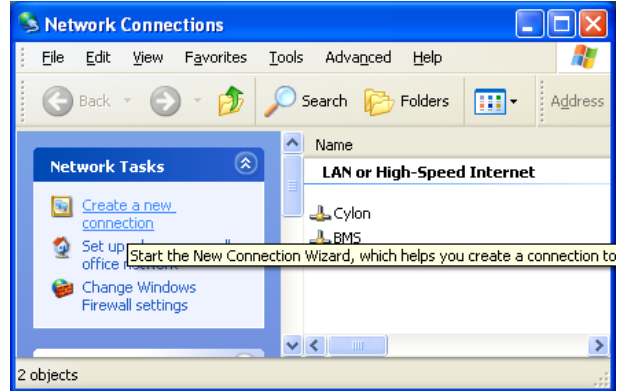


24. Select "Remote User Access" as the Connection Type.
25. Select "PPTP" as the Tunnel Type (this should be the only option).
26. Enter a suitable description, user name and password for the user who will access your LAN over the VPN connection.
27. Click on the "Add" button.
28. Repeat for any other users you wish to set up.
29. Click on the "Close" button.



Supervisor PC: - set up a VPN network Connection

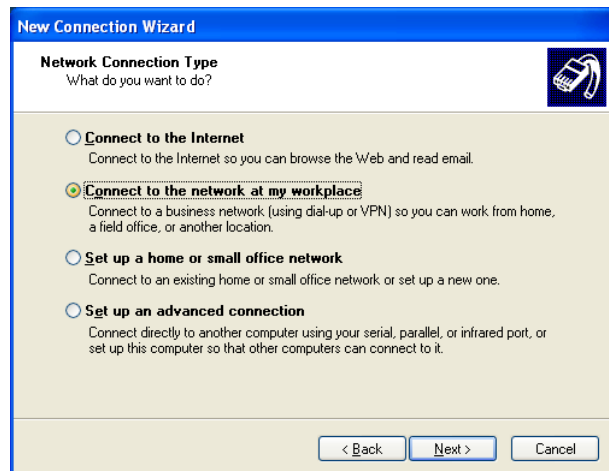
1. From the Windows Control Panel, open Network connections
2. Click on **"Create a new connection"** in the Network Tasks box.



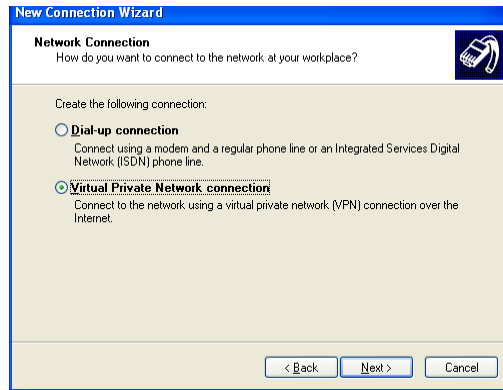
3. The New Connection Wizard will open. Click on the **"Next >"** button.



4. Select **"Connect to the network at my workplace"**.
5. Click on the **"Next >"** button.

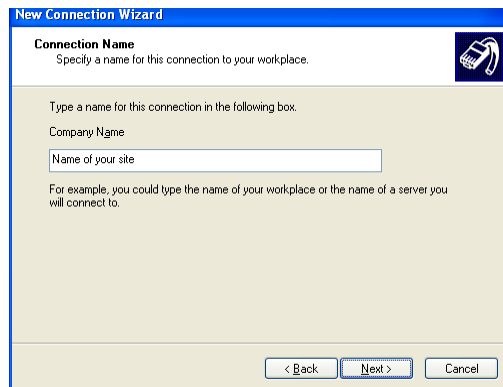


6. Select "**Virtual Private Network connection**".



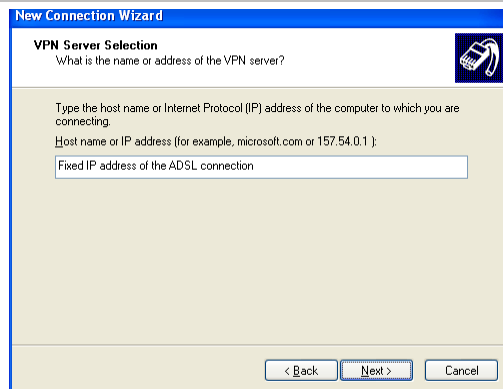
7. Click on the "**Next >**" button.

8. Assign any descriptive title for the new connection. This will be used in the Network Connections dialog to identify the connection.



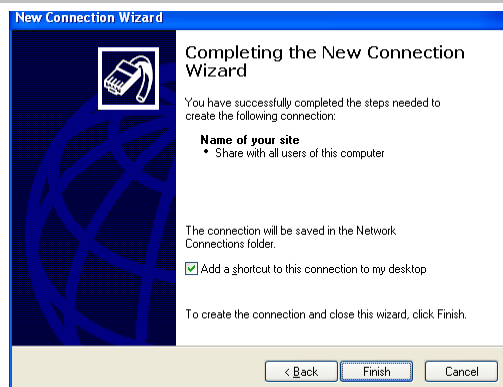
9. Click on the "**Next >**" button.

10. In the "**Host name or IP address**", enter the fixed IP address assigned by your Internet Service Provider to the ADSL connection of the Remote Site.



