



**THE  
GIGACLEAR  
GUIDE  
TO HOME  
NETWORKING**



## Welcome to Gigaclear, you're now part of the Rural Revolution!

To help you get the most out of your new full-fibre ultrafast service, we've developed this guide covering everything you need to know – from best practice basics to creating the ultimate ultrafast home network.



Your Gigaclear full-fibre connection delivers ultrafast download and upload speeds direct to your router. To enjoy Gigaclear speeds to a device such as your laptop, PC or Smart TV, simply connect it to the router using a CAT6 Ethernet cable. However, if you connect your device over after Wi-Fi the speed may vary between the router and your device.



## Wi-Fi – how it works

Wi-Fi transmits and receives signals from all directions, similar to radio waves and Bluetooth, with two working frequencies: 2.4GHz and 5GHz.

2.4GHz usually has more coverage and can go further, but as a commonly-used frequency, it can be slower than 5Ghz.

A 5Ghz provides faster data rates at shorter distance however, other household devices can interfere with it.

It provides faster bandwidth and contains more channels, but it has less power – so it's harder for the signal to get through walls or travel longer distances.

Gigaclear's latest router transmits and receives using both the 2.4GHz and 5GHz bands, so you'll get the best of both, giving you a strong signal throughout your home or business.



# THE BASICS

## HOW WI-FI IS AFFECTED

### The construction of your home

Whether your home is a listed property made of local stone or a modern building with foil heat insulation, its construction will impact the strength of your Wi-Fi signal. The rule of thumb is that the fewer walls the signal has to travel through, the better.



## TIP

Where possible, make sure there's a clear line of sight between your device and your router.



# EXAMPLES OF HOME NETWORKING EQUIPMENT

Managed switches

Servers

Other routers

WAPs

Wi-Fi boosters

Powerline  
Ethernet adaptors

SONOS

Networked printers

## Interference from electrical items

Devices such as baby monitors, microwave ovens and cordless phones emit radio signals that can interfere with your Wi-Fi signal and make it weaker.



### TIP

Situate devices like these away from your router.

## Objects obstructing the signal

Fridge freezers, fish tanks and other large or dense objects can block your Wi-Fi signal. Reflective or shiny surfaces such as windows, mirrors and tiles can cause the signal to bounce or reflect which can also impact performance.



### TIP

Your router transmits from its front panel, so try to keep this area clear from clutter. You should also make sure your router is facing away from dense objects and reflective surfaces.

## Old hardware

Some older PCs, laptops, and other mobile devices may not support the latest wireless standard, which is 802.11ac. This standard was approved in late 2013 to enable high-demand activities such as streaming and downloading. You can find out more about the standard here: [www.wikipedia.org/wiki/IEEE\\_802.11ac](http://www.wikipedia.org/wiki/IEEE_802.11ac)



### TIP

Check the wireless specification on your device to find out if it supports the 802.11ac standard. Refer to the manufacturer's guidelines if you are unsure how to do this.

# CREATING THE ULTIMATE ULTRAFAST HOME

Here's four ways to create an even more powerful home network using the Ethernet ports on your Gigaclear router.

## 2 POWERLINE ETHERNET

Rather than running cables between rooms, a tidier and less disruptive solution is to install adapters that use the mains electrical circuitry in your home as a network. This is called Powerline Ethernet.

Basic Powerline Ethernet sets are inexpensive and can be bought from a variety of retailers, one example is the TP-Link AV600 Powerline. These devices have both wireless and Ethernet capability in each unit, providing the added benefit of extending your Wi-Fi connection.

