

# EE User Manual

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## Bright Box Wireless Router





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# CHAPTER 1: INTRODUCTION

## INTRODUCING THE BRIGHT BOX WIRELESS ROUTER

The Bright Box Wireless Router is a wireless 'N' modem router offering speeds of up-to 300 Mbps when used with a compatible wireless 'N' adapter. It also has four 10/100 Mbps Ethernet ports for wired connectivity.

The Bright Box Wireless Router supports ADSL2+ broadband connections offering maximum theoretical speeds of up to 24 Mbps on your EE home broadband line. The Bright Box also supports a simple ADSL setup over the EE broadband network through remote configuration – just plug it into your ADSL line and it works.

The Bright Box features Intelligent Wireless - improving the reliability of your wireless broadband signal by avoiding interference from other signals. You can control when your connected devices move on to a different wireless channel to improve performance, giving you the most reliable wireless connection for all your laptops, smartphones and tablets throughout your home.

The router also features the latest WPA2 (Wi-Fi Protected Access) wireless security out-of-the-box, to ensure that your wireless connection is protected from external wireless intrusion. The router is also compatible with wireless 'B' and wireless 'G' standards

The Bright Box Wireless Router supports connectivity from a variety of devices to include Windows and Apple Mac computers, games consoles such as Xbox and Play Station 3, iPads, iPhones, and other mobile smartphones including Signal Boost (UMA) compatible handsets.

It's also possible to connect a USB memory device (e.g. USB hard drive, or memory stick) to the Bright Box wireless router to enable file sharing across the home network.

The Bright Box also has handy advanced features such as Port Forwarding, Port Triggering, Access Control, MAC Filtering, URL Blocking, Intrusion Detection, UPnP and Quality of Service (QoS) settings among others in order to provide configuration options to suit your needs.

## DOCUMENT INFORMATION

Throughout this document, the following icons will be used. Below is a description of what the icons represent:

 **Information icon:** this will be used to denote added information, which may be of interest to the reader about a specific process or reason for completing a specific task within a process. Alternatively, if there's more than one way to complete a process, the most efficient process will be documented, however the alternative may appear next to an information icon.

 **Exclamation mark icon:** this will be used to highlight key points in the document of specific importance, such as particular tasks that must be completed, or warning about the implications of completing specific processes.

## ROUTER TECHNICAL SPECIFICATION

Feature	Specification
Model Name	Bright Box Wireless Router.
LAN Ports	3 x 10BASE-T/100BASE-Tx (RJ45).
WAN Ports	1 x 10BASE-T/100BASE-Tx (RJ45) – doubles as additional LAN port.



ADSL Ports	1 x RJ11.
ADSL Modes	G.DMT - G.992.1, ADSL2 - G.992.3, ADSL2+ - G.992.5, Annex M - G.992.3 & G.992.5
Broadband Modes	ADSL PPPoA, ADSL PPPoE, Routing Mode, Fibre/Ethernet PPPoE, Bridge Mode.
USB Ports	1 x USB 2.0.
Wireless LAN	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b.
Wireless Band	2.4 GHz (2.412 – 2.472).
Wireless Channels	Auto (Intelligent Wireless), 1 – 13 (plus extension channels +/- 4)
Wireless Speeds	Up to 145 Mbps (20MHz bandwidth) by default or up to 300 Mbps (40MHz bandwidth).
Wireless Security Mode	WPA2-PSK, WPA-PSK, WEP (64/128 Bit), Unsecured Mode, 802.1X, TKIP, AES.
Wi-Fi Protected Setup	WPS PBC Mode, WPS PIN Mode – disabled by default
Gateway IP Address	192.168.1.1
Default MTU	1492 (configurable from 576-1500)
Power Adapter	230V, 50Hz Input
Power Supply (Input)	100-240V ~ 50-60Hz 0.5A
Power Supply (Output)	12V ~ 1.0A
Firmware/Software Version	v0.09.94.0006-OT (28 November 2011)
Boot Code Version	v1.00.09.0003-OT or v1.00.10.0001-OT
ADSL Code Version	A2pD035b-d23i
Hardware Version	01
Dimensions	165mm x 133mm x 30mm



## CHAPTER 2: ROUTER IDENTIFICATION AND PANELS

### ROUTER IDENTIFICATION

The Bright Box Wireless Router is black with an EE logo printed on the top of the device, as illustrated below:

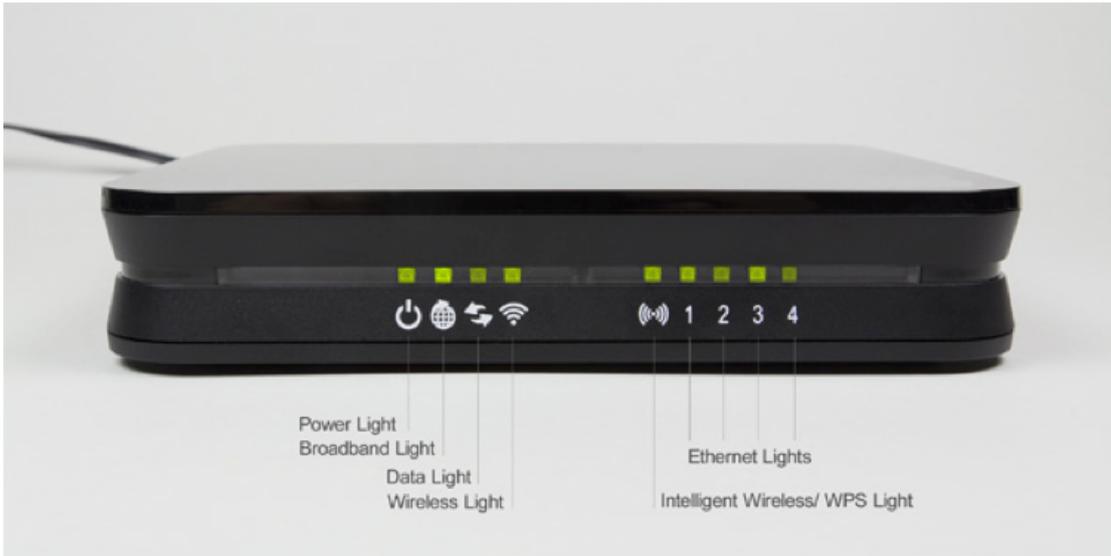


On the bottom of the router you will find a sticker detailing the model name, MAC Address, Serial Number and important wireless information including your wireless network name (also known as an SSID) and wireless password. The sticker also includes the URL used for accessing the router admin pages (<http://192.168.1.1>) and the username and password to login to the admin pages.



### FRONT PANEL VIEW AND LED STATUS

On the front panel of the Bright Box Wireless Router, you'll find 9 green LED lights, which can be used to indicate the status of the router:



When the router is connected to power, switched on and only a broadband cable is connected, the lights should be lit as follows:

LED	LED Colour/Activity
Power	Solid green
Broadband	Solid green
Data	Off (Fibre) or flashing green (ADSL)
Wireless	Solid green
Intelligent Wireless/WPS	Off
Ethernet 1-3	Off
Ethernet 4	Flashing green (Fibre Broadband) or Off (ADSL Broadband)

The table below describes the LED light behaviour on the front panel and what they mean, from left to right.

LED	Status	Description
Power	On	The router is receiving power this is normal operation.
	Off	The router is not receiving power, or has failed.
Broadband	On	The router is functioning correctly, and is connected to broadband.
	Fast flashing	The router is training or synchronising with the exchange.
	Slow flashing	The router has attempted to connect to the Internet but has failed. This could be a problem connecting to the broadband exchange, however will be most commonly experienced when the



		username and password have been entered incorrectly.
	Off	The router can't detect a broadband signal. If you are using the EE Fibre broadband service check that the Ethernet connection between the WAN port on the Bright Box and LAN1 port on the Fibre modem is connected and the modem is powered on.
Data	Flashing	Traffic is being sent or received between the computer and router, or the router and the internet
	Off	For ADSL broadband that means that no data is currently being sent or received from the router. If you are using the EE Fibre broadband service, this light will always be off, and this is normal.
Wireless	On	The wireless access point is enabled.
	Flashing	Data is being sent via the wireless link.
	Off	Wireless has been disabled.
Intelligent Wireless/WPS	On	A successful WPS connection has been made.
	Fast Flashing	The WPS button has been pressed - the router is capable of setting up a WPS connection.
	Slow Flashing	The router is searching for a new wireless channel as part of the Intelligent wireless process.
	Off	Default behaviour – WPS or Intelligent wireless aren't currently in progress.
Ethernet 1-4 (ADSL Broadband)	On	Ethernet connection has been established with the indicated port.
	Flashing	The Ethernet connection is sending/receiving data.
	Off	There is no Ethernet connection on the port.
Ethernet 4 (Fibre Broadband)	On	A connection has been established between the Bright Box and the Fibre modem.
	Flashing	Data is being sent between the Bright Box and the Fibre modem.
	Off	The Ethernet connection between the Bright Box and the Fibre modem has been disconnected or the modem is powered off.  Check that the Ethernet connection between the WAN port on the Bright Box and LAN1 port on the Fibre modem is connected and the modem is powered on.

## BACK PANEL VIEW

On the back panel of the Bright Box you will find the following ports, sockets and buttons:



- DSL port
- **Reset** button
- **Ethernet** Ports
  - **WAN** port for Fibre broadband services (also known as LAN 4)
  - **LAN** ports (1-4)
- **USB** port
- **ON/OFF** power switch
- **Power** socket
- **WPS** button

The table below describes the ports, sockets and buttons on the back panel of the Bright Box router:

Item	Description
DSL port	For ADSL broadband, connect one end of a broadband cable (RJ-11) to this port and the other end to a filter and the telephone line.
Reset button	Press briefly to restart the router, or press for 6 seconds to return the router to factory default settings.
WAN port	For ADSL broadband, connect one end of an Ethernet cable (RJ-45) to this port to use as a normal LAN port (LAN 4). For Fibre broadband, connect one end of an Ethernet cable (RJ-45) to this port and the other end to the Fibre modem.
LAN port	Connect one end of an Ethernet cable (RJ-45) to this port, and the other end to a computer (or other Ethernet device) with a LAN card installed.
USB port	Connect a USB storage device such as a USB hard drive to this port. See <i>USB File Sharing</i> on page 88
Power switch	Use this switch to turn the router on/off.
Power socket	Connect the supplied power adapter to this socket.



Intelligent Wireless/WPS button	Press this button briefly to activate the Intelligent Wireless process or press this button for 5 seconds to activate WPS (WPS will only be available when enabled in the router's admin pages – (see <i>Wi-Fi Protected Setup</i> on page 79)
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## BOTTOM PANEL VIEW

On the base or bottom of the router, you'll find a sticker detailing the information below:

- **Model name** of router (Bright Box Wireless Router)
- **Wireless network name** (also known as SSID), e.g. BrightBox-1a2b3c
- **Wireless password** – 6 character random password
- **Router login details** – i.e. 192.168.1.1
- **Router login username and password**
- The **MAC address** and **Serial number** of the router





## CHAPTER 3: INSTALLATION

### UNPACKING YOUR BRIGHT BOX WIRELESS ROUTER

To make your life easier, we've already set-up your Bright Box wireless router so it will connect to the Internet once your broadband is ready. Simply plug it in and connect your device. If you'd like a helping hand, follow this guide and you'll be online in no time.

The box should include the following items:

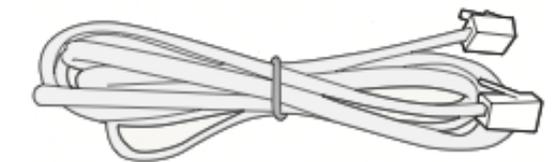
**A Bright Box Wireless Router:**



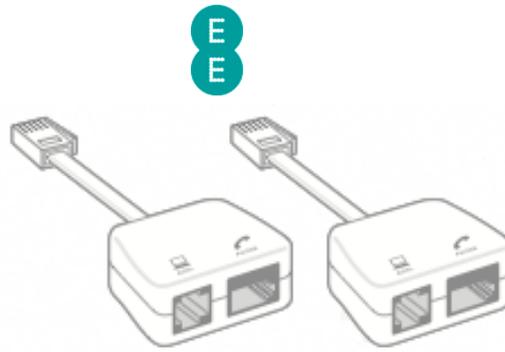
**2-Part power supply:**



**Grey broadband cable (for ADSL broadband only)**



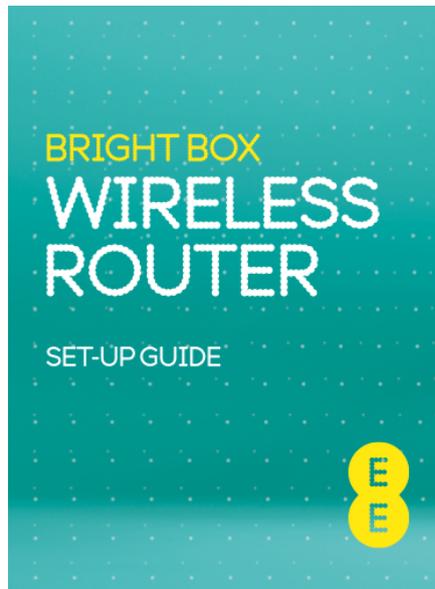
**2 x broadband filters**



**Black Ethernet cable:**



**Bright Box wireless router set-up guide:**



**'KEEP MEE' card**



If any of these items are missing or damaged please contact us on 0844 873 8586.



## SETTING UP YOUR ADSL BROADBAND

Follow these steps to set up your Bright Box Wireless Router for your ADSL EE broadband service. If you are using the EE Fibre optic broadband service, see the next section.

### Disconnecting your old equipment

If you've already got a broadband modem or router connected to your line, unplug the power supply and all other cables and put them to one side for now.

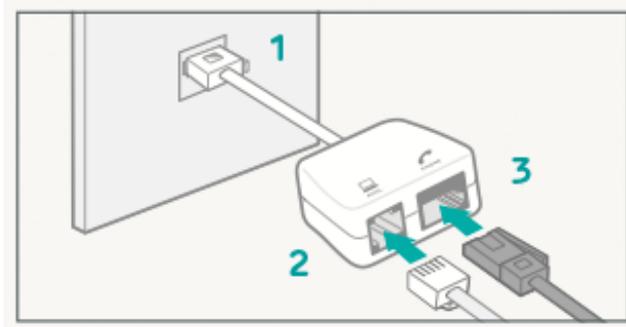
We recommend using the broadband filters provided in the box, especially to connect your new router. You can leave existing filters connected to other telephone sockets.

### Connecting your new equipment

1. Connect the broadband filter to the telephone socket.

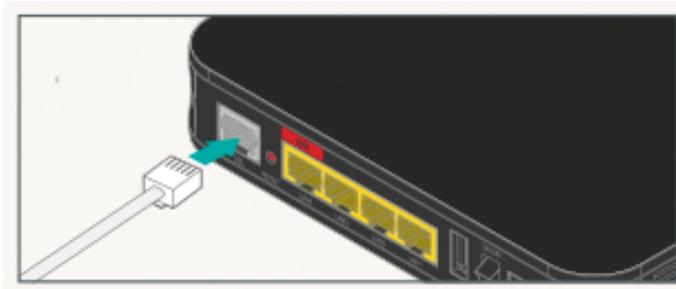
**i** Connect your router to the main phone socket for better broadband speeds. make sure to have a broadband filter connected to all sockets in use, this includes those for telephones, answerphones, TV box's and alarm systems.

2. Connect the grey broadband cable into the broadband filter:
3. You can connect a telephone to the other available socket on the broadband filter (this is optional):

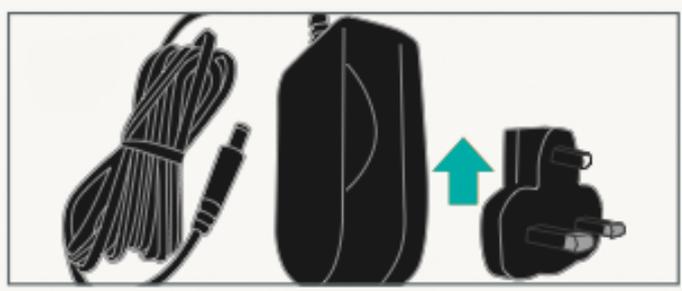


### Connect and turn on your router

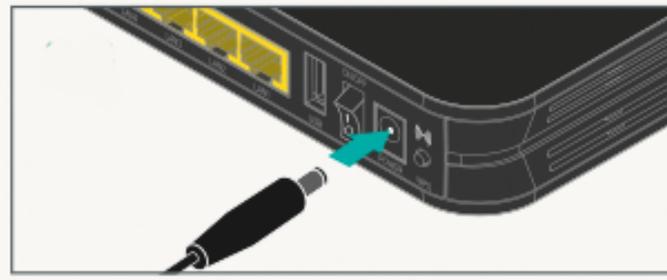
1. Plug the other end of the grey broadband cable into the DSL socket on your router:



2. Connect the two parts of the power supply together



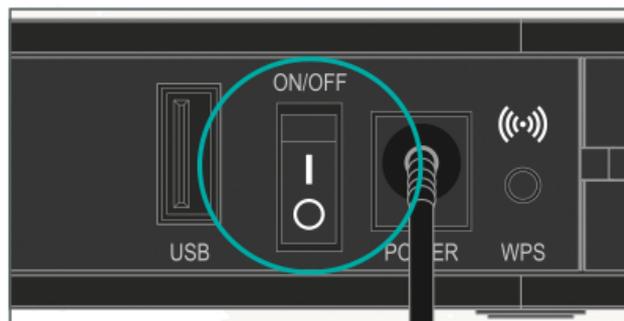
3. Plug the power cable into the router:



4. Plug the other end into a plug socket and turn it on:

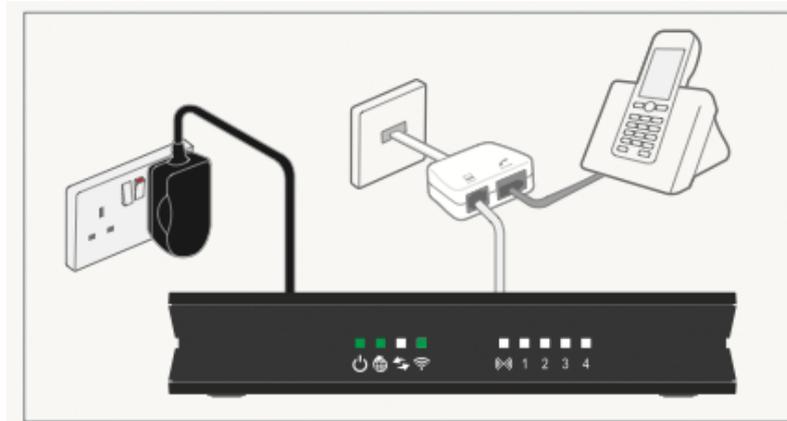


5. You can now switch on the router:



### Check it over

1. The power light will go green and the broadband light will go green shortly afterwards.
2. Your set up should now look like this:



### Your home broadband is being set up

This will take up to 5 minutes, so relax and let us do the leg work.



**i** Please note that if you're redirected to the 'Nearly there!' holding page in your browser, you may need to wait a few more minutes for us to set up your router. If after 5 minutes, the 'Nearly there!' text is still visible when you reopen your browser window, reboot your PC and then reopen the browser window again, you should now be able to view web pages. If this still doesn't work, you can manually enter your broadband username and password in the router user interface and make a connection to the Internet (see *how to manually update the broadband username and password* on page 52)

### You can now connect your devices

You can now connect your devices to your Bright Box router. Choose either wireless or wired connection and follow the steps on pages 23 and 25

## SETTING UP YOUR FIBRE BROADBAND

Follow these steps to set up your Bright Box Wireless Router for your EE Fibre broadband service.

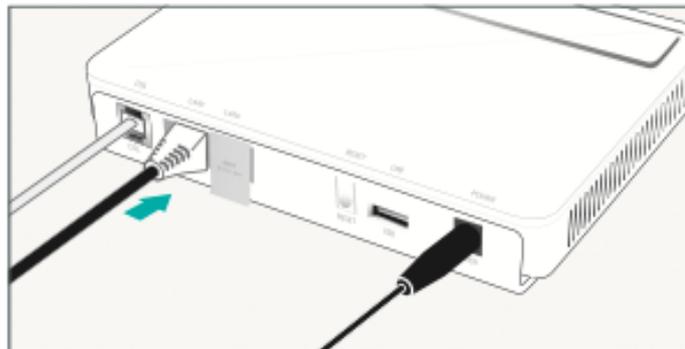
**!** Make sure that your Fibre broadband has been installed – the engineer will confirm that your line is ready to go

### Disconnect Old Equipment

If you've already got a broadband modem or router connected to your line, unplug the power supply and all other cables and put them to one side for now.

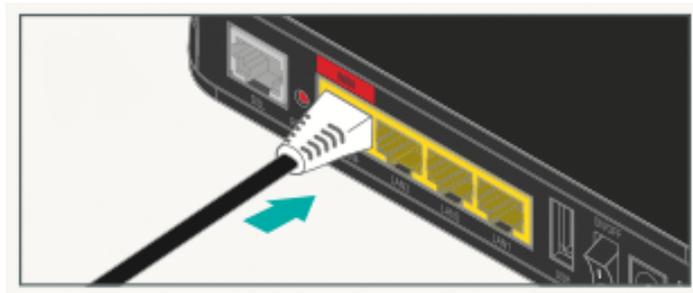
### Engineer Visit

1. The engineer will change your telephone socket and connect the modem for you.
2. Connect the black Ethernet cable, provided, to the modem:

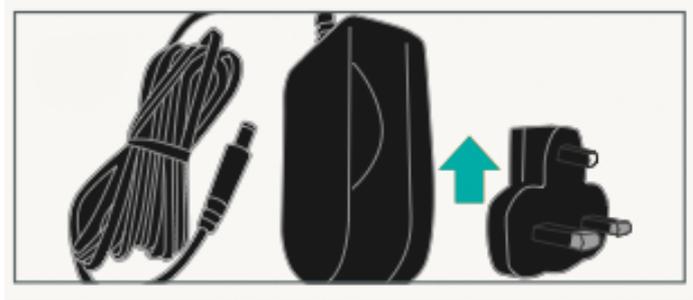


### Connect and turn on your router

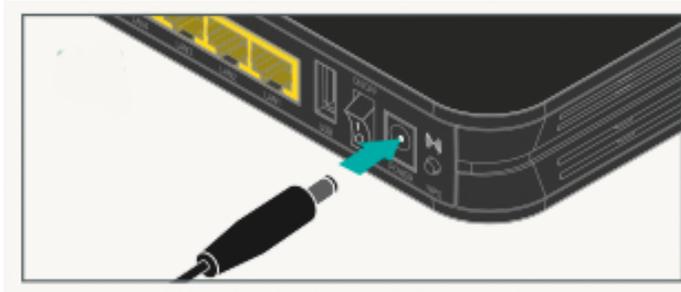
1. Connect the other end of the black Ethernet cable into the red WAN port on your router:



2. Connect the two parts of the power supply together:



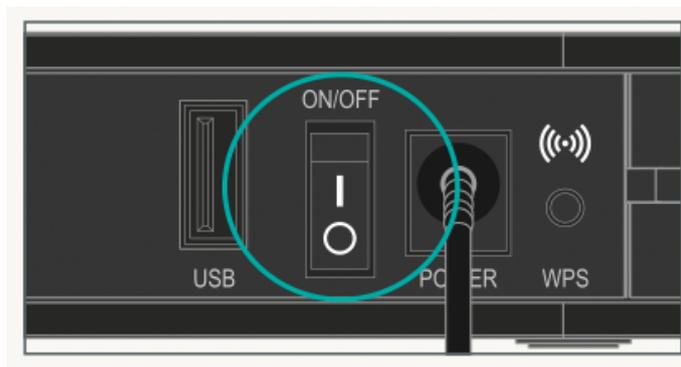
3. Plug the power cable into the router:



4. Connect the power supply into a plug socket and turn it on.

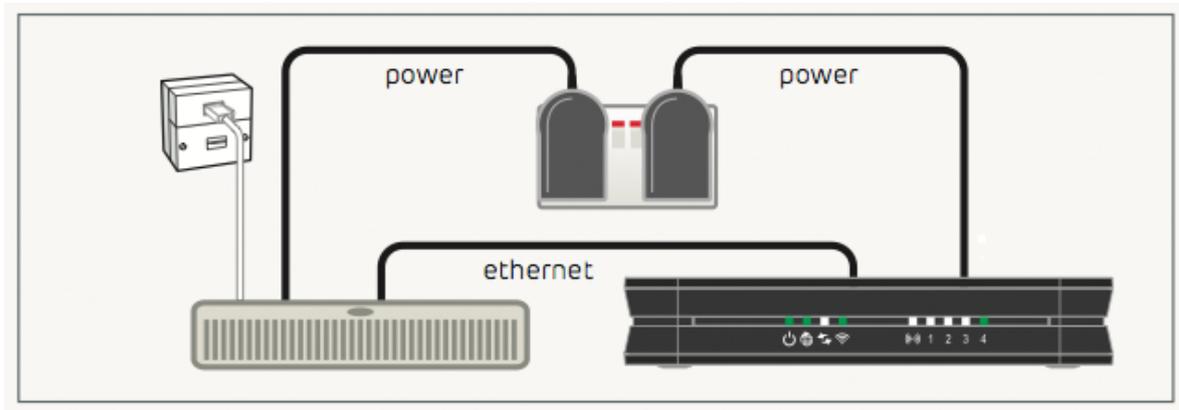


5. You can now switch on your router.



**Check it over**

Everything should now look like this, the power light will go green and the broadband light will go green shortly afterwards:



## Your Fibre broadband is being set up

This will take up to 5 minutes, so relax and let us do the leg work.