11. Click on the "**Next >**" button.

12. It can be useful to create a shortcut for this connection on your desktop by ticking the box in the final page of the Wizard.

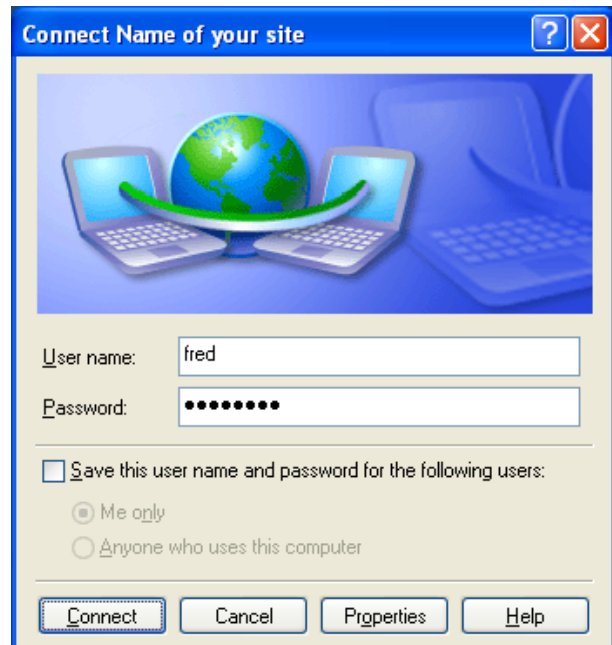


13. Click on the "**Finish**" button.

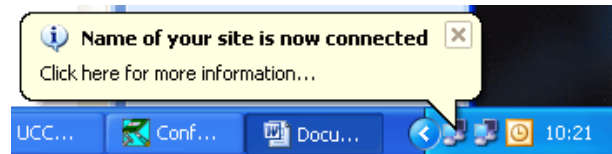
4 Connect the Supervisor PC to the Remote Site's network

1. On the Supervisor PC, open the connection that was created in the previous section. You can do this from the desktop, if a shortcut was created, or from the **Control Panel > Network Connections** folder.
2. In the connection dialog that opens, enter one of the valid username and password combinations set up in the Remote Site's firewall.

Note: Both User name and Password are case sensitive.



3. When the connection is established, a status indicator will appear in the Windows Taskbar.



5 Test the connection from the supervisor PC

On the PC that will be used as the BMS supervisor, test the connection to the UC32.netK Communications Controller by 'pinging' the controller as follows:

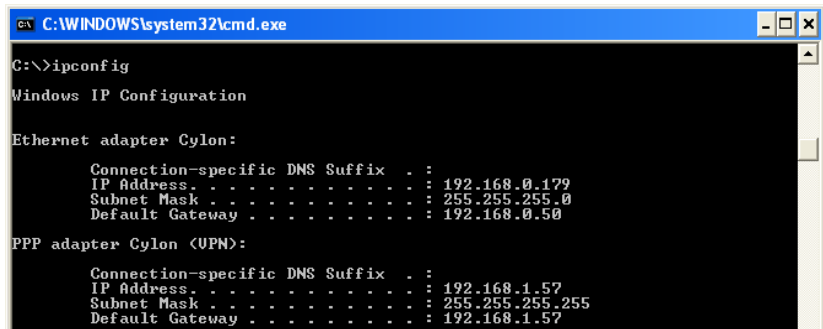
1. Click on the Start button, and select 'Run...'
2. enter 'cmd' and click on OK.
3. in the command prompt, enter 'ping' followed by a space followed by the controller's IP address. *For example:
ping 192.168.7.103*

Troubleshooting

If the connection does not work properly, it may be because the route from the Supervisor PC to the Communications controller through the VPN is not automatically detected. This has been noticed on PCs with more than one Ethernet card.

This problem can be overcome by specifying the route in the Supervisor PC's IP configuration as follows:

1. Open a command prompt.
2. enter 'ipconfig'
3. The IP configuration will be displayed, as in the example here.



```
C:\WINDOWS\system32\cmd.exe
C:\>ipconfig

Windows IP Configuration

Ethernet adapter Cylon:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.0.179
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.50

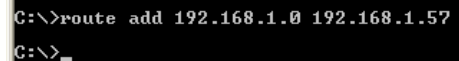
PPP adapter Cylon (VPN):

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.1.57
    Subnet Mask . . . . . : 255.255.255.255
    Default Gateway . . . . . : 192.168.1.57
```

4. Take note of the IP address of the 'PPP adapter ...(VPN)'.

This is the connection set up in the section *Supervisor PC: - set up a VPN network Connection* on page 7. It behaves like a network adapter, and so it has an IP address of its own. The ethernet communications must pass through this when they try to find their way to the Remote Site. You can force any communications destined for the Remote Site's IP address to go through this 'adapter' using the "Route add" command as follows:

5. In the command prompt enter "Route add" followed by the IP address of the Remote site, followed by the IP address of the 'PPP adapter'.



```
C:\>route add 192.168.1.0 192.168.1.57
C:\>
```

In the example here, the IP address of the Communications on the Remote site is 192.168.1.0, and the IP address of the PPP adapter was found to be 192.168.1.57 in the ipconfig display. So the Route Add command is:

```
route add 192.168.1.0 192.168.1.57.
```