# ABOUT ROUTERS

### ****ABOUT NETWORKS AND ROUTERS****

A network is a collection of devices that can communicate with each other. A network can vary in size and complexity; it can range from something as small as your ‘home network’ – all the devices you have connected to your WI-FI at home, your ‘company network’ all the devices connected together that can access your company systems and data, or something as big as ‘the internet’ which combines lots of these smaller networks across the world.

Your internet service provider for example, Sky or Virgin Media, will have given you a small box to plug in when you subscribed to an internet service plan – this device is called a ‘router’. A router is a key part of any network as the router’s job is to move data between your devices and other networks.

### ****YOUR ROUTER’S IMPORTANT SECURITY SETTINGS****

As the router allows devices and networks to connect together, it is important that the router’s security settings are configured correctly. Remember, your router is connected to the internet so it can offer cyber criminals access to your data. Many modern routers will prompt the user to set a new admin password before connecting to the internet for the first time, however, other routers arrive from the manufacturer with a default password such as ‘ADMIN’.

Even if your router has a more complicated default password, it is not difficult to find it out with a quick search on the internet. Note that the router’s admin password is not the same thing as the Wi-Fi password which allows you to access the network - that is a separate passcode. The router password protects the router’s settings and configuration.

It is vital you change this so that anyone cannot log onto your network and intercept your data or lock you out of your own network. You will find information about both the router password and the Wi-Fi passcode with the router or most likely on the router.

### ****THE BOUNDARY FIREWALL WITHIN YOUR ROUTER****

For small business networks and home networks, your router is also your boundary firewall. It acts as a protective buffer zone between your devices and the internet. The in-built firewall within the router checks the connections to and from your devices to make sure that they are not likely to be harmful. Most settings are pre-set, but it is important to check that your router firewall is turned on and configured in a way that is most beneficial.

If your router firewall is not enabled, a bit like not changing your router’s default password, it is the equivalent to leaving your front door wide open.

### ****HOW TO CHANGE YOUR ROUTER’S DEFAULT CONFIGURATION PASSWORD****

The first thing to do is to open your router’s configuration page. To do this, open a new page on your web browser and enter the IP address for your router into the web address bar. This will probably be something like 192.168.1.1 but it could also be a more user friendly web address.

If you do not know your routers IP address, and you are using Windows, go to the Windows Command Prompt by hitting Windows key + R, typing ‘cmd’ and hitting return. Then when the Command Prompt opens, type ‘ipconfig’ and press Enter. Look for the ‘default gateway’ address. This is your router’s IP address. Type that into your browser – it will be similar in format to 192.168.2.1.

On a Mac, go to System Preferences > Network. Click the active internet connection (the one showing as green). Click on ‘Advanced’ button to bring up a new window, and select ‘TCP/IP’ tab. You’ll then see the router address on left hand side.

If you can’t access your router’s configuration page at all, you may need to factory reset it using the button on the router (you might need a paper clip.) This is especially the case if it was used by someone else previously and so may no longer have the default settings. When you are on your router’s webpage, enter your router’s username and password when prompted. Again, this may be something as simple as ‘admin’ and ‘password’. That’s why you need to change it. If your password is already unique to you, then you don’t need to change it.

You’ll need to find how to change your password. Usually this will be under some kind of ‘settings’ or ‘administration’ area of the interface, which is basically like a very simple website.

Note that if you change the password to your wireless network YOU WILL LOSE ACCESS on all your wireless devices and you’ll need to reconnect them to the network. Under settings, you will also be able to turn on the firewall if it is not automatically enabled.

### FIREWALL RULES

To check how your router firewall is configured, you will need to check your inbound firewall rules:

Log in to your router (described above) and click on the option, ‘Advanced Settings’. You should be able to find under ‘firewall’ a section called, ‘Port-forwarding’ where rules for forwarding can be created or changed. Port forwarding is used by devices, such as games consoles and applications such as servers to make sure that data coming in from the internet gets to the device that needs to use it.

For the Cyber Essentials assessment, you will need to know what inbound firewall rules you have enabled and make sure they are all for devices that you know about and want to be active.