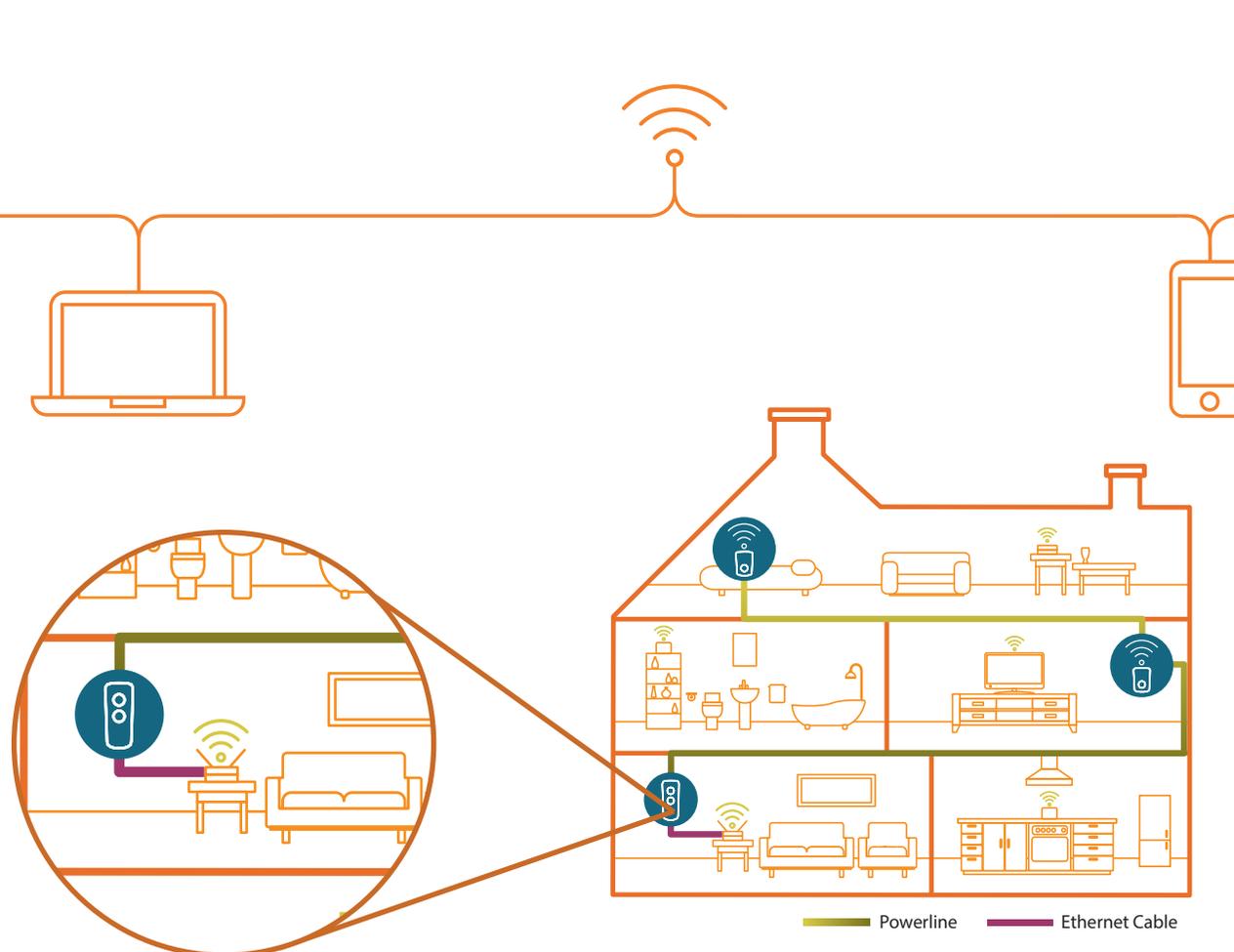
These devices range in capability so please consult the manufacturers guide for performance information.

## 1 DIRECT ETHERNET CONNECTION

Directly connecting devices to your router using an Ethernet cable is still the best way to transmit data in your home. This gives you a much faster connection between your device and your router than using Wi-Fi. You should consider this option for your most data-hungry devices such as Smart TVs and desktop computers.

Simply use a CAT6 Ethernet cable to connect the Ethernet port on your device to one of the four yellow ports on your Gigaclear router. For devices without an Ethernet port, adaptors can be easily purchased.

