



Connect Broadband Fibre Residential

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What is the Connect Broadband Fibre Residential product?

Connect Broadband Fibre Residential is KCOM's 'white label' reseller product that we make available to Communications Providers (CPs)¹ who have signed the relevant Reseller Agreement with Us. Connect Broadband Fibre Residential enables You, the reseller, to offer fibre broadband services direct to Your residential customers and gives you control over sales, customer billing, first line customer support. We also provide the option for You to provide customers with hardware (Customer Premise Equipment (CPE) in the form of a router, and to configure this CPE, as well as providing all sundry items necessary to provide a useable service.

¹ A CP is defined in section 405(1) of the Communications Act 2003 (the 'Act') as a person who (within the meaning of section 32(4)) Act provides an electronic communications network or an electronic communications service. This is a broad definition and includes any person that operates a network or service, even if it is a private network or service not available to the public.

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Connect Broadband Fibre Residential is available in the Hull Area. The service is also available in some areas outside Hull where it is called EA (Expansion Area) Connect Broadband Fibre Residential and subject to a separate contract; please contact your KCOM Wholesale Account Manager for further details.

Connect Broadband Fibre Residential uses one of two types of technology to deliver broadband services to Your Customers: -

- Fibre to the Premises (FTTP) - a fibre installation directly to the Customer's premises (speeds are not affected by distance from the network); or
- Very High-Speed Digital Subscriber Line (VDSL)² – where fibre is connected to the nearest distribution 'cabinet' and from there to Your Customer's premises, using a copper line. As such, the speed of this part fibre solution is affected by distance of the copper line from the cabinet and is therefore quoted in a similar way to standard broadband as an 'up to' speed. This VDSL technology is able to support up to 75Mbps.

Wherever possible we use FTTP technology, to enable customers to enjoy the best possible connection speeds. However, in a limited set of circumstances we do provide broadband services using VDSL technology.

- Connect Broadband Fibre Residential Packages

These services incorporate KCOM network access and connectivity. Your customer will still be able to make calls using the Broadband Fibre Residential Package Services, but these will either be:

- i. Charged on a pence-per-minute as set out in the Price Manual; or
- ii. Where You have ordered Calls Bolt-ons on behalf of Your Customer, charged at the rate for the applicable Calls Bolt-ons charge set out in the Price Manual.

We offer two alternative installation solutions for Connect Broadband Fibre Residential:

1. A KCOM managed installation which includes the provision and configuration of a KCOM supplied router by one of Our engineers.

² VDSL technology is alternatively referred to as 'part fibre' or Fibre to The Cabinet (FTTC) technology to denote the fact that fibre is used to provide connectivity the primary connection point from the exchange.

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2. Option for You to supply your customer with your own CPE (i.e., router and VDSL microfilters)³ and to configure it Yourself. This second connection option requires You to ensure the router that You provide to Your Customer is compatible with the KCOM Fibre Network. This option also means that You will be responsible for all enquiries from Your Customers regarding the performance of the router that You supply.⁴

Connect Broadband Fibre Residential allows You to take ownership of the retail relationship with Your residential customers including sales, billing and first line support. As a reseller You are responsible for billing Your customers. KCOM will charge You monthly rental charges for broadband in advance. Please note that where You are also taking call services from KCOM. We will bill those calls in arrears monthly.

Who can buy Connect Broadband Fibre Residential?

Connect Broadband Fibre Residential is only available to CPs who have signed the relevant Reseller Agreement with KCOM.

How do I become a reseller?

You can become a reseller customer if You are a CP. Please contact KCOM's Wholesale Sales team who will be able to help you: -

wholesale.sales@kcom.com

Can I take a fibre broadband only service, without telephone?

KCOM does not currently offer a broadband-only service as a variant to the Connect Broadband Fibre products. However, if you have any interest in this type of product, please contact your KCOM Wholesale Account Manager to discuss it.

³ In our newer installations we install a VDSL microfilter faceplate rather than using in-line microfilters. We will confirm whether the customer has one of these installed when you place an order with us.

⁴ In this instance, where FTTP is installed KCOM will need to enter the premise and install the Optical Network Terminal (ONT). Where the broadband connection is provided In VDSL the engineer may not need to attend the premise, making the installation live by making the connection at the primary connection point (i.e. VDSL cabinet).

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Where can I find the service description, pricing and / or more information? / What is the cost?

Prices for the packages can be found on the KCOM website at: http://pricing.kcomhome.com/media/1503/p13-s22_connect_broadband_fibre_residential_packages.pdf. The special offers can also be found on the KCOM website at this link http://pricing.kcomhome.com/media/1505/p13-s24_connect_special_offers.pdf.

If you would like additional information or would like to discuss the service in further detail, then please get in touch with your KCOM Wholesale Account Manager who'll be able to assist you.

When can I advertise my prices?

You can advertise your own prices when you are ready to do so.

When can I order the product?

Connect Broadband Fibre Residential will be available for You to order when you become one of Our recognised reseller customers (i.e. we have a contract under the terms of the Reseller Agreement).

Who manages the installation? / What happens during installation?

We will provide you with the date of an engineer visit and appointments are allocated based on the following slots (including Saturdays): -

- Morning (AM) - Between 8:00 and 12:00
- Afternoon (PM) - Between 12:00 and 16:00

You are responsible for communicating this information to Your Customer.

Where We have made a scheduled appointment with You for either (i) the installation of the Services at Your Customer's premises or (ii) the resolution of a fault with the Services at Your Customer's premises, it is Your responsibility to inform Your Customer of the date and time of the appointment. You will be subject to a Missed Appointment Charge as set out in the Price Manual if one of Our engineers has been dispatched to Your Customer's address and:

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- The appointment is cancelled by You and/or Your Customer after the engineer has been dispatched.
- The person in attendance at the Customer's premises is under the age of 18
- There is no one at the Customer's premises.
- There is no one at the Customer's premises who knows what work is required or who is otherwise authorised to agree it
- You and/or Your Customer ask Our engineer to call back at an alternative time
- Our engineer is refused entry to Your Customer's premises.
- There are no suitable or there are insufficient power sockets

The Missed Appointment Charge related to any of the reasons above is £100 excluding VAT.

If you cancel the order two or more working days after the order is placed, you will be charged £6.00 excluding VAT

Where You do not purchase a router from Us, we shall ensure that the Services are successfully delivered to the Optical Network Terminal (ONT) that We will install at Your Customer's premises. You acknowledge and agree that in order for Your Customer to be able to use the Services, you will need to install and connect a router that is compatible with the Services to the ONT. Furthermore, you acknowledge and agree that Your Customer will not have a working broadband service and will not have access to internet services until such time as You connect a router to the ONT installed at Your Customer's premises.

If Your Customer is connected to the KCOM Network via an overhead feed, the entry point for a fibre connection will be located approximately 1 metre from the ground directly below where the existing service first makes contact with Your Customer's property.

If Your Customer is connected to the KCOM Network via an underground feed, the entry point for Your Customer's network connection will not change and will continue to be located directly above the duct entry.

Any existing termination point will not be moved unless there is a safe access problem.

Some properties might only have fibre connections. The following applies in respect to these properties:

- If you order telephony or broadband services then they will be provided over fibre and We will not install a copper exchange line.
- Telephony services provided over fibre will be the same as those provided over a copper exchange line except where We state any differences within the Agreement or the Price Manual or otherwise.

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What are the Customer / End User requirements?

In order to deliver the Services, you acknowledge that Your Customer / End User must have:

- a new or existing KCOM exchange line at Your Customer's address where the Services will be installed.
- Ethernet LAN running TCP/IP (10 BASE T minimum). For LAN connections You must supply or ensure that Your Customer supplies their own PC Ethernet cards; and an internet-ready device.

Where You require Us to supply a router for use with the Services, we provide a dual band router to wireless 2.4 and 5Ghz standards (see below for two current models). To optimise the wireless speed Your Customer will require wireless AC adaptors or cards for their PC.

We would remind You that all Customers should consider the security of their PC. We recommend the use of current anti-virus software and firewall protection. Email anti-virus protection is provided with email Post Office Protocol (POP) accounts. Where the Services are delivered using FTTP, Your Customers will require *two* functioning power sockets for the ONT and the router. Please note that the size, shape and cable direction of the Power Supply Unit (PSU) needs to be noted when selecting suitable sockets for the installation.

Examples of Power Supply Units⁵

Where the Services are delivered using VDSL/FTTC, Your Customers will require a single power socket for the VDSL/FTTC router and a VDSL/FTTC microfilter.



⁵ PSU Types : XMG - Zyxel Router; DGA - Technicolor router; DSZ Optical Network Terminal; ECI Optical Network Terminal.

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What are router requirements for self-supplied Customer Premise Equipment (CPE)?

The supplied optical terminal equipment specification is: ITU-T G.984.1 [6] – GPON standard). Successful interworking requires an Ethernet Point to Point Protocol over Ethernet (PPPoE) capable or [Request For Comment – IETF Publications (RFC)] bridge CPE connected to a personal computer (PC) to be able to:

- Support PPPoE
 - KCOM supports the EU connection as a PPPoE service or as the PPPoE Logical Link Control/Sub-Network Access Protocol (LLC/SNAP) configured to support a single PPP session (VDSL2 only). The KCOM network does not auto sense the encapsulation type for VDSL2 traffic.
 - The KCOM network requires that the PPPoE CPE or software-based client is compliant to RFC 2516 and RFC1661 in accordance with UK industry standards. The PPPoE Maximum Transmission Unit is 1492 bytes. The service does not correct or mitigate where DF (do not fragment) is set, or the client is not correctly configured to use PPPoE as per the KCOM PPPoE requirements. Therefore, Transmission Control Protocol (TCP) traffic is required to operate the Maximum Segment Size (MSS) process correctly.
- Support Challenge Handshake Authentication Protocol (CHAP) in accordance with RFC 1994
- Obtain an IP address via a PPPoE LCP process
- Use Ethernet framing to IEEE 802.3 Standards

KCOM is not responsible for the provision or operation of any third-party EU equipment, PC operating systems, drivers and any associated software.

For VDSL2 the minimum recommendation is G993.2 VDSL2 equipment; this must support 17a Bandplan. All CPE must be capable of operation to this specification or optimal stable service or delivery rates may not be achieved. G993.5 - G.Vector is NOT supported.

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Fibre Connection to the Building

Outside of the premises the fibre will usually be delivered overhead or underground and will be terminated into one of our [CTU] Customer Termination units, examples of which are shown below:



Engineers will then on the day of install connect a fibre optic cable from the CTU shown left to the ONT (Optical Network Terminal).

ONT (Optical Network Terminal)

Engineers on the day of install will agree a location to position the ONT and router. The ONT's are wall mounted; examples of our two current ONT's are below.



For new installations engineers will then connect the LAN1 port on the ONT to the WAN port of the router using an RJ45 cable.

Voice Services

Voice Services can be provided using a traditional copper cable and an NTE5 with a PSTN socket or they may be provided using the ATA port of the ONT. The ATA port of the ONT could have an adapter in it or could be wired to an NTE5.

The exact case will be dependent on several factors but in either case the customer will be presented with a standard PSTN socket.

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How to help your customer set up their Zyxel XMG 3927 router

The Zyxel XMG 3927 router has technology that allows it to set itself up automatically by detecting the type of connection. This means Your customer shouldn't have to set the router up themselves; however, if there are any issues please utilise this guide to assist Your customer.

Point to note- The router can take up to 4 minutes to fully set up on its own, please allow this time before setting up the router manually.



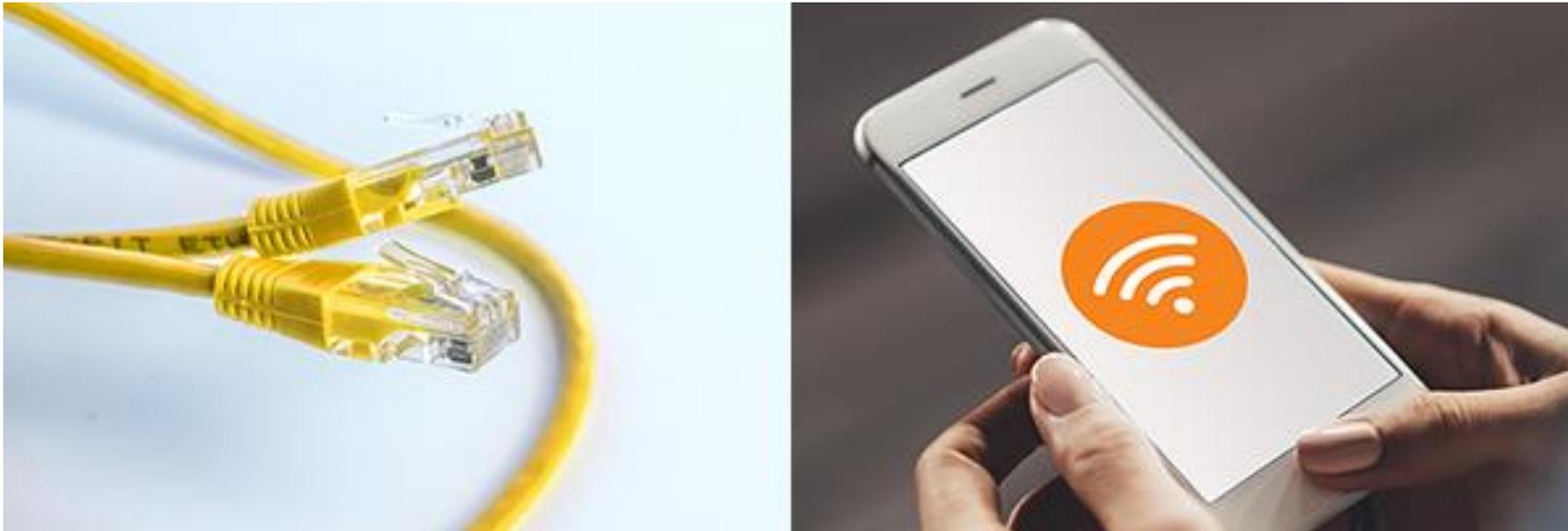
What types of connection can your customer's router use?

The Zyxel router can be used for Connect Fibre (FTTP), Connect Fibre [to the Cabinet] (FTTC) and Connect ADSL (ADSL) connections which we show below. Once the router has been plugged in correctly, it should set itself up automatically. If this doesn't work, your customer can begin manually configuring the router.

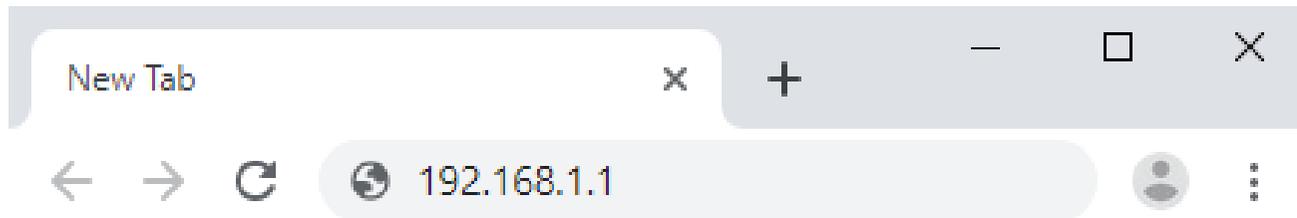
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How does Your customer get to the settings page?

1. Your customer needs to connect a device to their Zyxel router using an [Ethernet cable](#) (recommended) or using a **Wi-Fi connection**.