**i** Please note that if you're redirected to the 'Nearly there!' holding page in your browser, you may need to wait a few more minutes for us to set up your router. If after 5 minutes, the 'Nearly there!' text is still visible when you reopen your browser window, reboot your PC and then reopen the browser window again, you should now be able to view web pages. If this still doesn't work, you can manually enter your broadband username and password in the router user interface and make a connection to the Internet (see *how to manually update the broadband username and password* on page 52)

## You can now connect your devices

You can now connect your devices to your Bright Box router. Choose either wireless or wired connection and follow the steps on pages 23 and 25

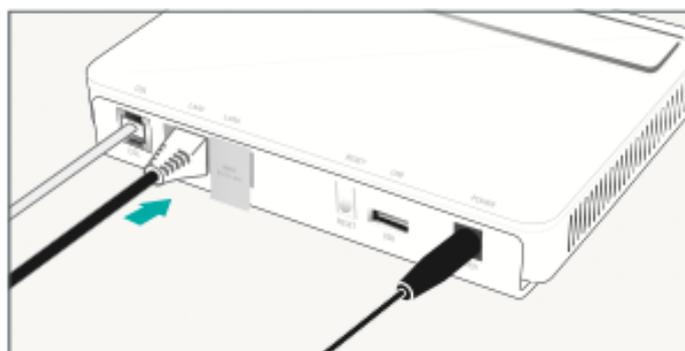
## MOVING TO FIBRE BROADBAND

Follow these steps to move your Bright Box Wireless Router from an ADSL to EE Fibre broadband service.

**!** Make sure that your Fibre broadband has been installed – the engineer will confirm that your line is ready to go

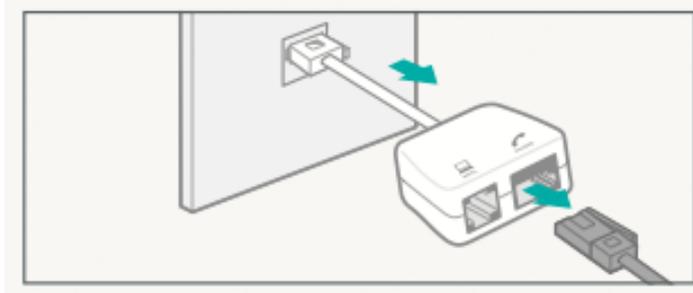
### Engineer Visit

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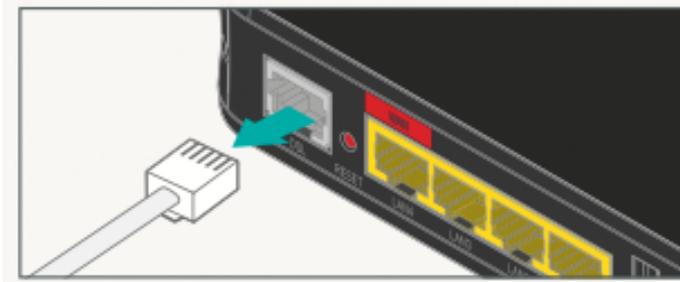


## Reconfigure your current equipment

1. Disconnect any broadband filters from other telephone sockets.



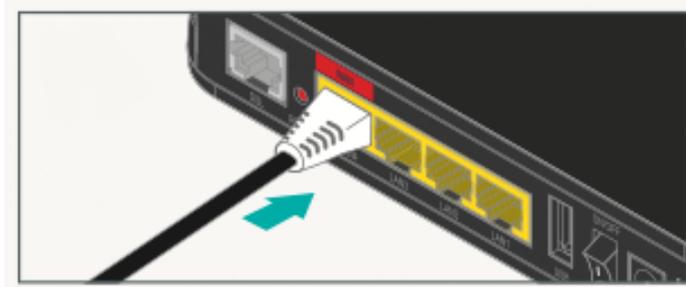
2. If you have a telephone cable reconnect it directly to the telephone socket
3. Disconnect the grey broadband cable from the Bright Box.



4. Remove any Ethernet cables currently connected to the red WAN port, reconnect the Ethernet cables to another available port (LAN1, LAN2 or LAN3)

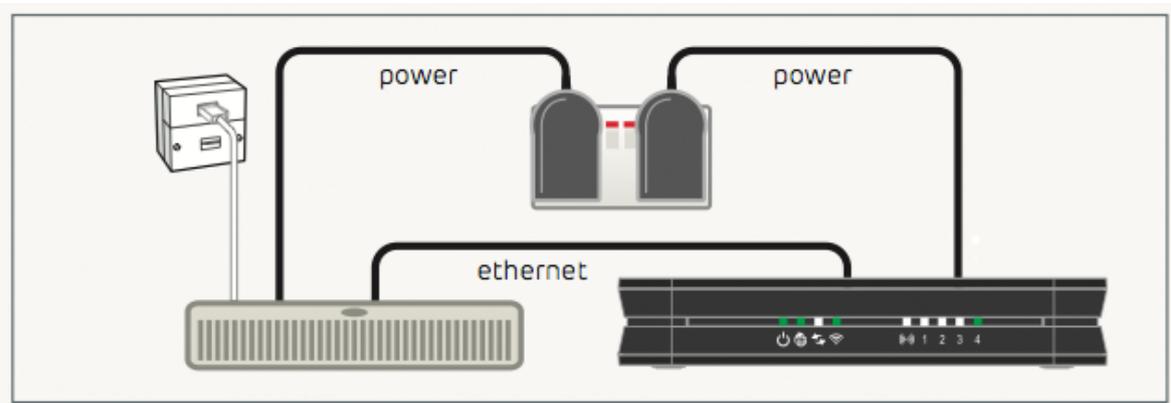
### Connect and turn on your router

Plug the other end of the black Ethernet cable connected to the modem into the red WAN port on your router:



### Check it over

Everything should now look like this:

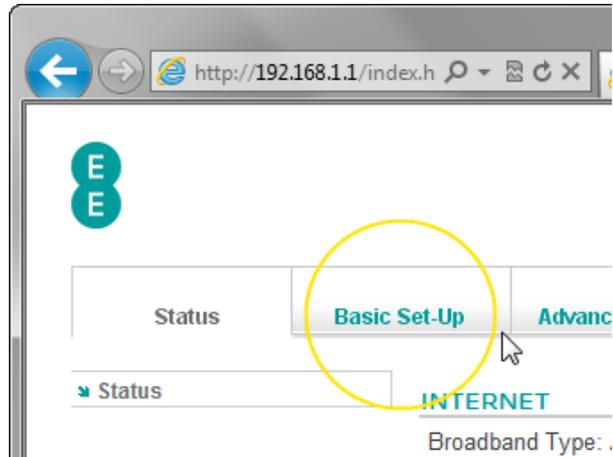


The power light will go green, the broadband light will go green once you've completed the next steps.

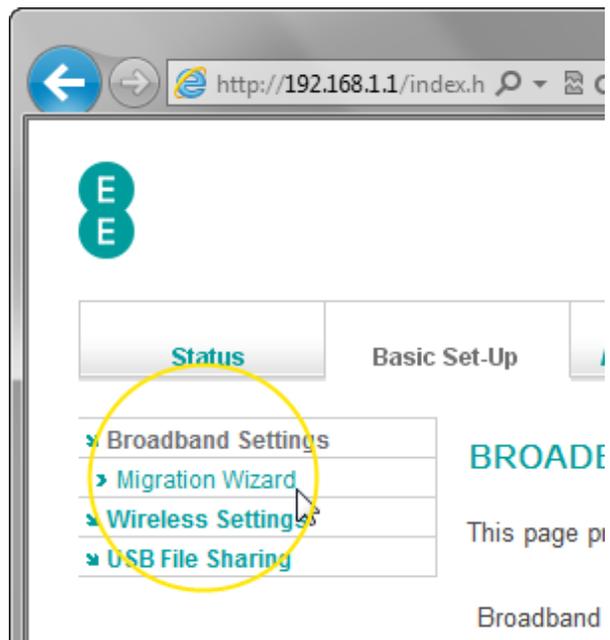


### Six simple steps to move

1. Open a web browser (you will not be connected to the Internet)
2. Type `http://192.168.1.1` into the browser address bar and click go. Your username is admin and the password is on your 'KEEP MEE' card or on the sticker on the bottom of your router.
3. Select the **Basic Set-Up** tab at the top of the screen.



4. Select the **Migration Wizard** from the menu on the left hand side menu:



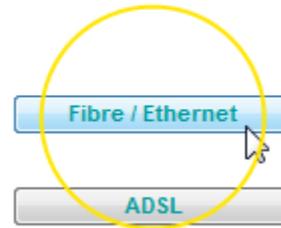
5. Press the **Fibre/Ethernet** button.



## MIGRATION WIZARD

This function will help you to change your router settings. It's quick and easy to click the options below :

Press this button if you want to move to Fibre / Ethernet



Press this button if you want to move to ADSL

6. Press OK on the warning pop-up. The migration countdown will begin. You can now close your browser.

 **Do not turn off your router, please wait until router has restarted.**

seconds remaining.

### Your Fibre broadband is being set up

This will take up to 5 minutes, so relax and let us do the leg work.

 Please note that if you're redirected to the 'Nearly there!' holding page in your browser, you may need to wait a few more minutes for us to set up your router. If after 5 minutes, the 'Nearly there!' text is still visible when you reopen your browser window, reboot your PC and then reopen the browser window again, you should now be able to view web pages. If this still doesn't work, you can manually enter your broadband username and password in the router user interface and make a connection to the Internet (see *how to manually update the broadband username and password* on page 52)

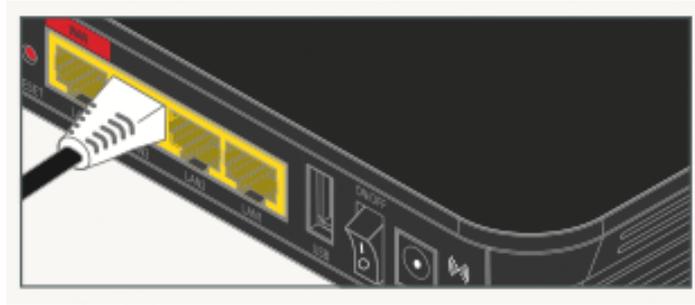
### You can now connect your devices

You can now connect your devices to your Bright Box router. Choose either wireless or wired connection and follow the steps on pages 23 and 25

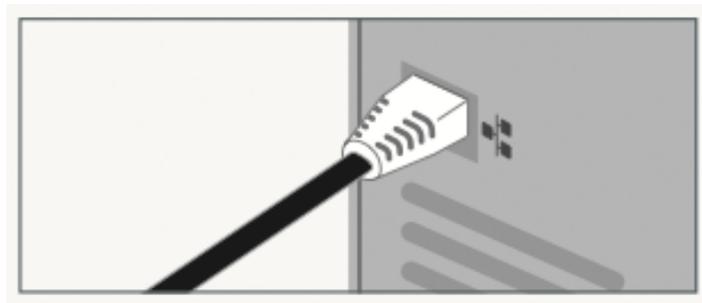
## SETTING UP A WIRED CONNECTION TO YOUR BRIGHT BOX

To set up a wired (Ethernet) connection between your computer and the Bright Box Wireless Router, follow the steps below:

1. For ADSL broadband, plug one end of the black Ethernet cable into any of the four yellow Ethernet sockets on the back of your Bright Box Wireless Router:



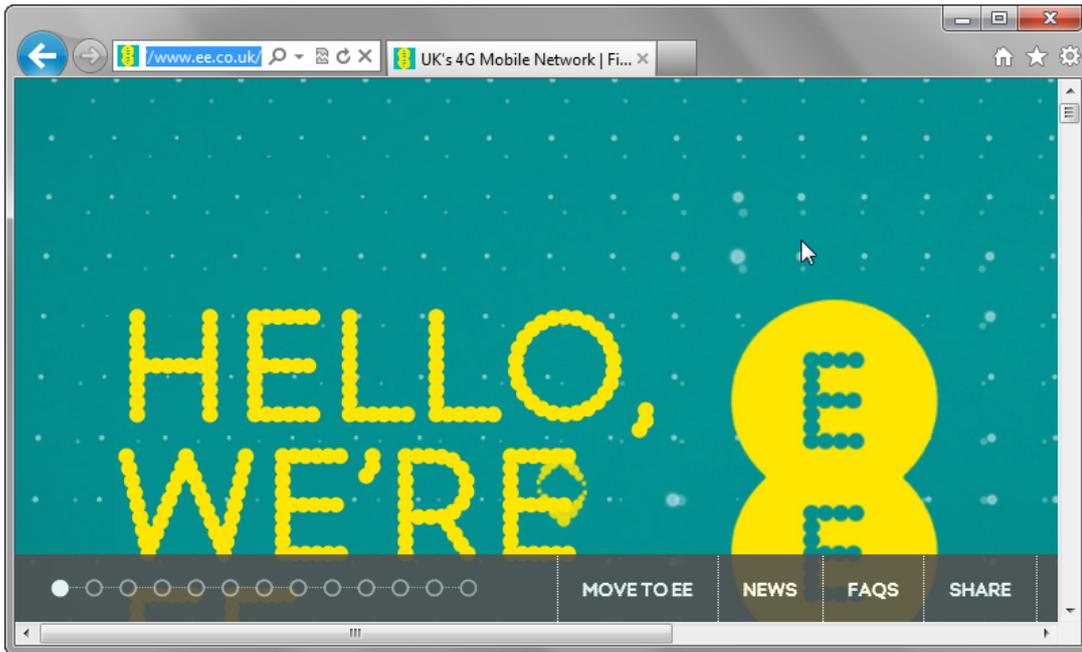
2. For Fibre broadband you should leave the black Ethernet cable connected to the red WAN port on the Bright Box, but can plug another Ethernet cable into any of the other LAN ports on the Bright Box (LAN1, LAN2 or LAN3).
3. Plug the other end into the Ethernet socket on your device. You'll hear a click when you've connected the cable correctly:



4. To check your connection, type ee.co.uk into a browser's address bar and click **Go**:



5. The EE home page will load:



If you can't connect or are having problems, repeat all of the steps again ensuring that all plugs are connected properly. If none of these work give us a call on 0844 873 8586 and we'll help get you up and running.

## SETTING UP A WIRELESS CONNECTION

To set up a wireless connection to the Bright Box Wireless Router:

**i** Your wireless network name (SSID) and wireless password can be found on the 'KEEP MEE' card or on the bottom of the router.

1. If you're using a wireless adapter, make sure it's installed correctly and turned on.
2. Open the wireless software on your device:

Windows – click the network icon in your device's notification area  
– if using Windows Vista, you'll need to choose 'connect to network'



Apple Mac – click the 'AirPort' icon in the menu bar

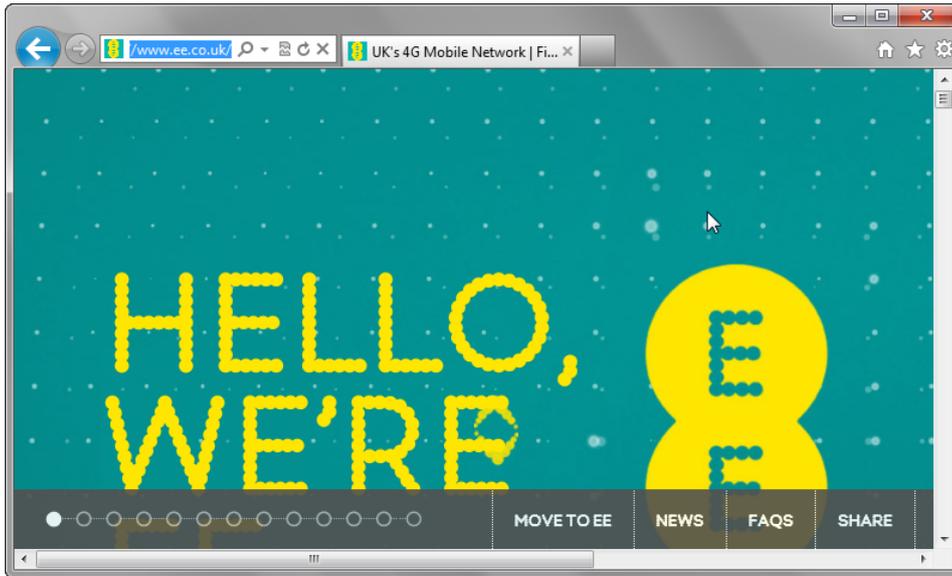


Other Devices – the list can usually be found in the settings menu next to 'wireless', 'manage connections' or 'networks'

3. Look for your wireless network name in the list of networks.
4. Select 'connect' or 'join' on your wireless network and when prompted enter your wireless password.
5. You should now be connected to the wireless network
6. To check your connection, type ee.co.uk into a browser's address bar and click **Go**:



1. The EE home page will load:





## CHAPTER 4: THE BRIGHT BOX ADMIN PAGES

### ACCESSING THE BRIGHT BOX ADMIN PAGES

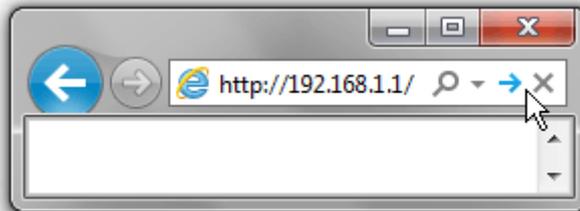
In order to configure settings on the Bright Box wireless router, you will need to log in and out of the router's admin pages using your web browser.

**i** The admin pages will only allow one user (defined by the IP Address of the connected wireless or Ethernet device) to access the pages at one time. As such if swapping between a wired or wireless connection on the computer it is advised that you log out of the pages once you've finished the task. If you forget, you'll receive an error, and need to wait 10 minutes, or restart the router.

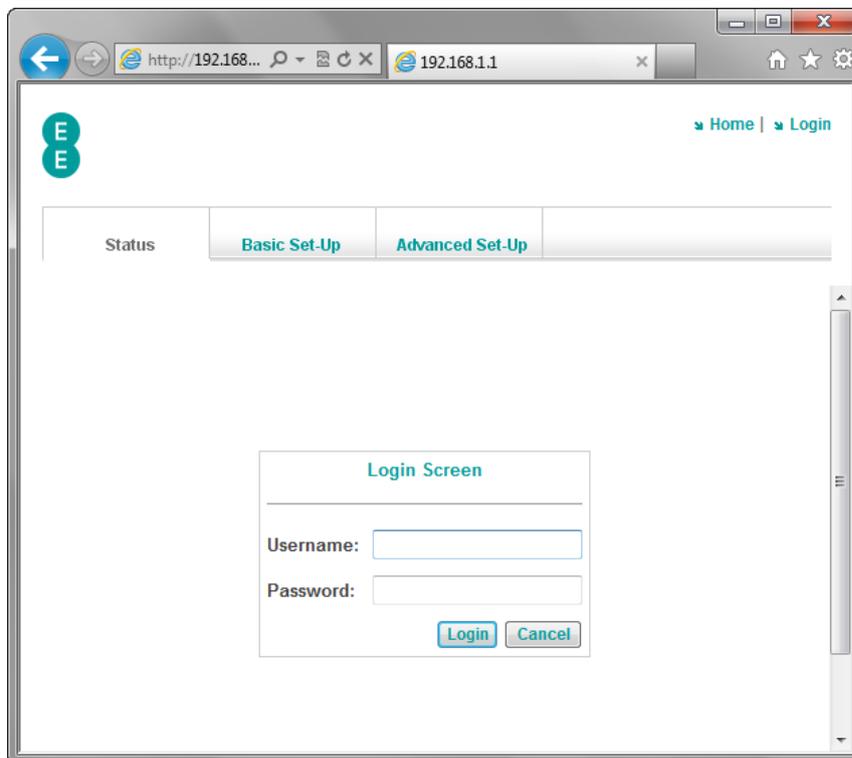
#### How to log in to the Bright Box admin pages

To log into the Bright Box wireless router admin pages:

1. Open a browser, for example Internet Explorer  Safari  or Firefox .
2. In the address bar type, `http://192.168.1.1`



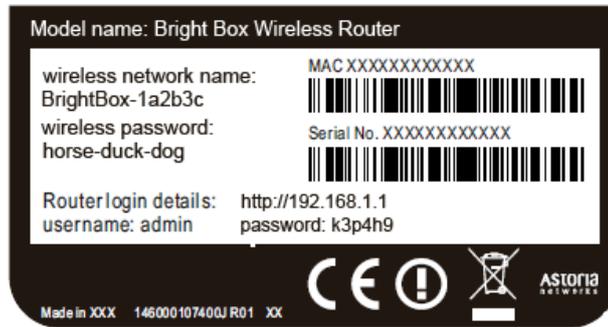
3. The router's admin page login will open:



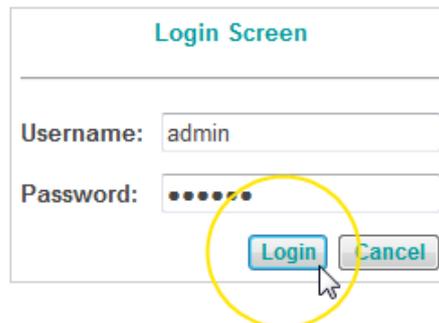
4. Enter the Username and Password to login to the router admin pages:



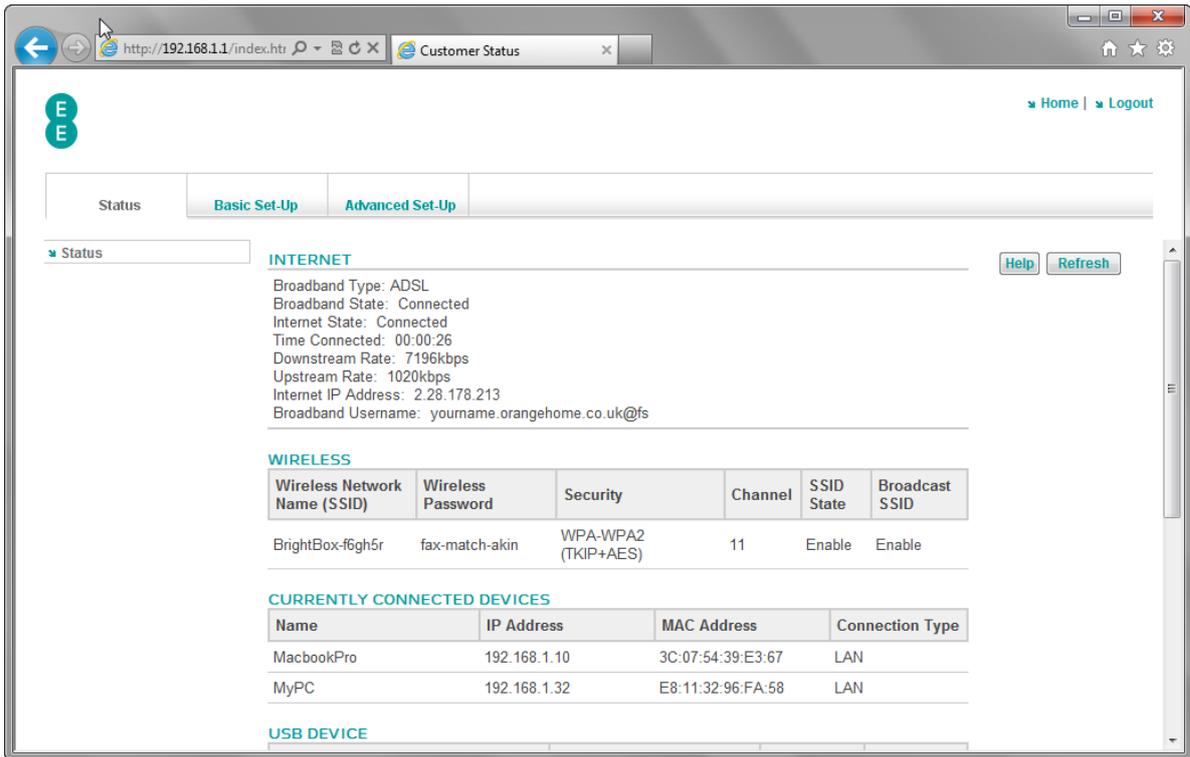
- a. The Username is **admin**
- b. The Password can be found on the sticker on the bottom of the router (in the Router Login Details section) and on the 'KEEP MEE' card.



