Cerberus Networks

Router Set-up Guide
Zyxel VMG8324 / VMG8924 for "WiresOnly" FTTC

1. Setup: Computer

Computer Requirements

Please ensure that your computer is equipped with the following minimum specification:

- A built-in Ethernet socket or fitted network card capable of 10Mbps or 100Mbps or 1000Mbps connection.
- Windows XP, Windows Vista, Windows 7, Windows 10; Mac OS X; or a modern Linux distribution.
- Microsoft Internet Explorer 10 or newer; Firefox 40 or newer; or most modern browsers.

Please note that any computer operating system that supports TCP/IP will work with this service, including BSD, Solaris etc. We are able to fully support Windows and Mac OS, but other basic OS support will only be provided on a best endeavours basis.

Network Settings

For ease of use and configuration, we recommend leaving your new router to give out network addresses to all of the computers using it, either wired or wireless. Most computers are already set to obtain their address automatically, but if you are having trouble connecting to your router, you may want to check to make sure that this is the case by following the instructions for your operating system below.
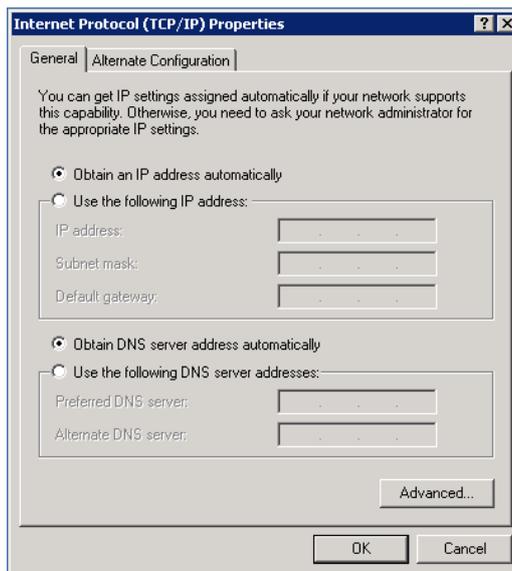
Windows XP

1. Click the **Start** button, and select **Control Panel**.

2. Click on the **Network and Internet Connections** icon and then click on the **Network Connections** icon (if you are viewing your Control Panel in Classic View, then just double-click on **Network Connections**).

3. You should be presented with a window similar to the following:
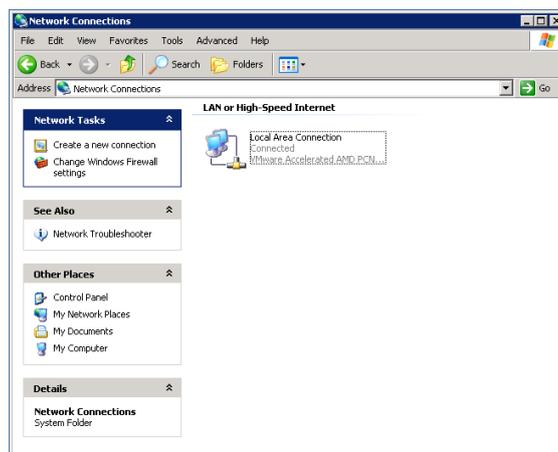
4. Right-click on the icon for your Ethernet network card, usually called **Local Area Connection**, and choose **Properties**:
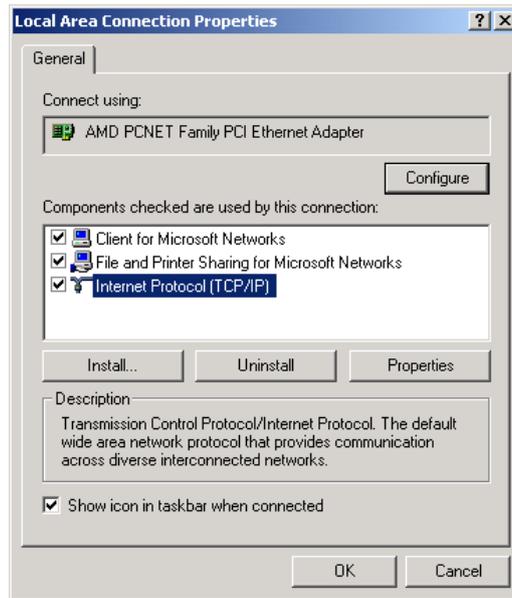
5. Click on **Internet Protocol (TCP/IP)** and click on **Properties**:
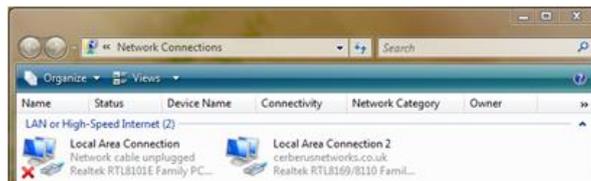