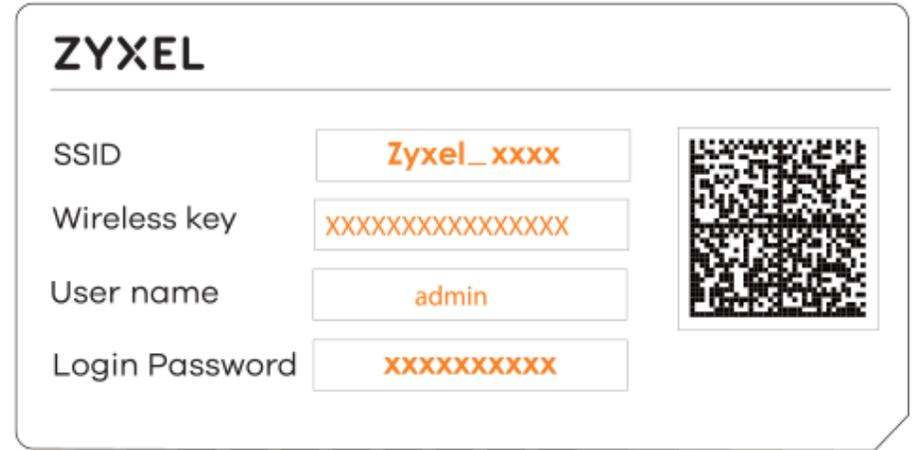
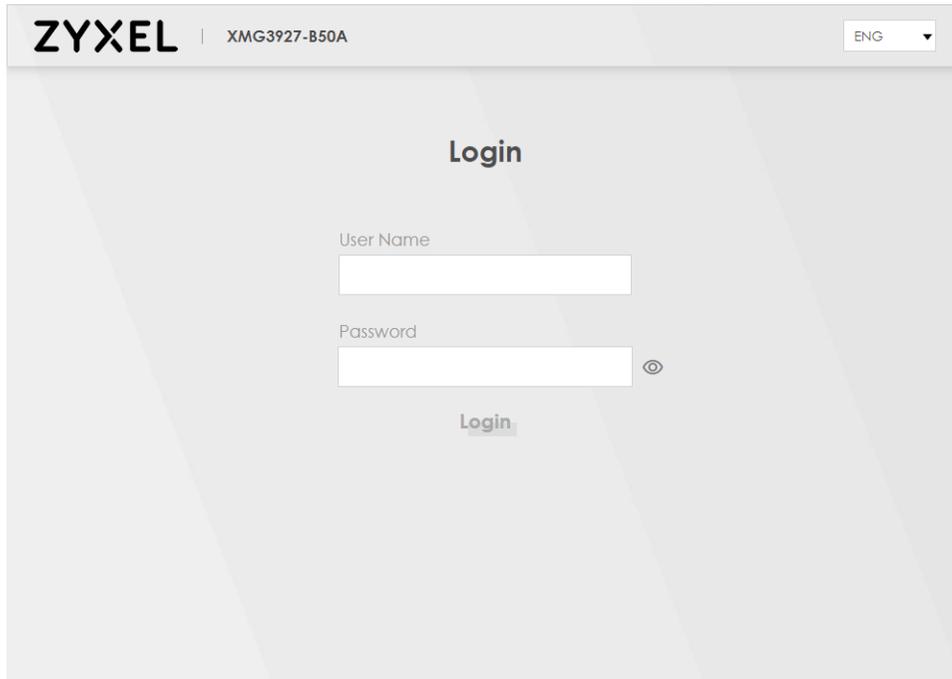
2. Your customer then needs to open a new web browser and type **192.168.1.1** into their address bar and press **enter** or **go**.



- 3.

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4. They should now see a **Zyxel** screen asking them to Login. They need to type in their **username** and **login password**, then select **Login**.



SSID	Zyxel_ xxxx	
Wireless key	XXXXXXXXXXXXXXXX	
User name	admin	
Login Password	XXXXXXXXXX	



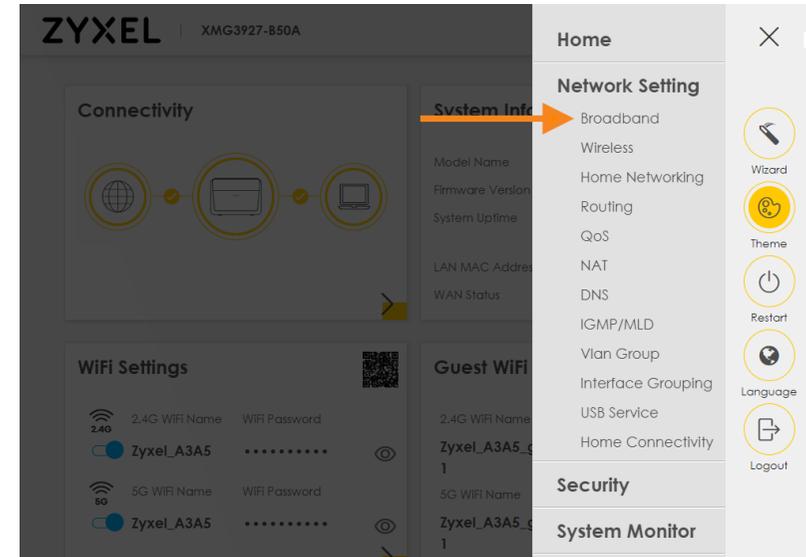
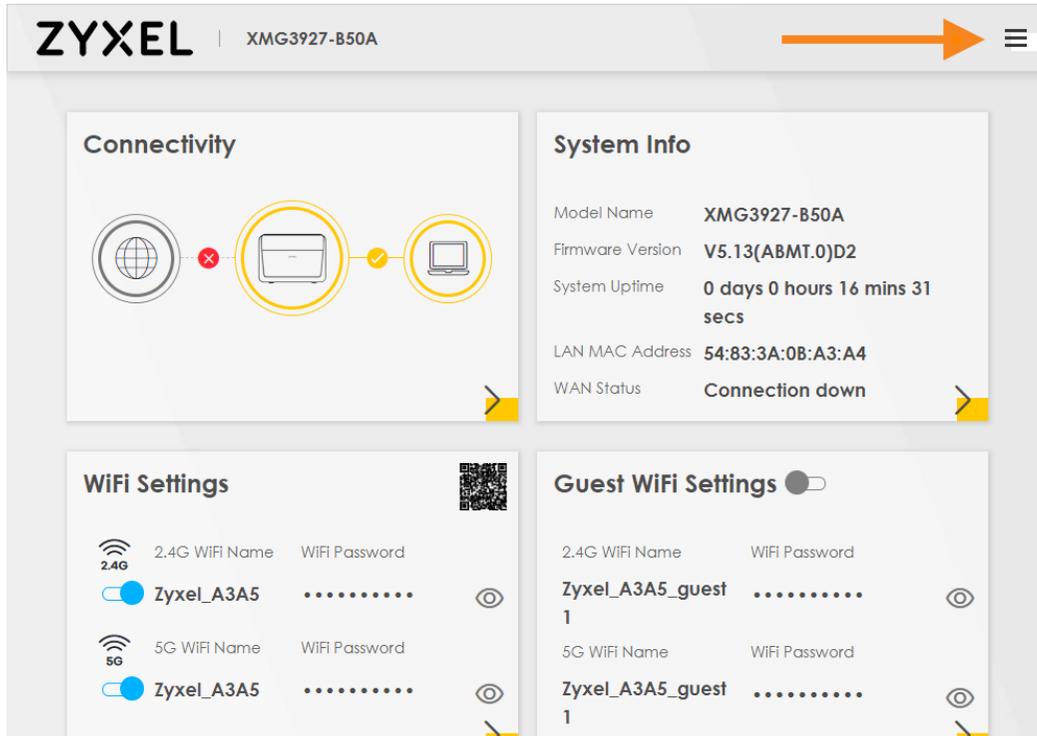
5. To log into the router, your customer will need the username and password which is located on the card that comes with their router. This is normally located in the slot on the back.

Password not working?

If this password doesn't work, the router requires a factory reset. To do this, your customer will need to inset a pin into the 'Reset' hole on the back of the router for 10 seconds. After a few minutes when the router has turned back on, go back to Step 1.

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6. Once Your customer has logged into the router, they should see the **Home** screen. This is where Your customer can get an overview of what's happening on their router. At the very top right of the screen, they need to select the three black lines to open the **Menu**



7. They then need to select **Network Setting** and then **Broadband**.

At this point, they now need to choose which type of connection they are trying to set up. They should see a list of 3 different interfaces: ADSL, VDSL and ETHWAN.

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Broadband

Broadband | Cellular Backup | Advanced

You can configure the Internet settings of this device. Be careful: correct configurations build successful Internet connection.

+ Add New WAN Interface

#	Name	Type	Mode	Encapsulation	802.1p	802.1q	IGMP Proxy	NAT	Default Gateway	IPv6	MLD Proxy	Modify
1	ADSL	ATM	Routing	PPPoA	N/A	N/A	N	Y	Y	Y	Y	
2	VDSL	PTM	Routing	PPPoE	N/A	N/A	N	Y	Y	Y	Y	
3	ETHWAN	ETH	Routing	PPPoE	N/A	N/A	N	Y	Y	Y	Y	

If they're using **regular broadband** where they plug into a telephone socket, they need to look for **ADSL** and then select the modify button (pencil and paper icon) on the right-hand side

If they're using **Connect Fibre** where they plug into a telephone socket, they need to look for **VDSL** in the list and select the modify button (pencil and paper icon) on the right-hand side

If they are using **Connect Fibre**, where they plug into a fibre box [ONT] on their wall, look for **ETHWAN** in the list and select the modify button (pencil and paper icon) on the right-hand side

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Edit WAN Interface

General

Name: ETHWAN

Type: Ethernet

Mode: Routing

Encapsulation: PPPoE

IPv4/IPv6 Mode: IPv4 IPv6 DualStack

PPP Information

PPP User Name: kctr69

PPP Password: [Masked]

PPP Connection Trigger: Auto Connect On Demand

PPPoE Passthrough:

VLAN

802.1p: 0

802.1q: [Empty] (1~4094)

IP Address

Obtain an IP Address Automatically

Static IP Address

If they selected ETHWAN...

If they selected ETHWAN to setup their Connect Fibre, they should now see a screen titled Edit WAN Interface that's split into sections. Make sure the following settings are set correctly:

- Set Mode to Routing
- Set Encapsulation to PPPoE
- For PPP Username, they need to type in their allocated username
- For PPP Password, they need to type in their allocated password
- Set PPP Connection Trigger to Auto Connect
- Set MTU to 1492

They need to then select Apply at the bottom of the screen to apply the new settings and setup their router. Once the router has finished applying the settings, they need to wait 2-3 minutes.

Providing everything was setup correctly, your customer should now be able to browse the internet!

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If they selected VDSL...

If they selected VDSL to setup their Connect Fibre, they should now see a screen titled Edit WAN Interface that's split into sections. Make sure the following settings are set correctly:

- Set Mode to Routing
- Set Encapsulation to PPPoE
- For PPP Username, they need to type in their allocated username
- For PPP Password, they need to type in their allocated password
- Set PPP Connection Trigger to Auto Connect
- Set MTU to 1492

They should then select apply at the bottom of the screen to apply the new settings and setup their router. Once the router has finished applying the settings, they need to wait 2-3 minutes.

Providing everything was setup correctly, your customer should now be able to browse the internet!

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Edit WAN Interface

General

Name: VDSL

Type: ADSL/VDSL over PTM

Mode: Routing

Encapsulation: PPPoE

IPv4/IPv6 Mode: IPv4 IPv6 DualStack

PPP Information

PPP User Name: kctr69

PPP Password: [Masked]

PPP Connection Trigger: Auto Connect On Demand

PPPoE Passthrough:

VLAN

802.1p: 0

802.1q: [Empty] (1~4094)

IP Address

Obtain an IP Address Automatically

Static IP Address

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If they selected ADSL...

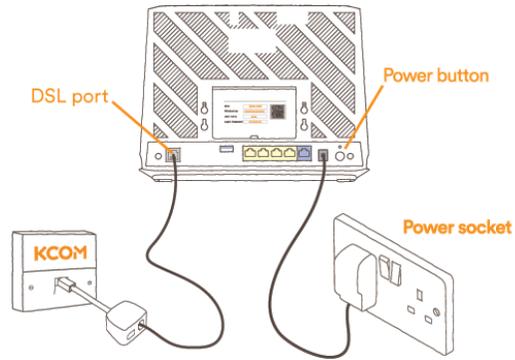
If they selected ADSL to setup their broadband, they should now see a screen titled Edit WAN Interface that's split into sections. Make sure the following settings are set correctly:

- Set Mode to Routing
- Set Encapsulation to PPPoA
- For PPP Username, they need to type in their KCOM username
- For PPP Password, they need to type in their KCOM password
- Set PPP Connection Trigger to Auto Connect
- Set VPI to 1 and VCI to 50
- Set Encapsulation to LLC/Snap-Bridging
- Set MTU to 1492

Select Apply at the bottom of the screen to apply the new settings and to setup their router. Once the router has finished applying the settings, they need to wait 2-3 minutes.

Providing everything was setup correctly, your customer should now be able to browse the internet!

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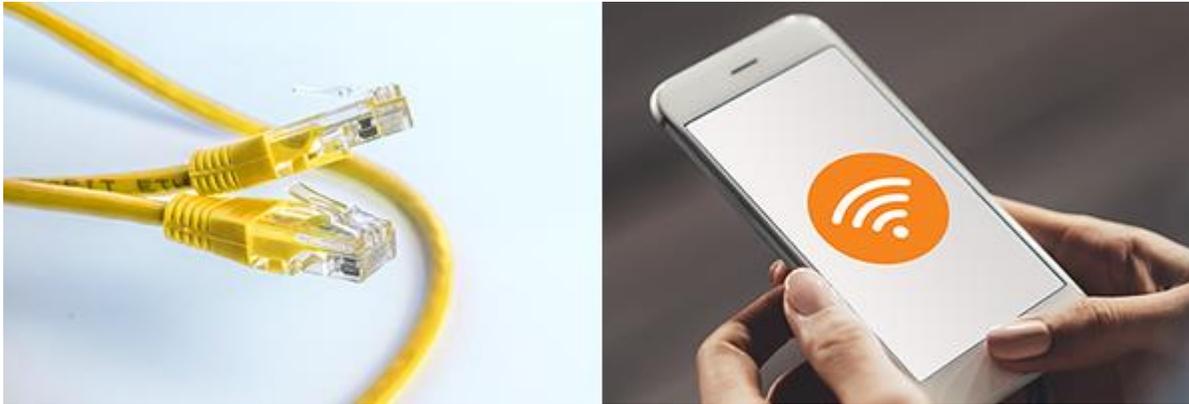
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How does Your customer change their wireless name and password on their Zyxel XMG 3927 router?

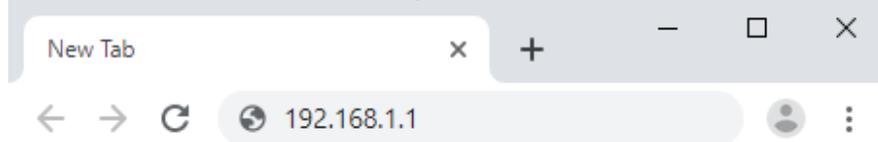
To protect their **Zyxel** router from being accessed wirelessly by unauthorised users, your customer can change their **wireless password**. For a personal touch, they can also change their **wireless name**.

Changing your WiFi name and password

1. The customer needs to first connect a device to their Zyxel router using an [Ethernet cable](#) (recommended) or **WiFi**.



2. Open a new web browser and type 192.168.1.1 into their address bar and press **enter** or **go**.



3. In order for Your customer to log into their router, they are going to need the username and password which is located on the card that comes with their router. This is normally located on the slot on the back.
4. They should now see a **Zyxel** screen asking them to Login.

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ENG

Login

User Name
admin

Password

Login

ZYXEL

SSID Zyxel_ xxxx

Wireless key XXXXXXXXXXXXXXXXXXXX

User name admin

Login Password XXXXXXXXXXXX

Password not working?

If this password doesn't work, the router requires a factory reset. To do this, Your customer will need to inset a pin into the 'Reset' hole on the back of the router for 10 seconds. After a few minutes when the router has turned back on, go back to Step 1.

5. Type in the **username** and **login password**, then select **Login**.
6. Once they have logged into the router, they will see the **Home** screen. This is where they can get an overview of what's happening on their router. At the top right of the screen, select the three black lines to open the **Menu**.