5. Click **Login**



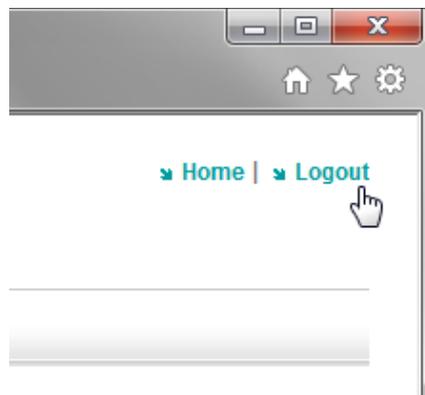
6. The Bright Box 'status' page will be displayed:



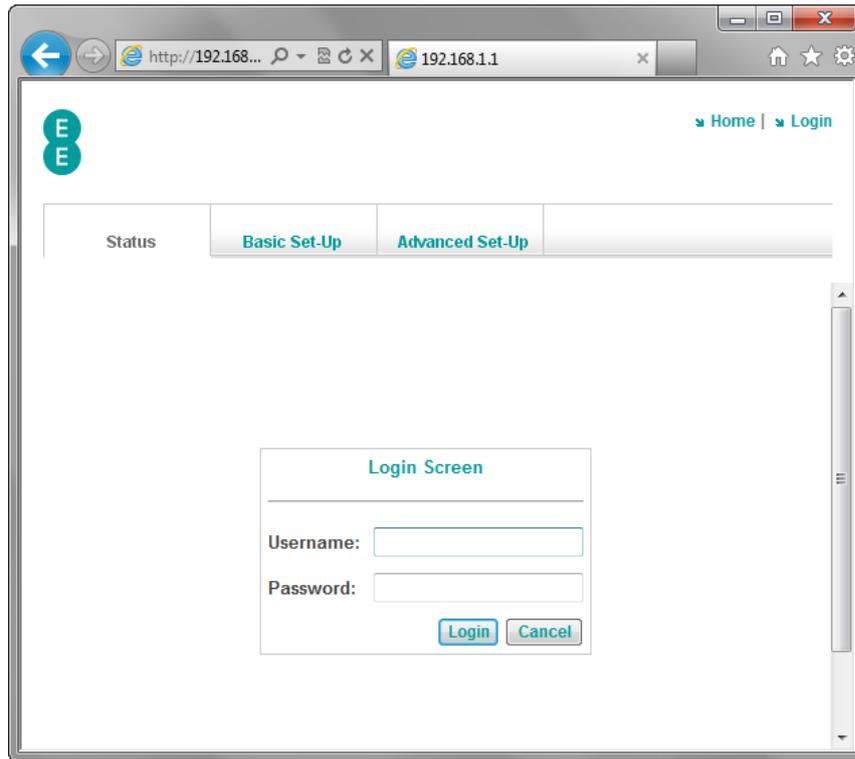
## How to log out of the Bright Box admin pages

To logout of the router's admin pages:

1. Click **Logout** – you'll find this in the top right-hand corner of the router's admin pages:



2. You'll be taken back to the login screen:



## Possible Errors displayed when logging into the admin pages

You may experience one of the errors below while logging onto the admin pages:

*'The router log in details you've entered are incorrect. You'll find these printed on the bottom of your router'*

**The router log in details you've entered are incorrect. You'll find these printed on the bottom of your router.**

You'll get this error if the username and/or password for the router's admin pages have been entered incorrectly or left blank.

Remember that the username and password are case sensitive ensure that the Caps Lock on your computer keyboard is not on when attempting to log on.

Close the browser window, and then try to log on again using the details below:

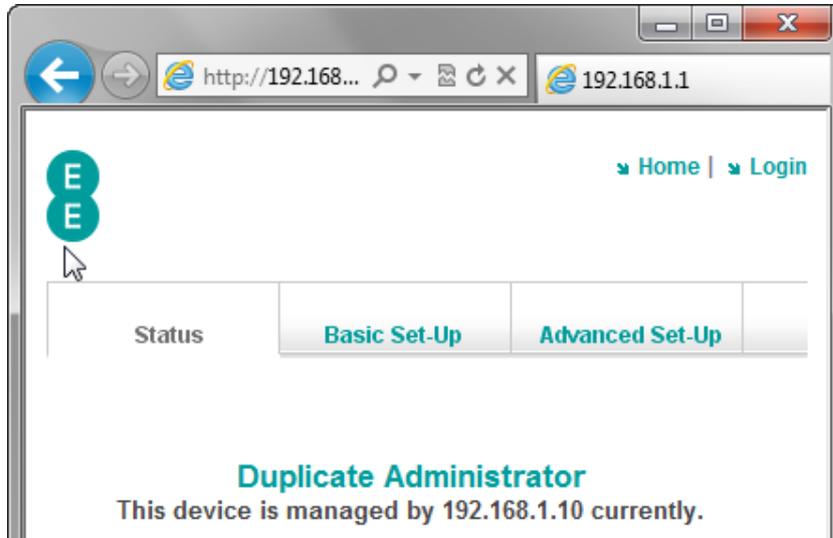
- Username: admin
- Password: This can be found on the sticker on the bottom of the router (in the router login details section) and on the 'KEEP MEE' card.

If you think you may have changed the password for the router in the **Advanced Set-Up > System > Password Settings** page, and can't remember the new password, you will need to return the router to factory settings using the reset button on the back panel of the router (see *how to restore the router to it's default settings* on page 179)



 Please note that you will lose any custom router settings you previously configured if you factory reset the device using the reset button.

*'Duplicate Administrator – The device is managed by 192.168.1.xx currently'*



The admin pages will only allow one user (defined by the IP Address of the connected wireless or Ethernet device) to access the pages at one time.

You can prevent this error by logging off from the admin pages before using another computer, or before switching between a wired and wireless connection on the same computer.

To fix the error:

- Return to the computer (or connection type) that you were previously logged in using, and logout.
- Turn the router off, then back on again – the other computer will be logged out immediately.
- Wait 10 minutes for the previous session to time out.

 By default, it will take 10 minutes for the session to time out before you can login on another computer. Restarting the router will clear the session time out and allow you to log back in immediately. You can change this session time out period in the **Password Settings** page under **Advanced Set-Up > System** in the router admin pages.

If this doesn't fix the problem, or you believe that somebody else may be accessing your admin pages:

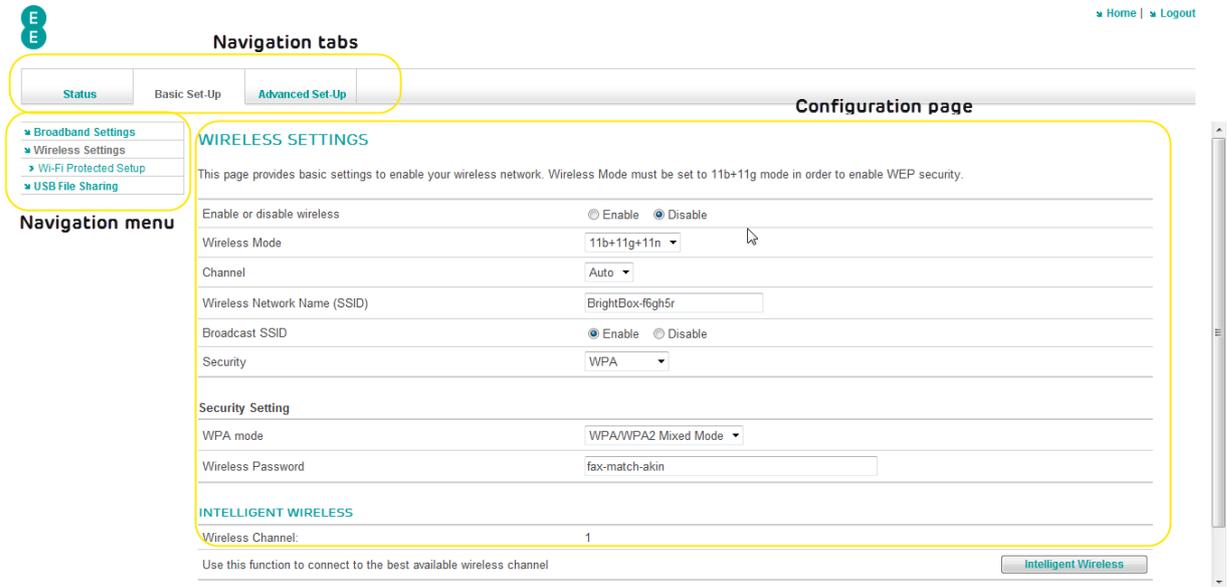
- Change the login password for the router to something different (in the **Password Settings** page under **Advanced Set-Up > System** in the admin pages)
- You may also like to check that wireless security is turned on, and change to WPA, and change your WPA wireless security key to something new (see *Wireless Settings* on page 59)

## NAVIGATING THE BRIGHT BOX ADMIN PAGES

After logging into the Bright Box in your web browser, you can access each of the router admin pages by a combination of navigating the three tabs at the top of the page, and the



left-hand column navigation menu. An example below shows the navigation elements as they appear in the **basic set up > Wireless Settings** page:



There are three main sections in the admin pages that are accessible by clicking on the navigation tabs:



Section	Description
Status	This section consists of a single page that displays the Bright Box status for Internet connectivity, wireless connection status, currently connected device list (DHCP table), USB device status and other LAN and WAN settings.
Basic Set-Up	The section contains configuration pages for Broadband Settings, Migration Wizard, Wireless Settings, Wi-Fi Protected Setup (WPS) settings and USB File Sharing configuration.
Advanced Set-Up	This section contains advanced configuration pages for Broadband Settings, ADSL Mode, Migration Wizard, Wireless Settings, wireless channel and SSID (including multiple SSID and VLAN binding), WEP, WPA, 802.1x, wireless Bandwidth Control, USB File Sharing, Mobile Broadband, DHCP settings, NAT, Address Mapping, Port Forwarding (also known as Port Mapping), Port Triggers, NAT Mapping table, Firewall, Access Control, MAC Filtering, URL Blocking, Schedule Rules, Intrusion Detection, DMZ, Quality of Service (QoS), Traffic Mapping, DiffServ Groups, WMM, UPnP, Backup and Restore Configuration, Restart Router, Factory Default, Firmware Upgrade, System Settings, Time Settings, Password Settings, DDNS, ADSL Status and System Log.



**i** Some of the navigation menu pages are nestled underneath other headings according to category. Click on the heading to view the associated sub-pages and then click on the sub-page heading to view the specific configuration page.

The example below displays the **Channel and SSID/WEP/WPA/802.11x/Bandwidth Control** sub-pages nestled underneath the **Wireless Settings** category in the **Advanced Set-Up** tab:

**Default Menu View:**

➤ <b>Broadband Settings</b>
➤ ADSL Mode
➤ Migration Wizard
➤ <b>Wireless Settings</b>
➤ USB File Sharing
➤ Mobile Broadband
➤ DHCP
➤ NAT
➤ Firewall
➤ QoS
➤ UPnP
➤ Tools
➤ System

**View when clicking on the Wireless Settings category:**

➤ <b>Broadband Settings</b>
➤ <b>Wireless Settings</b>
➤ Channel and SSID
➤ WEP
➤ WPA
➤ 802.1X
➤ Bandwidth Control
➤ USB File Sharing
➤ Mobile Broadband
➤ DHCP
➤ NAT
➤ Firewall
➤ QoS
➤ UPnP
➤ Tools
➤ System

## BRIGHT BOX ADMIN PAGE DESCRIPTIONS

This section provides a description of the admin pages in the Bright Box router user interface, by navigation tab section. If the section name is preceded by a '>', this indicates that the section is nestled under a higher-level menu item in the navigation menu.

### Status tab

Section	Description
Status	This page displays the Bright Box status for internet connectivity, wireless connection status, currently connected device list (DHCP table), USB device status and other LAN and WAN settings. This is the first page displayed after logging into the Bright Box admin pages.

### Basic Set-Up tab

Section	Description
Broadband Settings	This page contains basic settings to connect to your EE broadband service. Two network types can be configured here – ADSL and Fibre/Ethernet. The



	Broadband Username and Password can be found here, as well as ISP settings, DNS and MTU settings.
> Migration Wizard	This page contains a wizard that allows you to change the default router configuration to work on either EE Fibre broadband or EE ADSL broadband services.
Wireless Settings	This page contains basic settings to configure your wireless network. The wireless mode, channel, wireless network name (SSID), wireless password, broadcast SSID, security type and security modes can be configured here. You can also refresh the Intelligent Wireless channel on this page.
> Wi-Fi Protected Setup	This page allows you to enable or disable the Wi-Fi Protected Setup (WPS) capability on the router. This option is disabled by default. You can also find the WPS PIN and Push Button Configuration (PBC) settings here.
USB File Sharing	This page contains basic settings to configure the USB File Sharing feature on the Bright Box router. The Auto Sharing feature is enabled by default. The Workgroup Name, Security Control and File Permission settings can be set here.

### Advanced Set-Up tab

Section	Description
Broadband Settings	This page contains more advanced settings for configuring your EE broadband service. It includes the settings found in the Basic Set-Up page and additional settings such as Connection Type, Idle Time, Authentication Protocols and an option to manually connect/disconnect your Internet connection.
> ADSL Mode	This page contains options to manually configure the ADSL connection mode on your router. By default this is 'Automatic', but settings can be changed in order to assist connection troubleshooting.
> Migration Wizard	This page contains a wizard that allows you to change the default router configuration to work on either EE Fibre broadband or EE ADSL broadband services.
Wireless Settings	This page allows you to enable or disabled the wireless LAN (WLAN) on the Bright Box router. You can also refresh the Intelligent Wireless channel on this page.
> Channel and SSID	This advanced page allows you to set the Wireless Mode (b/g/n, b/g, n only modes), Primary and Secondary Channels, Wireless Bandwidth (20MHz and 20/40 MHz modes), create multiple SSID's and bind SSID's to a virtual LAN (VLAN) to create isolated wireless networks



> WEP	<p>This advanced page allows you to configure the WEP wireless security settings for any of the transmitting SSID's. Settings include the WEP mode (64 or 128-bit), Key Entry type (Hex or ASCII), WEP passphrase and WEP key generation.</p> <p>Please note that WEP security can only be configured with the router set to '11b+11g' wireless mode.</p>
> WPA	<p>This page contains settings allowing you to configure the WPA wireless security settings for any of the transmitting SSID's. Settings include WPA Mode (WPA, WPA2 or WPA/WPA2 Mixed Mode), Cipher Suite (Auto, AES or TKIP), Authentication Type (Wireless Password or 802.1x), Wireless Password type (Passphrase or Hex) and the WPA Wireless Password.</p>
> 802.1x	<p>This page contains configuration settings for 802.1x RADIUS wireless authentication. 802.1x can be enabled or disabled on this page (disabled by default). Other settings include re-authentication and quiet period times and RADIUS server parameters.</p>
> Bandwidth Control	<p>This page allows configuration of wireless Bandwidth Control for each of the wireless SSID's. This allows you to set a maximum throughput limit for upstream or downstream traffic.</p> <p>Please note that the QoS module must be enabled for this feature to work (see <i>Bandwidth Control</i> on page 112)</p>
USB File Sharing	<p>Advanced USB File Sharing options can be found in this page. As with the Basic Set-Up page, Auto Sharing option and workgroup names can be configured here. Additional features include enabling/disabling Samba, creating user accounts, a connected USB device list and NAS folder sharing settings.</p>
Mobile Broadband	<p>Mobile Broadband support can be enabled on this page, to allow use of 3G mobile Internet connections with supported 3G USB dongles. The page displays the current 3G connectivity status and PIN codes.</p> <p>Please note that this is currently only a beta feature.</p>
DHCP	<p>This page contains configuration options for DHCP in order for the router to dynamically allocate IP addresses to your client PC's. The DHCP server can be enabled/disabled on this page and DHCP address reservation set-up. Other settings such as Gateway/Subnet IP addresses, Lease Time, Domain Name and DHCP Start/End ranges can be configured here.</p>
NAT	<p>The NAT (Network Address Translation) setting can be disabled/enabled on this page. Please note that this feature is enabled by default.</p>



> Address Mapping	This page contains an Address Mapping table that allows LAN IP addresses ranges to be mapped to particular Internet IP addresses in order to isolate internal networks. EE does not currently support this feature.
> Port Forwarding	This page allows you to configure the Port Forwarding (sometimes known as Port Mapping) feature on the router so that remote users accessing local services such as a Web or FTP server can be automatically redirected to the correct local IP address. Up to 20 Port Forwarding entries can be created on this page.
> Port Triggers	This page allows you to configure Port Trigger services so that applications requiring multiple connections can open the correct ports for inbound traffic when the application calls on a specific 'trigger port'. Up to 10 Port Triggering entries can be created on this page.
> NAT mapping table	This page contains a table that displays a list of the current port forwarding mappings.
Firewall	The Bright Box firewall features (Access Control, MAC Filter, URL Blocking, Schedule Rule, Intrusion Detection, DMZ) can be disabled and enabled from this page.
> Access Control	This page contains settings to allow you to define individual traffic types permitted or not permitted from the Internet to devices on your local network. The overall access control feature can also be disabled or enabled from this page. Up to 10 device access control rules can be created.
> MAC Filter	MAC Filters (also known as MAC Address Controls) can be configured from this page for up to 32 devices. When a MAC filter is configure, only those devices listed in the table can access your network.
> URL Blocking	You can block access to individual web sites by URL or keyword on this page. Please note that an Access Control filter with 'WWW with URL Blocking' must be created for a particular device in order for URL Blocking to occur.
> Schedule Rule	This page allows configuration of Schedule Rules for Access Control filters. You can configure rules to apply for certain days and times and then associate the rule with a particular Access Control in the Access Control page.
> Intrusion Detection	This page allows the configuration of the Stateful Packet Inspection (SPI) element of the router firewall which is enabled by default. The SPI and Anti-DoS protection can be disabled or enabled on this page as can individual SPI settings. The page also allows you to configure the 'Discard Ping to WAN Interface' option.
> DMZ	If you have a local client device that cannot run an



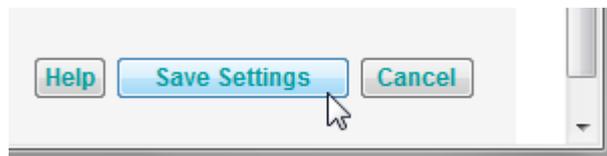
	Internet application properly from behind the firewall, you can configure that device to have unrestricted two-way Internet access by defining a virtual DMZ host on this page.
QoS	The Quality of Service (QoS) setting can be enabled or disabled on this page. QoS is disabled by default, but if enabled can allow you to configure particular traffic types (for example gaming traffic) to have priority over others.
> Traffic Mapping	You can configure up to 16 different Traffic Mapping rules that classify different types of traffic into forwarding groups from Highest to Lowest. For example you can create a class for Online Games with a traffic priority of 'Highest'
> Diffserv Groups	You can configure each of the 8 DiffServ priority groups (from Highest to Lowest) on this page. Guaranteeing a minimal bandwidth percentage for each group, associated with Traffic Mapping rule priorities.
> WMM	You can enable and disable the WMM (Wi-Fi Multimedia) setting on this page. This is enabled by default and allows better quality multicast (video/audio) streaming over the wireless network for supported applications.
UPnP	This page allows configuration of the Universal Plug and Plug (UPnP) feature in the router. This is enabled by default and allows compatible network devices to discover each other over the local network and automates port forwarding for UPnP supporting applications.
Tools	This page contains a 'Please use these functions with caution' message.
> Configuration	This page allows you to backup the current configuration settings of the router to a backup file. The page also allows you to restore previously saved configuration settings from a backup file.
> Restart	The router can be restarted (rebooted) from this page.
> Factory Default	The router can be restored to factory default settings (factory reset) from this page. Please note that if the router is factory defaulted, any custom configuration settings will be lost.
> Firmware Upgrade	The router firmware version can be upgraded from this page by uploading a firmware file from a connected computer.
System	This page contains the current Bright Box Runtime, Boot, ADSL and Hardware versions, as well as the router Serial Number, LAN and Wireless MAC addresses.
> Time Settings	This page allows you to enable or disable the Automatic Time Server Maintenance to ensure the



	router time (as displayed in the System Log) is always correct.
> Password Settings	You can configure the password to access the router admin pages in this page. Please ensure you have the current password to hand in order to make this change. The admin page idle time out setting can also be configured here.
> DDNS	This page allows you to configure the Dynamic DNS settings to allow you to map a static domain name (from DynDNS.com or TZO.com) to a dynamic IP address. Please ensure you have setup an account with DynDNS or TZO in order to use this feature.
> ADSL Status	This page displays statistics on your ADSL broadband connection, including Line Status, Link Type, Operation Mode, ADSL sync data rate in Kbps, Noise Margin, Attenuation, Error correction and cell statistics.
> System Log	This page displays a log containing system events such as administration login/logout and broadband connection activities. You can save the log as a text file or clear the log from this page.

## MAKING CONFIGURATION CHANGES

Once you have made a configuration change on any Bright Box admin page, and you are happy to proceed with the change click the **Save Settings** button at the bottom of the page to apply the change to the router:



An 'Applying changes. Please wait. The process may take up to 30 seconds. If you are making wireless changes you may need to reconnect to the wireless network' message may appear in the browser window. Once this change is applied, you will be returned to the page you were previously configuring:

 **Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.

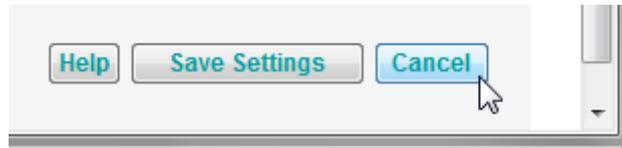


 If you are making changes to the router settings over a Wi-Fi connection you may need to reconnect to the Bright Box wireless network after making those changes. This particularly applies to any changes made to Wi-Fi settings in the **Basic Set-Up > Wireless Settings**, **Basic Set-Up > Wi-Fi Protected Setup**, **Advanced Set-Up > Wireless Settings**, **Advanced Set-Up > Channel and SSID**, **Advanced Set-Up > WEP**, **Advanced Set-Up > WPA**, **Advanced Set-Up > Bandwidth Control** or **Advanced Set-Up > 802.1x** pages.



**!** If you are having problems reconnecting after a change to the router's wireless settings you may also need to delete your old wireless network location for the Bright Box in Windows or Mac OS X before trying again.

If you have accidentally made a configuration change or multiple changes on an admin page (and have not clicked **Save Settings**), and you wish to cancel that change, click the **cancel** button at the bottom of the page:



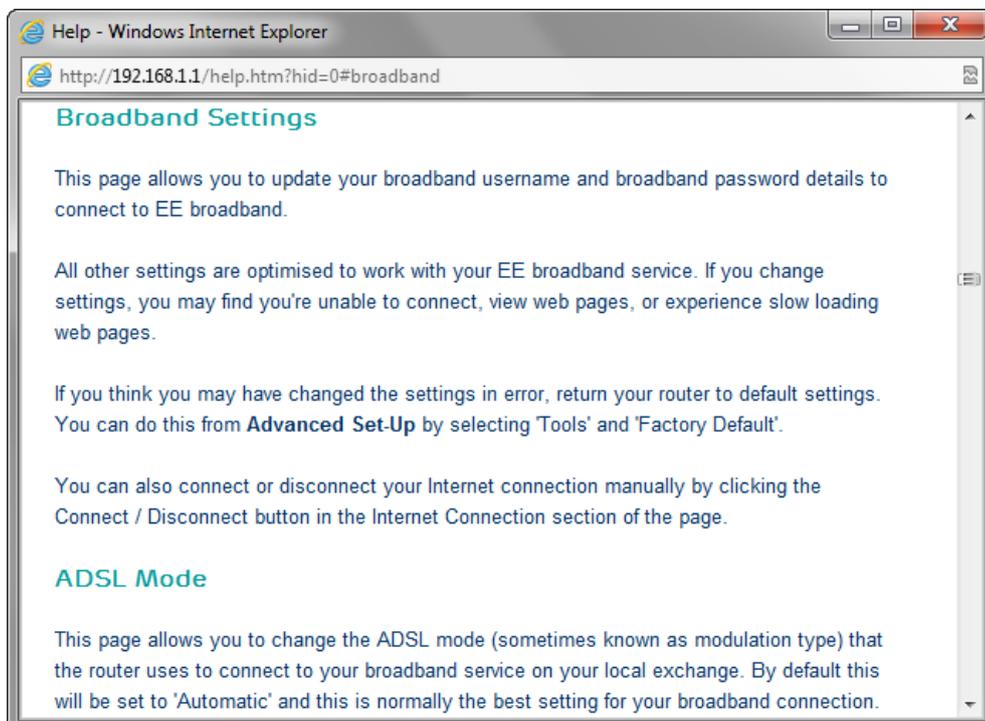
**!** You cannot cancel a configuration change on a page after clicking the **Save Settings** button as **Save Settings** will apply the change to the page. If you click **Save Settings** and then want to roll back on a previous setting, you will need to change that setting yourself and click **Save Settings** again to re-apply.