CAT6 Ethernet cables can transmit at 1Gbps (1000Mbps), allowing for unrestricted enjoyment of your new connection.



# 3 WIRELESS ACCESS POINTS

Wireless Access Points (WAPs) connect to your router via an Ethernet cable or Powerline adapter and can be positioned freely around your house, as there is no direct optical fibre connection to consider. These can act as the sole Wi-Fi access point or as an additional one, depending on how you decide to set them up.

WAPs offer good value for money – they are inexpensive to purchase and focus on one task; providing a strong and consistent Wi-Fi signal.

The important thing to look for in a Wireless Access Point is that it supports the latest wireless standard. The current standard is 802.11ac, please refer to page three for more information.

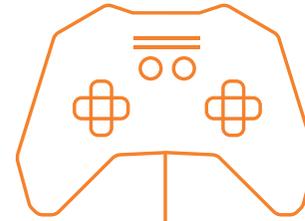
Some ADSL routers can be successfully re-configured to become a WAP. Please consult the manufacturers user guide for information and advice.



Many of our customers have reported excellent results using WAPs from Apple and TP-Link. Other manufacturers include Netgear, D-Link, LINKSYS and Draytek.

# 4 SETTING UP A MESH NETWORK

The latest in-home networking technology is called meshing. A mesh system consists of two or more router-like devices that work together in order to blanket your house in Wi-Fi. The added benefit of these solutions is that you can add devices as you discover more areas or rooms in your home that need coverage. There are many brands coming into this huge market place such as TP-Link and Netgear. Setting up a mesh network may require some configuration to work with your Gigaclear router.



## Mix and match!

As there are four Ethernet ports available on your Gigaclear router, you can use any or all the ideas presented to create a customised, optimised, Home Area Network. For example, you could use port 1 on your router to connect a CAT6 cable to a Smart TV in the living room, port 2 to connect to a Wireless Access Point in a central location and port 3 to connect Powerline Ethernet to another room in the house.

If you need more ports, there are a number of excellent Ethernet switch products in the market allowing you to increase your hard-wired capability even further.