ZYXEL | XMG3927-B50A

Connectivity

System Info

Model Name XMG3927-B50A

Firmware Version V5.13(ABMT.0)D2

System Uptime 0 days 0 hours 16 mins 31 secs

LAN MAC Address 54:83:3A:0B:A3:A4

WAN Status Connection down

WiFi Settings

Guest WiFi Settings

2.4G WiFi Name WiFi Password

Zyxel_A3A5

5G WiFi Name WiFi Password

Zyxel_A3A5

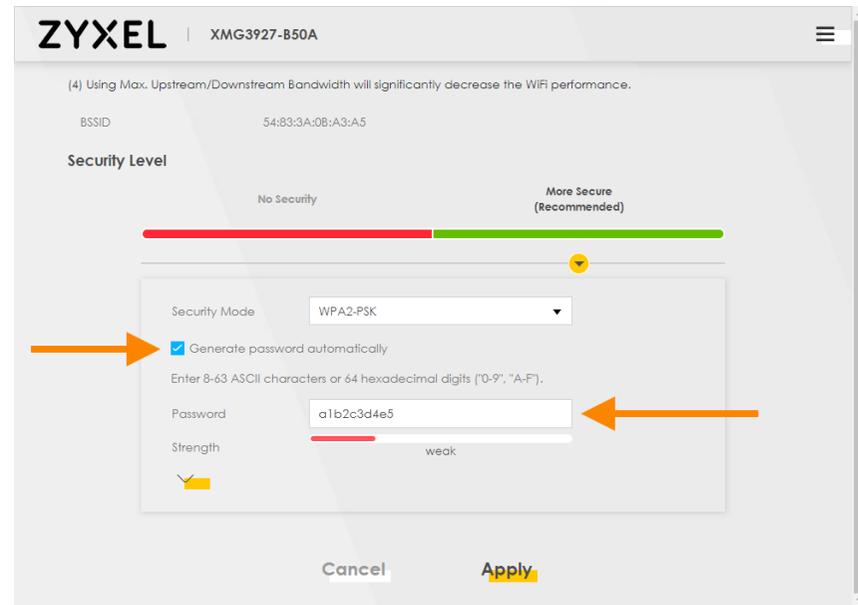
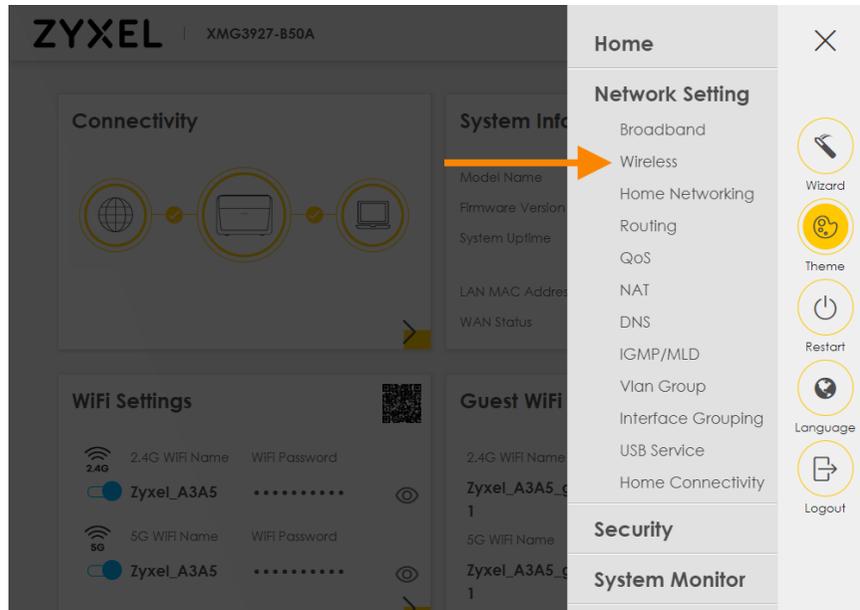
2.4G WiFi Name WiFi Password

Zyxel_A3A5_guest 1

5G WiFi Name WiFi Password

Zyxel_A3A5_guest 1

7. They then need to select **Network Setting** and then **Wireless**



8. A page labelled **WiFi** will open. Your customer needs to look for **WiFi Network Name** in the **WiFi Network Settings** section. They should delete this and then type in a new name for their wireless network.
9. Now they need to scroll right to the bottom of the page. The customer needs to look for **Generate password automatically** and they should untick this so it lets them set their own password.

Their wireless name and password will now be changed - remember, they'll need to reconnect any of their wireless devices using the new details.

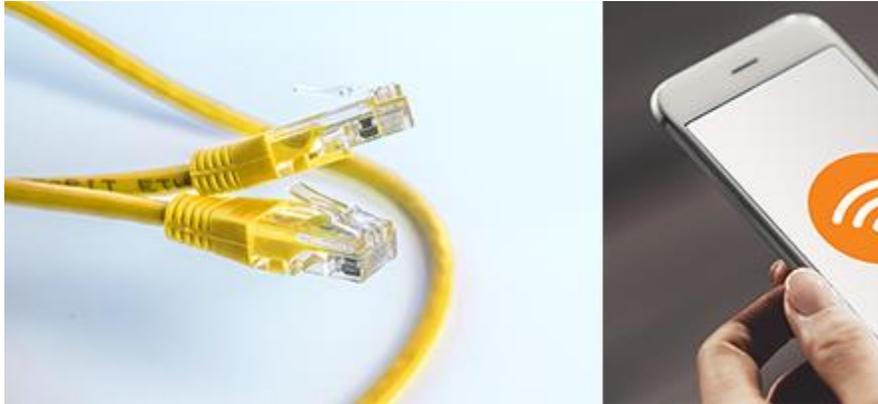
They need to choose a password that's at least 8 characters long into the **Password** box, then click **Apply** at the bottom.

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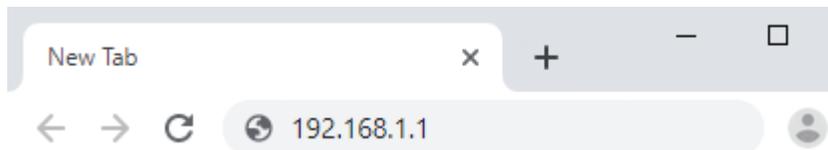
How do they setup port forwarding?

Setting up **port forwarding** on a customer's **Zyxel XMG 3927** router allows their devices to connect to servers and other devices over the internet. This is most commonly done for games consoles such as Xbox or PlayStation.

1. Your customer needs to connect a device to their Zyxel router using an [Ethernet cable](#) (recommended) or **WiFi**.



2. They then need to open a new web browser and type **192.168.1.1** and press **enter** or **go**.

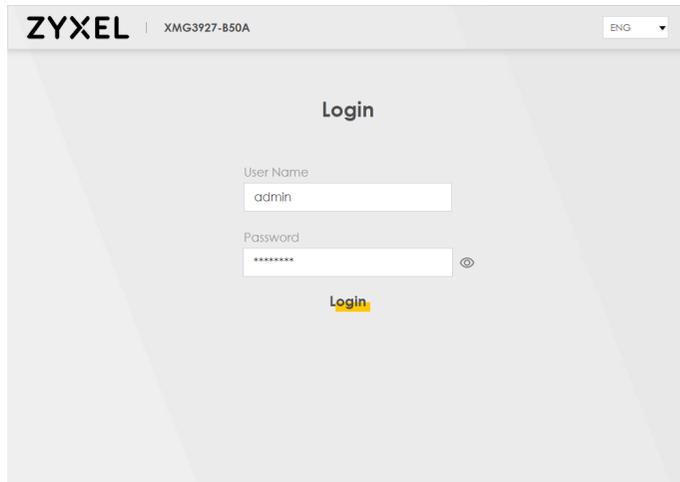


3. The customer should now see a **Zyxel** screen asking them to Login .
4. In order for a customer to log into their router, they are going to need the username and password which is located on the card that comes with their router. This is normally located on the slot on the back.

ZYXEL

SSID	<input type="text" value="Zyxel_ xxxx"/>	
Wireless key	<input type="text" value="XXXXXXXXXXXXXXXX"/>	
User name	<input type="text" value="admin"/>	
Login Password	<input type="text" value="XXXXXXXXXX"/>	

5. Type in the **username** and **login password**, then select **Login**.

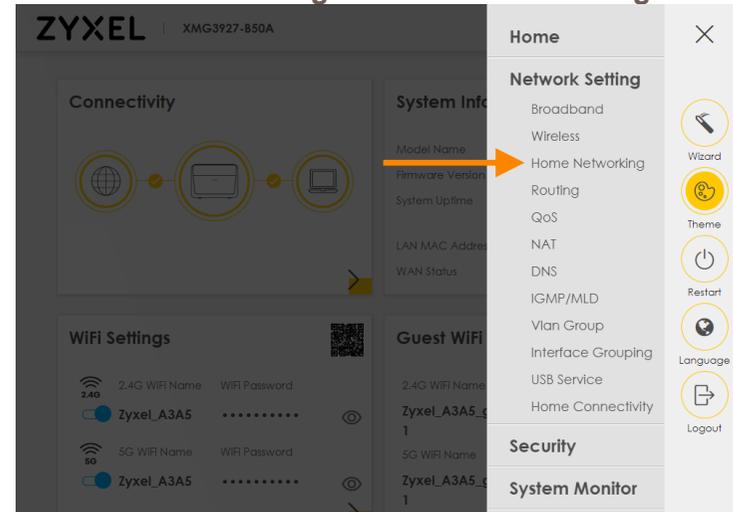


Password not working?

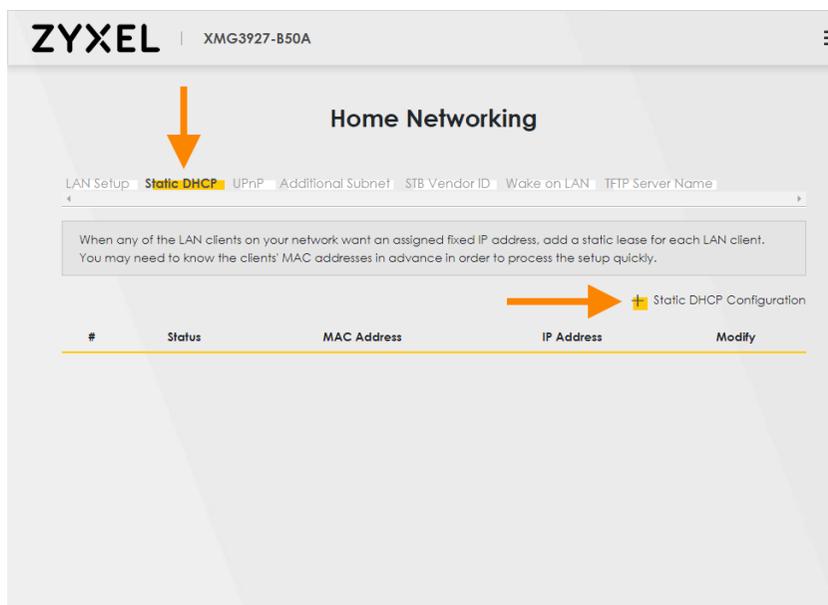
If this password doesn't work, the router requires a factory reset. To do this, Your customer will need to insert a pin into the 'Reset' hole on the back of the router for 10 seconds. After a few minutes when the router has turned back on, go back to Step 1.

- Once they have logged into the router, Your customer should see the **Home** screen. This is where they get an overview of what's happening on their router. At the top right of the screen, select the three black lines to open the **Menu**.

- Select **Network Setting** then **Home Networking**.



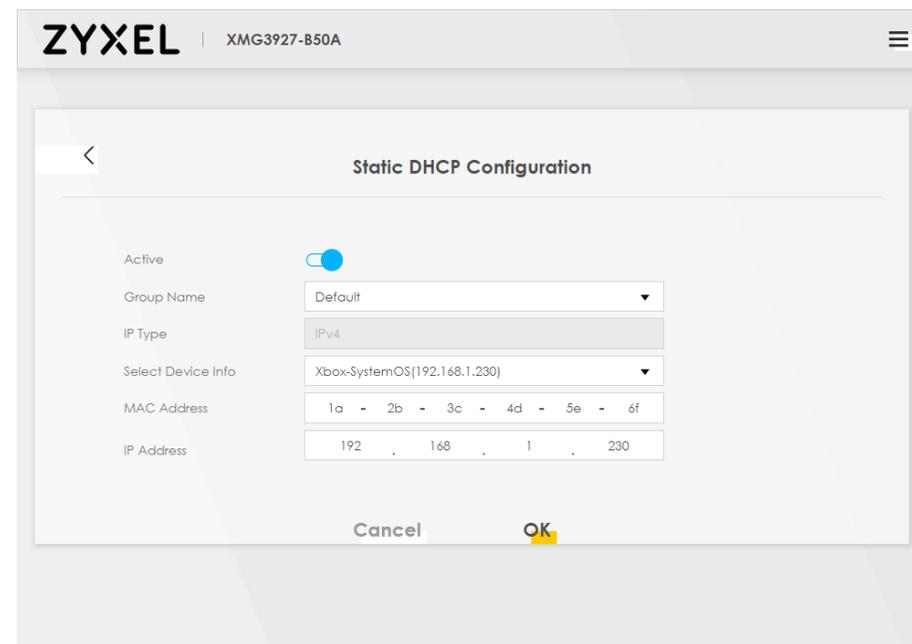
- A page labelled **Home Networking** will open. The first thing they need to do is set their device to always use the same IP address.
- They need to select the **Static DHCP** tab at the top and then press **Static DHCP Configuration** to the right.



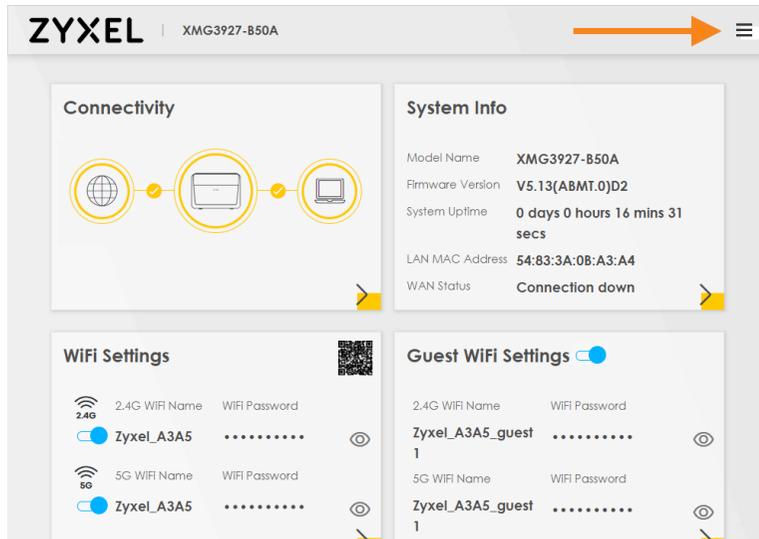
10. Once inside the **Static DHCP Configuration** page, set the following:

- **Active** - Switch on
- **Group Name** - Can be left as Default
- **IP Type** - Leave this as IPv4
- **Select Device Info** - This will show Your customer a drop down menu of all devices connected to their home network. They need to select the device they want to port forward (e.g. Xbox Console)
- **MAC Address** - This will autofill once they've chosen a device.
- **IP Address** - This will autofill once they've chosen a device.

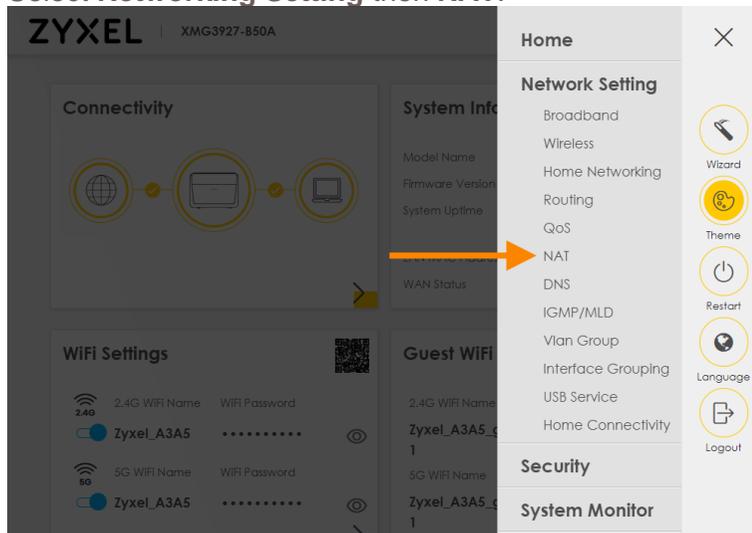
They should make a note of the IP address number as they'll need this later; **OK** must then be pressed to save the settings.



11. Now it's time to forward the port. At the top right of the screen, they need to select the three black lines to open the **Menu**.