6. You should ensure that **Obtain an IP address automatically** and **Obtain DNS server address automatically** are selected (they have a 'dot' next to them, like above).

7. Press **OK** to close this window, and **OK** to close the previous window.

8. Your computer is now set to pick up an address automatically from your router. We would recommend rebooting your computer at this point just to ensure that a new address is obtained properly.

Windows Vista and Windows 7

1. Click the **Start** button, and select **Control Panel**.

2. Click on the **Network and Internet** icon and then click on the **Network and Sharing Center** icon (if you are viewing your Control Panel in Classic View, then just double-click on **Network and Sharing Center**).

3. You should be presented with a window similar to the following:
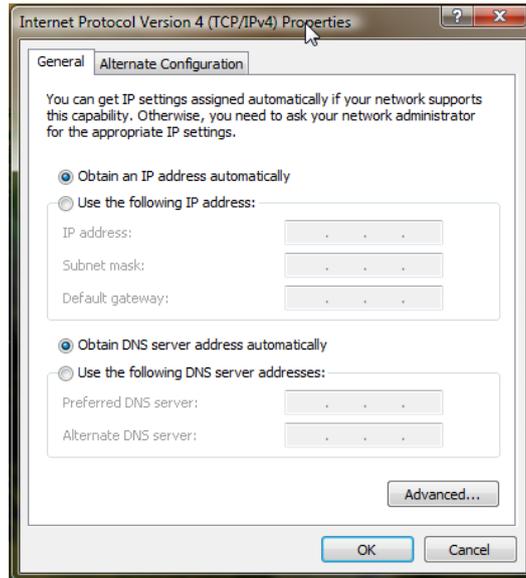

4. Click on **Manage network connections** on the left hand side menu:

5. Right-click on the icon for your Ethernet network card, usually called **Local Area Connection**, and choose **Properties**. You may be presented with a **User Account Control** window at this point - just click **Continue**:
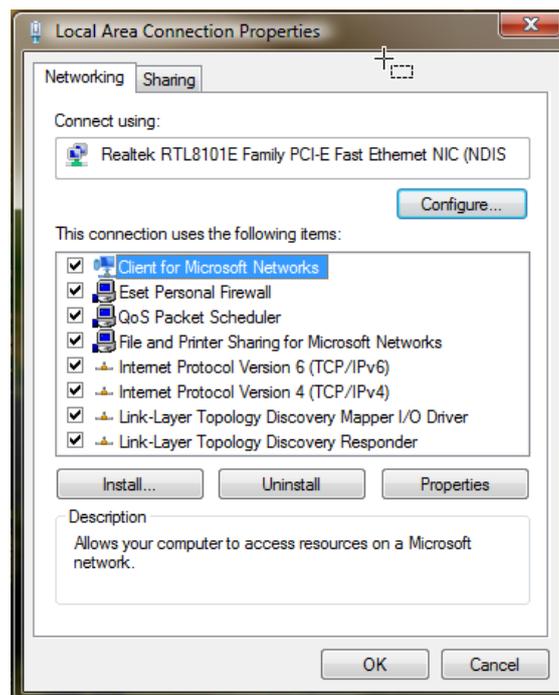
6. Click on **Internet Protocol Version 4 (TCP/IPv4)** and click on **Properties**:

7. You should ensure that **Obtain an IP address automatically** and **Obtain DNS server address automatically** are selected (they have a 'dot' next to them, like above).