## HELP PAGES

You can display contextual help information on admin pages by clicking the **Help** button on any page:

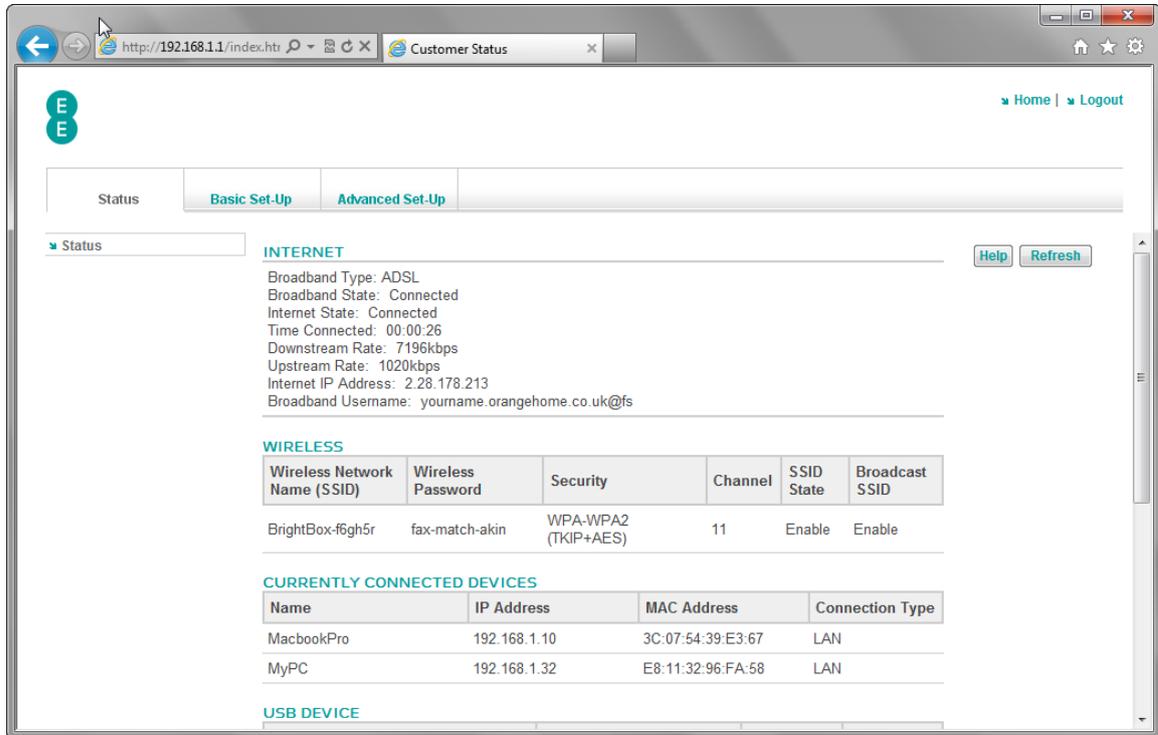


This will open a window with the relevant help information for that particular admin page:



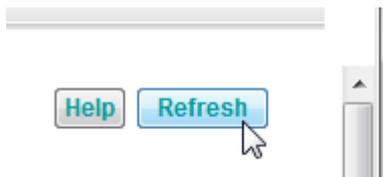
## CHAPTER 5: THE BRIGHT BOX STATUS PAGE

The status page is where you'll find all the information you need about the status and settings on your router.



The status page is made up of five separate sections – **Internet**, **Wireless**, **Currently Connected Devices**, **USB device** and **Information**.

The status page will automatically refresh every 15 seconds, however you can manually refresh the page by clicking the **refresh** button at the top of the page:



The follow sections describe the elements of the status page in more detail.

### INTERNET STATUS

In this section you can check your Internet connection status, speed of your connection and how long you've been connected for.



## INTERNET

Broadband Type: ADSL  
Broadband State: Connected  
Internet State: Connected  
Time Connected: 00:00:26  
Downstream Rate: 7196kbps  
Upstream Rate: 1020kbps  
Internet IP Address: 2.28.178.213  
Broadband Username: yourname.orangehome.co.uk@fs

Field	Description
Broadband Type	For EE ADSL broadband connections, this field should display a value of ADSL. For EE Fibre broadband connections a value of 'Fibre/Ethernet' should be displayed. If the wrong Broadband Type is displayed, you can migrate to the correct type (ADSL or Fibre/Ethernet) on the <b>Basic Set-Up &gt; Broadband Settings &gt; Migration Wizard</b> page.
Broadband State	<p>This field indicates the status of the ADSL broadband connection. The field will display 'Connected' if the router has successfully synchronised with the exchange. The field will display 'Disconnected' if the router is unable to detect a broadband signal or is still synchronising with the exchange.</p> <p>If this field displays 'Disconnected' please check your grey broadband cable is connected to the DSL socket on your router and the other end of the cable is connected to the DSL socket on the telephone filter. Ensure the filter is connected to the master telephone socket. Also see <i>chapter 8: troubleshooting</i> on page 198</p> <p>For Fibre broadband customers a value of 'N/A' will be displayed here.</p>
Link Rate (Fibre/Ethernet Broadband Type Only)	<p>This field displays the physical link speed of the Fibre/Ethernet connection. The value will generally be 100Mbps. Please note that this is the physical link rate of your connection and not the download speed available over your Fibre broadband service.</p> <p>This field will only be visible if the 'Broadband Type' value is 'Fibre/Ethernet', and should not be visible if you are using EE ADSL broadband.</p>
Internet State	<p>This field indicates the status of the Internet connection. If a connection to the Internet is available then this field will display a value of 'Connected'. The field will display a value of 'Disconnected' if the router is unable to establish a connection to the Internet.</p> <p>If this field displays 'Disconnected' please check your Broadband Username and Broadband Password on the <b>Basic Set-Up &gt; Broadband Settings</b> page is correct. Also check the other settings on the <b>Broadband Settings</b> page to ensure these are correct for your EE ADSL connection. Also see <i>chapter 8: troubleshooting</i> on page 198</p>
Time Connected	This field displays the length of time the Internet State has been in the 'Connected' state in Hours:Minutes:Seconds format. If the Internet State is



	'Disconnected' this field will display --:--:--.
Downstream Rate	<p>This field displays the current ADSL synchronisation rate in kilobits per seconds (kbps) for the downstream connection. Please note that this is the sync rate with the exchange only, and this value may be higher than your download speeds over the Internet.</p> <p>This field will display 'Okbps' if no Internet connection is available.</p> <p>This field will not be visible when the Broadband Type is 'Fibre/Ethernet'.</p>
Upstream Rate	<p>This field displays the current ADSL synchronisation rate in kilobits per seconds (kbps) for the upstream connection. Please note that this is the sync rate with the exchange only, and may be higher than your upload speeds over the Internet.</p> <p>This field will display 'Okbps' if no Internet connection is available.</p> <p>This field will not be visible when the Broadband Type is 'Fibre/Ethernet'.</p>
Internet IP Address	<p>This field displays the current Internet (WAN) IP address automatically assigned to your router by EE. If no Internet connection is available this will display 0.0.0.0.</p> <p>The IP address may also be a static IP address configured in the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> pages, however this setting is not supported by EE.</p>
Broadband Username	<p>This field displays your unique Broadband Username as configured in the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> pages.</p> <p>The Username will automatically be populated when you first connect your router to your EE Broadband line. If the Username displays readytoconnect@fs then you may need to configure the Username and Password manually on the <b>Basic Set-Up &gt; Broadband Settings</b> page.</p> <p>If this field is populated with your correct Broadband Username, but your Internet State displays 'Disconnected', ensure your Broadband Password and other broadband settings are correct on the <b>Basic Set-Up &gt; Broadband Settings</b> page. Also see <i>chapter 8: troubleshooting</i> on page 198</p>

## WIRELESS STATUS

In this section you can view the status of your wireless network, the wireless password, security type, channel and status.

### WIRELESS

Wireless Network Name (SSID)	Wireless Password	Security	Channel	SSID State	Broadcast SSID
BrightBox-f6gh5r	fax-match-akin	WPA-WPA2 (TKIP+AES)	11	Enable	Enable

**i** The wireless status may contain up to three separate entries if SSID2 and SSID3 have also been enabled in the **Advanced Set-Up > Channel and SSID** page.

**i** If this section displays '**wireless is currently disabled**' then this means that the wireless LAN on the Bright Box has been disabled. You can enable the wireless LAN in the **Basic Set-Up > Wireless Settings** or **Advanced Set-Up > Wireless Settings** pages.

Field	Description
Wireless Network Name (SSID)	<p>This field displays the wireless network name (also known as a SSID) as configured in the <b>Basic Set-Up &gt; Wireless Settings</b> or <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel and SSID</b> pages.</p> <p>This is the wireless network name you will select when connecting your wireless devices to the Bright Box router. You can also find the default wireless network name on the sticker on the bottom of the router or the 'KEEP MEE' card that came with the router.</p>
Wireless Password	<p>This field displays the wireless password (sometimes known as a wireless passphrase or WEP key) for the listed wireless network name.</p> <p>This is the wireless password you will enter when connecting your devices to the wireless network.</p> <p>This field will display '—' if the wireless security type is set to 'None'.</p> <p>You can also find the default wireless password on the sticker on the bottom of the router or the 'KEEP MEE' card that came with the router.</p> <p>The wireless password can be configured in the <b>Basic Set-Up &gt; Wireless Settings</b> or <b>Advanced Set-Up &gt; Wireless Settings &gt; WEP</b> or <b>Advanced Set-Up &gt; Wireless Settings &gt; WPA</b> pages.</p>
Security	<p>This field displays the wireless security mode/cipher suite of the of the associated wireless network name. The default wireless security mode is 'WPA-WPA2(TKIP+AES)'. Other modes include 'WPA(TKIP+AES)', 'WPA(TKIP)', 'WPA(AES)', 'WPA2(TKIP+AES)', 'WPA2(TKIP)', 'WPA2(AES)', 'WEP' and 'None'.</p> <p>The wireless security mode can be configured in the <b>Basic Set-Up &gt; Wireless Settings</b> or <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel and SSID</b> pages. The WPA cipher suite can be configured in the <b>Advanced Set-Up &gt; Wireless Settings &gt; WPA</b> page.</p>
Channel	<p>This field displays the wireless channel transmission for all of the wireless network names. By default, the wireless channel is automatically selected by the Intelligent Wireless function of the router. This determines the channel with the least amount of interference and sets the channel accordingly.</p> <p>You can override the automatic Intelligent Wireless channel selection in the <b>Basic Set-Up &gt; Wireless Settings</b> page and set the router to a manual channel between 1 and 13.</p> <p>If you have set the router to the 40MHz bandwidth setting in <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel</b></p>



	<b>and SSID</b> page then the extension channel (+/- 4 channels from the primary) will also be displayed here.
SSID State	<p>This field displays whether the particular wireless network name (SSID) is currently enabled and transmitting. If this value displays 'Disable' then the wireless network name is configured, but is not transmitting and cannot be connected to.</p> <p>You can set the SSID state by ticking or unticking the 'Enable' option for the relevant SSID on the <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel and SSID</b> page.</p>
Broadcast SSID	<p>This field displays whether the wireless network name (SSID) is broadcasting and visible. If the value is 'Enabled' then the wireless network name is visible to wireless devices when attempting to scan for networks.</p> <p>If the value is 'Disable' then the wireless network name is not transmitted or visible in a wireless scan. A wireless device may still connect to the wireless network by manually entering the wireless network name even if the broadcast SSID option is 'Disable'.</p> <p>Please note that if the SSID state value is 'Disable', then you cannot connect to the wireless network, even if the broadcast SSID is displaying 'Enable'.</p> <p>You can configure the broadcast SSID setting on the <b>Basic Set-Up &gt; Wireless Settings</b> or <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel and SSID</b> pages.</p>

## CURRENTLY CONNECTED DEVICES

In this section you can see all of the devices that are currently connected to your Bright Box router, and whether these are wired (LAN) or wireless devices. This section is also known as a DHCP table.

### CURRENTLY CONNECTED DEVICES

Name	IP Address	MAC Address	Connection Type
MacbookPro	192.168.1.10	3C:07:54:39:E3:67	LAN
MyPC	192.168.1.32	E8:11:32:96:FA:58	LAN

Field	Description
Name	This field displays the name of the connected device. If the device does not provide a device name (some devices don't), the field value will read 'Unknown Device'.
IP Address	This field displays the current IP address of the connected device, as assigned by the routers DHCP (Dynamic Host Control Protocol) server.
MAC Address	This field displays the 12-digit unique MAC (Media Access Control) address of the connected device.
Connection Type	This field will display whether the connected device is connected over a wired Ethernet connection ('LAN') or over the router's wireless connection ('Wireless').



## USB DEVICE

In this section you can see details of a storage device (such as a USB hard drive) connected to the USB socket of the router. See *how to file share with a USB drive* on page 88.

**i** If this section displays '**no supported device found**' then this means that either no USB device is connected to the router's USB socket, or the connected device is not supported by the router. The router currently supports FAT16, FAT32 and NTFS file systems. Apple Mac HFS or HFS+ file systems are not supported.

### USB DEVICE

Share Name	File System	Capacity	Free Space
UNTITLED	FAT	7.504 GB	7.446 GB

Field	Description
Share Name	This field displays the volume name of the connected USB drive as it will appear in your operating system's network location as a shared folder.
File System	This field displays the file system type of the connected USB drive. FAT16 or FAT32 drives will display a value of 'FAT' while NTFS drives will display a value of 'NTFS'. Note that Apple Mac HFS or HFS+ file systems are not currently supported by the Bright Box router.
Capacity	This field displays the total storage capacity of the connected USB drive in Gigabytes (GB).
Free Space	This field displays the amount of free storage space available on the connected USB drive in Gigabytes (GB).

## INFORMATION

This section contains further details about your router, including more detailed Internet settings along with other router features and settings. The section is comprised of three areas – Internet, Features and LAN & Wireless(Default)

### INFORMATION

Internet		Features	
Protocol	PPPoA	Wireless	Enabled
VPI/VCI	0/38	Firewall	Enabled
Encapsulation	VC MUX	UPnP	Enabled
ADSL Mode	G992.1(G.DMT)	<b>LAN &amp; Wireless(Default)</b>	
Subnet Mask	255.255.255.255	Gateway	192.168.1.1
Gateway	217.47.79.250	Subnet Mask	255.255.255.0
Primary DNS	193.36.79.100	DHCP Server	Enabled
Secondary DNS	193.36.79.101		

Field	Description
Protocol	This field displays the network protocol for the active Internet connection. On EE ADSL broadband, the value will



	<p>be 'PPPoA' and on EE Fibre broadband the value will be 'PPPoE'</p> <p>Alternative values of 'DHCP', 'Fix' or 'Bridge' may be displayed if alternative ADSL or Ethernet connection modes have been configured in the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> pages.</p>
VPI/VCI	<p>This field displays the ATM Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) for the active Internet connection. For EE ADSL broadband the default value is '0/38'.</p> <p>If the value is not '0/38', then it may not be possible to gain an Internet connection. These values can be configured on the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> pages.</p> <p>This setting will not be visible for EE Fibre broadband customers.</p>
Encapsulation	<p>This field displays the ATM Encapsulation setting for the active Internet connection. For EE ADSL broadband the default value is 'VC MUX'.</p> <p>An alternative value of 'LLC' may be displayed if this has been configured on the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> pages. Please note that it may not be possible to gain an Internet connection in 'LLC' mode.</p> <p>This setting will not be visible for EE Fibre broadband customers.</p>
ADSL Mode	<p>This field displays the ADSL Standard for the active Internet connection. For EE Broadband, the value will likely display either G992.1(G.DMT) or G992.5(ADSL2+) but G992.3 (ADSL2), G993.3- Annex M and G992.5 – Annex M may also be displayed.</p> <p>This value is automatically negotiated between the router and the broadband exchange when establishing an Internet connection, and cannot be configured in the admin pages.</p> <p>If the value of this field is '—' then a connection through to the Internet has not been successfully established. Also see <i>chapter 8: troubleshooting</i> on page 198</p> <p>This setting will not be visible for EE Fibre broadband customers.</p>
Subnet Mask	<p>This field displays the Subnet mask for the active Internet connection. This value is automatically assigned by EE Broadband when you establish an Internet connection, but will generally be '255.255.255.255'.</p> <p>The value can also be configured on the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> for Internet connections with a static IP addresses.</p> <p>If the value of this field is '0.0.0.0' then a connection through to the Internet has not been successfully established. Also see <i>chapter 8: troubleshooting</i> on page 198</p>



Gateway	<p>This field displays the Gateway IP address for the active Internet connection. This value is automatically assigned by EE broadband when you establish an Internet connection.</p> <p>If the value of this field is '0.0.0.0' then a connection through to the Internet has not been successfully established. Also see <i>chapter 8: troubleshooting</i> on page 198</p>
Primary DNS	<p>This field displays the primary Domain Name Server (DNS) for the active Internet connection. This value is automatically assigned by EE broadband when you establish an Internet connection.</p> <p>The value can also be configured on the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> for Internet connections with a static IP addresses.</p> <p>If the value of this field is '0.0.0.0' either a connection through to the Internet has not been successfully established, or there are problems with the EE domain name servers. Also see <i>chapter 8: troubleshooting</i> on page 198</p>
Secondary DNS	<p>This field displays the secondary Domain Name Server (DNS) for the active Internet connection. This value is automatically assigned by EE broadband when you establish an Internet connection.</p> <p>The value can also be configured on the <b>Basic Set-Up &gt; Broadband Settings</b> or <b>Advanced Set-Up &gt; Broadband Settings</b> for Internet connections with a static IP addresses.</p> <p>If the value of this field is '0.0.0.0' either a connection through to the Internet has not been successfully established, or there are problems with the EE domain name servers. Also see <i>chapter 8: troubleshooting</i> on page 198</p>
Wireless	<p>This field displays the status of the router's wireless LAN (WLAN) setting. By default this value is 'Enabled', indicating that the wireless LAN is active. If the value is 'Disabled' the wireless LAN is switched off.</p> <p>You can configure the wireless LAN setting on the <b>Basic Set-Up &gt; Wireless Settings</b> or <b>Advanced Set-Up &gt; Wireless Settings</b> pages.</p>
Firewall	<p>This field displays the status of the router's internal firewall. By default this value is 'Enabled', indicating that the firewall is monitoring incoming and outgoing traffic. If the value is 'Disabled' the firewall is not monitoring traffic</p> <p>You can configure the firewall setting on the <b>Advanced Set-Up &gt; Firewall</b> page.</p>
UPnP	<p>This field displays the status of the Universal Plug and Play (UPnP) feature on the router. By default this value is 'Enabled' indicating that UPnP compatible network devices can discover each other over the local network and control port forwarding. If the value is 'Disabled' then UPnP compatible devices cannot make use of this feature.</p> <p>You can configure the UPnP setting on the <b>Advanced</b></p>

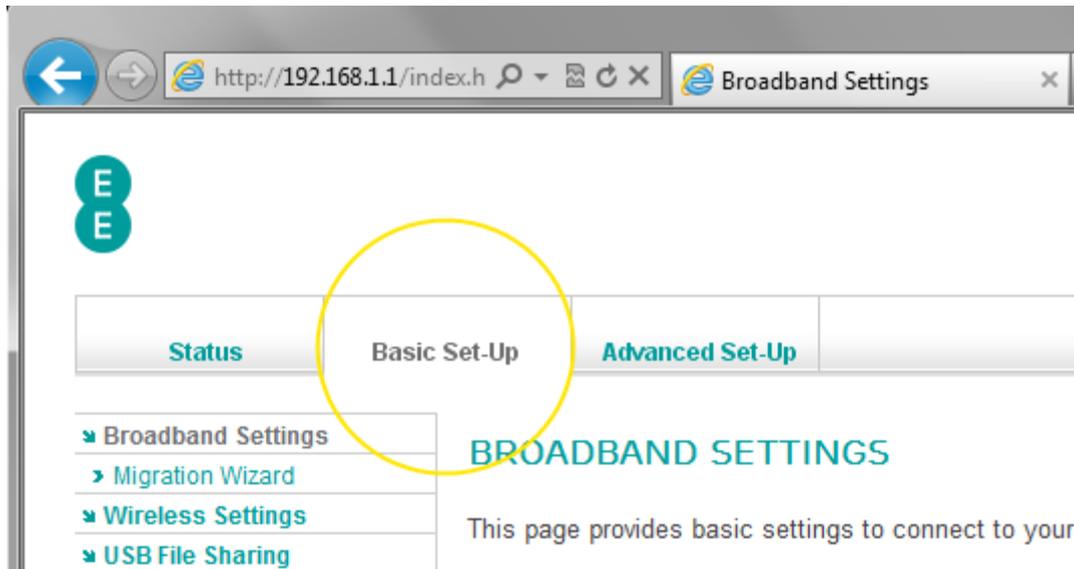


	Set-Up > UPnP page.
Gateway	<p>This field displays the gateway IP address for the routers local area network (LAN). This IP address is the same as you use to login to the Bright Box admin pages, and is '192.168.1.1' by default.</p> <p>The value can be configured on the <b>Advanced Set-Up &gt; DHCP</b> page.</p>
Subnet Mask	<p>This field displays the subnet mask for the routers local area network (LAN). The value of this field is '255.255.255.0' by default.</p> <p>The value can be configured on the <b>Advanced Set-Up &gt; DHCP</b> page.</p>
DHCP Server	<p>This field displays the status of the router's Dynamic Host Control Protocol (DHCP). The value is 'Enabled' by default, meaning that LAN IP addresses are automatically allocated to client devices connecting to the router. If the value is 'Disabled' then client devices must supply their own LAN IP addresses in order to connect to the router.</p> <p>The setting can be configured on the <b>Advanced Set-Up &gt; DHCP</b> page.</p>



## CHAPTER 6: BRIGHT BOX BASIC SET-UP PAGES

Click the **Basic Set-Up** tab to access the Basic Set-Up admin pages. You can configure your basic broadband and wireless settings in addition to basic USB File Sharing features on these pages:



### BROADBAND SETTINGS

Clicking on the **Basic Set-Up** tab will display the Broadband Settings page. You can also access this page by clicking on the **Broadband Settings** item in the left hand navigation menu when inside the Basic Set-Up tab.

This page contains basic settings to connect to your EE broadband service. The Broadband Username and Password can be found here, as well as ISP settings, DNS and MTU settings.

#### Description of Broadband Settings

The following table contains a description of the fields and options in the Basic Set-Up Broadband Settings page:

Field	Description
Broadband Type	<p>This setting allows you to configure the network setting type for you Internet connection. For EE ADSL broadband this should be set to 'ADSL'. For EE Fibre broadband this should be set to 'Fibre/Ethernet'.</p> <p>Select 'ADSL' for a standard PPPoA or PPPoE ADSL connection (including EE broadband). This setting requires entry of a Broadband Username and Password in order to establish an Internet Connection</p> <p>Select 'Fibre/Ethernet' for the router to be configured for Bridging, Routing (if you only want to use the Bright Box as a router and not a modem) or PPPoE Fibre Ethernet modes. The easiest way to configure the router for EE</p>



	ADSL or Fibre broadband services however is to use the Migration Wizard page.
Broadband Username	This field is used to configure your PPPoA or PPPoE Username provided by your ISP. EE Broadband customers must remember to add @fs to the end of the Username (for example yourname.orangehome.co.uk@fs).
Broadband Password	This field is used to configure your Broadband Password provided by your ISP. The field cannot be left empty.
Protocol	This dropdown allows you to configure the connection protocol for the particular Broadband Type. By default this value is 'PPPoA' for ADSL broadband or 'PPPoE' for Fibre broadband. Select 'PPPoA' for PPP over ATM connectivity. This is the correct value for EE ADSL broadband customers. You must enter a Broadband Username and Broadband Password to establish an Internet connection Select 'PPPoE' for PPP over Ethernet connectivity. This option is available for both ADSL and Fibre/Ethernet broadband types. You must enter a Broadband Username and Broadband Password to establish an Internet connection. Select 'Bridging' to set the router to act as a bridge to pass Internet traffic directly to the attached client PC from another modem. This option is available for Fibre/Ethernet broadband types only. Select 'Routing' to set the router to route Internet traffic over the Ethernet connection where authentication is handled by a modem. This option is available for Fibre/Ethernet broadband types only.
VLAN (Bridging Protocol only)	This dropdown allows you to select the Virtual LAN group the Bridged Internet connection is associated with in order to configure separate internal networks. The 'default' VLAN is select by default. This dropdown will only be visible if the 'Broadband Type' is set to 'Fibre/Ethernet' and the 'Protocol' option of 'Bridging' is selected. The VLAN settings are configured in <b>Advanced Set-Up &gt; DHCP</b> page. See <i>DHCP</i> on page 122 for further information.
VPI/VCI (ADSL Broadband Type only)	This field is used to configure the ATM Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) for the active Internet connection. For EE ADSL broadband the default value is '0/38'. Entering other values may prevent you connect to the Internet. This field is not visible for the Fibre/Ethernet Broadband Type.
Encapsulation (ADSL Broadband Type only)	This dropdown allows you to configure the ATM Encapsulation setting for the active Internet connection. For EE ADSL broadband the default value is 'VC MUX'.