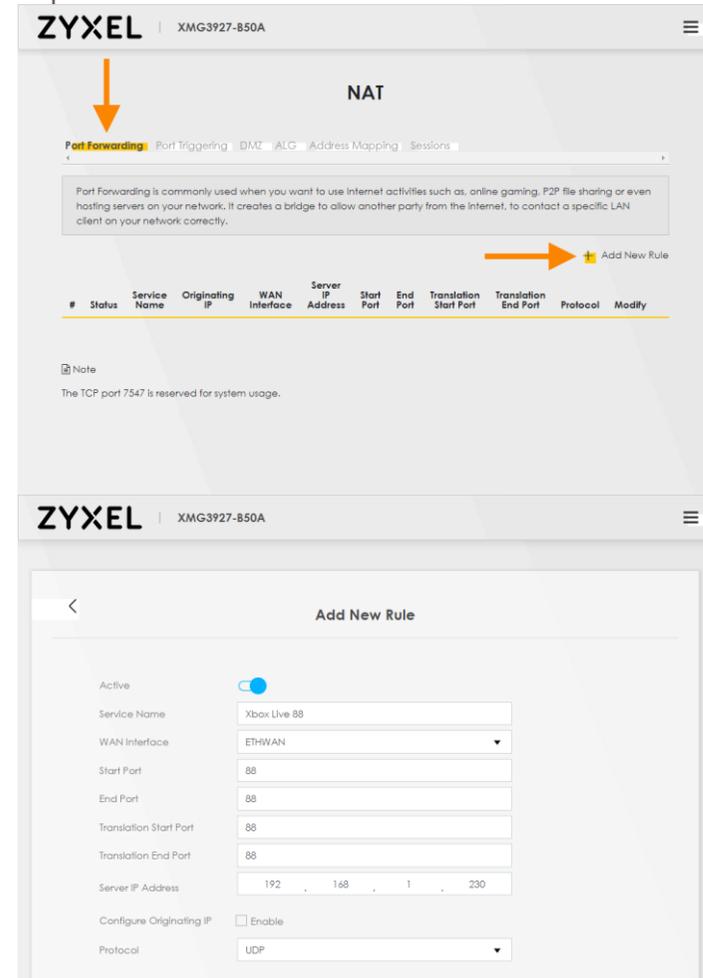


12. Select **Networking Setting** then **NAT**.



13. A page labelled **NAT** will open. Make sure that Your customer is on the **Port Forwarding** tab and request them

to press **Add New Rule**.



14. A list of settings will now appear but Your customer needs to know what ports they need to forward before changing anything.

They can usually find the ports that they need to forward, by

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looking on the website of the service they're wanting to forward. As port forwarding for games consoles is most common, they can find the ports and protocols for Xbox Live [here](#), and for PlayStation [here](#).

- **Active** - Switch this on
- **Service Name** – Your customer needs to type in a name so they can identify why they're forwarding ports (you can recommend the name of the service and then the port number)
- **WAN Interface** – Your customer needs to set this to the KCOM service name (Connect Fibre is ETHWAN)
- **Start Port, End Port** - If Your customer is forwarding a single port, they will need to type the same port number in both of these boxes. If it's a range, then they need to type in the start port, then the end port.
- **Translation Start Port, Translation End Port** - These will autofill
- **Server IP Address** – They need to type in the IP address that they noted down in step 8 earlier
- **Configure Originating IP** - Leave this unticked
- **Protocol** - Set this to the correct value provided by the service they're forwarding

Once Your customer has finished, instruct them to scroll down and press **OK** to save their changes. They can repeat this process for any additional ports that need forwarding.

15. Their ports will now be forwarded.

How to check the settings on your Zyxel XMG 3927 router
Router firmware is periodically upgraded for all our **Zyxel XMG 3927** routers. Firmware is the permanent software fitted in the customer's router that enables it to connect you to the internet.

Upgrading the firmware will reset Your customers router and could mean any changes they have made to their router's settings - such as changing their username or password - could be lost.

This article gives you easy to follow steps to help the customer check and make a note of their **current settings** before an upgrade takes place so they can re-input them if they wish to after the upgrade is complete.

After the router has been reset, they can open this article again for help re-entering their settings.

Remember, they only need to take a note of these settings if they have changed them at any time from the default settings that their router came with and want to re-input them once their router has been reset.

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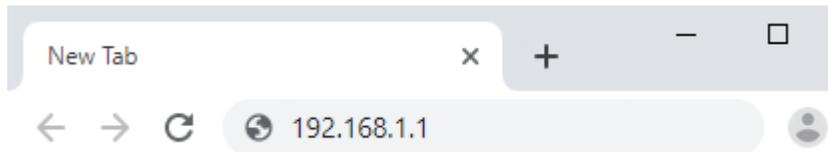
Login to the router

1. Your customer needs to connect a device to their Zyxel router using an [Ethernet cable](#) (recommended) or **WiFi**.

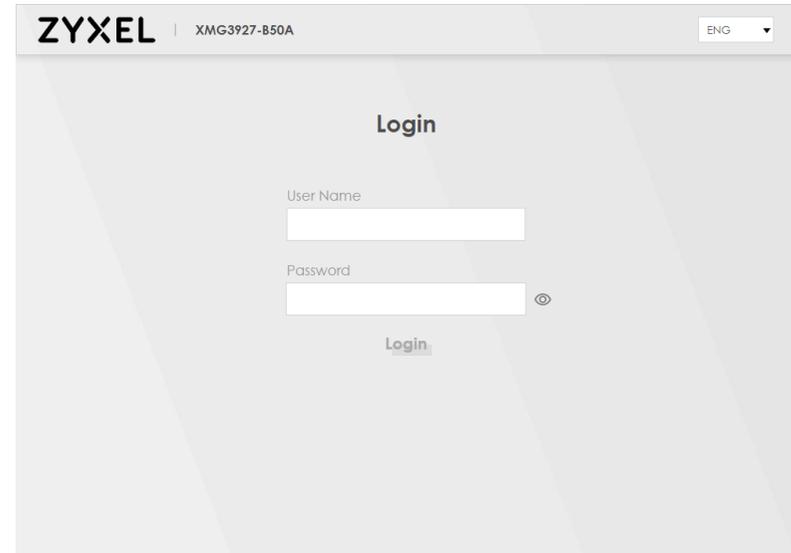


2. Then they need to open a new web browser and type 192.168.1.1 into their address bar and press **enter** or **go**.

If they've previously changed the default gateway IP address to something else, they'll need to type this instead.



3. They should now see a **Zyxel** screen asking them to Login.



4. In order for Your customer to log into their router, they need to type in the username and password that they set when first installing the router.

If they didn't set a new password, they're going to need the username and password which they can find on the card that comes with their router. This is normally located on the slot on the back.

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ZYXEL

SSID	Zyxel_ xxxx	
Wireless key	XXXXXXXXXXXXXXXXXX	
User name	admin	
Login Password	XXXXXXXXXX	

Type in the **username** and **login password**, then select **Login**. Your customer should now be logged into the router.

ZYXEL | XMG3927-B50A ENG ▾

Login

User Name

Password
 ⊗

Login

Checking wireless name and password

Your customer's Wi-Fi settings can be found on the **Home** page in the **WiFi Settings** section. If these details have been changed from

the default, we recommend Your customer makes a note of them so they can change them back after their router has been reset.

To view the WiFi password, press the **Eye** icon.

These instructions should be enough for most users.

However, for advanced users who use the more complex features on their router, the following instructions may also be helpful. Remember, these instructions are only for advanced users - if the customer has never heard of LAN, DHCP or port forwarding, don't worry: they won't notice any difference to their connection following the reset.

WiFi Settings


 2.4G	<p>2.4G WiFi Name</p> <p><input checked="" type="checkbox"/> My_Network</p>	<p>WiFi Password</p> <p>..... ⊗</p>
 5G	<p>5G WiFi Name</p> <p><input checked="" type="checkbox"/> My_Network</p>	<p>WiFi Password</p> <p>..... ⊗</p>

➤

Checking LAN / DHCP scope

The **LAN** information is displayed on the **Home** screen.

- **IP Address:** 192.168.1.1 (this is the default IP address to access their router gateway)
- **Subnet Mask:** 255.255.255.0
- **IP Address Range:** 192.168.1.41 - 192.168.1.240 (any device that connects to their network will use one of these addresses)

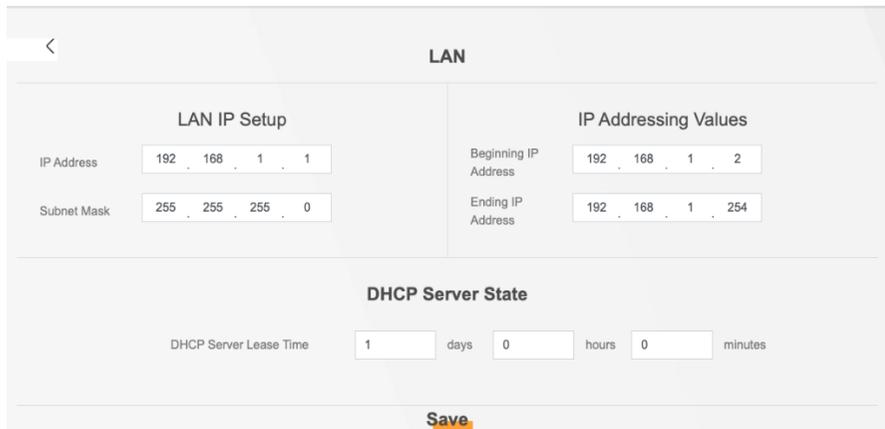
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- **DHCP:** This should be turned on to automatically assign an IP address to a device



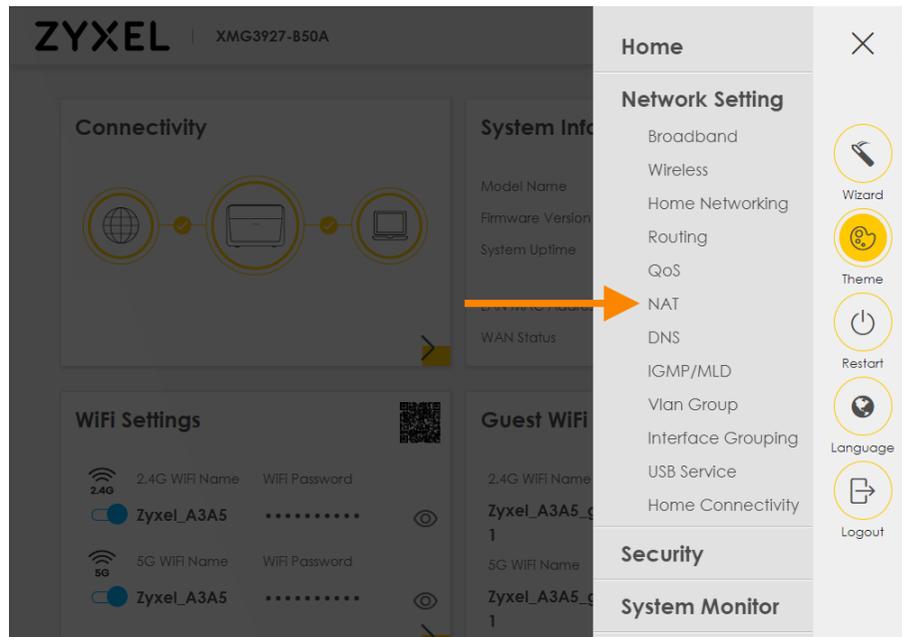
If Your customer can see anything other than these settings here, we recommend they write down the information so they can fill this back in after the router has been reset. To do this, they need to click on the arrow at the bottom right.

This will bring up the following screen where they can type in the information.



Checking port forwarding rules

The port forwarding rules they currently have setup can be found in the **NAT** section. To get there, select the three black lines at the top right of the **Home** screen, to open the **Menu**. Now select **Network Setting**, then **NAT**.



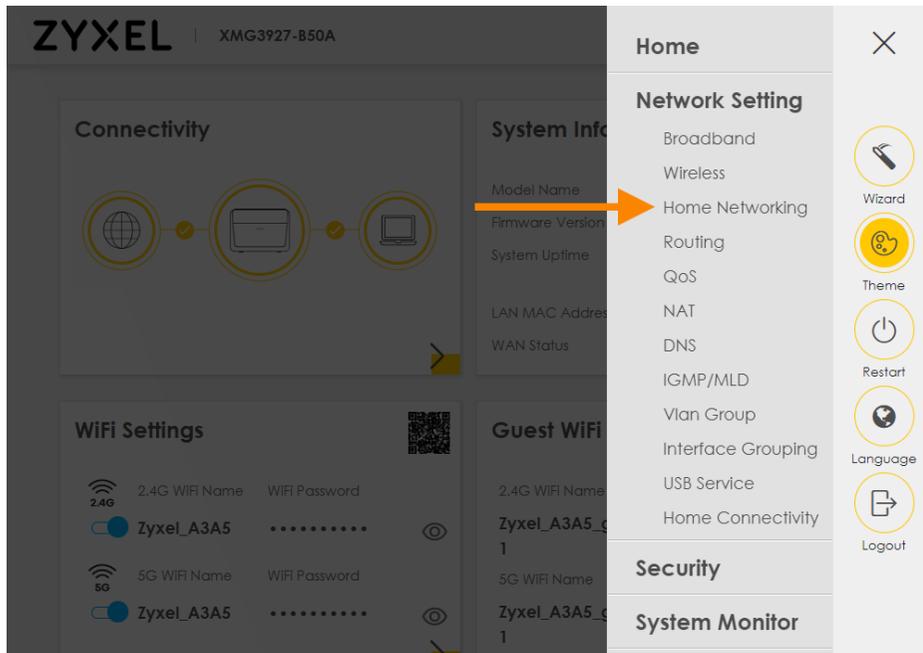
Any existing port forwarding rules that have been setup will show here. We recommend Your customer makes a note of these so they can set them up again once their router resets.

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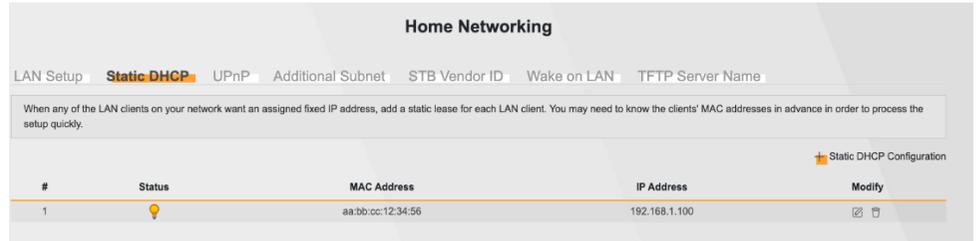


Checking Static DHCP reservations

Static DHCP reservations can be found in the **Home Networking** section. To get there, select the three black lines at the top right of the **Home** screen, to open the **Menu**. Now select **Network Setting**, then **Home Networking**.



Select **Static DHCP** at the top of the screen to see details of their existing DHCP reservations.



How does a customer setup and connect to the Guest WiFi on their Zyxel XMG 3927 router?

Setting up **Guest WiFi** on a customer's **Zyxel XMG 3927** router gives Your customer's guests access to the internet without them knowing the customers password or having access to their home network.

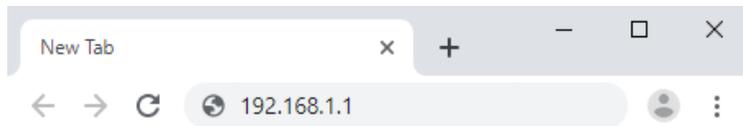
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How does a customer turn on Guest WiFi?

1. Firstly, a customer will need to connect a device to their Zyxel router using an [Ethernet cable](#) (recommended) or **WiFi**.



2. Open a new web browser and type **192.168.1.1** and press **enter** or **go**.



3. They should now see a **Zyxel** screen asking them to Login.

4. To log into their router, Your customer will need the username and password which they can find on the card that comes with their router. This is normally located on the slot on the back.

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5. Type in the **username** and **login password**, then select **Login**.

Password not working?

If this password doesn't work, the router requires a factory reset. To do this, your customer will need to insert a pin into the 'Reset' hole on the back of the router for 10 seconds. After a few minutes when the router has turned back on, go back to Step 1.

The screenshot shows the ZyXEL router's login interface. At the top, it displays 'ZYXEL | XMG3927-B50A' and a language dropdown set to 'ENG'. The main heading is 'Login'. Below this, there are two input fields: 'User Name' with the text 'admin' and 'Password' with masked characters '*****'. A yellow highlight is under the 'Login' button at the bottom of the form.