# THINGS TO AVOID



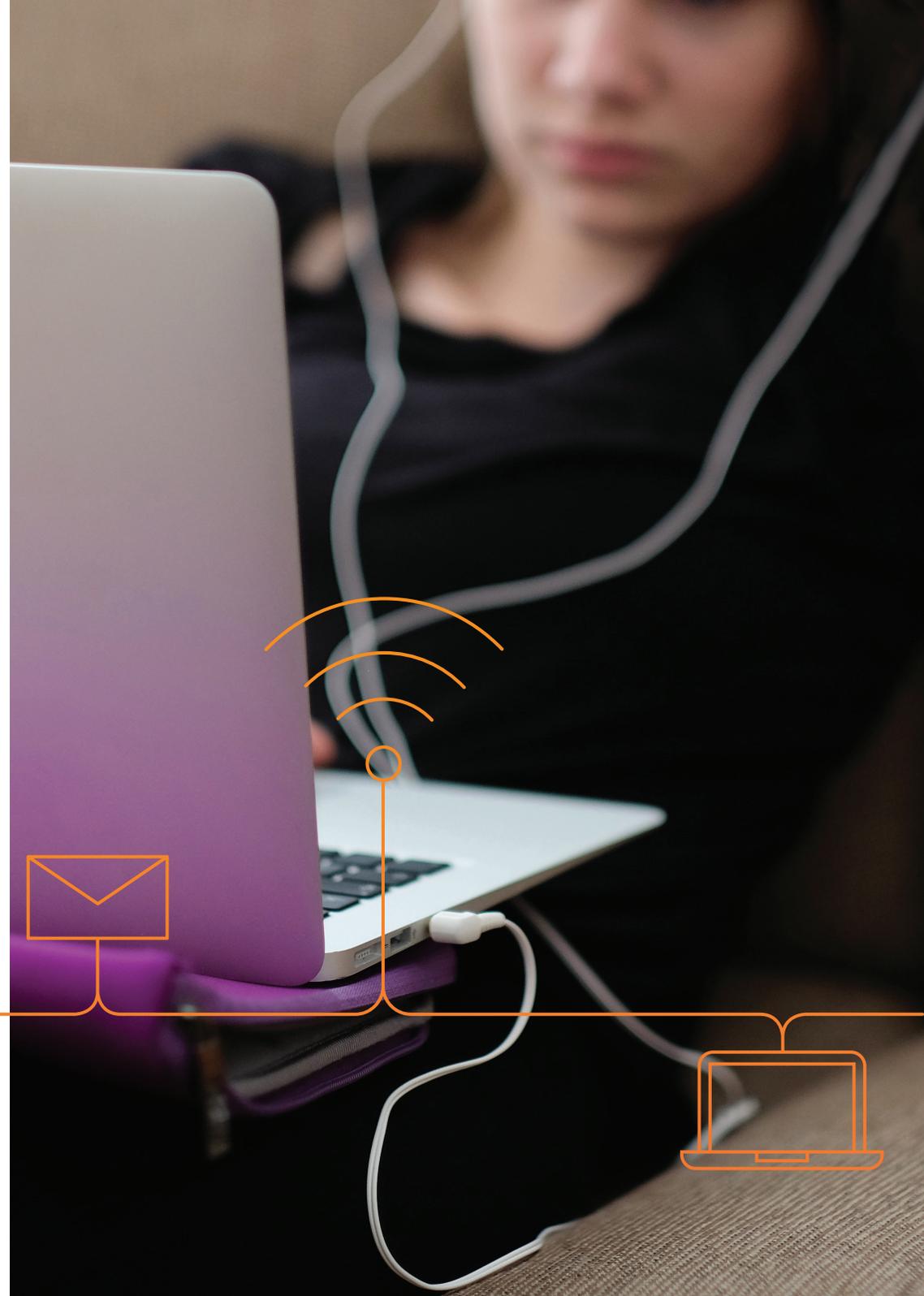
## Wireless extenders

Wireless extenders take a Wi-Fi signal in and repeat it, relaying it onward. Whilst this sounds like a sensible solution, extenders often provide disappointing results. This is because most extenders transmit half of the signal they take in, which risks additional interference and potential technical trouble in connecting to the network.



## Using a different router

Some customers ask if they can use a router that they are more familiar with, or one with enhanced proprietary functionality, instead of their Gigaclear router. It's likely that these routers will have been designed for a copper wire network which means that they can't convert the signals in Gigaclear's optical fibres into electrical signals for Wi-Fi or Ethernet. However, depending on the model, you may be able to configure them to work as a Wireless Access Point as described in **point 3**.



## WHAT IS IP AND DHCP?

To function properly, and to connect your home network to the internet, your Gigaclear router needs to be the only device carrying out the Dynamic Host Configuration Protocol (DHCP) process.

The DHCP process gives all the pieces of equipment

in your home network a local Internet Protocol (IP) address. An IP address is like a postal address – it's the name by which the devices in your home 'know' one another. It's also what they use to communicate with each other, your router, and the internet.

## WHY THEY'RE IMPORTANT TO YOUR HOME NETWORK

Many commonly used pieces of home networking equipment are also DHCP capable and may try to take over control of the network. An example of this would be if the devices in your home are trying to re-establish a connection after a power cut.

If your fibre broadband service drops off, it could be due to a change in DHCP control. To resolve this, simply turn off your connected devices and re-boot your router, allowing it to come online before restarting the other devices. This will restore DHCP control to your Gigaclear router.

A better long-term solution is to make your Gigaclear router the only device in charge by disabling the ability for other connected devices to carry out DHCP. Instructions for disabling DHCP on any device can usually be found by Googling the make and model of the kit along with the phrase 'disable DHCP'.

If you are in any doubt about what to do after reading the online guidance, we suggest you consider seeking assistance from the equipment manufacturer.



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OR INFORMATION?  
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