8. Press **OK** to close this window, and **OK** to close the previous window.

9. Your computer is now set to pick up an address automatically from your router. We would recommend rebooting your computer at this point just to ensure that a new address is obtained properly.

Mac OS X

1. Click on the Apple menu, then move down to **Location** and select **Network Preferences**.

2. Ensure that **Built-in Ethernet** is selected next to **Show**.

3. Make sure that **Configure IPv4** is set to **Using DHCP:**
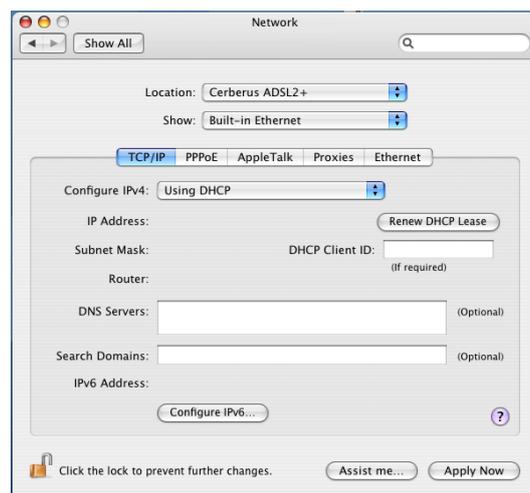
4. Press **Apply Now** and then close this window.

5. Your computer is now set to pick up an address automatically from your router. We would recommend rebooting your computer at this point just to ensure that a new address is obtained properly.

2.   Setup: Connect Cables

Connect Your Broadband Filters

First, you need to plug in your Broadband Filters. They're the small boxes that look like a telephone adapter.

1.   If there's a telephone plugged into your telephone socket, unplug it.
2.   Plug a Broadband Filter into the socket.
3.   Plug your telephone into the telephone socket on the Broadband Filter.

You need to do these steps for **everything** that's connected to your landline including other telephones, fax machines, Sky boxes etc.


Connect Your FTTC Modem Router

Now that you've plugged in your Broadband Filters at every phone socket, you can connect up your Modem Router. These instructions assume a Zxyel VMG8924, however the VMG8324 is identical except for lack of 802.11AC Wireless.

1.   Plug one end of the grey DSL cable into the socket marked 'DSL modem' on one of your Broadband Filters. The DSL cable looks like this:

2.   Plug the other end of the cable into the grey socket marked 'DSL' on your router.

3.   Plug one end of the yellow Ethernet cable into the yellow socket marked 'LAN 1' on your router. The Ethernet cable looks like this:
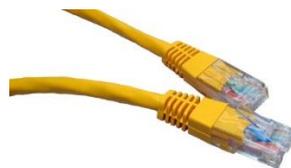

4.   Plug the other end of the cable into the network port of your computer.

5.   Connect the wire from the power supply to the router socket marked 'Power'

6.   Plug the power supply into the wall and switch it on at the socket.

Cerberus Networks Ltd, 9 Walmgate Road, Greenford, Middlesex, UB6 7LH, t. 0345 257 1333, e. info@cerberusnetworks.co.uk

3. Setup: Configure your Router

If you bought your Modem Router from Cerberus we can configure it for you, prior to shipping. However if you have bought your Zyxel VMG8924 or VMG8324 elsewhere or have reset the Router to defaults then please follow these instructions.

1. Open a web browser (e.g. Internet Explorer, Edge, Firefox, Safari)

2. Visit the address **http://192.168.1.1**
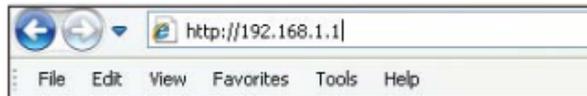
3. You will be prompted to enter a Username and Password:

   Enter **admin** as the Username & **1234** as the Password, click **Login**.

4. If this is a new router you will be presented with the quick start wizard.

   We are NOT going to be using the wizard so please click the close button.

5. You will see a screen similar to the following (the names of connected computers will vary dependent on your network). Do not worry about the Error on screen. This is occurring because we have not yet configured the equipment.