6. Once Your Customer has logged into the router, they'll see the **Home** screen. This is where they can get an overview of what's happening on their router.

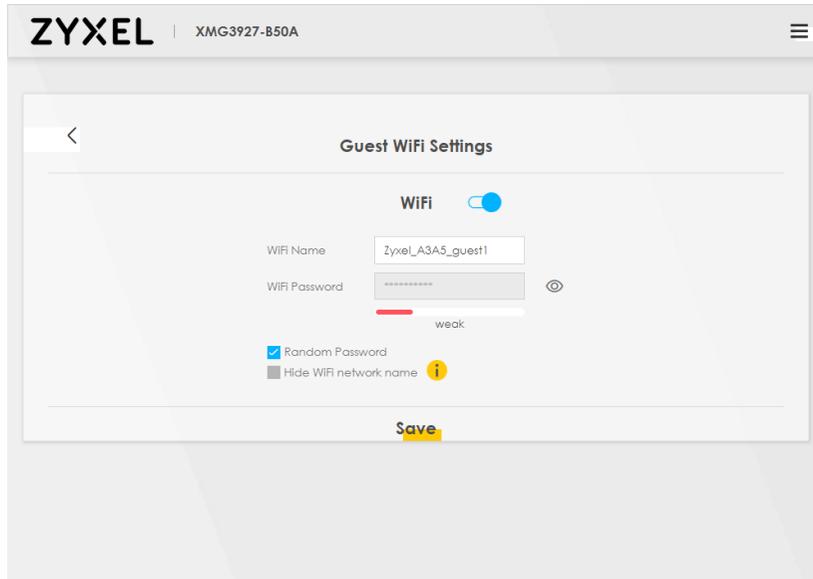
They need to look for the section labelled **Guest WiFi Settings** and then press the **switch** so it turns on (it should go blue). Now they need to press the **arrow** underneath to the right so they can change the settings.

The screenshot shows the ZyXEL router's Home dashboard. It features several panels: 'Connectivity' with a globe icon and a red 'X' indicating a connection issue; 'System Info' showing model name 'XMG3927-B50A', firmware version 'V5.13(ABMT.0)D2', and system uptime; 'WiFi Settings' with 2.4G and 5G WiFi names and passwords; and 'Guest WiFi Settings' which has a toggle switch currently in the 'off' position. An orange arrow points to this toggle switch. Below the Guest WiFi Settings, there are two rows of settings for 'Zyxel_A3A5_guest 1' with their respective WiFi names and passwords. Another orange arrow points to a right-pointing arrow icon at the bottom right of the Guest WiFi Settings panel.

7. A page labelled **Guest WiFi Settings** should open. This is where they can set the name and password for their guest network.

They can untick **Random Password** to unlock the **WiFi Password** box, then type in a new password before pressing **Save**.

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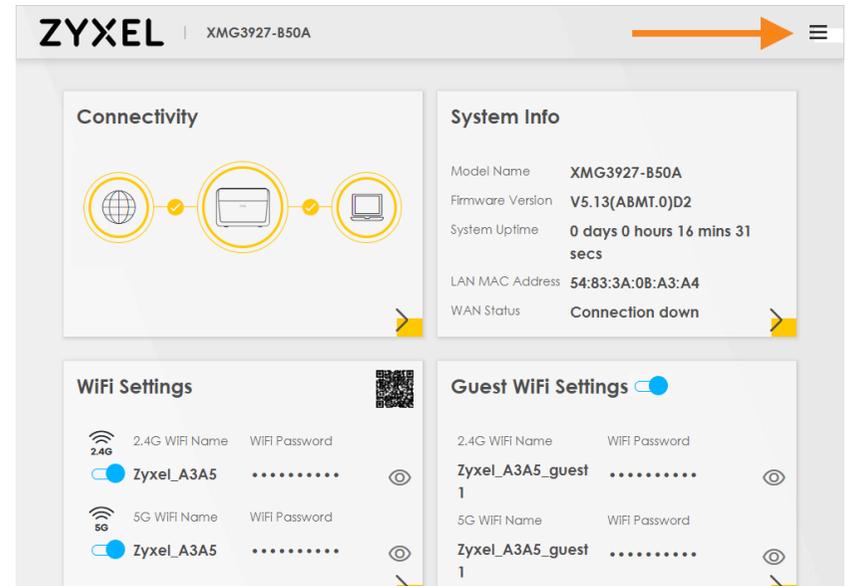


How can a customer create multiple Guest WiFi access points?

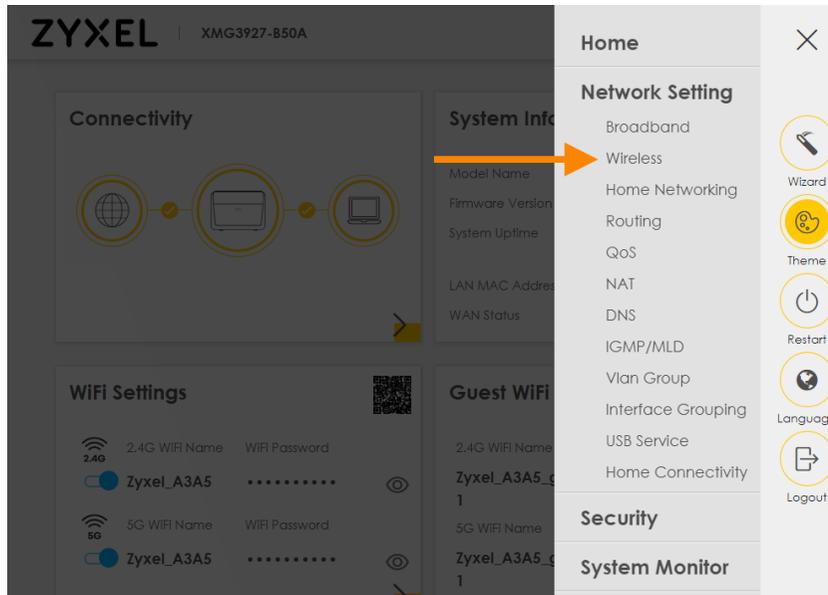
Their **Zyxel XMG 3927** router can actually have up to three different guest access points at a time. This means three different 'networks' will appear with different names and/or passwords.

To enable these, your customer needs to edit some Wi-Fi settings.

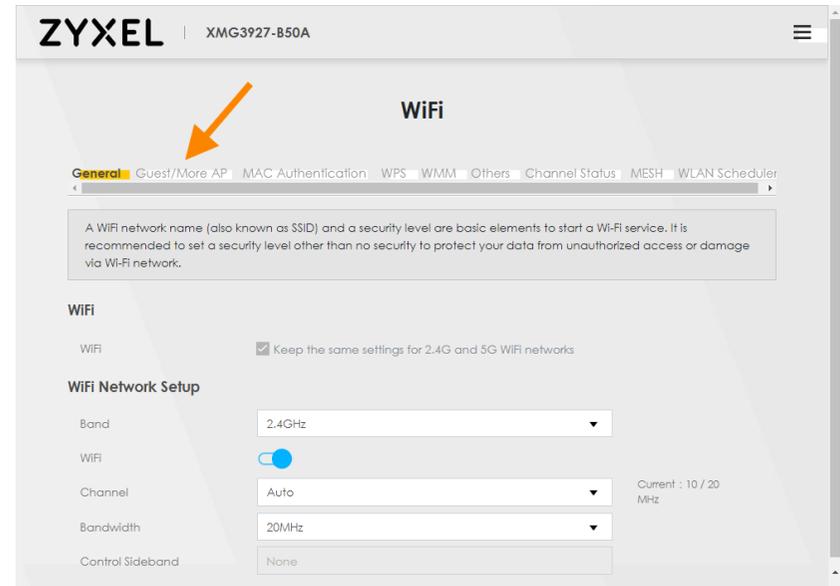
1. Assuming they've already logged into their router using the instructions above, at the top right of the screen, they need to select the three black lines to open the **Menu**.



2. Then they need to select **Network Setting** and then **Wireless**.

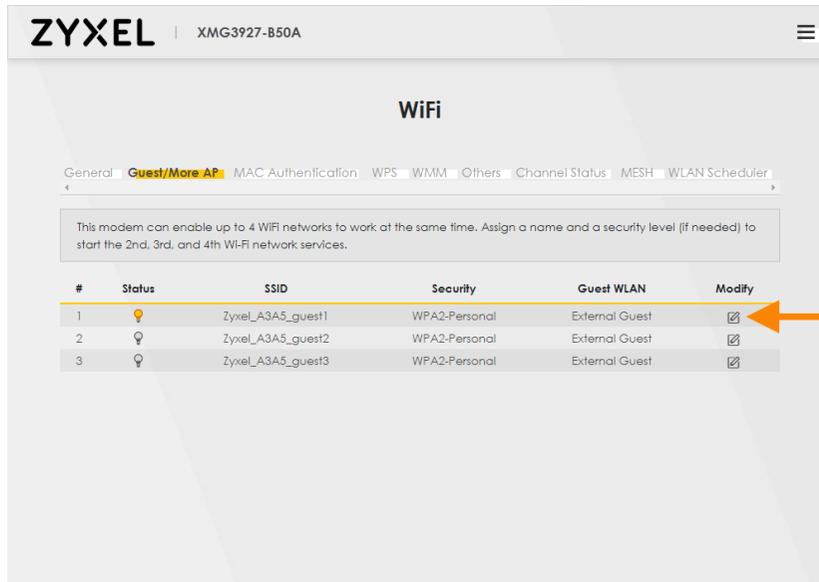


3. A page labelled **Wi-Fi** will open. Your customer needs to look for the **Guest/More AP** at along the top and press it.



4. The list of **Guest Wi-Fi Access Points** will now show. Any of the access points in the list that show a lit lightbulb in the **Status** column means that access point is active and visible to devices for people to connect to.

To modify the settings or turn on any of the access points, your customer will need to click the **Modify** button on the right which looks like a pen and paper icon.



5. A page labelled **More AP Edit** will show - this is where they can turn on their selected guest network or change other settings. The top of the page has the following settings:

WiFi - This should be switched on if Your customer wants this network to be available for guests

WiFi Network Name - They can type a name for their guest network here (this needs to be different from their usual network name)

Hide SSID - Ticking this means the wireless name isn't broadcasted, but devices can still connect if they already know the wireless name.

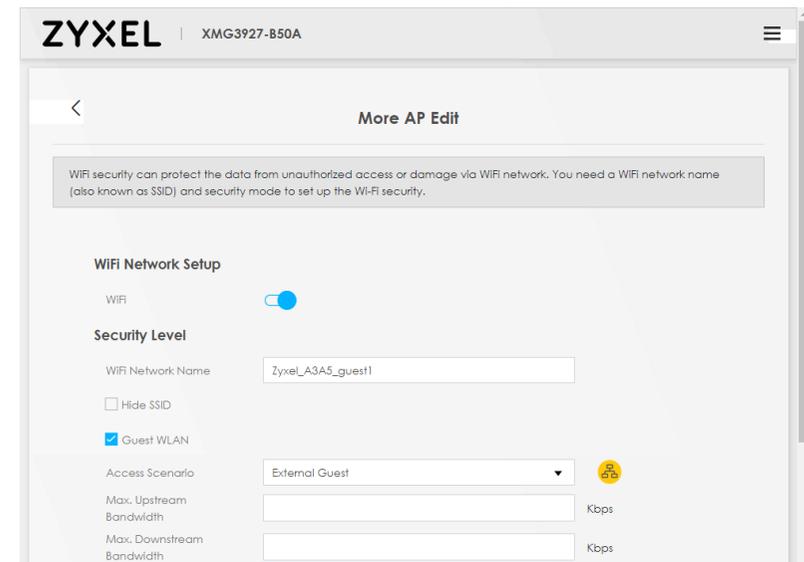
Guest WLAN - This should be ticked.

Access Scenario - There are two modes to choose from here. 'Home Guest' allows users to connect to each other directly, whereas 'External Guest' blocks users from connecting to each other directly. If Your customer is

unsure, we recommend leaving this as 'External Guest'.

Max. Upstream Bandwidth - They can restrict upload speeds by typing a speed in Kbps here, but we recommend leaving this blank.

Max. Downstream Bandwidth - They can restrict download speeds by typing a speed in Kbps here, but we recommend leaving this blank.



6. Further down the page, they should see the following settings:

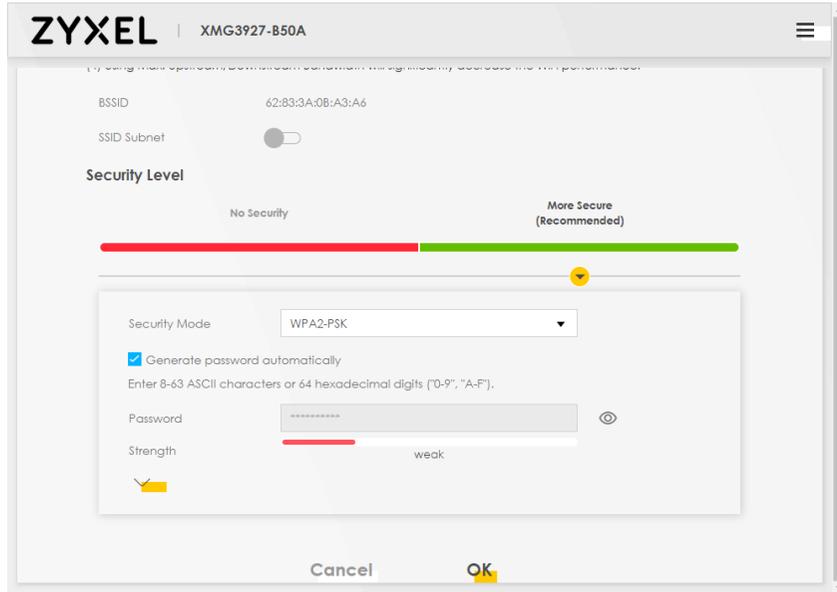
SSID Subnet - Leave this switched off.

Security Mode - Leave this as WPA2-PSK

Generate password automatically - If Your customer wants to set their own password, untick this.

Password - If they unticked the box above, they need to type their own password here (minimum 8 characters long).

Once finished, press **Save** at the bottom of the page.



7. Finally, once all the steps have been completed their settings for the guest network will now be saved.

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How to help a customer setup their Technicolor DGA2231 (4231) router?

(Note: Technicolor DGA2231 has the same functionality as the 4231. For DGA2231 below this could be either 2231 or 4231)

Their **Technicolor DGA2231** router has technology that allows it to set itself up automatically by detecting the type of connection. This means Your customer shouldn't have to set the router up manually; however, we've provided this guide just in case.

Something to note

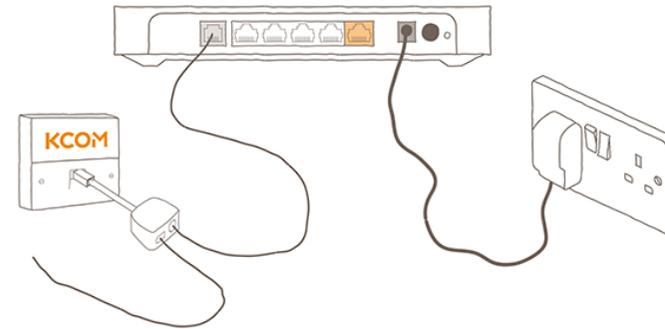
Their router can take up to 4 minutes to fully set up on its own, please allow this time before setting up the router manually.



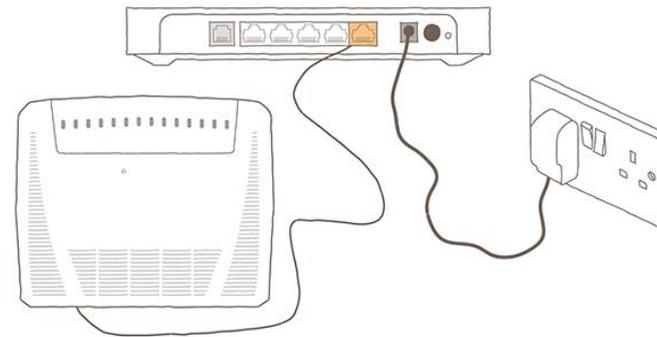
What types of connection can the router use?

The Technicolor router can be used for Connect Fibre (FTTP), Connect Fibre [to the Cabinet] (FTTC) and Connect ADSL (ADSL). Once Your customer's router has been plugged in correctly, they can begin manually configuring the router.