	<p>Select 'VC MUX' for Virtual Circuit Multiplexing Internet connections, including EE ADSL broadband.</p> <p>Select 'LLC' for Logical Link Control Internet connections.</p> <p>This field is not visible for the Fibre/Ethernet Broadband Type.</p>
Internet IP Address	<p>This dropdown allows you to configure how the Internet IP Address is allocated. For EE Broadband the default value is 'Dynamic'.</p> <p>Select 'Dynamic' if the Internet IP address is assigned by your ISP, this is the standard setting for EE broadband.</p> <p>Select 'Static' if you have been given a fixed IP address by your ISP. If you select 'Static' you must also configure the 'IP Address' and 'Subnet Mask' fields.</p>
IP Address	<p>Use this field to enter the static IP Address provided by your ISP when the 'Internet IP Address' option is set to 'Static'.</p> <p>This field does not allow value entry if the 'Internet IP Address' field is set to 'Dynamic'.</p> <p>Static IP Addresses are not currently supported by EE broadband.</p>
Subnet Mask	<p>Use this field to enter the subnet mask provided by your ISP when the 'Internet IP Address' option is set to 'Static'.</p> <p>This field does not allow value entry if the 'Internet IP Address' field is set to 'Dynamic'.</p> <p>Static IP Addresses are not currently supported by EE broadband.</p>
DNS IP Address	<p>This dropdown allows you to configure how your Dynamic Name Server IP addresses are selected. For EE broadband the default value is 'Obtain from ISP'.</p> <p>Select 'Obtain from ISP' if the DNS servers are provided by your Internet Service Provider.</p> <p>Select 'Manual' if you intend to use DNS servers other than those provided by your ISP. If you select this option you must configure the 'Primary DNS' and 'Secondary DNS' fields.</p>
Primary DNS	<p>Use this field to enter the Primary Domain Name Server IP address when the 'DNS IP Address' option is set to 'Manual'.</p>
Secondary DNS	<p>Use this field to enter the Secondary Domain Name Server IP address when the 'DNS IP Address' option is set to 'Manual'.</p>
MTU (576~1500 PPPoA or 576-1492 PPPoE)	<p>This field is used to configure the Maximum Transmission Unit size in bytes for data packets over the Internet. The default for EE broadband is 1492.</p> <p>Please note that changing this value may cause problems with your Internet connection such as issues resolving websites or secure pages.</p>



## How to manually update the broadband username and password

When you first connect your EE Bright Box router to your EE line, your Broadband Settings will be automatically configured, however you can also manually update your broadband username and password on the router from the **Broadband Settings** page. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab.
3. In the 'Broadband Username' field, enter your broadband username – enter letters in lower case, and remember to add **@fs** at the end (for example yourname.orangehome.co.uk@fs)
4. In the 'Broadband Password' field, enter your the broadband password - this is case sensitive so 'Password' is not the same as 'PaSsWoRd':

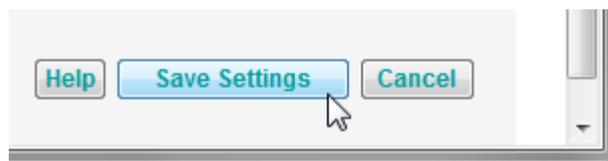
### BROADBAND SETTINGS

This page provides basic settings to connect to your EE Broadband service.

Broadband Type:  ADSL  Fibre/Ethernet

Broadband Username	<input type="text" value="yourname.orangehome.co.uk@fs"/>
Broadband Password	<input type="password" value="••••••••"/>

5. Click **Save Settings**:



6. You'll be prompted that the router is 'applying changes':



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



7. You'll be redirected back to the **Basic Set-Up (Broadband Settings)** page
8. Click on the status tab - the 'Broadband State' and 'Internet State' should both show 'Connected' to indicate that your router is now connected to the Internet:



## INTERNET

Broadband Type: ADSL  
Broadband State: Connected  
Internet State: Connected  
Time Connected: 00:00:26  
Downstream Rate: 7196kbps  
Upstream Rate: 1020kbps  
Internet IP Address: 2.28.178.213  
Broadband Username: yourname.orangehome.co.uk@fs

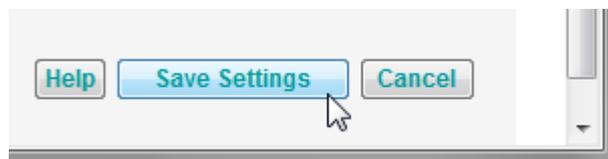
### How to change the broadband MTU

The Maximum Transmission Unit (MTU) value is optimised on the Bright Box router for the EE network with a default value of 1492. In some cases (if web pages are not loading or secure web sites are timing out for example) it may be necessary to adjust the MTU value. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab.
3. Scroll down to the 'MTU (576~1500)' or 'MTU (576-1492)' field enter the new MTU value – for example 1500:

Subnet Mask	<input type="text" value="0.0.0.0"/>
DNS IP Address	<input type="text" value="Obtain from ISP"/>
Primary DNS	<input type="text" value="0.0.0.0"/>
Secondary DNS	<input type="text" value="0.0.0.0"/>
MTU (576~1500)	<input type="text" value="1500"/>

9. Click **Save Settings**:



10. You'll be prompted that the router is 'applying changes':



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



11. You'll be redirected back to the **Basic Set-Up (Broadband Settings)** page.



## How to set manual DNS addresses

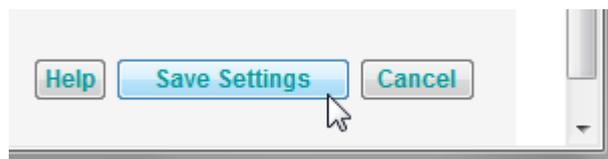
The Bright Box router is set to automatically obtain the Domain Name Server (DNS) IP address from EE broadband when establishing an Internet connection. The DNS server translates Internet names and URL's to IP addresses in order to display web pages or other Internet services.

It is possible to override the default 'Obtain from ISP' configuration for DNS settings and enter custom DNS addresses. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab.
3. In the 'DNS IP Address' dropdown, select the 'Manual' option.
4. In the 'Primary DNS' field, enter the Primary IP address of your DNS server (for example the Primary Google DNS IP address is '8.8.8.8')
5. In the 'Secondary DNS' field enter the Secondary IP address of your DNS server (for example the Secondary Google DNS IP address is '8.8.4.4')

IP Address	<input type="text" value="0.0.0.0"/>
Subnet Mask	<input type="text" value="0.0.0.0"/>
DNS IP Address	<input type="text" value="Manual"/>
Primary DNS	<input type="text" value="8.8.8.8"/>
Secondary DNS	<input type="text" value="8.8.4.4"/>
MTU (576~1500)	<input type="text" value="1492"/>

6. Click **Save Settings**:



7. You'll be prompted that the router is 'applying changes':



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



8. You can confirm that the DNS settings have been changed by clicking on the **status** tab. The 'Primary DNS' and 'Secondary DNS' fields will display the new DNS IP addresses:



## INFORMATION

Internet	
Protocol	PPPoA
VPI/VCI	0/38
Encapsulation	VC MUX
ADSL Mode	G992.1(G.DMT)
Subnet Mask	255.255.255.255
Gateway	217.47.79.250
Primary DNS	8.8.8.8
Secondary DNS	8.8.4.4

 In order to change back from manually configured DNS Servers to automatic DNS addresses, click on the **Basic Set-Up** tab. In the 'DNS IP Address' dropdown, select 'Obtain from ISP' and click the **Save Settings** button:

IP Address	<input type="text" value="0.0.0.0"/>
Subnet Mask	<input type="text" value="0.0.0.0"/>
DNS IP Address	<input type="text" value="Obtain from ISP"/>
Primary DNS	<input type="text" value="0.0.0.0"/>
Secondary DNS	<input type="text" value="0.0.0.0"/>
MTU (576~1500)	<input type="text" value="1492"/>

## MIGRATION WIZARD

This page allows you to easily migrate your Broadband service from EE ADSL to EE Fibre broadband or vice-versa. The page also displays the current default Broadband Type (either ADSL or Fibre/Ethernet).

For ADSL customers migrating to the EE Fibre broadband service, the Migration Wizard may need to be run after the BT engineer has installed your Fibre modem in your home

Running the Migration Wizard will set the router to the correct Broadband Settings for the broadband service you want to use at home. During the Migration Wizard process, the router will be restarted.

Please note that only the Broadband Settings on your router will be changed when running the wizard, any other settings you may have configured (Wireless Settings, Advanced Settings etc) will be kept as they were previously. When running the wizard it may take up to 5 minutes for us to automatically configure your router for the correct broadband service.

 If you factory reset your router at any stage the router will be set back to the connection type previously displayed in the 'Your router is currently set to the default Broadband Type:' field. You can use the Migration Wizard to change your default Broadband Type if you need to.



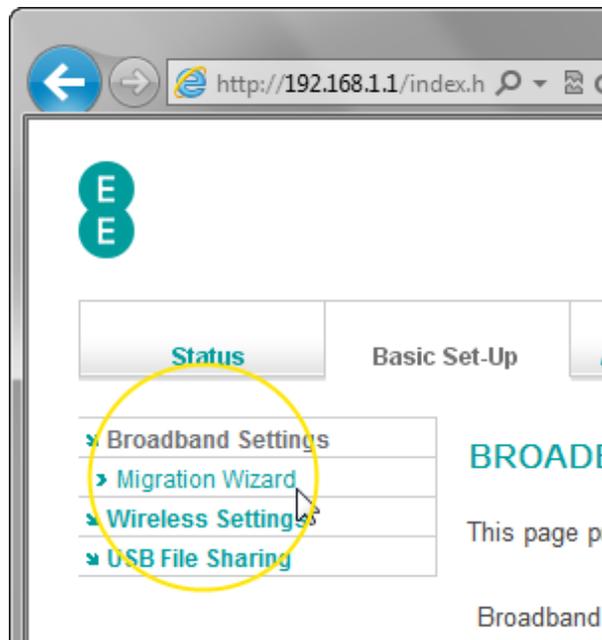
## How to migrate to EE Fibre broadband

When your EE Fibre service has been provisioned and an engineer has installed your Fibre modem you may need to migrate the router to the EE Fibre broadband settings using the Migration Wizard.

 Before you do this, please ensure the Bright Box has been correctly connected to the Fibre modem as described in *Setting up your Fibre broadband* on page 18.

To migrate the Bright Box settings for EE Fibre broadband:

1. Login to the router's admin pages.
2. Select the **Basic Set-Up** tab at the top of the screen.
3. Select the **Migration Wizard** from the menu on the left hand side menu:

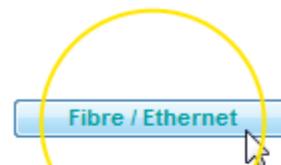


4. Press the **Fibre/Ethernet** button.

### MIGRATION WIZARD

This function will help you to change your router settings. It's quick and easy to click on the options below :

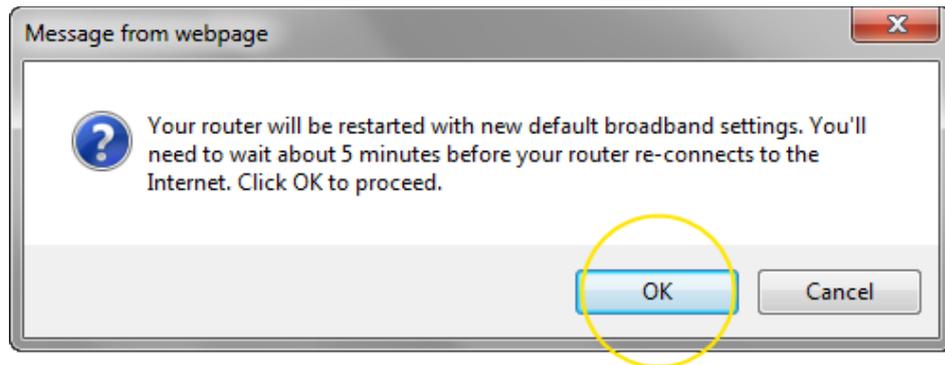
Press this button if you want to move to Fibre / Ethernet



Press this button if you want to move to ADSL



5. Press OK on the warning pop-up:



6. The migration countdown will begin. You can now close your browser.

 **Do not turn off your router, please wait until router has restarted.**

seconds remaining.

7. The complete migration process may take up to 5 minutes to establish a connection to the Internet.

 Please note that if you're redirected to the 'Nearly there!' holding page in your browser, you may need to wait a few more minutes for us to set up your router. If after 5 minutes, the 'Nearly there!' text is still visible when you reopen your browser window, reboot your PC and then reopen the browser window again, you should now be able to view web pages. If this still doesn't work, you can manually enter your broadband username and password in the router user interface and make a connection to the Internet (see *how to manually update the broadband username and password* on page 52)

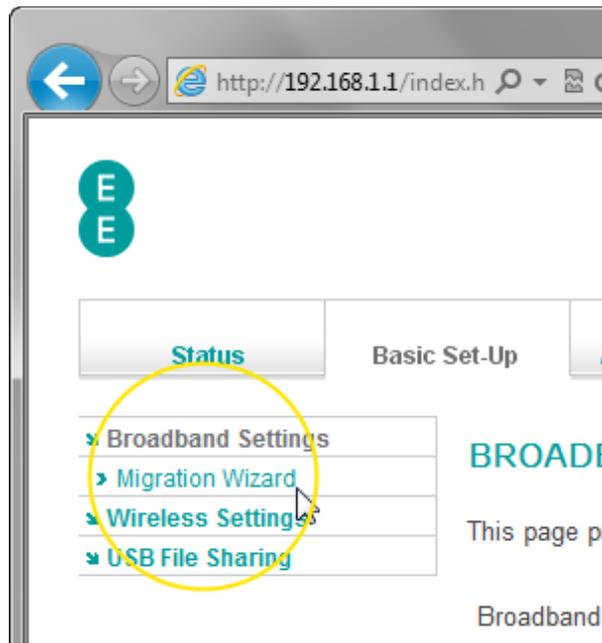
## How to migrate to EE ADSL broadband

There may be an occasion when you need to migrate your Bright Box router from EE Fibre broadband settings to EE ADSL broadband (for example if you are moving to a house that no longer has a Fibre connection). You can also use the Migration Wizard to set the router to EE ADSL settings.

 Before you do this, please ensure the Bright Box has been correctly connected to the ADSL line as described in *Setting up your ADSL broadband* on page 16.

To migrate the Bright Box settings for EE ADSL broadband:

1. Login to the router's admin pages.
2. Select the **Basic Set-Up** tab at the top of the screen.
3. Select the **Migration Wizard** from the menu on the left hand side menu:



4. Press the **ADSL** button.

## MIGRATION WIZARD

This function will help you to change your router settings. It's quick and easy to change the settings below :

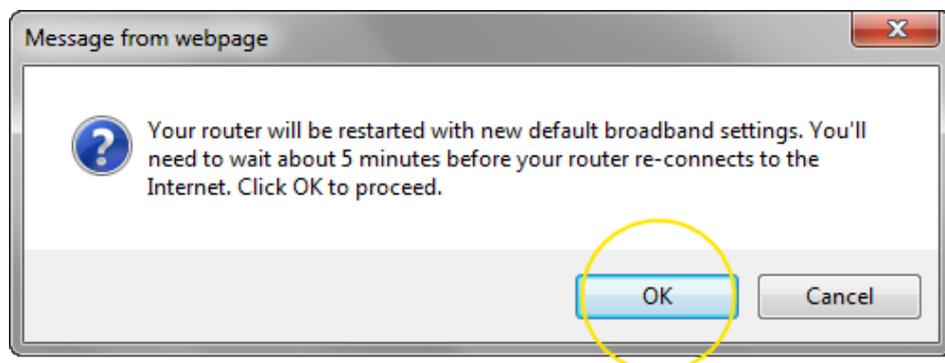
Press this button if you want to move to Fibre / Ethernet



Press this button if you want to move to ADSL



5. Press OK on the warning pop-up:



6. The migration countdown will begin. You can now close your browser.



 **Do not turn off your router, please wait until router has restarted.**

99 seconds remaining.

7. The complete migration process may take up to 5 minutes to establish a connection to the Internet.

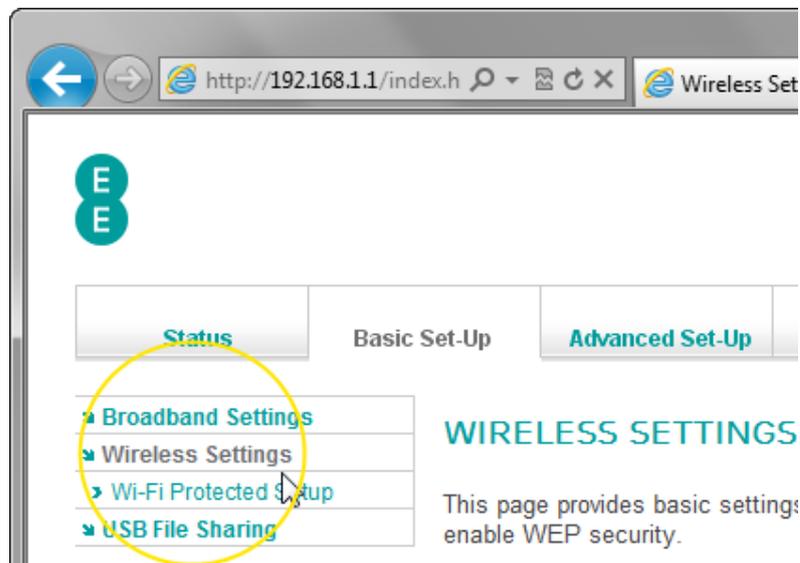
 Please note that if you're redirected to the 'Nearly there!' holding page in your browser, you may need to wait a few more minutes for us to set up your router. If after 5 minutes, the 'Nearly there!' text is still visible when you reopen your browser window, reboot your PC and then reopen the browser window again, you should now be able to view web pages. If this still doesn't work, you can manually enter your broadband username and password in the router user interface and make a connection to the Internet (see *how to manually update the broadband username and password* on page 52)

## WIRELESS SETTINGS

This page contains basic settings to configure your wireless network. The wireless mode, channel, wireless network name (SSID), wireless password, broadcast SSID, security type and security modes can be configured on this page.

To access the Bright Box router's basic wireless settings page:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



### Description of Wireless Settings

The following table contains a description of the fields and options in the Wireless Settings page:



Field	Description
Enable or disable wireless	<p>This option is used to configure the Wireless LAN interface on the router. The Wireless LAN is enabled by default, meaning that it is possible to connect your wireless devices to the router.</p> <p>Select 'Disable' to switch off the Wireless LAN interface on the router. If set to 'Disable', it is not possible to connect your wireless devices to the router. The WLAN light on the front of the router will not be lit if this option is selected.</p> <p>Select 'Enable' to switch the Wireless LAN interface on, allowing you to connect wireless devices to the router. The WLAN light on the front panel of the router will be lit if this option is selected.</p>
Wireless Mode	<p>This dropdown is used to configure the 802.11 wireless mode the router is transmitting on. By default the router is set to transmit on '11b+11g+11n' mode for maximum compatibility.</p> <p>Select '11n only' to set the router to 802.11n mode only. Only wireless adapters or devices supporting 802.11n can connect to the router if this mode is selected and older 802.11b/g adapters will not be able to connect to the network. A connection speed of up to 300Mbps is supported in this mode.</p> <p>Select '11b+11g' to set the router to 802.11b/g mode only. Select this mode if you are only using wireless 802.11b or 802.11g wireless adapters or devices. 802.11n wireless devices will not be able to connect to the network. In order to connect with WEP security, you must select '11b+11g' mode. The connection speed will be limited to 54Mbps in this mode.</p> <p>Select '11b+11g+11n' for maximum compatibility with both the newer 802.11n and 802.11b/g standards. A connection speed of up to 300Mbps is supported in this mode.</p>
Channel	<p>This option is used to configure the 2.4GHz radio channel for wireless communication. By default the router will select the wireless channel with the least interference in the 'Auto' mode using the Intelligent Wireless feature.</p> <p>Select 'Auto' for the router to determine which wireless channel to use automatically based on the least channel interference (Intelligent Wireless).</p> <p>Select channels 1-13 to set a radio channel manually. Please note that some wireless devices do not support the European channels 12 and 13. If in doubt, only select from Channels 1-11.</p>
Wireless Network Name (SSID)	<p>This field is used to configure the Wireless Network Name (also known as a SSID) that is transmitted by the router, and displayed in the wireless network list when making a connection to the router.</p> <p>By default your router will have a unique SSID applied by EE. For example 'BrightBox-1a2b3c'.</p>
Broadcast SSID	<p>This option is used to configure whether the Wireless Network Name (SSID) is being broadcast by the router. By</p>



	<p>default the SSID is being broadcast.</p> <p>Select 'Enable' to broadcast the SSID, meaning that it will appear in a devices wireless network list when scanned.</p> <p>Select 'Disable' to stop the SSID from being broadcast, meaning that it will not appear in a wireless list when scanned. Please note that it is still possible to connect to the wireless network SSID manually if the Broadcast SSID option is set to 'Disable'.</p>
Security	<p>This option is used to configure the wireless security mode the wireless network is operating in. By default the Security is 'WPA'.</p> <p>Select 'WPA' to set the router to Wi-Fi Protected Access mode. This is the most secure wireless mode, and offers wireless speeds of up to 300Mbps.</p> <p>Select 'WEP' to set the router to Wired Equivalent Privacy mode. This setting should be used for wireless devices that only support WEP mode. The Wireless Mode must be set to '11b+11g' in order to select WEP security.</p> <p>Select 'No security' to switch off wireless security on the router. This mode will allow anyone in range to connect to the router's wireless connection without requiring a password, but may present a security risk.</p>
WPA Mode	<p>This option is used to configure the Wi-Fi Protected Access security type mode. By default the WPA Mode is 'WPA/WPA2 Mixed Mode' in order to provide maximum compatibility.</p> <p>Select 'WPA' for legacy devices that do not support the newer, more secure WPA2 security mode.</p> <p>Select 'WPA2' for devices that support the highly secure WPA2 mode. Note that older devices that only support the WPA mode may not be able to connect to the router with this setting</p> <p>Select 'WPA/WPA2 Mixed Mode' for maximum wireless compatibility. Wireless devices supporting the highly secure WPA2 mode will connect in this mode, while older WPA only devices will also be able to connect to the router.</p>
Wireless Password	<p>This field is used to configure the WPA wireless password used when making a wireless connection to the router.</p> <p>By default the wireless password will be a randomly generated by EE. You can change this to something more memorable, between 8 and 63 characters (a-z, A-Z, 0-9).</p> <p>Please note that the wireless password is case sensitive.</p>
WEP Mode	<p>This option is used to configure the WEP key mode for the WEP security type. This option is only visible when the Security option is set to 'WEP'.</p> <p>Select '64-bit' for WEP-40 security (5 character ASCII or 10 character Hex keys).</p> <p>Select '128-bit' for WEP-104 security (13 character ASCII or 26 character Hex keys).</p>
Key Entry Method	<p>This option is used to configure the key method used for</p>



	<p>making a wireless connection to the router with WEP security.</p> <p>Select 'ASCII' for 5 or 13 character key entry using a character range of a-z, A-Z and 0-9.</p> <p>Select "HEX" for 10 or 26 character key entry using a character range of A-F and 0-9 (hexadecimal key).</p>
Default Key ID	<p>Use this option to set a Default Key ID to use making a wireless connection with WEP security. There are a total of 4 keys, with the default used being Key 1. You can configure the individual Key passwords using the Key1-Key4 fields.</p>
Passphrase	<p>This field allows you to enter a 1 – 32 character passphrase, used to easily generate hexadecimal WEP key passwords for the Key1-Key4 fields.</p> <p>The length of the Key generated is determined by the 'WEP Mode' dropdown.</p> <p>Please note that if the 'Key Entry Method' is set to 'ASCII', the passphrase field is greyed out.</p>
Key1 – Key4	<p>These fields are used to configure the WEP key used when making a wireless connection to the router in WEP mode. The field length and characters is determined by the 'WEP Mode' and 'Key Entry Method' fields.</p> <p>64-bit/HEX Mode requires a 10 hexadecimal character key (A-F, 0-9)</p> <p>64-bit/ASCII Mode requires a 5 ASCII character key (a-z, A-Z, 0-9)</p> <p>128-bit/HEX Mode requires a 26 hexadecimal character key (A-F, 0-9)</p> <p>128-bit/ASCII Mode requires a 13 ASCII character key (a-z, A-Z, 0-9).</p>
Intelligent Wireless	<p>This section displays the current 'Wireless Channel' selected by the router (if the 'Channel' is set to 'Auto' option) or set manually (if the 'Channel' is set to any value between 1 and 13).</p> <p>Clicking on the Intelligent Wireless button will cause the router to re-scan for the best wireless channel to use to avoid interference.</p>

### A note on changing wireless settings

Making a change to any wireless settings in the Bright Box router may cause your wireless computers or other wireless devices to become disconnected from the network. If this occurs you will need to reconnect to the wireless network again.