6.   Click Network Setting at the bottom of the screen. A list will appear. Choose Broadband.
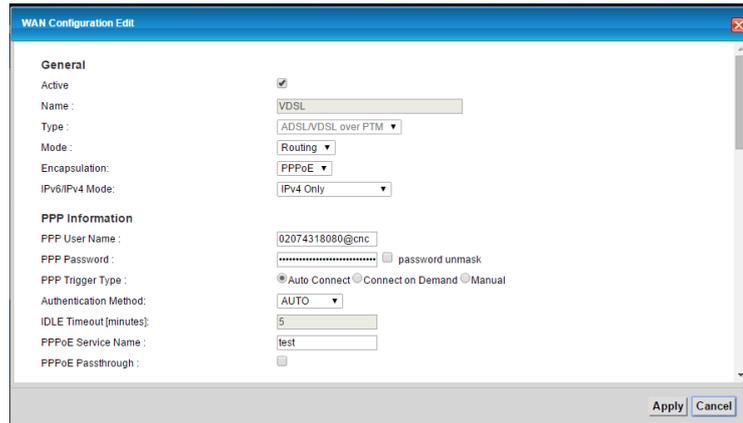

7.   You will see the following screen: Click the Modify icon on the VDSL row:

Section continues on next page.

8.   You will see a screen similar to the following:

Enter the following Information:

Setting	Comments
Active	ensure this is ticked
Name	VDSL
Type	ADSL/VDSL over PTM
Mode	Routing
Encapsulation	PPPoE
IPv6/IPv4 Mode	IPv4 Only (This is very important, the default also enables IPv6 and currently the router will not connect if IPv6 is enabled).
PPP User Name	Enter the User Name that is shown on the Inventory report for your connection. This will usually be of the form PhoneNumber@cerberus or PhoneNumber@cnc
PPP Password	Enter the password shown on the Inventory report for your connection. By default your password will not be shown on screen, If you wish to see the password you may tick the "password unmask" box.
PPP Trigger Type	Auto Connect
Authentication Method	AUTO or CHAP
IDLE Timeout	This cannot be altered
PPPoE Service Name	Any value you choose
PPPoE Passthrough	This should be left un-ticked unless you are an advanced user connecting an additional router or Firewall in line with the ZyXel.

Do NOT click **Apply** or **Cancel** at this time. Scroll down the window to show additional settings.

Section continues on next page.

9.   As you scroll you will see the following additional settings:
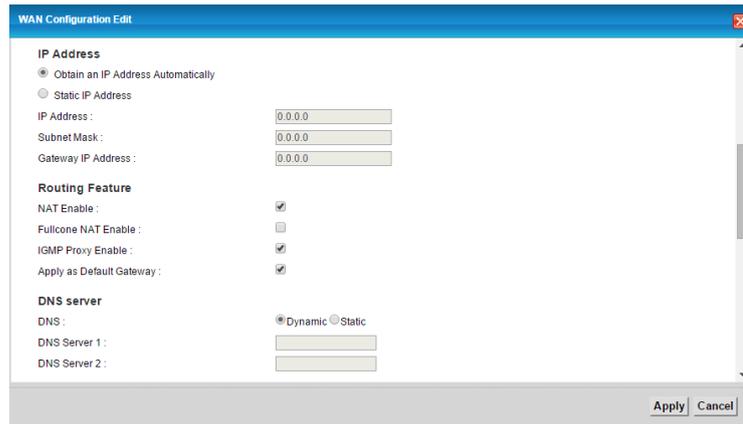
Enter the following Information:

Setting	Comments
IP Address	If you have a single IP Address from Cerberus, regardless of whether it is static or dynamic, chose "Obtain IP Address Automatically". You should not enter anything in IP Address, Subnet Mask or Gateways.
	If you are an advanced user and have taken a block (more than 1) of IP Addresses from Cerberus chose "Static IP Address" and enter the IP Address, Subnet Mask & Gateway from your Inventory that Cerberus sent you for the connection.
NAT Enable	If you have a single IP Address from Cerberus, regardless of whether it is static or dynamic, you should tick this box.
	If you have multiple IP Addresses from Cerberus and wish the router to route the entire block then you must not tick this box.
Full Cone NAT Enable	Do not tick this box unless you are an advanced user and understand what you are doing and why you are doing it.
IGMP Proxy Enable	Leave this box ticked.
Apply as Default Gateway	Leave this box ticked, unless you are an advanced user and understand what you are doing and why you are doing it.
DNS Server	Single IP customers should leave this set to "Dynamic" and not try to enter values in the DNS Server 1 & DNS Server 2 boxes.
	Multi IP customers should chose "Static" and enter the DNS servers on your inventory sheet into the boxes. These will usually be 46.37.32.22 & 46.37.33.22 .