Broadband & VDSL Connect Fibre



FTTH Connect Fibre



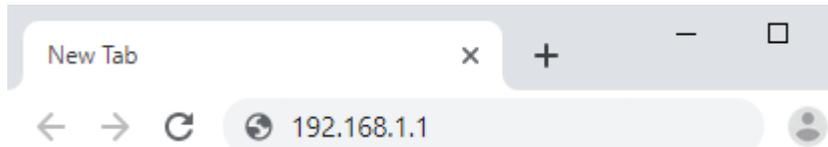
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Setting up the Technicolor router manually

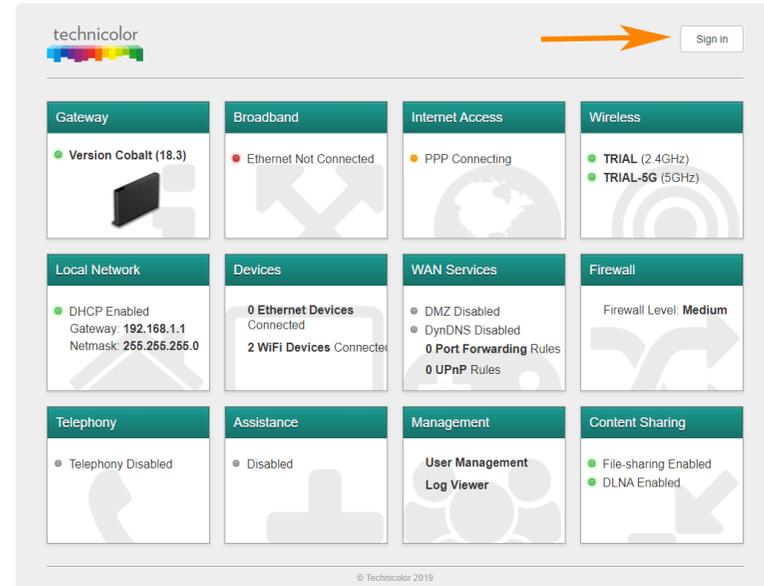
1. Connect a device to their Technicolor router using an [Ethernet cable](#) (recommended) or **Wi-Fi**.



2. Open a new web browser and type **192.168.1.1** into their address bar and press **enter** or **go**



3. Your customer should now see a Technicolor screen with a number of different tiles. Select **Sign In** at the top right.

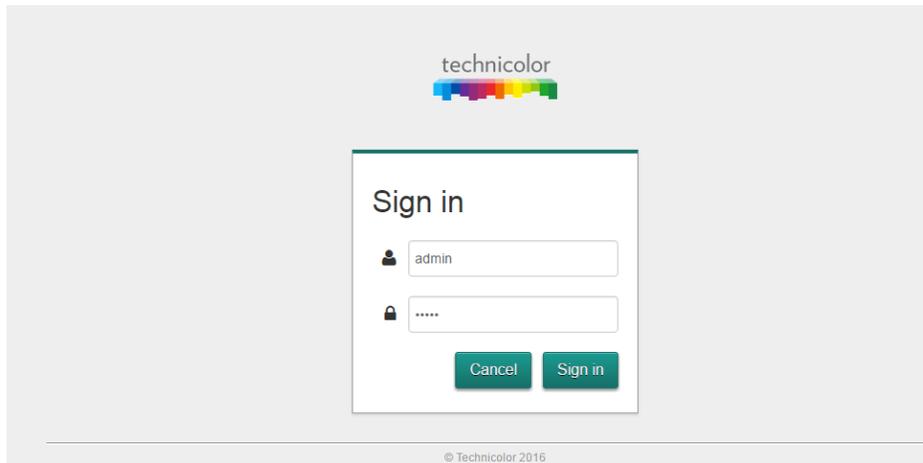


4. They now need to sign in with their login details. The username will be **admin** and the password will be either '**admin**' or the **access key** on the bottom left of the label on the back of their router.

Now select **Sign in**.

Password not working?

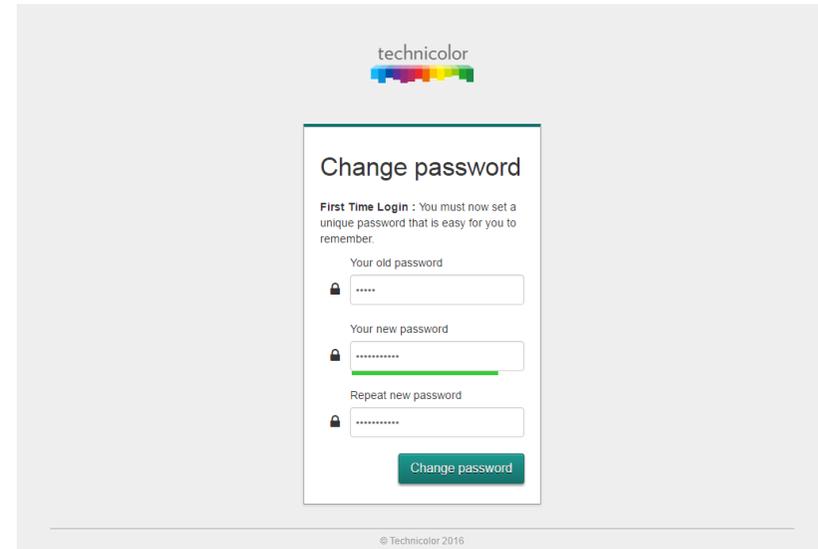
If neither of those password's work, the router requires a factory reset. To do this, your customer will need to inset a pin into the 'Reset' hole on the back of the router for 10 seconds. After a few minutes when the router has turned back on, go back to Step 1.



If this is the first time, your customer has accessed the router, they'll need to change the admin password. If they've accessed the router before, skip to the next section.

Type in *their old password* which is **admin**, then type in *their new password* and then **Repeat new password**. Then select **Change password**.

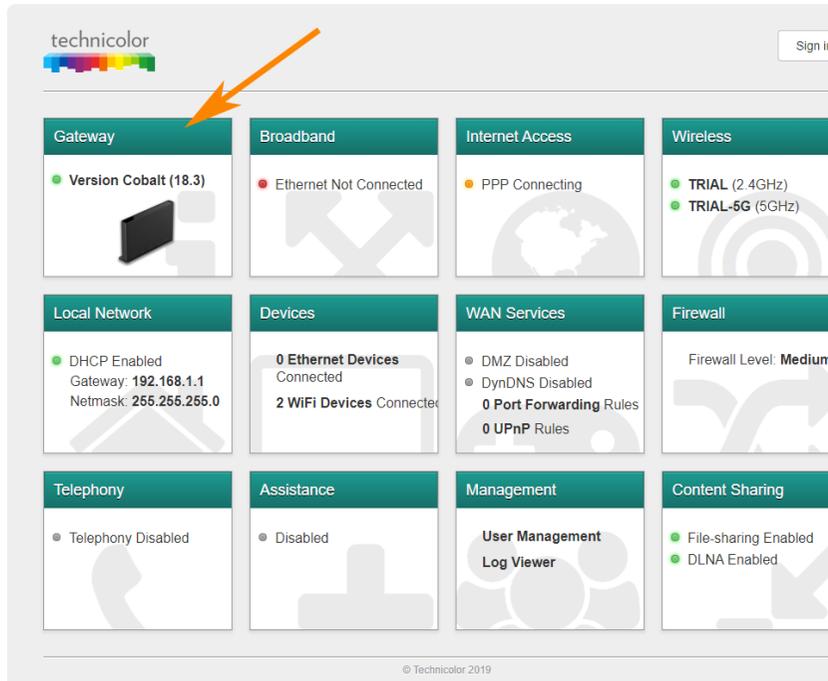
They'll now be logged into the router.



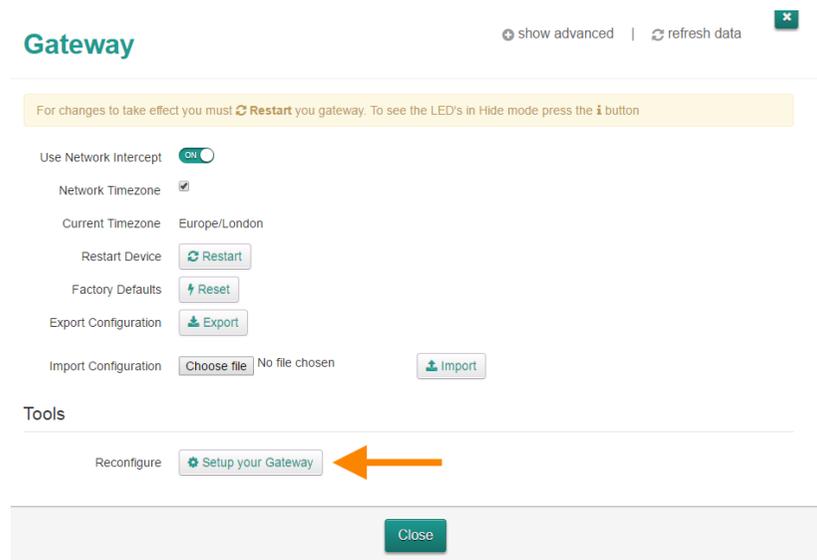
5. First, it's worth checking whether Your customer's internet is working or not as they may not need to manually setup the router.

Check the **Internet Access** tile. If it shows **PPP Connected**, this means they're online and should be able to browse. If they cannot browse, they can manually setup the router.

Select the **Gateway** tile.



6. Scroll to the bottom and select **Setup their Gateway**.



7. They now need to select the type of connection they want to setup.

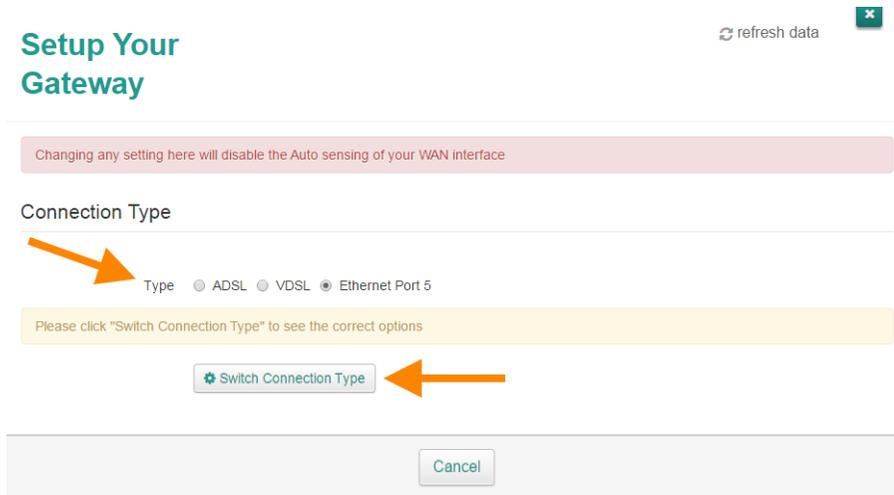
- If they're using **regular broadband** where they plug into a telephone socket, select **ADSL**.
- If they're using **VDSL Connect Fibre** where they plug into a telephone socket but receive faster speeds, select **VDSL**.
- If they're using **FTTH Connect Fibre** where they plug into an ONT (fibre box on their wall), select **Ethernet Port 5**.

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Please bear in mind

If they go ahead with manual setup, their Technicolor will no longer 'sense' the connection or auto-configure.

When they've selected the relevant connection type, select **Switch Connection Type**.



The screenshot shows the 'Setup Your Gateway' configuration page. At the top right, there is a 'refresh data' link and a close button. A warning message states: 'Changing any setting here will disable the Auto sensing of your WAN interface'. Under the 'Connection Type' section, there are radio buttons for 'Type', 'ADSL', 'VDSL', and 'Ethernet Port 5'. An orange arrow points to the 'Type' radio button. Below this, a yellow box contains the instruction: 'Please click "Switch Connection Type" to see the correct options'. A button labeled 'Switch Connection Type' with a gear icon is highlighted, with another orange arrow pointing to it. At the bottom of the form is a 'Cancel' button.

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I selected ADSL...

If Your customer selected ADSL to setup their broadband, some settings will appear below. Make sure the following settings are set correctly:

- Set **Routed Type** to **PPPoA**
- For **Username**, type in their **KCOM username**
- For **Password**, type in their **KCOM password**
- Set **MTU** to 1492
- Set **ATM VP** to **1**
- Set **ATM VC** to **50**
- Set **Encapsulation Type** to **LLC**

Select **Save** at the bottom to apply the new settings and setup their router. Once the router has finished applying the settings, wait 2-3 minutes.

Providing everything was setup correctly, they should now be able to browse the internet!

Setup Your Gateway

[refresh data](#)

Changing any setting here will disable the Auto sensing of your WAN interface

Connection Type

Type ADSL VDSL Ethernet Port 5

Connection Configuration - ADSL

Status ● Connecting

Enabled

IPv6

Routed Type

Please complete the user details below

Username

Password

Re-enter your password each time, if you do not your password will not be taken correctly

MTU

ATM VP

ATM VC

Encapsulation Type

Cancel

Save

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I selected VDSL...

If Your customer selected VDSL to setup their Connect Fibre, some settings will appear below. Make sure the following settings are set correctly:

- Set **Routed Type** to **PPPoE**
- For **Username**, type in their **KCOM username**
- For **Password**, type in their **KCOM password**
- Set **MTU** to 1492

Select **Save** at the bottom to apply the new settings and setup their router. Once the router has finished applying the settings, wait 2-3 minutes.

Providing everything was setup correctly, they should now be able to browse the internet!

Setup Your Gateway

[refresh data](#)


Changing any setting here will disable the Auto sensing of your WAN interface

Connection Type

Type ADSL VDSL Ethernet Port 5

Connection Configuration - VDSL

Status ● Connecting

Enabled

IPv6

Routed Type

Please complete the user details below

Username

Password

Re-enter your password each time, if you do not your password will not be taken correctly

MTU

VLAN Enabled

VLAN ID

Cancel

Save

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I selected Ethernet Port 5...

If Your customer selected Ethernet Port 5 to setup their Connect Fibre, some settings will appear below. Make sure the following settings are set correctly:

- Set **Routed Type** to **PPPoE**
- For **Username**, type in their **KCOM username**
- For **Password**, type in their **KCOM password**
- Set **MTU** to 1492

Select **Save** at the bottom to apply the new settings and setup their router. Once the router has finished applying the settings, wait 2-3 minutes.

Providing everything was setup correctly, they should now be able to browse the internet!