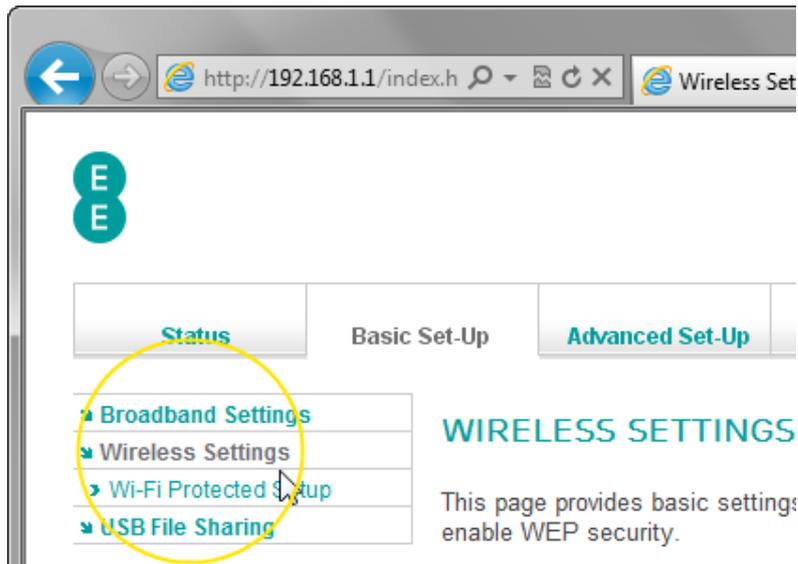
 In some instances you may have trouble re-connecting to the wireless network after making changes to wireless settings. If this occurs you may need to delete the old wireless network from your saved network list, and reconnect again.



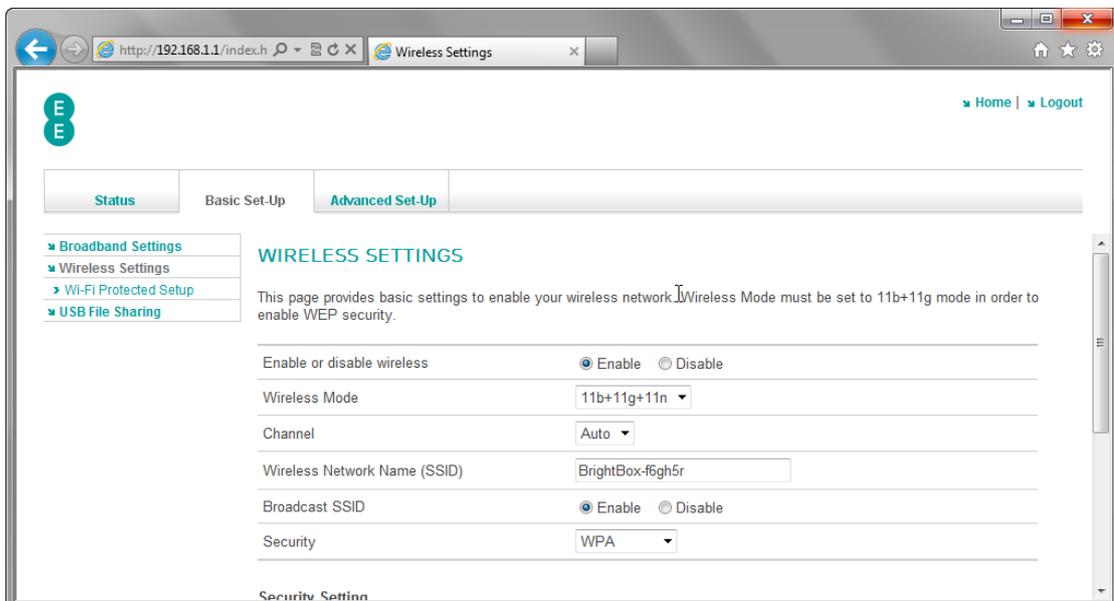
## How to enable or disable wireless

To enable or disable wireless on the router, follow the steps below:

3. Login to the router's admin pages.
4. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



1. The **Wireless Settings** page will open:



2. In the 'Enable or disable wireless' field, select your required option in the example below we're going to 'Disable' wireless on the router:

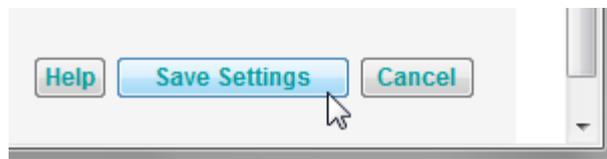


## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must enable WEP security.

Enable or disable wireless	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Wireless Mode	11b+11g+11n
Channel	Auto
Wireless Network Name (SSID)	BrightBox-f6gh5r

3. Click **Save Settings**:



4. The router will apply the new settings:

 **Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



5. You can verify whether wireless is enabled or disabled on the router by looking at the wireless light on the front of the router:

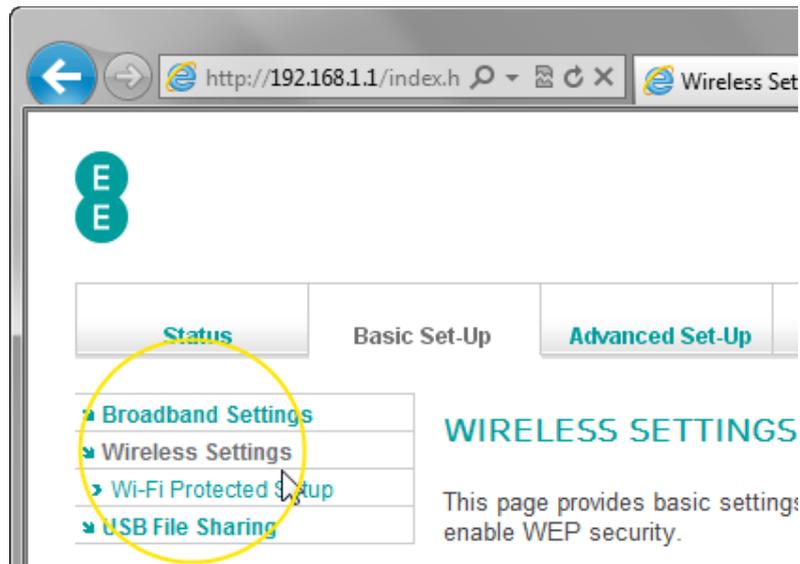


6. If the light is on or flickering, wireless is enabled. If the light is off wireless is disabled.

### How to change the Wireless Network Name (SSID)

You may wish to change the Wireless Network Name (also known as an SSID) transmitted by the Bright Box router to a more memorable name. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



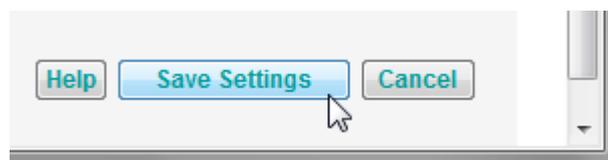
3. On the **Wireless Settings** page, click in the 'Wireless Network Name (SSID)' field and overwrite the default wireless network name with a new one up to 32 characters in length.

## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be enable WEP security.

Enable or disable wireless	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Wireless Mode	11b+11g+11n ▼
Channel	Auto ▼
Wireless Network Name (SSID)	MyBrightBox
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WPA ▼

4. Click **Save Settings**:



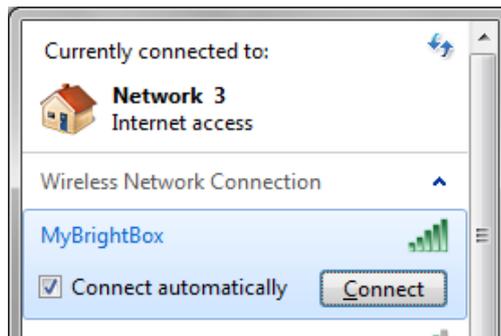
5. The router will apply the new settings:



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



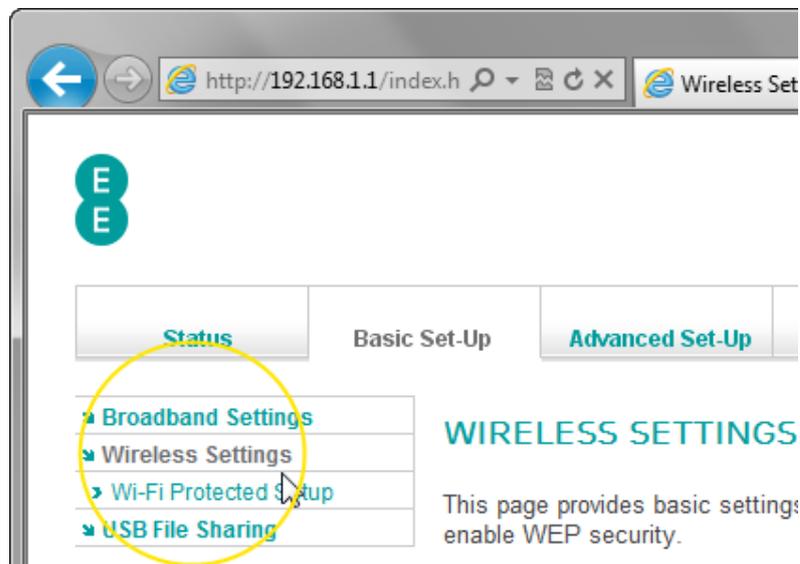
6. You can confirm that the wireless network name (SSID) has been updated by scanning for wireless networks in your operating system. The screen shot below is an example for Windows 7:



### How to change the wireless WPA password

You may like to change your wireless WPA password to something more memorable or for security purposes. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



3. On the **Wireless Settings** page click on the 'Wireless Password' field and overwrite the default password with a new one between 8 and 63 characters in length. Please note that the password you enter is case sensitive, so a password such as 'MySecretPassword' is different to 'mysecretpassword', and will need to be entered exactly as typed when making a connection to the wireless network:

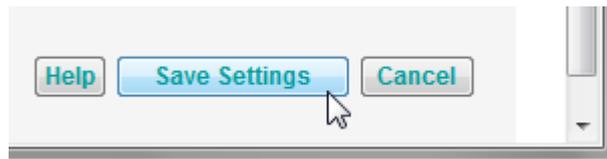


## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+11g mode WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g+11n ▼
Channel	Auto ▼
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WPA ▼
<b>Security Setting</b>	
WPA mode	WPA/WPA2 Mixed Mode ▼
Wireless Password	MySecretPassword

4. Click **Save Settings**:



5. The router will apply the new settings:



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



6. Now you can reconnect to your wireless network using the new wireless password.

### How to change the Wireless Mode

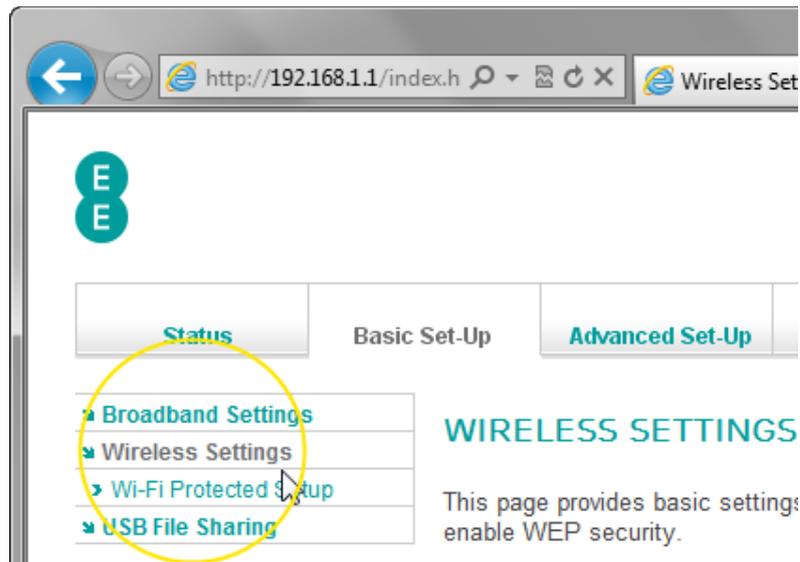
The Bright Box Wireless router supports 3 wireless modes:

- 802.11n - this will only allow wireless adaptors supporting 802.11n to connect to the router.
- 802.11b+11g - select this if you're using an older wireless adaptor or software that only supports WEP.
- 802.11b+11g+11n - use this if you want to connect 11b, 11g and 11n devices to your network and this is the most compatible mode.

By using 802.11n or 802.11b+11g+11n the router will support up-to 300Mbps speeds (depending on the 'Bandwidth' setting) on your internal wireless network when used with a compatible wireless adaptor. 802.11b+11g will limit the connection speed up to 54Mbps.

To change the wireless mode:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



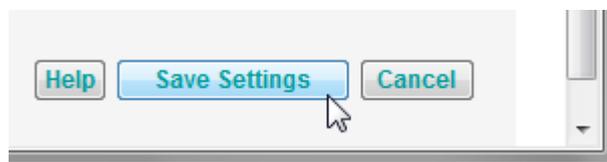
3. On the **Wireless Settings** page, click on the 'Wireless Mode' dropdown box and select the new wireless mode from the list. In this example we will change to '11b+11g':

### WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+ WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g
Channel	Auto
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WPA

4. Click **Save Settings**:



5. The router will apply the new settings:

**i** Applying changes. Please wait. The process may take up to 30 seconds. If you are making wireless changes you may need to reconnect to the wireless network.

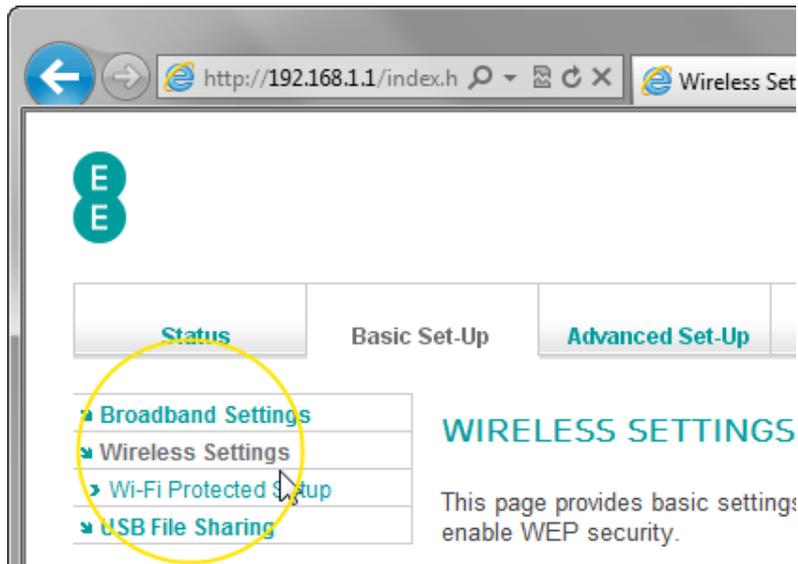




## How to change the wireless channel

The channel is the radio channel used for wireless communication. By default the router will automatically select the channel with the least interference in your area using the routers 'Intelligent Wireless' feature. If you'd prefer you can select your own channel between 1 and 13. To do this:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



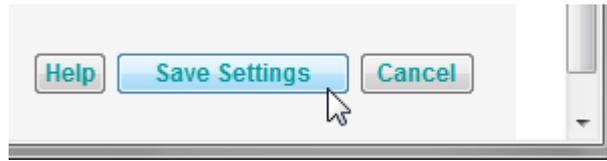
On the **Wireless Settings** page, click on the 'Channel' dropdown box and select from Channels 1 to 13, or 'Auto' to allow the router to automatically select the best wireless channel. In this example we will change to Channel 6:

## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+ WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g+11n ▼
Channel	6 ▼
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WPA ▼

3. Click **Save Settings**:



4. The router will apply the new settings:

 **Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



 Channels 1, 6 and 11 are non-interlapping wireless channels. If you find that your wireless connection is affected by interference from a neighbouring Wi-Fi network transmitting on Channel 1 for example, it would be best to select either 6 or 11 when switching to a new channel. Alternatively setting the option to 'Auto' will automatically select the least congested channel to use.

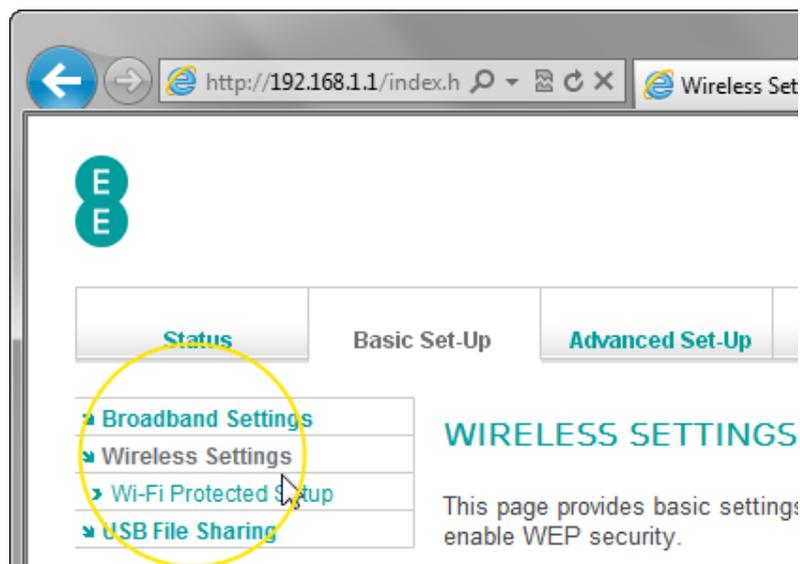
 Some Wi-Fi devices, particularly those purchased outside of Europe may not be able to see, or connect to a Wi-Fi network operating on Channels 12 and 13. If you are having problems connecting to the Bright Box wireless network after setting the Channel to 12 or 13, try change the channel to between 1 and 11 or setting to 'Auto' mode.

### How to change the Broadcast SSID option

Broadcasting the wireless network name (SSID) helps when setting up a wireless connection for the first time. If you'd prefer not to broadcast the SSID, you can disable this option.

To enable or disable the Broadcast SSID option:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



3. In the 'Broadcast SSID' field select your required option, either 'Enable' or 'Disable'. In the example below we're going to 'Disable' broadcasting of the SSID on the router:

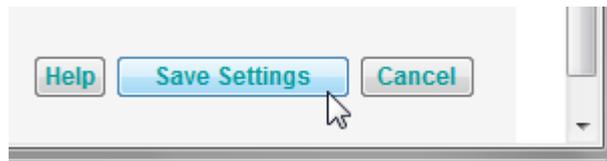


## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+ WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g+11n ▼
Channel	Auto ▼
Wireless Network Name (SSID)	BrightBox-16gh5r
Broadcast SSID	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Security	WPA ▼

4. Click **Save Settings**:



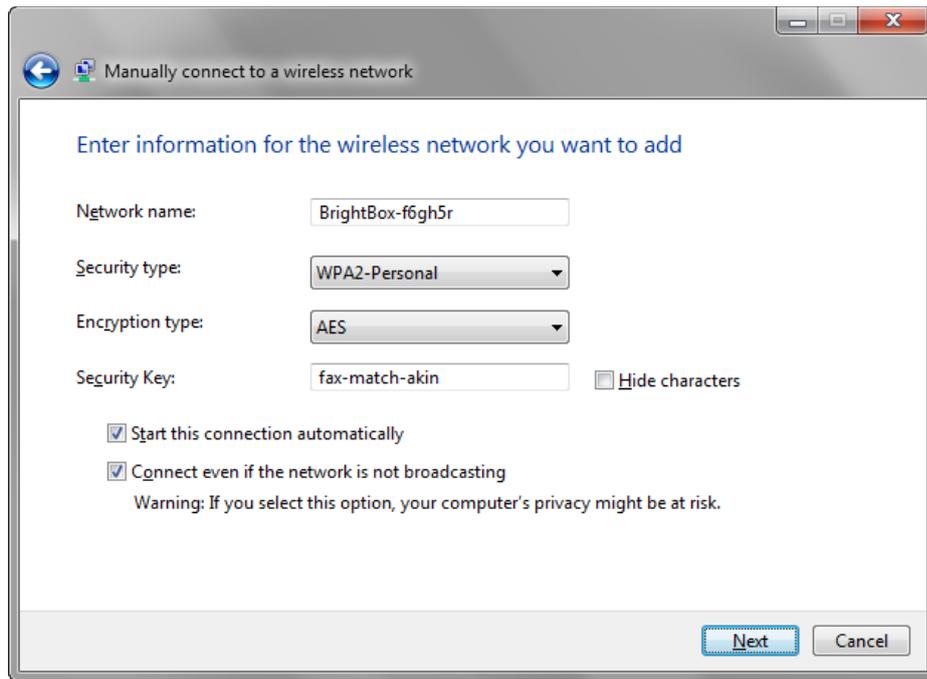
5. The router will apply the new settings:



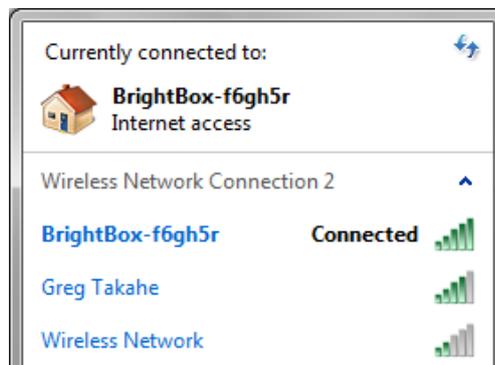
**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



6. To connect to the non broadcasting SSID, you will have to enter the wireless network name, security type and security key (wireless password) in the operating system wireless software manually. For example here is a screenshot from Windows 7 (please note that exact steps will differ between operating systems):



7. The wireless connection can then be established manually:



You may need to update your computer's wireless settings to 'Connect even if the network is not broadcasting its name (SSID)' after making this change. Also if you connect a new device to the wireless network, you will need to enter the wireless network name (SSID) into the device manually, or enable the Broadcast SSID option.

Disabling the Broadcast SSID option should not be relied upon as a wireless security measure by itself. Some software is capable of scanning for non-broadcasting SSID's and if wireless security is disabled may be able to connect to your router. Use the Broadcast SSID setting in conjunction with a strong wireless security mode setting such as WPA to prevent unwarranted intrusion onto your wireless network.

### How to change to wireless WEP security

If you're using a wireless adapter or software that doesn't support the WPA security standard, and isn't able to update software (for example by installing Windows XP Service Pack 2 or 3), then you may need to set the router to WEP security mode to establish a wireless connection to the router.

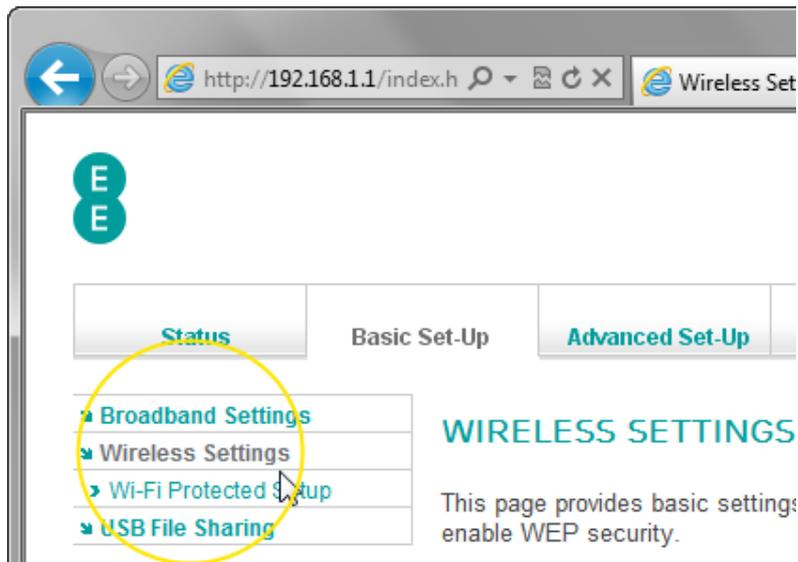


**i** WEP security mode is only available as an option in the 'Security' dropdown when the router is in '11b+11g' Wireless Mode.

**!** Please note that WEP mode security is not as secure as the more modern WPA/WPA2 wireless security standard, and should only be used if a device you wish to connect to the network will only support WEP security mode.