Do NOT click **Apply** or **Cancel** at this time. Scroll down the window to show additional settings.

Section continues on next page.

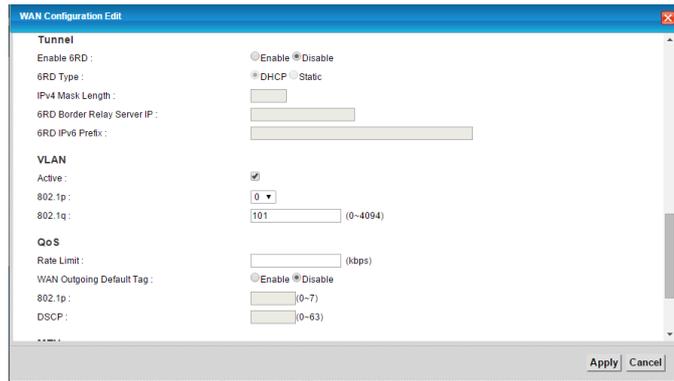10.   As you scroll you will see the following additional settings:

Enter the following Information:

Setting	Comments
Enable 6RD	Disable
6RD Type, IPv4 Mask Length, 6RD Border Relay Server IP & 6RD Ipv6 Prefix	These settings may not be altered.
VLAN Active	Ensure this is ticked.
VLAN 802.1p	Leave this set to 0.
VLAN 802.1q	Set this to 101.
QoS Rate Limit	Leave this blank.
QoS WAN Outgoing Default Tag	Disable
QoS 802.1p & DSCP	These settings may not be altered.

Do NOT click **Apply** or **Cancel** at this time. Scroll down the window to show additional settings.

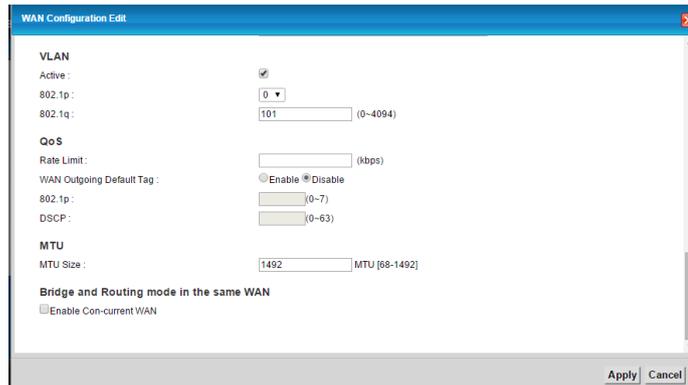11.   As you scroll you will see the following additional settings:

Enter the following Information:

Setting	Comments
MTU Size	Leave this set to 1492.
Enable Con-current WAN	Leave this unchecked

Now click the **Apply** Button.

12. You may now return to the Connection Status Page. You should see a screen similar to that below.

On the left hand side in WAN information you should see that the router has obtained an IP address and DNS server information and has an Uptime which is counting up. In the bottom right hand corner in the Interface status row for DSL you should see status "Up" and see the Sync speed of your line in the Rate Column. Please note that the speed shown is the Maximum possible under ideal conditions. Your speed may be lower based on the quality of your phone line and distance from the Street Cabinet.

13. You should now be able to access the Internet from a computer connected either via an Ethernet Cable to one of the LAN ports on the router, or wirelessly via the 2.4Ghz or 5Ghz Wifi network. If you experience problems please contact Cerberus.

Please note that this guide does not cover the configuration of the Wireless LAN or cover port forwarding or other common configuration tasks on your ZyXEL router. Such tasks are not specific to Cerberus and you may follow the manufacturer's documentation supplied with your router to complete additional configuration.