Setup Your Gateway

[refresh data](#)


Changing any setting here will disable the Auto sensing of your WAN interface

Connection Type

Type ADSL VDSL Ethernet Port 5

Connection Configuration - Ethernet WAN

Status ● Connecting

Enabled

IPv6

Routed Type

Please complete the user details below

Username

Password

Re-enter your password each time, if you do not your password will not be taken correctly

MTU

VLAN Enabled

Equipment Dimensions

Technical Specifications

	ECI ONT	DZS ONT	Zyxel XMG3927	Technicolor DGA4231
Height	16cm	15cm	18cm	17 cm
Width	19.5cm	25.5cm	24cm	27cm
Depth	Without Bracket 3cm	Without Bracket 4cm	Without Bracket 3cm	Without Bracket 3.5cm
	With Bracket 5cm	With Bracket 5.5cm	With Bracket 8cm	With Bracket 5cm

DGA4231

Technical Specifications

Hardware

■ Interfaces WAN	1 RJ-11 xDSL line port 1 autosensing 10/100/1000 Base-T Ethernet WAN port
■ Interfaces LAN	4-port autosensing 10/100/1000 Base-T Ethernet LAN switch IEEE 802.11n 2.4 GHz Wi-Fi IEEE 802.11ac 5 GHz Wi-Fi 2 FXS POTS ports
■ Buttons & LEDs	2 USB 2.0 master ports Wi-Fi on/off button WPS button Reset button (recessed) Power button 5 status LEDs
■ Power input	DC jack
■ Power supply	12 VDC external PSU
■ AC Voltage	100 - 240 VAC, 50 - 60 Hz (switched mode power supply)

xDSL modem

■ Supports multi mode standards	
■ ADSL compliancy	ITU-T G.992.1 Annex A (Gdmt) ITU-T G.992.2 Annex A (G.lite) ITU-T G.994.1 (G.hs)
■ ADSL2 compliancy	Rates up to 8 Mbps downstream and 1 Mbps upstream ITU-T G.992.5 Annex A, L (G.dmt.bis) ITU-T G.998.4 (G.inp)
■ ADSL2+ compliancy	Rates up to 12 Mbps downstream and 1 Mbps upstream ITU-T G.992.5 Annex A, M ITU-T G.998.4 (G.inp)
■ VDSL2 compliancy	Rates up to 24 Mbps downstream and 3 Mbps upstream ITU G.995.2 SOS SRA INM
	Up to VDSL2 profile 35b ITU-T G.995.5 (G.vector) ITU-T G.998.4 (G.inp)
■ Supports Dying Gasp (optional)	

Wi-Fi

■ Full dual band concurrent Wi-Fi access points, Wi-Fi certified*	2.4 GHz (5x5) IEEE 802.11n AP 5 GHz (4x4) IEEE 802.11ac AP with IEEE 802.11ac compliant transmit beamforming
■ Wi-Fi security levels	WPA2™-Enterprise / WPA™-Enterprise WPA2™-Personal / WPA™-Personal WPA2™ + WPA™ mixed mode (AES and TKIP)
■ Wi-Fi Protected Setup (WPS™)	
■ Wi-Fi Multimedia (WMM™) and WMM-Power Save	
■ Up to 4 BSSIDs (virtual AP) support per radio interface	
■ Wireless hotspot capabilities	
■ Band Steering	
■ 3x5 MIMO 2.4 GHz Wi-Fi features	2.4 GHz frequency bands 2400 - 2483.5 MHz 2.4 GHz Wi-Fi power up to 20 dBm (100 mW EIRP) SGI (Short Guard Interval) STBC (Space-Time Block Code) 20, 40 MHz bandwidths
■ 4x4 MU-MIMO 5 GHz Wi-Fi features	5 GHz frequency bands 5150 - 5250 MHz 5250 - 5350 MHz with Dynamic Frequency Control 5 GHz Wi-Fi power up to 30 dBm (1000 mW EIRP) SGI (Short Guard Interval) STBC (Space-Time Block Code) LDPC (FEC) Multi-User MIMO TPC (Transmit Power Control) OCAC (Off Channel Availability Check) 20, 40, 80, 160 MHz bandwidths
■ RX/TX switched diversity	
■ Dynamic rate switching for optimal wireless performance	
■ Manual/auto radio channel selection	

Voice and telephony

■ Voice technologies	Voice over IP (VoIP)
■ Voice signalling	SIP
■ Voice codecs	G.711, G.726, G.729 iLBC (Internet Low Bitrate Codec) Wideband G.722.2 AMR-WB (optional) T.38
■ Echo cancellation	G.168 compliant
■ Comfort Noise Generator (CNG)	
■ Voice Activity Detection (VAD)	
■ Flexible telephone number per FXS handset, including common numbers	
■ Supplementary and advanced services	Caller ID Call waiting (on call basis) Call forwarding (no answer/busy/unconditional) Call transferring Call hold, call return Calling Line Identification Presentation (CLIP) Calling Line Identification Restriction (CLIR) Calling Name Identification Presentation (CNIP) Calling Name Identification Restriction (CNIR) Fax transparency / V.92 transparency 3-way conference Message Waiting Indicator (MWI) Call completion to busy subscriber Abbreviated number Anonymous Call Rejection (ACR) Distinctive ringing DNS SRV Back-to-Back User Agent
■ SIP server	
■ Interoperable with main market softswitches	

Management

■ Customizable user-friendly GUI via HTTP and HTTPS	
■ Command Line Access SHell (CLASH)	SSH v2
■ Web services API for remote access (portal, management, diagnostics, applications, ...)	
■ Web-browsing intercept (install/diagnostics/captive portal)	
■ AutoWAN sensing™ (automatic selection and configuration of WAN interfaces)	
■ TR-069 CPE WAN Management Protocol (CWMP)	TR-098 Internet Gateway Device (IGD) management TR-104 voice service provisioning and configuration TR-111 home network device management TR-140 storage service provisioning TR-143 network throughput performance tests and statistical monitoring TR-157a3 Life Cycle Management (LCM) TR-181i2 Device:2 data model
■ Zero-touch autoprovisioning	

Services

■ Life Cycle Management (LCM) for developing advanced services support	
■ Open architecture for 3rd party application and UI development	
■ 3G/LTE/4G mobile fall-back WAN connection (through USB adapter)	
■ Enabled to support Technicolor Managed Services	Wireless Doctor™ (sold separately)
■ VPN client/server scenarios	L2TP/IPSec PPTP OpenVPN
■ Wireless hotspot (optional, on request)	Based on HotSpot 2.0 technologies Passpoint™ GRE tunneling EAP Fon
■ Parental control	URL- and (optional) content-based website filtering Time-based access control (Time of Day)
■ Printer sharing	IPP LPD Server Message Block (SMB) Samba printer sharing Server Message Block (SMB) Samba file server
■ Content sharing	UPnP A/V™ media server and control point DLNA® DMS Metadata support FAT32, NTFS EXT2, EXT3, EXT4 HFS+
■ HDD file systems	

Networking

■ Symmetrical NAT with application helpers (ALGs)	
■ Game and application sharing NAT port maps	
■ DHCP conditional serving & relay	
■ DNS server & relay	
■ IGMPv3 proxy (Fastleave)	
■ IGMP snooping (full routed)	
■ DHCP spoofing	
■ IEEE 802.1q VLAN bridging, multiple bridge instances	
■ MLN Proxy for IPv6	
■ Port Control Protocol (PCP)	
■ Multicast to unicast translation on Wi-Fi interfaces	

IPv6 networking

■ IPv4 / IPv6 dual IP stack	
■ Supported models	PPP(oE)(oA) IPoE(oA) 6rd/6to4/6in4 DS-Lite
■ Transitioning	
■ Stateful connection tracking / stateful inspection firewall	Stateful/stateless DHCPv6 client Stateless DHCPv6 server Relay Prefix Delegation
■ DHCPv6	

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Quality of Service

- ATM QoS UBR, VBR-nrt, VBR-rt, CBR shaping, queuing and scheduling
- IP QoS CLP tagging
Flexible classification (ALG aided)
IP rate limiting (two-rate remarking/dropping)
DSCP (re-)marking
- Ethernet QoS Dynamic link fragmentation
Priority or C-VLAN/S-VLAN tagging
Ethernet switch port queuing and scheduling
- Wireless QoS WMM (BE, BK, VI, VO access categories) queuing and scheduling

Security

- Stateful Packet Inspection Firewall (SPIF)
- Customizable firewall security levels
- Intrusion detection and prevention
- DeMilitarized Zone (DMZ)
- GRE Tunnel encryption
- Multilevel access policy
- Secure boot
- Security and service segregation per SSID

Package contents

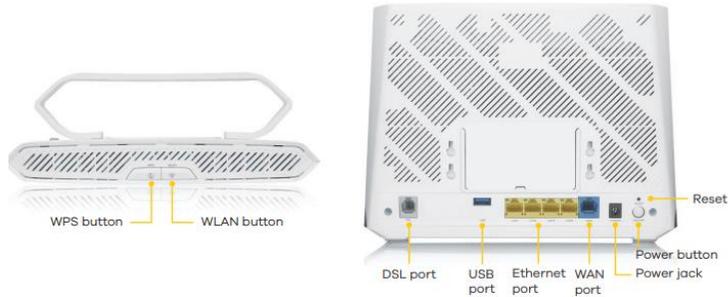
- DGA4231
- Power supply unit
- Quick Setup Guide
- Safety Instructions & Regulatory Information
- DSL cable
- Ethernet cable
- Filter(s) or splitter(s) (optional)

Dimensions: H 17cm; W 27cm; D 3.5cm (5cm inc bracket)



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Zxyel XGA3927



Dimensions: H 18cm; W 24cm; D 3 cm (8 cm inc bracket)

System Specifications

Wireless Standard

- 802.11 b/g/n/ac 2.4 GHz, data rate 600 Mbps
- 802.11 a/n/ac 5 GHz, data rate 1733 Mbps

G.fast/VDSL and ADSL Compliance

- G.fast:
 - G.9700 (Power spectral density specification)
 - G.9701 (Physical layer specification)
 - G.994.1 (G.hs)
 - G.9972 (Physical layer management for G.fast transceivers)
 - G.9971 extinctions for G.fast
 - Bandwidth: 2 - 106 MHz
- VDSL:
 - G.993.1 VDSL
 - G.993.2 VDSL2, Band 997, 998, Over POTS
 - Support VDSL profiles: 8a/b/c/d, 12a/b, 17a, 30a and 35b
 - G.vector
- ADSL:
 - G.992.1 (G.dmt)
 - G.992.2 (G.lite)
 - ANSI T1.413 compliant
 - G.992.3 (ADSL2)
 - G.992.5 (ADSL2+)
 - G.INP support

Router/Bridge Features

- IEEE 802.1d transparent bridge & basic spanning tree
- PPPoE (RFC 2516)
- PPPoA (RFC 2364)
- MAC encapsulation routing/IPoE
- Network Address Translation (NAT)
- NAT virtual server (port forwarding)
- DHCP client/server/relay with DHCP option 43/60/61/125
- DNS proxy/dynamic DNS
- Static/Policy route
- IGMP v1, v2, v3
- IPv4/IPv6

Wireless

- Wireless Protected Setup (WPS)
- WMM
- WPA2-PSK with AES
- Security type
- Multi SSID: up to 4
- MU-MIMO support

VLAN/QoS

- 802.1Q VLAN tagging/un-tagging
- Support flexible traffic classification

Firewall & Security

- Generic packet filter
- DoS attack prevention
- Parental control

USB

- File sharing
- 3G/4G back up with USB dongle

Management

- Web/HTTP: 3 level log-in via SSH or Telnet
- Firmware upgrade via Web/TFTP/FTP/TR-069 RPC method
- Text based configuration
- Configuration backup/update/restore default via Web
- Configurable access control for remote management (interface and/port number)
- DSL forum TR-069, TR-098
- TR-111 and TR-181 i2
- SNMP v1, v2
- Rom-D support
- UPnP port forwarding rules on page

Hardware Specifications

- WAN: One 10/100/1000 Mbps
- Ethernet port RJ-45
- Wireless:
 - Three internal antennas (2.4 GHz)
 - Four internal antennas (5 GHz)
- DSL: One RJ-14
- Ethernet: Four 10/100/1000 Mbps
- Ethernet ports RJ-45 (8P8C)
- USB: One USB 3.0 host

Button

- One reset button
- One WPS on/off button
- One WLAN on/off button

Status LEDs indicators:

- Power/System
- WAN
- Internet
- LAN
- WLAN-2.4G/WPS
- WLAN-5G/WPS

Power Consumption

- 12 V DC/2.5 A

Physical Specifications

- Item dimensions (WxDxH): 220 x 175 x 33 mm (8.66" x 6.88" x 1.29")
- Item weight: 535 g (1.18 lb.)
- Packing dimensions (WxDxH): 291 x 246 x 80 mm (11.45" x 9.68" x 3.14")
- Packing weight: 995 g (2.19 lb.)

Environmental Specifications

Operating Environment

- Temperature: 0°C to 40°C
- Humidity: 10% to 90% (Non-Condensing)

Storage Environment

- Temperature: -30°C to 70°C
- Humidity: 10% to 95% (Non-Condensing)

Certification

- Safety: CE-LVD
- EMC: CE

Package Contents

- Wireless gateway
- Power adapter
- Ethernet cable
- RJ-11 cable
- Quick start guide
- Safety warning card

* The maximum wireless data is derived from IEEE Standard 802.11 specifications. Actual data transfer rate will vary from network environment including: distance, network traffic, building site materials/construction, interference from other wireless devices, and other adverse conditions.

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ECI ONT (GPON ONT B-Focus O-4G2PCM UK)

Specifications	
Interfaces	10/100/1000 Base-T: 4 POTS: 2
Dimensions	195mm x164mm x33mm (W x D x H, without bracket) 195mm x164mm x51mm (Wx D x H, with bracket)
Power Supply	+12V (feed via external AC/DC adapter) 2-PIN power adaptor input Dying Gasp support Power switch Power Consumption: less than 13.9W
Environmental	Temperature: 0°C ~ 40°C Humidity: 5% ~ 95% relative humidity
Safety &EMI	CE certificate FCC/UL compliant
Installation	Desktop mounting & wall mounting
GPON Interfaces	Compliant with ITU-T G.984 GPON standards SFF type laser, SC/APC connector CIG patented BoSA on board optical solution 1.244 Gbps Burst Mode Upstream Transmitter 2.488 Gbps Downstream Receiver Compliant with ITU-T G.984.2 Rmdl, Class B+ <ul style="list-style-type: none"> ■ 0.5dBm ~+5dBm launch power, -27dBm sensitivity, and -8dBm overload Wavelengths: <ul style="list-style-type: none"> ■ US 1310nm, DS 1490nm Laser compliant with FCC 47 CFR Part 15, Class B, and FDA 21 CFR 1040.10 and 1040.11, Class I, ONT support Class C or Class C+ optics as an option Support G.984.5 Blocking Filter as an option Multiple T-CONTs per device Multiple GEM Ports per device Flexible mapping between GEM Ports and T-CONT Activation with automatic discovered SN and password in conformance with ITU-T G.984.3 AES-128 Decryption with key generation and switching FEC (Forward Error Correction) in both directions DBA reporting by piggyback reports in the DBRu (mode 0 and mode 1) 802.1p mapper service profile on U/S Mapping of GEM Ports into a T-CONT with priority queues based scheduling Support Multicast GEM port and incidental broadcast GEM port
Ethernet Interfaces	10/100/1000 Base-T interface with RJ-45 connectors Ethernet port auto negotiation or manual configuration MDI/MDIX automatically sense Hardware priority queues on the downstream direction in support of CoS 802.1D bridging VLAN tagging/detagging per Ethernet port VLAN stacking (Q-in-Q) and VLAN Translation IP ToS/DSCP to 802.1p mapping

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	Class of Service based on UNI, VLAN-ID, 802.1p bit, and combination Marking/remarking of 802.1p IGMP v2/v3 snooping and IGMP snooping with proxy report Broadcast/Multicast rate limiting
Gateway Features	Multiple WAN interfaces supporting WAN connection <ul style="list-style-type: none"> ■ Point-to-Point Protocol over Ethernet (PPPoE) ■ Dynamic Host Configuration Protocol (DHCP) ■ Static DHCP server for LAN devices DNS relay Network Address Translation (NAT) / Network Address Port Translation (NAPT) Port forwarding

Specifications subject to change without notice

Specifications (continued)	
Gateway Features (continued)	Static routing Traffic classification and QoS based on Layer 3 and Layer 4 Identifier Access Control List (ACL) VPN Pass thru for Point to Point Tunneling Protocol (PPTP), Layer 2 Tunneling Protocol (L2TP) and IP Security Protocol (IPSec) Firewall Application Layer Gateway (ALG) Demilitarized Zone (DMZ) Dynamic Domain Name Server (DDNS) Network Time Protocol (NTP) Universal Plug and Play (uPnP) IGMP proxy IPv6 <ul style="list-style-type: none"> ■ Stateless Address Autoconfiguration (SLAAC) ■ DHCPv6 ■ PPPoEv6 ■ DNSv6
POTS Interfaces	RJ-11 connectors 3-REN Balanced Ring, 55V RMS DTMF Dialing and Pulse Dialing Multiple Codecs: <ul style="list-style-type: none"> ■ G.711 (µ-law and A-law) ■ G.729 (A and B) ■ G.729.1 Echo Cancellation Voice Activity Detection and Comfortable Noise Insertion SIP (RFC3261) MEGACO v2 (H.248) SDP (RFC2327) RTP (RFC3550/3551) DTMF encoding by RFC 2833 or SIP INFO method Support various CLASS services - Caller ID, Call Waiting, Call Forwarding, Call Transfer, Call Toggle, Three Way Calling, Distinctive Ringing, etc. G.711 for FAX, modem connection T.38 FAX Configurable dial plan Country specific ring tone generation DHCP Client or static IP configuration Metallic Loop Testing
LEDS	POWER, OPTICAL, LAN1-LAN4, TEL1-TEL2
QAM	Standard compliant OMCI (the embedded operations channel) interface as defined by ITU-T G.984.4 and G.983.2 Compliant to TR-069 Provisioning all kinds of services including Ethernet, WLAN and VoIP, etc. by subset of TR-098 and TR-104 Alarming and AVC report, performance monitoring Remotely software image download over OMCI, as well as activation and rebooting Holds two software sets with software image integrity checking and automatic rollback