To change to WEP security:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



3. Select the 'Wireless Mode' dropdown and choose the '11b+11g' option
4. Select the 'Security' dropdown and choose the 'WEP' option. Your wireless settings should look like this:

## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+11g n WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g
Channel	Auto
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WEP

5. Scroll down to the **Security Setting** section of the page and choose the 'WEP mode' option. In this example we select '128-bit'
6. Select a 'Key Entry Method' of 'HEX'



- In the 'Passphrase' field tick the box and then enter any phrase, in this example we use 'brightbox', but enter your own unique one for when you follow this step.
- Click the **Generate Key** button. Your screen should look like the example below:

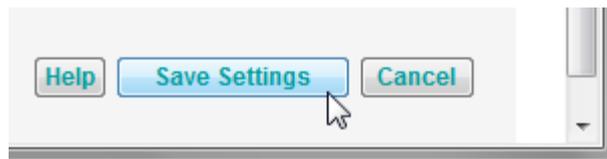
**Security Setting**

WEP Mode	<input type="radio"/> 64-bit	<input checked="" type="radio"/> 128-bit
Key Entry Method	<input checked="" type="radio"/> HEX	<input type="radio"/> ASCII
Default Key ID	1	
Passphrase	<input checked="" type="checkbox"/> brightbox	(1~32 characters)
Key1	3AE317D4982C4C1AC36ED18936	
Key2	3AE317D4982C4C1AC36ED18936	
Key3	3AE317D4982C4C1AC36ED18936	
Key4	3AE317D4982C4C1AC36ED18936	
	<input type="button" value="Clear"/>	<input type="button" value="Generate Key"/>

- Make a note of the 'Key1' value, in this example with 128-bit HEX mode, a 26-digit hexadecimal key will be generated. This value will be entered into your wireless software to make a connection to the wireless network:

Key1	3AE317D4982C4C1AC36ED18936
------	----------------------------

- Click **Save Settings**:



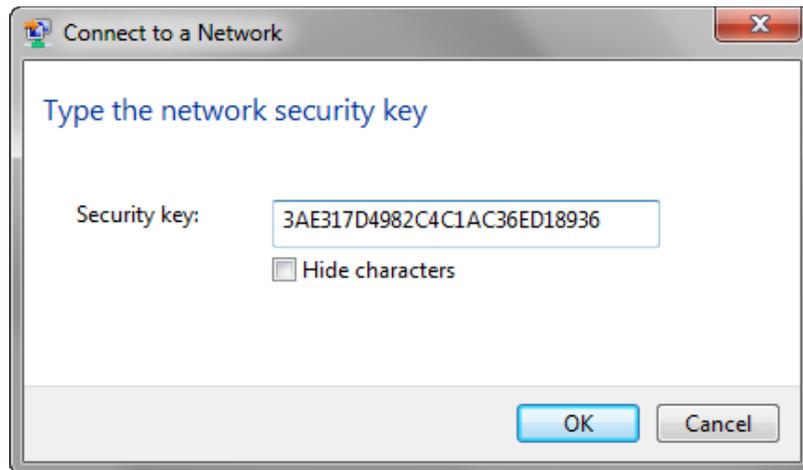
- The router will apply the new settings:



**Applying changes. Please wait. The process may take up to 30 seconds.**  
**If you are making wireless changes you may need to reconnect to the wireless network.**



- Now you can connect your wireless computer or devices to your wireless network in WEP mode. When presented with the option to enter the wireless password, enter the 'Key1' value recorded in step 9 (in this example '3AE317D4982C4C1AC36ED18936')



**i** The combination of 'WEP Mode' and 'Key Entry Method' will determine the length and characters used in the Key field:

- 64-bit/HEX Mode requires a 10 hexadecimal character key (A-F, 0-9)
- 64-bit/ASCII Mode requires a 5 ASCII character key (a-z, A-Z, 0-9)
- 128-bit/HEX Mode requires a 26 hexadecimal character key (A-F, 0-9)
- 128-bit/ASCII Mode requires a 13 ASCII character key (a-z, A-Z, 0-9).

**i** If the ASCII 'Key Entry Method' is selected, then the Key field must be entered manually. A Key can only be automatically generated with a 'Key Entry Method' of HEX.

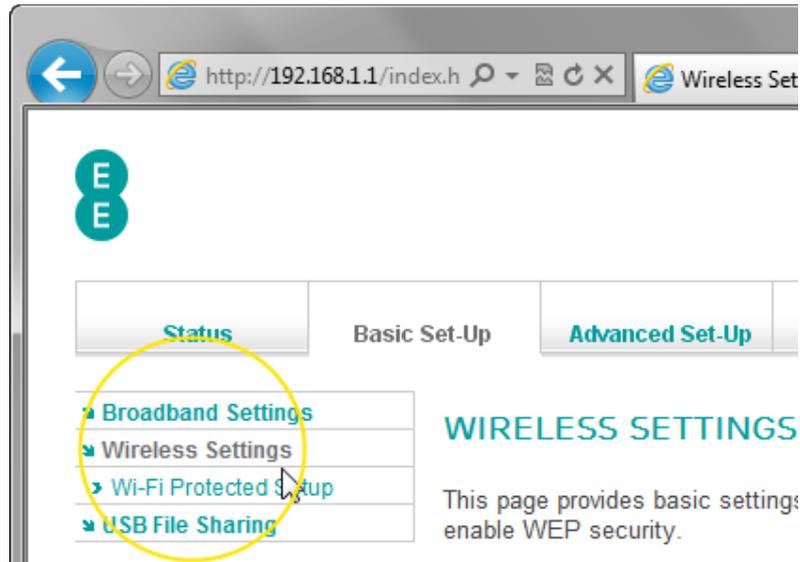
### How to change to wireless WPA mode

The most secure wireless security mode on the Bright Box router is WPA (Wi-Fi Protected Access) and this is the default router setting. It is also possible to select the type of WPA mode used to secure the wireless connection:

- WPA/WPA2 Mixed mode is compatible with most operating systems. If an adapter supports WPA2 mode, it will connect in this more secure mode, if not it will connect in WPA mode. This is the default router setting.
- WPA is offers increased compatibility with older operating systems, but wireless speeds are limited to 54 Mbps.
- WPA2 offers more security, and up-to 300 Mbps speeds, however isn't compatible with Windows XP SP2 and below.

To set the Bright Box router to wireless WPA security, do the following:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



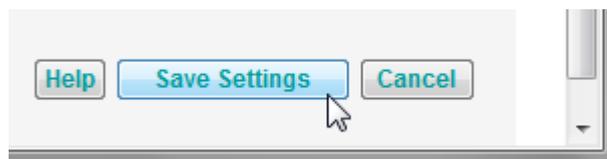
3. Select the 'Security' dropdown and choose the 'WPA' option.
4. Scroll down to the 'Security Setting' dropdown and choose the WPA mode you wish to use. In this example we will select "WPA/WPA2 Mixed Mode" (the most secure and compatible):

### WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 11b+11 WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g
Channel	Auto
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	WPA
<b>Security Setting</b>	
WPA mode	WPA/WPA2 Mixed Mode
Wireless Password	fax-match-akin

4. Click **Save Settings**:



5. The router will apply the new settings:



Applying changes. Please wait. The process may take up to 30 seconds.  
If you are making wireless changes you may need to reconnect to the wireless network.



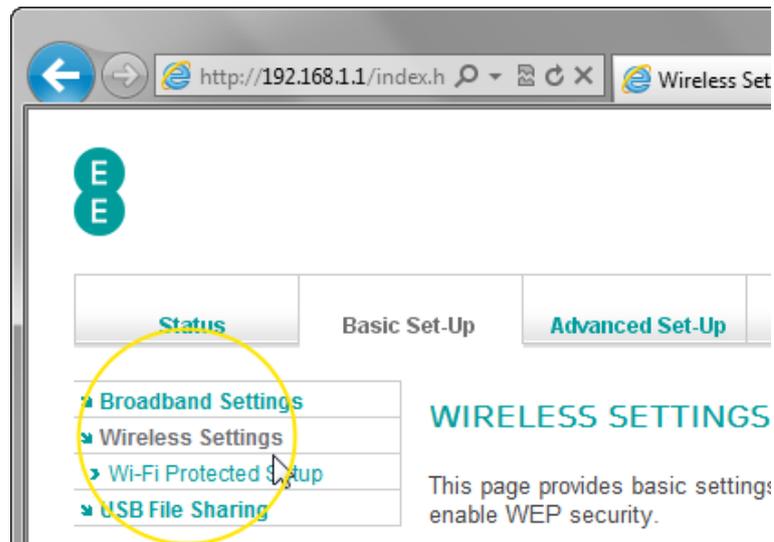
## How to disable Wireless Security

It is possible to disable the wireless security mode on the Bright Box router so that wireless devices can connect to the router without having to enter a password.

 Disabling wireless security should only be done with great care. With wireless security disabled, anyone in range of the router can establish a wireless connection with the router and use your Internet connection. This setting is not recommended by EE.

In order to disable wireless security:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu:



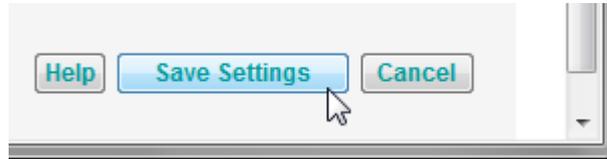
3. Select the 'Security' dropdown and choose the 'No security' option:

## WIRELESS SETTINGS

This page provides basic settings to enable your wireless network. Wireless Mode must be set to 1 WEP security.

Enable or disable wireless	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	11b+11g+11n ▼
Channel	Auto ▼
Wireless Network Name (SSID)	BrightBox-f6gh5r
Broadcast SSID	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Security	No security ▼

4. Click **Save Settings**:



5. The router will apply the new settings:

 **Applying changes. Please wait. The process may take up to 30 seconds.**  
**If you are making wireless changes you may need to reconnect to the wireless network.**



### Using the Intelligent Wireless feature

The Bright Box router has a great feature called 'Intelligent Wireless'. Intelligent Wireless is enabled on the Bright Box router by default. When starting up the router, it'll automatically search for and use the least congested Wi-Fi channel, reducing the effect of interference, and providing you with the best wireless performance.

By pressing the **WPS** button on the back of your router briefly, 'Intelligent Wireless' will re-check to see if the router's using the least congested frequency and change channel if required.



After pressing the WPS button briefly, the WPS light on the front of the router will flash slowly several times to indicate that the Intelligent wireless feature is re-checking for the best wireless channel to use.

You can also run the Intelligent Wireless feature from inside the router's admin pages by logging into the admin pages and navigating to **Basic Set-up > Wireless Settings** (or **Advanced Set-up > Wireless Settings**). Click on the **Intelligent Wireless** button on the page:



## INTELLIGENT WIRELESS

Wireless Channel: 6

Use this function to connect to the best available wireless channel

Intelligent Wireless

The 'Applying changes' message will be displayed, and after a short time the page will be refreshed. If a less congested Wireless Channel is discovered, the router will be set to the new channel and this will be displayed in the Intelligent Wireless section of the page.

## INTELLIGENT WIRELESS

Wireless Channel: 11

Use this function to connect to the best available wireless channel

**i** Intelligent Wireless will be disabled if you have manually selected a wireless channel from 1 to 13 on the **Wireless Settings** page. To re-enable Intelligent Wireless, either set the 'Channel' dropdown to 'Auto' or briefly press the **WPS** button on the back of the router (this will also set the Channel back to 'Auto' mode).

**i** Don't forget that moving sources of interference away from the router, such as cordless phones, microwave ovens, baby monitors and Hi-Fi speakers can make a huge difference to the wireless performance. Moving the router off the floor, and clear from obstructions will also help your signal.

## WI-FI PROTECTED SETUP

Wi-Fi Protected Setup (WPS) is a feature that allows compatible wireless software and devices to securely connect to your router's wireless network at the push of a button, rather than having to enter a wireless password. WPS is disabled by default on the Bright Box router, but can be easily enabled in the routers admin pages.

WPS on the Bright Box supports two modes:

- Push Button Configuration (PBC) – You establish a connection to the router's wireless network by pushing a physical or software button on the wireless adapter to initiate the PBC connection, and then push the WPS button (or activate in the router WPS admin page) on the router within two minutes. The wireless connection is then automatically established between the wireless adapter and the router. On the Bright Box, the WPS push button is on the back panel of the router and must be held for 5 seconds to initiate the WPS connection.
- PIN Method – The wireless router or wireless adapter generates an 8-digit PIN number, which can then be entered into the WPS PIN page on the other device to establish a wireless connection between the adapter and the router.

The WPS feature is also supported on Windows Vista Service Pack 2 and Windows 7 (No Service Pack, or Service Pack 1). Apple Mac OS X does not support the WPS feature.

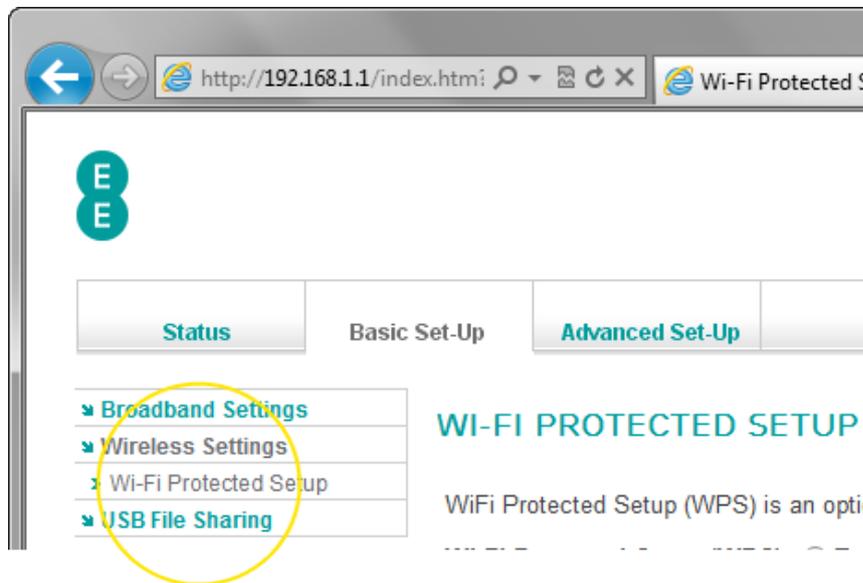
**i** While WPS is built in to Windows Vista SP2 and Windows 7, the wireless adapter must also support WPS for this feature to work. Compatible devices may carry this WPS logo to identify support for this feature:



**i** Even if WPS is enabled, you can still connect to your computer using the password method.

To access the WPS admin pages in the Bright Box router:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu.
3. Select **Wi-Fi Protected setup** from the left hand menu:



### Description of WPS settings

The following table contains a description of the fields and options in the Wi-Fi protected setup page. Note that the full page contents will only be visible if the 'Wi-Fi Protected Setup (WPS)' option is set to 'Enable'.

Field	Description
Wi-Fi Protected Setup (WPS)	<p>This option is used to configure the Wi-Fi Protected Setup (WPS) feature on the Bright Box router.</p> <p>WPS is set to disabled by default.</p> <p>Select 'Enable' to switch on the WPS feature on the router. You may now connect with WPS PBC, WPS PIN or by the normal manual password method when making a wireless connection to the router (WPS availability is dependent on the wireless adapter also supporting the feature).</p> <p>Select 'Disable' to switch off the WPS feature on the router. You can only connect with the manual password</p>



	method when making a wireless connection to the router.
Your router's PIN number	<p>This is the PIN number you will enter into the wireless adapter software when requested in order to establish a WPS connection using the PIN method.</p> <p>If you are entering a PIN number supplied by the wireless adapter into the 'device PIN' field, you can ignore the router's PIN number.</p>
PIN Status	<p>This field displays the current status of the WPS PIN method connection.</p> <p>'Idle' means that the WPS PIN session has not been activated.</p> <p>'In Progress – Please wait... ' means that the WPS PIN connection method has been activated and is currently trying to establish a connection with the wireless adapter. This will only be visible for 2 minutes.</p> <p>'Error Detected – Please Try Again' means that the WPS PIN connection method has not been successful. Try again or connect using WPS PBC or by manually entering the wireless password.</p> <p>'Success – The device is connected to the router' means that the WPS PIN connection method has been successful and a wireless connection between the router and the wireless adapter has been established.</p>
device PIN	<p>In this field, enter the PIN number supplied by the wireless adapter and press Connect to begin a WPS PIN connection session.</p> <p>Please note that this field will only require a PIN number if the wireless adapter is initiating the session and supplies a PIN. This field does not need to be completed if you enter the PIN number supplied by the router in the wireless adapter software.</p>
start PBC	<p>Click this button to begin the WPS Push Button Configuration (PBC) session from the router. You will have 2 minutes to complete the session by pressing the WPS PBC button on the wireless adapter or software.</p>
PBC Status	<p>This field displays the current status of the WPS PBC method connection.</p> <p>'Idle' means that the WPS PBC session has not been activated.</p> <p>'In Progress – Please wait... ' means that the WPS PIN connection method has been activated and is currently trying to establish a connection with the wireless adapter. This will be visible for 2 minutes.</p> <p>'Error Detected – Please Try Again' means that the WPS PBC connection method has not been successful. Try again or connect using WPS PBC or manual password methods.</p> <p>'Success – The device is connected to the router' means that the WPS PBC connection method has been successful and a wireless connection between the router and the wireless adapter has been established.</p>

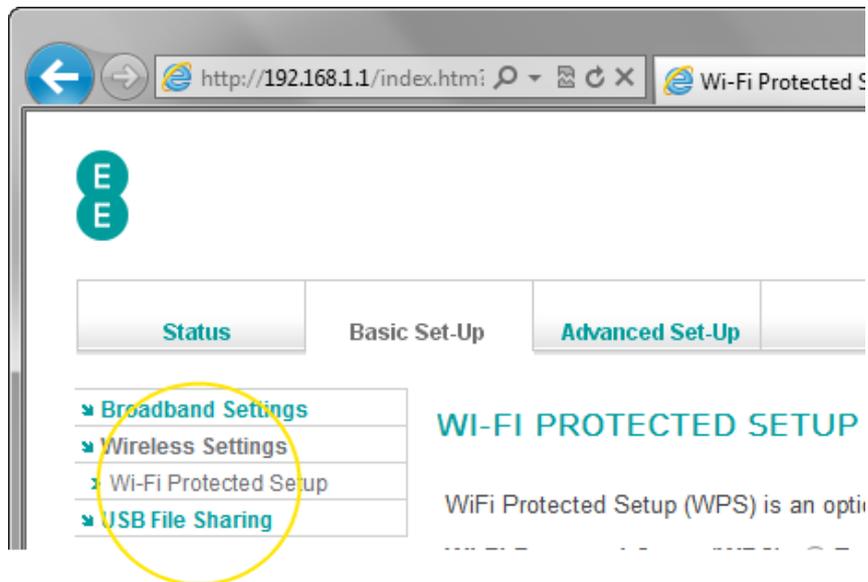


manual setup	This section displays the current wireless settings of the Bright Box router. These settings can be used to manually establish a wireless connection to the router. In most cases only the 'Network Name (SSID)' and 'Network Key' (also known as the wireless password) are required to establish a connection.
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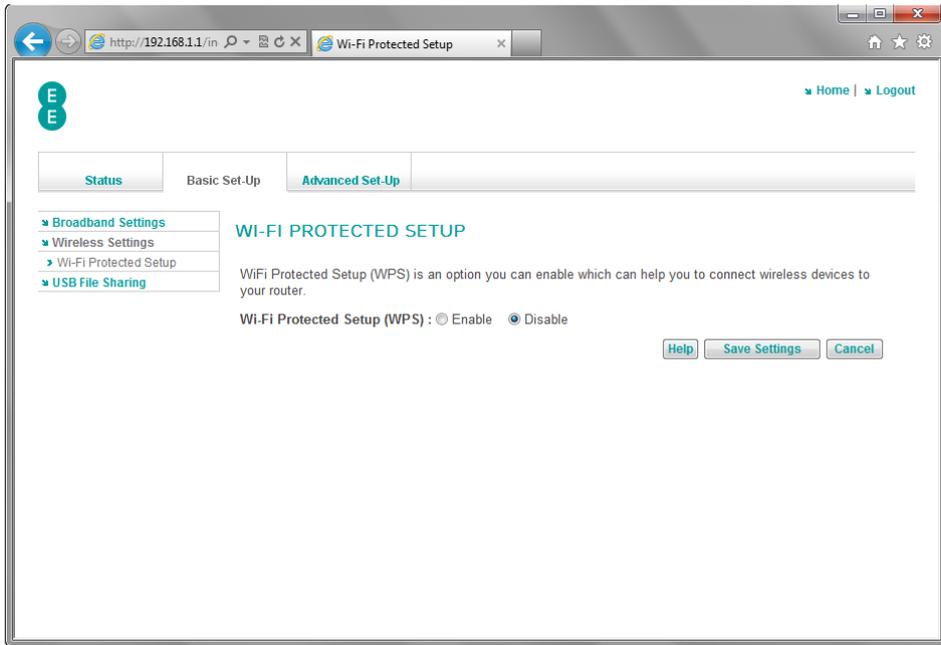
### How to enable and disable WPS

Wi-Fi Protected Setup (WPS) is disabled by default on the Bright Box router. The setting can be enabled and disabled in the **Wi-Fi Protected setup** admin page:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu.
3. Select **Wi-Fi Protected Setup** from the left hand menu:



4. The **Wi-Fi protected setup** page will open:



5. In the 'Wi-Fi Protected Setup (WPS)' field select the option you wish to use. In this example we will select 'Enable' to enable the WPS feature:

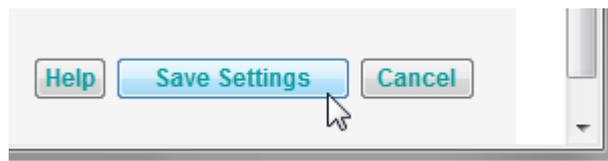
## WI-FI PROTECTED SETUP

WiFi Protected Setup (WPS) is an option you can enable which can help you to connect wireless devices to your router.

Wi-Fi Protected Setup (WPS) :  Enable  Disable

[Help](#) [Save Settings](#) [Cancel](#)

6. Click **Save Settings**:



7. The router will apply the new settings:



**Applying changes. Please wait. The process may take up to 30 seconds.**  
If you are making wireless changes you may need to reconnect to the wireless network.



8. You can now connect to your router using a compatible WPS device.

## How to establish a WPS connection using push button configuration (PBC)

To connect the Bright Box router to a WPS device that supports Push Button Configuration (PBC) mode, you will need to do the following:

1. Press and hold the WPS button on the back of the router for 5 seconds (and then release the button):



2. Alternatively you can click on the **start pbc** button in the **Wi-Fi Protected Setup** page in the router admin pages:

**push button configuration (PBC)**

To connect a computer to your router using PBC, press the WPS button on the back of your router for 5 seconds, or click **start pbc** below:

Status: Idle

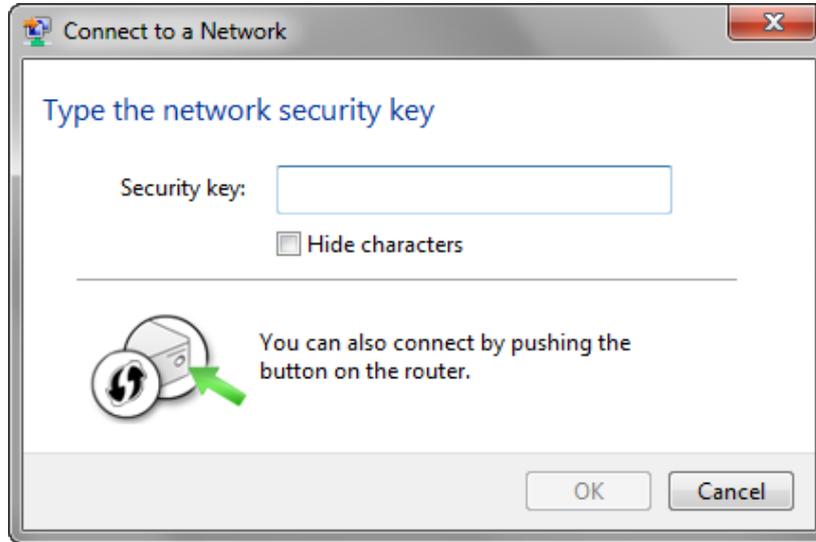
**start pbc**

Next, use your wireless software to set-up the secure connection to your router within 2 minutes. If your wireless software's compatible, you won't need to enter your router's security key.