Cerberus recommends that you perform the following additional tasks:

- Change the administrator password for the router (the "1234" used to access your router's administrative interface, NOT the PPP password for your connection) to something other than the default. Your new password should be difficult to guess and should be kept somewhere safe as Cerberus cannot recover this.
- Change your Wireless Network Name (also known as SSID) and your Wireless Password (also known as Wireless Key) to something other than the default. Your new password should be difficult to guess and should be kept somewhere safe. You will need these pieces of information to connect new devices to your wireless network.

4.   Troubleshooting: Basic

Troubleshooting Broadband Connection Problems

If you're having trouble getting online or if the Broadband/DSL light on your router isn't on, there might be a problem with your connection. There's usually a fairly simple solution, so please try the steps outlined below.

Test Your Telephone Line

If you have signed up for broadband on a new telephone line, it's possible that it has yet to be activated. Please confirm that it is working by trying to dial out from a telephone.

Turn Everything Off

Turn everything off and then back on again. Sometimes the simplest things work best. Switch your computer off first, and then turn your router off. Most routers have a power switch on the back.

Take a moment to check there that aren't any loose cables. Then turn the router back on. Wait for the Internet light to come on and stay on. Then turn your computer back on.

Check the Lights

If there's a problem with your connection to the Internet, you can often tell from the lights on your router. The Internet and Broadband/DSL lights should be green if the box is working normally.

If they are not working or are red, then there might be a problem. The Internet light flashes if the connection is being used for anything, but the Broadband/DSL light should stop flashing soon after you turn the box on, and remain steady.

Check the Wires

Pick up a telephone and listen for a dial tone. If there is no dial tone, then please get in touch with BT, as there is a problem with your telephone line.

Make sure you use only the supplied grey DSL cable to connect your router to the landline. Don't use your own extension leads, and if you're using a splitter to turn one phone socket into two, remove it.

If you have other things plugged into your landline, disconnect them one at a time. If removing something in particular fixes the problem then it was probably interfering with your router.

Plug the Router into the BT Master Socket

Your router will work best if it's connected to the main BT socket in your home. This is usually the socket nearest where your telephone line comes through the wall into your house. See section 6 for more details.

Still Having Issues?

If none of the above steps helped, then please move on to the next troubleshooting sections. Please bear in mind that Cerberus Networks are unable to log faults on the line until the day after broadband activation.

5.   Troubleshooting: Wireless

Wireless Tips

If your wireless connection seems to be weak or intermittent, then the following tips may help you.

- As metal, walls, and floors will interfere with your router's wireless signals, move the router off the floor and away from walls and large metal objects (such as metal filing cabinets). Your connection will be weaker the closer your router is to these obstructions.
- Try not to position your router against an outside wall of your home/office as the signal will be weak on the other side of your home/office. Position it, where possible, in a central location. The antennas that are supplied with wireless routers are designed to be multi directional around the router, so if your router is near an outside wall, a significant amount of the signal from the router will be wasted.
- Your computer sends as well as receives signals. Sometimes your router can broadcast strongly enough to reach your computer, but your computer can't send signals back to your router. You can improve your PC adapter by replacing it with one with an external antenna. However, laptops with built-in wireless capability usually have adequate antennas and don't need to have their network adapter's upgraded.
- Wireless router have channels in a similar way that radio stations use different channels. Some channels have a better quality signal than others. Some signals may suffer interference so, if you are having problems, try changing your wireless router channel to see if the signal strength improves.
- Avoid using other wireless electronics (such as cordless phones) that use the 2.4GHz frequency as these may interfere with you wireless network performance. Phones that use 5.8GHz or 900MHz frequencies are far less likely to cause interference.

6.   Troubleshooting: BT Master Test Socket

Testing Your Connection from the BT Master Test Socket

The BT telephone line coming into your premises terminates at the BT Master socket. BT only guarantee service, regardless of whether it is broadband or telephone, to the BT Master Test Socket. This socket can be found behind the front plastic cover of standard BT (NTE5) sockets.