Specifications subject to change without notice

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DZS ONT



Technical Specifications

Dimensions

- 1.5 in. H x 10 in. W x 6 in. D
- 3.8 cm H x 25.4 cm W x 15.2 cm D

Weight

- 1.0 - 1.2LB (0.45 - 0.54 kg)

Power

- 12VDC, 2.0A max
- Power Supply: 100-240VAC, 50/60 Hz, 24W out
- Round barrel-type connector for power input
- 2x4 Molex-type connector for optional BBU power input with alarm reporting

Interfaces

- Network Interface (GPON Uplink)
 - SC/APC connector
 - Full ITU-T G.984 compliance
 - Class B+ optics
 - G.985 wavelength blocking filter
 - GPON Type B redundancy support
- GPON Tx:
 - Upstream data rate: 1.25 Gbps
 - 1310 nm optics
 - DFB transmitter
 - Launch Power: +0.5 to +5 dBm
- GPON Rx:
 - Downstream data rate: 2.5 Gbps
 - 1490 nm optics
 - APD/TIA receiver
 - Receiver Sensitivity: -28 dBm
 - Input power overload: -8 dBm
 - Input power damage: +5 dBm
- LAN Ports
 - Four 10/100/1000Base-T LAN ports
 - RJ-45 connectors
 - Auto-MDI-X crossover control
 - Auto-Speed or manual selection
- POTS Ports
 - Two FXS ports
 - RJ-11 connectors
 - 5 REN per line
 - Battery voltage: -48VDC
 - Max loop current: 40mA
 - Ringing voltage: 48Vrms @ 20/25 Hz
- Wifi - 802.11b/g/n:
 - 2.4 GHz band
 - 2x2 MIMO 3dBi internal antennas
 - Channel width: 20 MHz, 40 MHz
- Wifi - 802.11a/n/ac:
 - 5 GHz band
 - 3x3 MIMO 4dBi internal antennas
 - Channel width: 20 MHz, 40 MHz, 80 MHz
- USB Ports
 - One USB 2.0 port
 - 3G dongle support for uplink fallback

Wireless Support

- SSIDs: 4 @ 2.4GHz + 4 @ 5.8GHz
- Max number of subscribers: 64 per Radio
- Max 2.4GHz Tx power: 100 mW (all models)
- Max 5.8GHz Tx power: 400 mW (all models)
- Authentication Security: WEP, WPA-PSK, WPA2, WPA2-PSK, 802.1x
- Encryption: WEP (64-bit, 128-bit), AES, TKIP+AES
- WPS modes: push-button, AR PIN, STA PIN
- RADIUS Server support
- MAC address filtering
- Access Point and Wireless Bridge modes

Standards Support

- ITU-T G.984 compliant
- IEEE 802.3 Ethernet
- IEEE 802.1p/q VLANs
- IEEE 802.3u Fast Ethernet
- IEEE 802.3ab 1000Base-T

Voice Support

- SIP (RFC 3261)
- MGCP
- Codec: G.711 (μ -law and A-law), G.729B, G.726
- DTMF dialing
- Echo cancellation

Protocol Support

- GPON:
 - Fully ITU-T G.984 compliant framing
 - Dying Gasp support
 - 32 T-CONTs per device
 - 32 GEM Ports per device
 - Activation with automatic discovered SN and password in conformance with ITU-T G.984.3
 - AES-128 Decryption with key generation and switching
 - FEC (Forward Error Correction)
 - B2B-Tp mapper service profile on LLS
 - Support for Multicast GEM Port
- QoS:
 - Ethernet bridging/switching per IEEE 802.1d/802.1q
 - Traffic management (priority queuing)
 - QoS with support for IEEE 802.1p + DSCP
- VLANs:
 - The port IEEE 802.1Q VLAN ID processing
 - All VLAN IDs supported
 - VLAN tagging/untagging
 - VLAN Stacking (QinQ)
 - VLAN Switching
- IPTV:
 - GMP v3 Snooping
 - VLAN support
- Layer 2:
 - 802.3n flow control
 - Automatic MAC learning and aging
 - Unlimited # of MAC addresses for CMIC-configured flows
 - Support for up to 4,096 MAC addresses for IG traffic flows
 - Broadcast storm control
 - LLDP-MED
- IP Routing and Firewall:
 - PPHC
 - NAT/PAT
 - Port forwarding
 - DHCP Server
 - DNS Server
 - LUPP
- IPv6:
 - IPv6 and IPv6 Dual-Stack- Lite
 - Bridged Mode (transparent pass-thru of IPv6 frames)
 - IPv6 Support for Bridged, and PPPoE-Bridged VLANs
 - DHCPv6 client and server
 - Router Advertisement on LAN-side interfaces of Bridged and PPPoE-Bridged VLANs
 - SLAAC: for automatic acquisition of WAN-side IPv6 address and Gateway
 - CLI and HTTP management via IPv6 address
 - TR-069 management via IPv6 address

Management

- CMIC
- Web UI
- CLI
- SNMP
- TR-069, TR-104 and TR-98
- USP (Unified Service Provisioning)

Regulatory Compliance

- CE
- UL/CSA
- FCC Part B
- 21 CFR 1040.10, 1040.11
- RoHS 2011/65/EU

Operating Requirements

- Operating Temperature: 0°C to +40°C
- Storage Temperature: -20°C to +60°C
- Relative Humidity: 0 to 95%, non-condensing

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What are the estimated download and upload speeds?

The estimated download and upload speeds can be found on the KCOM website at <https://www.kcomhome.com/products/broadband/speed-check/>

For our VDSL Services, the line speed You actually receive will be dependent on a number of factors including the quality of the line and the distance from the exchange.

For further information regarding Line Speeds, or for further information regarding the actual speed that Your Customers will receive, please contact The Wholesale Provisioning Team at wholesalepartners@kcom.com.

What are the download and upload allowances?

The download and upload allowances can be found on the KCOM website at [Connect Broadband Fibre Residential Packages \(kcomhome.com\)](https://www.kcomhome.com/products/broadband/fibre-residential-packages/).

The Monthly Usage Allowance commences on the Service Start Date of the applicable Order. The Monthly Usage Allowance will normally run for the same duration as the calendar month. However, the Monthly Usage Allowance in the Customer's first month of Service may run for up to 6 weeks.

Any Usage above the Customer's Monthly Usage Allowance will be chargeable at a rate per each GB as set out in the Price Manual (the "Additional Usage Charge").

We will send email notifications to the email address You provide for this purpose when You place Your Order. When a Customer's monthly Usage reaches 80% of the Customer's Monthly Usage Allowance and then again when the Customer's monthly Usage reaches 100% of Your Monthly Usage Allowance.

How many IP addresses are provided with each package?

Unless otherwise agreed, we will supply 1 IP Address, which will be either static or dynamic, as determined by each Order. For the avoidance of doubt, neither You or any Customer shall obtain ownership of any IP Addresses unless such IP Addresses are provided by You or Your Customers.

What specifications are provided for email on each package?

KCOM will provide 5 POP mailboxes, each with 3 email aliases. We will provide 250MB storage for these mailboxes. Email anti-spam and anti-virus protection is also included.

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How much webspace is provided for each package?

KCOM will provide 50MB of basic webspace with each service.

Is a domain provided for each package?

Yes, KCOM will provide a free.co.uk domain, if requested.

What is the contract period?

A 12-month contract is applied to the packages.

Will the packages have traffic shaping applied to them?

Traffic shaping is not applied to the Connect Broadband Fibre Residential products. However, all broadband services are subject to natural contention. For more information, visit the KCOM website at this link <https://www.kcomhome.com/legal/traffic-management/>.

Will there be restricted access to any Bit torrents / news sites?

No KCOM will not restrict access to Bit torrent or news sites.

What contention ratio does the service come with?

The Connect Broadband Fibre Residential service has a guaranteed committed rate which is driven by technology and the end address where service is provided.

What are the provisioning times?

Orders for service will be processed by KCOM within two working days. If you require an appointment at the time of order, contact KCOM on 01482 602512. We will then review the work that is required to fulfil the order and contact You the reseller to advise You of the appointment dates for survey and provision of the service.

All orders are subject to survey and appointment availability. Provisioning can take between 4 to 10 days depending on the work required to connect the service.

What is the order process?

You can check if fibre is available at a particular address by visiting the KCOM website at [Products | KCOM \(kcomhome.com\)](https://www.kcomhome.com/products). If fibre is available, orders and requests should be submitted using an up-to-date application form to Wholesalepartners@kcom.com. This form will be sent to you by the Wholesale Team.

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On receipt of an application for a new provision of service, we will process the request within two days. If you require an appointment at the time of order, contact KCOM on 0800 7022000, Option 1. If all the requested information has been provided, the order will be logged and passed through to Our provisioning team who will manage the processing of the request until complete. If any information is missing from the application, then You will risk a delay in the processing of your request. KCOM will not assume anything under any circumstances and will pass the application back to the originator. Any missing information or fields not completed in the order, we will reject the order and the process will start again when we receive a clean order.

If a request has been passed to Wholesalepartners@kcom.com and there is missing information which prevents the order from being passed to the processing team, it will be rejected. When the order has been rejected, we will notify You by telephone and/or via email. When the request has been revised and submitted to Us, it will be treated as a new request. If the request is clean upon verification, then it will be passed through to the processing team to action as per the 'Clean Order Process'. If the order is still incorrect or cannot be passed for any reason, then it will be passed back to you the customer again. The official lead time will only commence on acceptance of a fully completed request.

You will first receive an update via email confirming that your order has been accepted and has been input onto Our systems for provisioning. A second email update will be sent from Our processing team confirming the order details, username, password and date of the survey and / or installation appointment. Upon completion of the service, a third and final email update will be sent,

confirming that the order has been fully completed and that the service, if necessary, has been end-to-end tested. Other emails may be sent to You to provide further updates as necessary.

What is the SLA?

Service	All Connect Broadband Fibre services
Technical Support	Online (where an online portal exists), 24 hours a day, throughout the year; or Telephone the Client Support Centre during the hours of: Monday to Friday 08:00 – 21:00 Saturday 08:00 – 18:00 Sundays and bank and public holidays 9:00 – 18:00
Service Level Agreement	Repair time – End of Next Working Day (this excludes network outages or faults that require on-going monitoring; working days are Monday-Friday and exclude Bank and Public Holidays) 85% of calls answered in <60 sec 95% of emails replied to within 1 working day 75% of issues fixed at first point of contact

Will I receive updates about an order?

Yes, you will first receive an update via email confirming that your order has been accepted and has been input onto Our systems for provisioning. A second email update will be sent from Our processing team confirming the order details, username, password and date of the survey and / or installation appointment. Upon completion of the service, a third and final email update will be sent,

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confirming that the order has been fully completed and that the service, if necessary, has been end-to-end tested. Other emails may be sent to You to provide further updates as necessary.

What hardware (CPE i.e., router) is included?

Where KCOM provides a managed installation, we will provide a router directly to Your Customer, which Your Customer will use with the Services. You acknowledge that where We supply a router in accordance with Section 3.1 of the Terms, such router shall remain Our property. If the Service is cancelled and/or terminated You must ensure that the Customer allows Us access to the Customer's premises to collect the router, if required. You must not, and You must ensure that Your Customer does not, remove the Optical Network Terminal ("ONT") from the Customer's premises at any time notwithstanding whether the Agreement has been cancelled or terminated or not.

You must ensure that Your Customers take reasonable care of the ONT and any router that We provide whilst such equipment is at the Customer premises and that such equipment is protected from accidental damage and theft. In addition, you must and must ensure that Your Customers do not allow anyone other than Us to carry out any repairs or maintenance work on the router and the ONT.

You will be responsible for the cost of repair or replacement of the ONT and/or any router supplied by Us if either the ONT and/or the router is lost or damaged as a result of accidental damage or where You and/or Your Customer fails to take proper care of the same.

However, we will be responsible for any problems You and/or Your Customer experience with the use of the ONT and/or the router where such problems are attributed to any defects with the materials or manufacture of the same. We will repair or replace any defective ONT and/or router provided as part of any managed installation free of charge within the initial 12 months with new or as new equipment of similar specification to the equipment being replaced. Beyond the initial 12-month warranty You will be required to purchase hardware replacement ONT or router as applicable.

If You opt for Our managed installation, then the cost of the router is included and this will be subject to warranty for the first 12 months. However, if You and/or Your Customer require a replacement router after the initial 12 months of service, the ownership of the router shall be Yours once You have paid for the router in full. We will assign the benefit of any product warranties given by the manufacturer or supplier of the router to You; and You will be entitled to a replacement router if You experience any problems with the router, during the initial 12 month period following on from the date on which We supply the router to You, if such problems can be attributed to any defects with the materials or manufacture of the router.

The cost to replace the router is £80 excluding VAT.

All Customers should consider the security of their PC. We recommend the use of current anti-virus software and firewall protection.

If You purchase a router to use with the Service from Us or are required to purchase a replacement router after the initial 12 months service, the ownership of the router shall be Yours once

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You have paid for the router in full. We will assign the benefit of any product warranties given by the manufacturer or supplier of the router to You; and You shall be entitled to a replacement router if You experience any problems with the router, during the initial 12 month period following on from the date on which We supply the router to You, if such problems can be attributed to any defects with the materials or manufacture of the router.

Are there any other connection and hardware charges?

The type of connection KCOM provides to You for the Services you order will be as stated in the Order form. Further details of the connections We provide are as follows;

- Standard installation; ONT and router located together within 50 metres (usable of fibre length) entrance.
- Premium installation; Dual Ethernet socket and cable to 100 metres (90 metres usable) when You instruct Us that a Customer's router needs to be located next to the Customer's PCs.

What is the process for managing a fault?

For the avoidance of doubt, you must provide first line support to the Customer.

In the event of a fault for which You require second line support, you should notify us by contacting the Client Support Centre.

Faults can be reported to Us either:

- Online (where an online portal exists), 24 hours a day, throughout the year; or
- Telephone the Client Support Centre during the hours of:
 - Monday to Friday 08:00 – 21:00
 - Saturday 08:00 – 18:00
 - Sundays and bank and public holidays 9:00 – 18:00

Please ensure when contacting the Client Support Centre (0800 7022000 Option 2) You have the following relevant details to hand:

- Customer organisation name & address
- Details of the Services provided to the Customer
- Contact names and relevant security details
- The nature of the fault

The following processes outline Our faults procedure:

1. You contact the Client Support Centre to report a fault on the appropriate telephone number You have been given.
2. The Client Support Centre will log details of the fault on Our faults system and issue You with a unique Fault Reference Number.
3. The fault is diagnosed and if a Service engineer is required to carry out a Customer-site visit this will be arranged with You.
4. The fault is resolved and passed back to the Client Support Centre to confirm the Service has been restored to close.

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Can I expedite a fault?

No, all faults will be cleared within the standard SLA and by the end of the next business day.

Will I receive updates about a fault?

Yes, we will provide you with proactive updates about the fault when possible.

Is there an escalation process for any issues?

Yes, please contact your KCOM Wholesale Account Manager with any escalations.

Can you tell me where you have rolled our fibre?

You can check if fibre is available at a particular address by visiting the KCOM website at <https://www.kcomhome.com/products/broadband/lightstream-rollout/>.

Do you have an acceptable use policy?

Yes, this applies to End Users and is available on the KCOM website at this link [acceptable-use-policy-kcom-301019.pdf \(kcomhome.com\)](#) . It is the Reseller's responsibility to ensure that their customers understand this.

Can I use the KCOM Lightstream name?

No, Connect Broadband Fibre is KCOM's 'white label' reseller product that we make available to Communications Providers (CPs) who have signed the relevant Reseller Agreement with us.

Is there an early termination charge?

Resellers are asked to note that where their Customers (on a 12-month contract) terminate their contract before the end of the contract You will be subject to early termination charges for the remainder of the contract term.

Who is liable for security? / Who is liable in the event of a cyber-attack?

It is Your responsibility to ensure that your Customers consider the security of their PC. We recommend the use of current anti-virus software and firewall protection. Email anti-virus protection is provided with email Post Office Protocol ("POP") accounts.