All other sockets in your premises (even the plastic front cover of the BT Master socket) are extensions from the BT Master Test Socket. These cables can get damaged over time through use or by accident. This can cause a loss of connection or intermittency on your line.

Testing your connection from the Master test socket will eliminate the internal extension wiring as being the cause of a fault. This test forms an important diagnostic step that **resolves the vast majority** of connection problems.

Perform the Test

Before trying this, please ensure that the BT Master socket in your premises is a standard BT (NTE5) socket. The socket will have a horizontal split through the middle of the front plastic cover, with two screws on the bottom half as illustrated below.

If there is no horizontal split through the middle of the front plastic cover, **DO NOT REMOVE THE SCEWS** as this is the wrong type of socket. Please contact Cerberus Support.
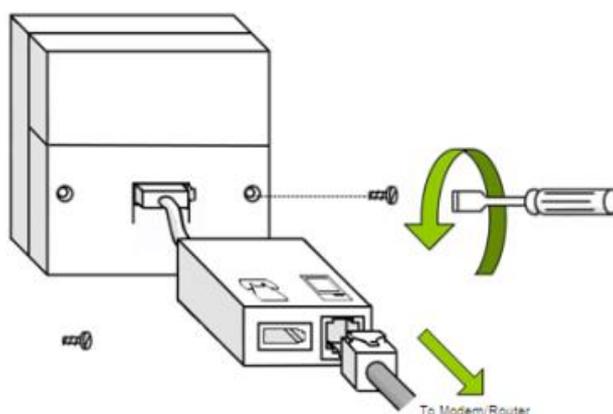
Remove the screws from the front plastic cover using a screwdriver. Once the screws are removed, carefully pull the front plastic cover away from the rest of the socket. The front plastic cover may not be completely removable, so please **DO NOT PULL IT AWAY WITH EXCESIVE FORCE**.

The BT Master Test Socket should now be visible on the right hand side of the socket. Plug in an alternative/spare Broadband Filter to the BT Master Test Socket and reconnect all broadband equipment. Ensure all equipment is powered on and retest your connection to the Internet. For speed and intermittency faults you may need to monitor from several hours up to three days to confirm stability through the test socket.

If your connection remains stable when your router is connected to the BT Master Test socket, then the fault is with your internal wiring, and that will need to be rewired if you wish to use your extensions at the same time as your broadband connection.

7.   Troubleshooting: Intermittent Connections

Intermittent Connection Faults

An Intermittent Connection fault is a fault which results in connectivity to the Internet being lost, but returning after a short period of time or after a hardware reboot. Disconnections which occur at specific times of day can also be referred to as Intermittent Connection faults. These faults can be caused by a variety of factors: extension wiring; the quality of your telephone line; interference from other nearby electrical devices; or problems with communications between your router and our equipment at the telephone exchange.

Check Your Setup

The majority of Intermittent Connection faults can be fixed or avoided by ensuring your equipment is set up correctly. Check that you have set up your equipment as directed in the ADSL2+ Setup section of this guide.

You should check your Broadband Filter setup first and ensure that nothing has changed. Even if you are sure that nothing has changed, it is always possible that someone else may have changed your setup without your knowledge, introducing a fault to the service. For example, someone may have attached a telephone without a Broadband Filter to an extension socket that wasn't previously in use.
If your computer is not near a BT Master socket, then connect a long Ethernet cable from your computer to the router and connect your router to the BT Master socket. Avoid using telephone extension cable from the BT Master socket to the router where possible, as extension cables often pick up line interference and almost invariably cause a reduction in broadband speed as well as sometimes causing connection drops.

Broadband Equipment Checks

It is possible that a temporary issue with your hardware may be causing your Intermittent Connection fault. Before starting more extensive checks there are some basics to cover with the Broadband equipment which could result in a quick resolution to the fault:

- If you have multiple devices plugged in to your router, but the problem is only occurring on one of the devices, then it is most likely the device configuration at fault rather than the broadband. Please refer to the section on **Setup: Computer** (section 1) above.
- Reboot your router when you experience the problem. Once done monitor the connection for long enough to see if the problem persists.
- If the problem persists check your router's configuration is correct.
- Ensure that any peer-to-peer software (BitTorrent etc) and other bandwidth-intensive services are shut down. In some cases, the load on the router from these types of service can result in the router dropping the connection or crashing.
- If available, try using another ADSL router to see whether the problem continues.

Check for Faulty Broadband Filters

If the fault has still not been resolved, it is possible that the problem lies with one of your Broadband Filters.

If you have spare filters, try replacing the filters you are using, one at a time, until you either find the faulty filter or have eliminated the possibility of the filters being the cause of the fault.

If you do not have any spare filters (just the two that came with your router), you should unplug all of your equipment from the telephone line so you have just one telephone and the router plugged in to a telephone socket through one Broadband Filter. Then swap the filter being used with the other, and monitor again. If you find the fault is not present with one of the filters, but is with the other, then you have most likely identified a filter fault. However, you may wish to monitor for an extended period to be sure that this is the cause.

If you have had a recent electrical storm in your area it is possible that this could have damaged one or more filters. Consider obtaining some spare filters to eliminate this as the potential cause.

Checking For Faulty Extension Wiring Or Other Equipment

Extension wiring can become damaged or degraded over time, especially if it is old or runs under carpets or through doorways, and this is often the cause of Intermittent Connection faults. It is also sometimes the case that other equipment is causing interference, despite being filtered.

Begin by ensuring that your ADSL router is connected to the BT Master socket, through a Broadband Filter, as shown earlier. Monitor your connection and see whether simply moving to the BT Master socket has resolved the problem.

If the problem continues with your ADSL router connected to the BT Master socket through a Broadband Filter then the next step will be to eliminate any extension wiring which is connected to the BT Master socket. With older Master sockets there is no easy way to do this without contacting a qualified telephone engineer yourself.

If you are using an NTE5, as illustrated in the **Troubleshooting: BT Master Test Socket** (section 6) of this guide, then you're in luck, because this socket has been designed to allow you to reach a special BT Test socket, which excludes any extension wiring. Please follow the instructions in the **Troubleshooting: BT Master Test Socket** (section 6) to test your connection using the BT Master test socket.

If the Intermittent Connection fault is resolved through use of the BT Master test socket, then you have identified a fault with either the extension wiring, or some other telephony device in your premises. Connect the Master Socket face plate again and unplug all of your telephony equipment plugged in to extensions one at a time, each time monitoring to determine if the Intermittent Connection fault returns. If the problem returns when a particular device is connected, then it is either that device or the extension wiring leading to it that is at fault. In this case we recommend that you consult a qualified telephone engineer or consider replacing the equipment.

Checking For Problems Caused By Other Electrical Equipment

It is possible that other electrical equipment in your premises is causing interference. Common causes can be, but are not limited to: Televisions, Sky Digital Boxes, other electrical equipment connected to the same socket or multi-plug as the router, Central Heating Systems, Microwaves and Christmas Tree lights.

To determine if other electrical equipment is responsible for the problem, first follow the advice for eliminating faulty wiring and filters. If the problem occurs at specific times of day make a note of the times and identify any electrical equipment that switches on at these times. Monitor the connection with this equipment switched off. If the problem occurs regardless of the time of day, then power off as much of your electrical hardware as possible one at a time and monitor for intermittency.

If the problem is eliminated then you have most likely identified the cause of the intermittent connection and will need to consult the supplier of the equipment for further advice. Alternatively you may find that the intermittent connection does not return if the ADSL router is connected directly to the BT Master socket (through a Broadband Filter) permanently, rather than through a telephone extension socket.

Still Having Issues?

If the problem continues, even when connected through the BT Master Test Socket and having eliminated as many causes of electrical interference as possible, then please contact Cerberus Support for assistance.

Please call 0345 257 1335
or email support@cerberusnetworks.co.uk

If you email support please use the email address you originally supplied to Cerberus when you took the service, if you do this our systems will automatically link your email to your other records. Please state the phone number of the service you are having problems with and confirm in full the symptoms of the problem you are experiencing and the troubleshooting steps you have already completed to resolve the problem.

Please leave the router connected to a Broadband Filter that is plugged into the BT Master Test Socket (where available) until the fault is resolved, so that any diagnostics run on your line and broadband service