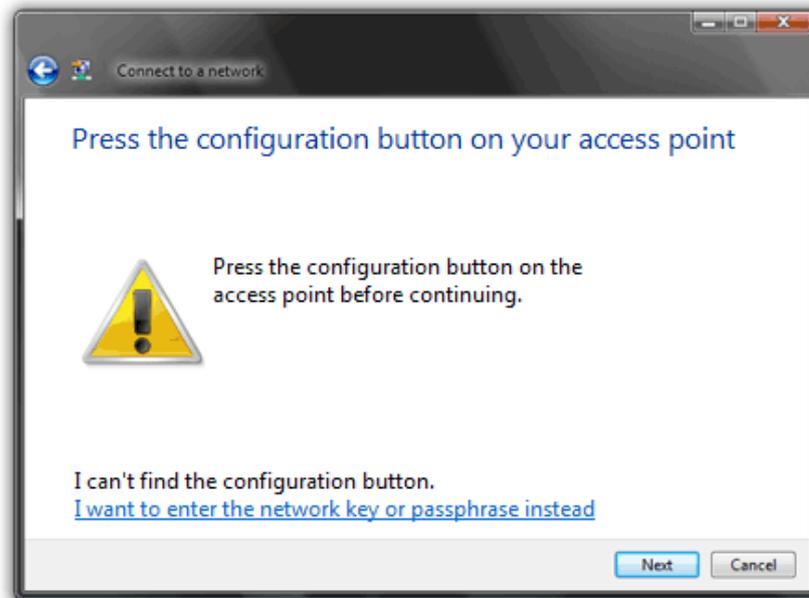
3. The WPS light on the front of the router will begin to flash quickly:



4. Launch the wireless connection software in your operating system (Windows Vista SP2 or Windows 7). In Windows 7 the screen should look like this:



5. In Windows Vista (SP2) the screen should look like this:



6. Click **Next** (Windows Vista SP2) or, in Windows 7 wait and the wireless connection will be established automatically.
7. Alternatively, some wireless devices have their own WPS button on their case – you can also press this button to establish a wireless connection to the router.

**i** After you press the WPS button on the router, you will have a maximum of two minutes to complete the WPS connection on your wireless device or adapter. After two minutes of inactivity, the WPS session will be terminated. If a connection has not been established in this time you will need to repeat the process above.

**i** If, for whatever reason you are unable to successfully establish a wireless connection using WPS, we recommend connecting using the manual password method. See *setting up a wireless connection* on page 25 for further information

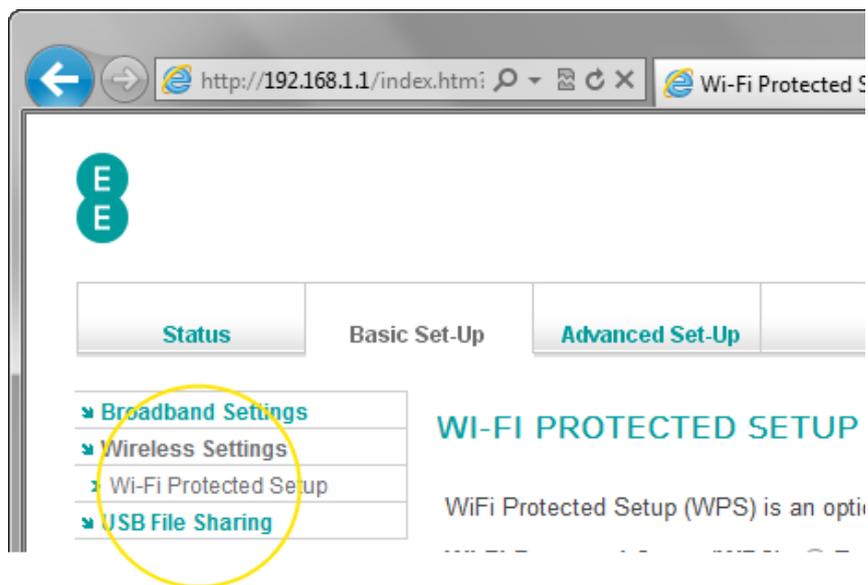
**i** Some wireless adapters use their own software to establish a wireless connection with WPS. Please follow the manufacturers instructions for WPS if this is the case.



## How to establish a WPS connection using the personal identification number (PIN) method

To connect the Bright Box router to a WPS device using the PIN method you will need to do the following:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **Wireless Settings** from the left hand menu.
3. Select **Wi-Fi Protected Setup** from the left hand menu:



4. Scroll down to the **personal identification number (PIN)** section of the page and make a note of the router's PIN number:

### personal identification number (PIN)

Some wireless software will prompt you to enter the router's PIN to set up a secure wireless connection.

Your router's PIN number is below:

**57940632**

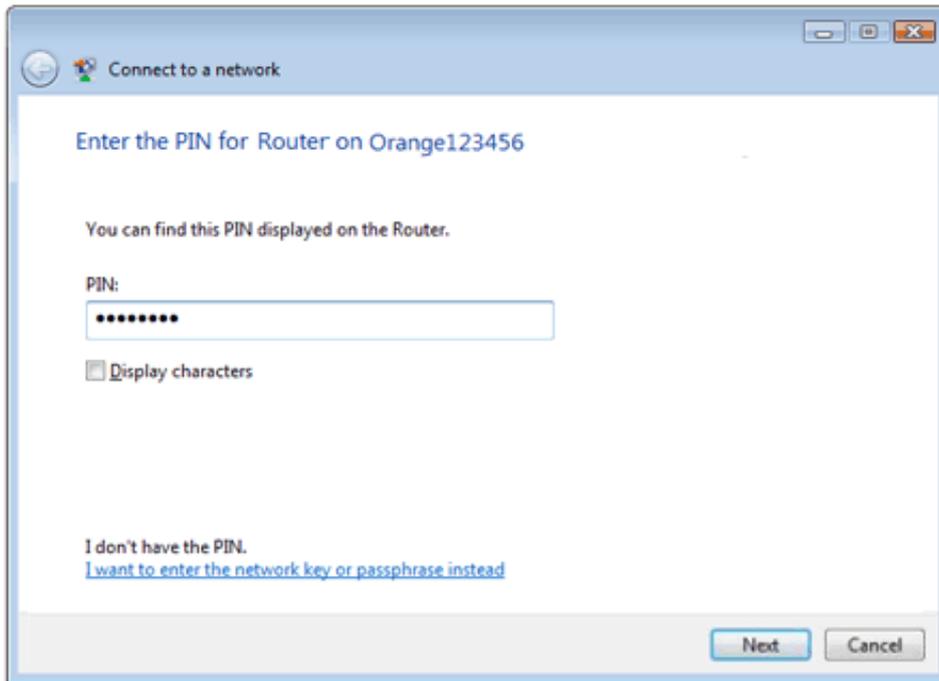
Enter this, instead of the security key.

Alternatively, your wireless software may generate its own PIN. If it does, you can enter it in the field below, then click **connect**.

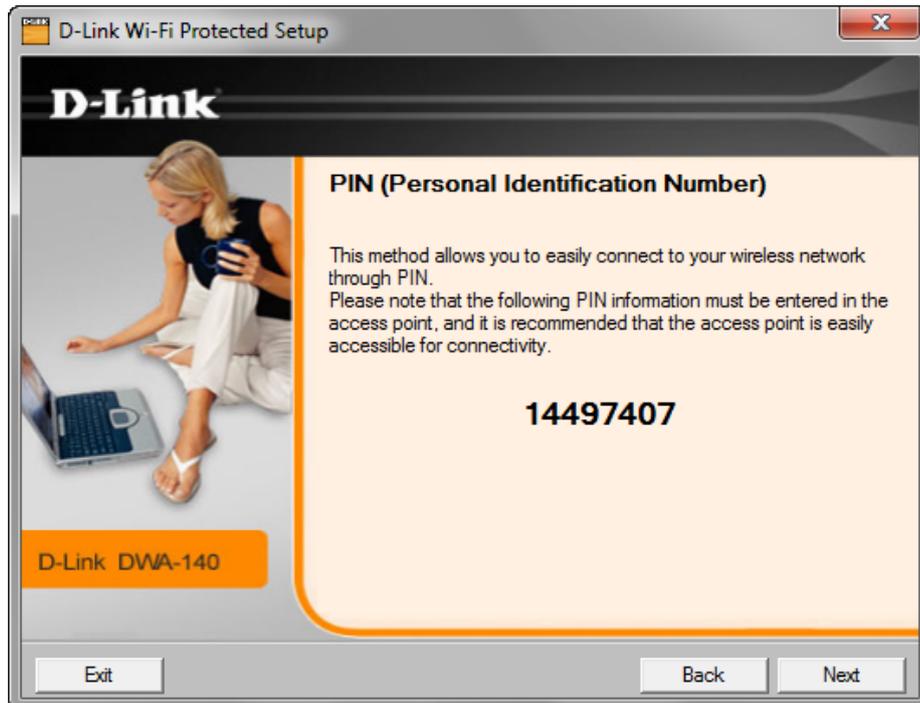
Status: Idle

device PIN

5. Launch the wireless connection software in your operating system and when prompted, enter the PIN number of the router and click **Next** to establish a connection using WPS.



- Alternatively, some wireless devices may provide their own PIN number for establishing a WPS connection:



- If this case, type the key provided into the 'device PIN' field on the **Wi-Fi protected setup** page and press the **Connect** button to establish a connection:

**personal identification number (PIN)**

Some wireless software will prompt you to enter the router's PIN to set up a secure wireless connection.

Your router's PIN number is below:

**57940632**

Enter this, instead of the security key.

Alternatively, your wireless software may generate its own PIN. If it does, you can enter it in the field below, then click **connect**.

Status: Idle

device PIN

**i** If you are unable to successfully establish a wireless connection using WPS, we recommend connecting using the manual password method. See *setting up a wireless connection* on page 25 for further information.

## USB FILE SHARING

The Bright Box router has a USB port which allows you to connect a USB memory stick or USB hard drive to the router to share files and folders over your home network.

**i** The router currently supports NTFS, FAT16 or FAT32 formatted drives.

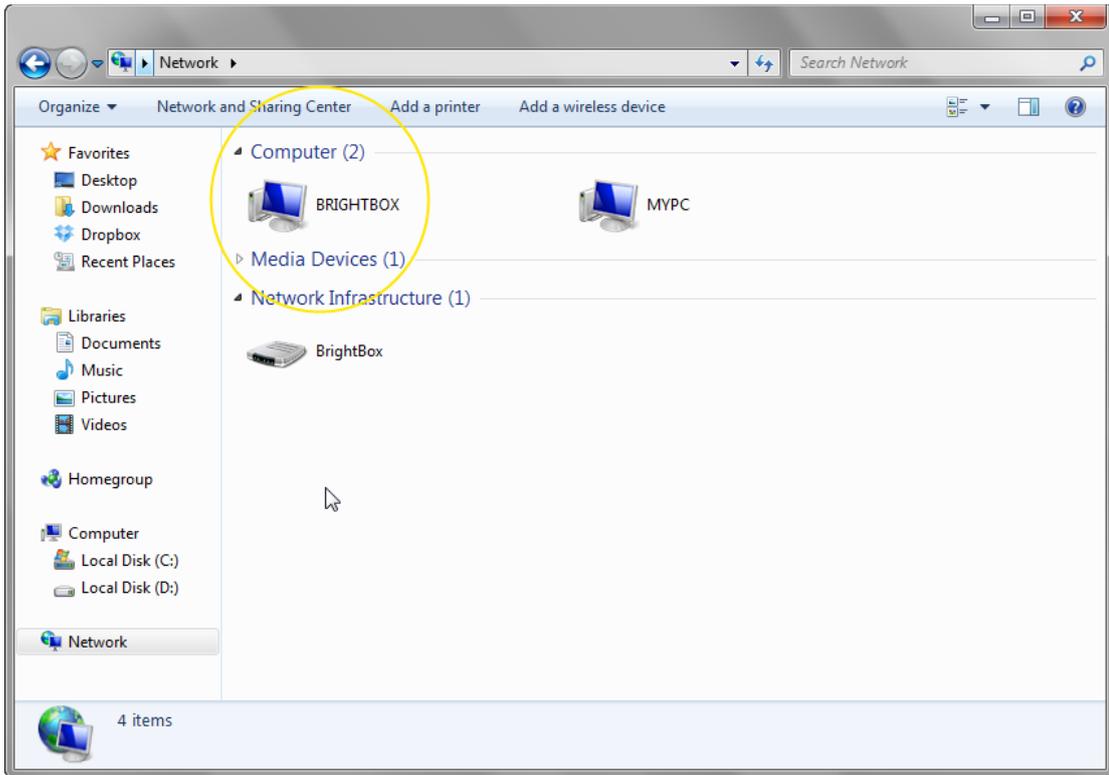
### How to File Share with a USB Drive (Auto Share)

The router is configured with USB automatic file sharing enabled by default. It should be a case of simply plugging your USB drive into your router for this feature to work

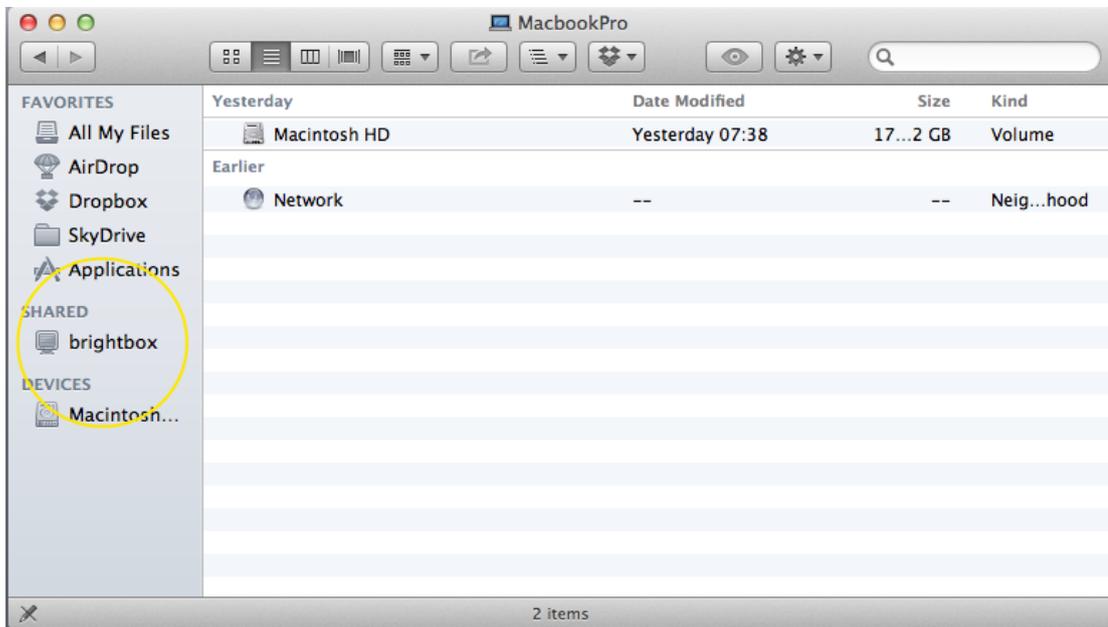
1. To connect a USB hard drive to the Bright Box router simply plug the USB drive into the USB socket on the back of the router as illustrated:



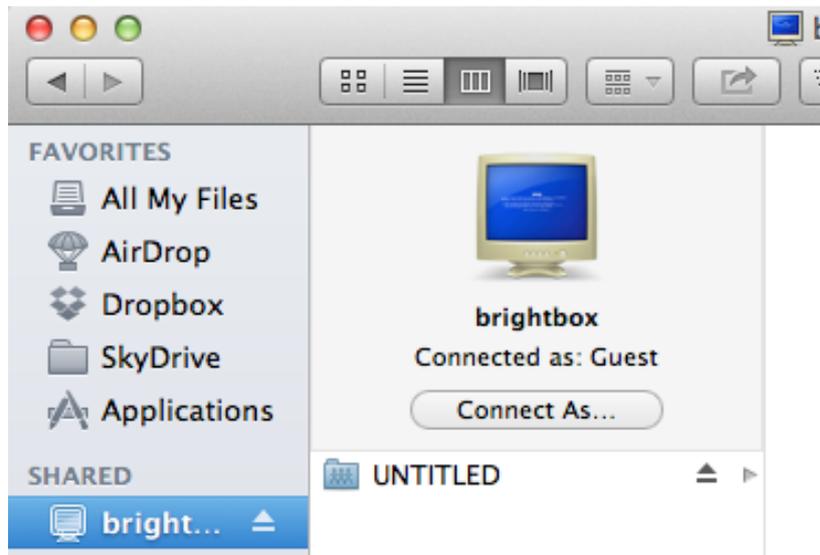
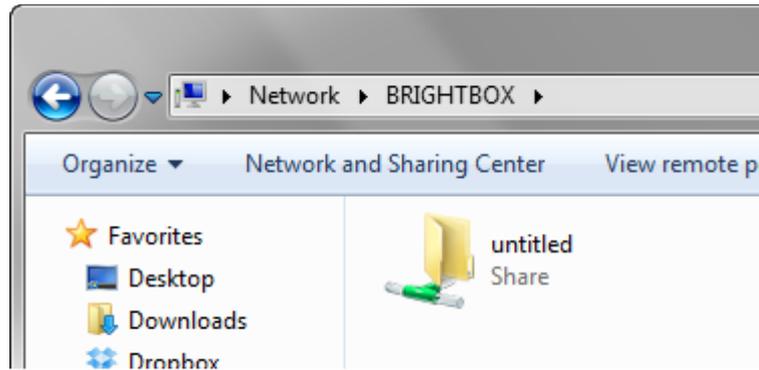
2. The router should automatically appear in your **Network** section on Windows Vista and Windows 7, or **My Network Places** section in Windows XP.



3. On Apple Mac OS X, the router should automatically appear in the Finder under **Shared**:



4. Click on the Brightbox router item in **Network** or **Finder** to view and access the shared USB drive:



**i** If the USB drive doesn't automatically appear in your Windows or Mac OS X network location, then you can manually access the drive using the following methods:

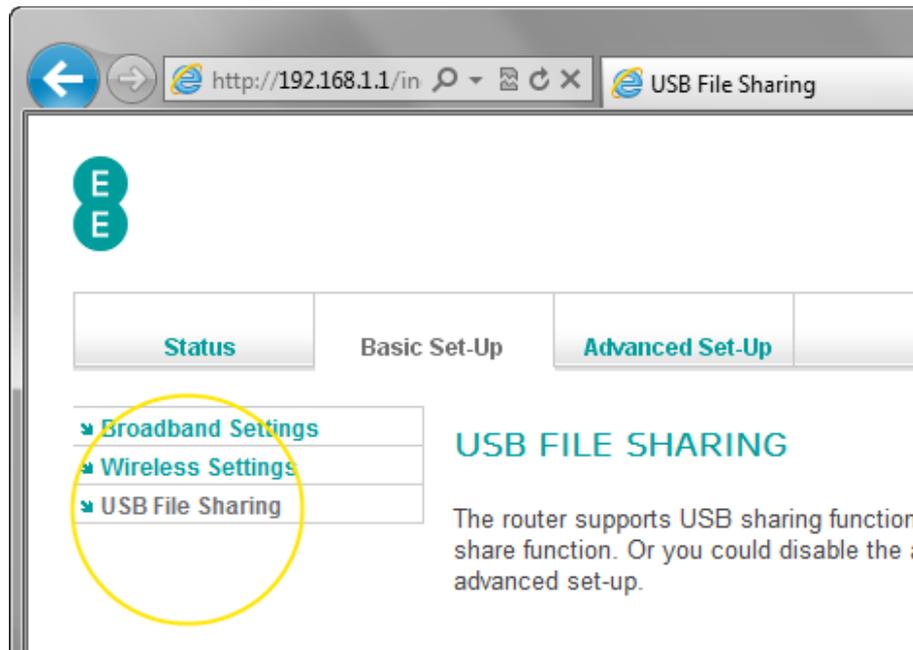
- On Windows XP, Windows Vista or Windows 7 select **Start > Run** and enter **\\brightbox**. Click **OK** to open the network drive.
- On Mac OS X open the Finder window and select **Go > Connect to Server...** and enter **smb://brightbox** and click **Connect** to open the network drive.

### Description of USB File Sharing settings

While the Bright Box router is configured to automatically share a USB drive over the network when it is connected to the router, you can configure basic USB File Sharing settings.

To access the USB File Sharing admin pages in the Bright Box router:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **USB File Sharing** from the left hand menu:



The following table contains a description of the fields and options in the Wireless Settings page:

Field	Description
Auto Share	<p>This option is used to configure the Auto Sharing feature of USB File Sharing. Auto Sharing enables 'plug and play' of USB drives into the Bright Box.</p> <p>Select 'Enable' to enable auto sharing of USB drives. When a compatible (NTFS, FAT16 or FAT32) drive is connected to the router, the drive will automatically appear in the Network section of Windows or the Finder for Mac OS X.</p> <p>Select 'Disable' to switch off the automatic sharing of USB drives. When a compatible drive is connected to the router, the drive will not be added to the Network section of Windows or the Finder for Mac OS X. You can still share a drive with Auto Share disabled, but you must manually configure the individual sharing settings for the drive in the <b>Advanced Set-Up &gt; USB File Sharing</b> page.</p>
Workgroup Name	<p>This field is used to configure the Windows Workgroup that the shared USB drive belongs to. By default the workgroup associated with the USB drive is called 'Workgroup'. This is the standard workgroup name for Windows XP (Professional), Windows Vista and Windows 7.</p> <p>If you've changed your workgroup name in Windows, you may need to change the Workgroup Name field to match your Windows workgroup in order to access the USB drive over the network.</p> <p>Note that for Windows XP Home Edition the workgroup name is often 'Mshome', so it may be necessary to change the Workgroup Name field to 'Mshome' to share the USB drive.</p>
File Permissions	This option is used to configure the file access



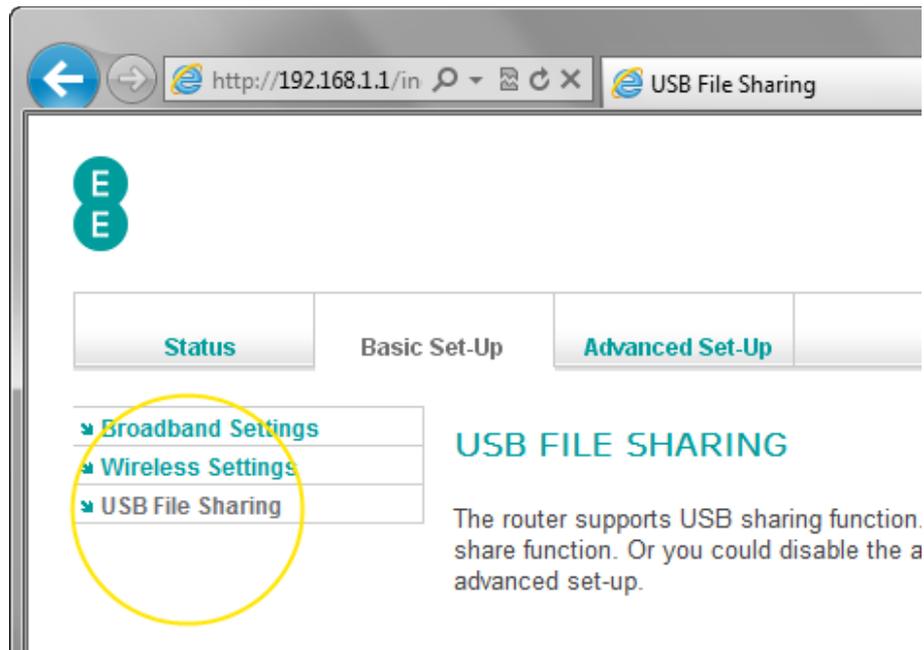
	<p>permissions for the attached USB drive. By default this setting is 'Read &amp; Write'.</p> <p>Select 'Read &amp; Write' to allow people on your network to be able to both read from and write to the attached USB drive.</p> <p>Select 'Read Only' to allow people on your network to open files or copy files on your USB drive. Files cannot be deleted, modified or moved to the USB drive.</p>
Security Control	<p>This option is used to configure whether a username and password must be entered in order to access the attached USB drive. This option is disabled by default.</p> <p>Select 'Enable' to control access to the USB drive by requiring a user to enter a username and password to access the drive. You cannot view the drive contents without entering the correct username and password.</p> <p>Select 'Disable' to switch off security access control on the attached USB drive. With this setting anybody on the network is able to access the drive contents.</p>
User Name	<p>This field is used to configure the Username required to access the attached USB drive contents if Security Control option is set to 'Enable'</p>
Password	<p>This field is used to configure the Password required to access the attached USB drive contents if Security Control option is set to 'Enable'</p>

### How to set a username and password on the USB drive

You may wish to limit access to a USB drives to certain users, requiring them to enter a username and password to access the drive over the network.

To set a username on attached USB drives:

1. Login to the router's admin pages.
2. Click on the **Basic Set-Up** tab and then select **USB File Sharing** from the left hand menu:



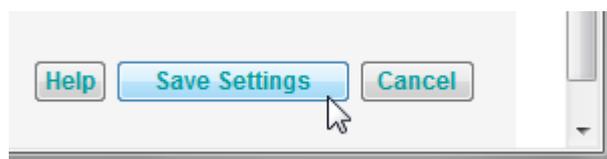
3. In the 'Security Control' field, set the option to 'Enable'
4. Update the 'User Name' and 'Password' fields as appropriate:

### USB FILE SHARING

The router supports USB sharing function. To share your USB disk share function. Or you could disable the auto share function, and c advanced set-up.

Auto Share	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Workgroup Name	<input type="text" value="Workgroup"/>
File Permissions	<input type="text" value="Read &amp; Write"/>
Security Control	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
User Name	<input type="text" value="johnsmith"/>
Password	<input type="text" value="mypassword"/>

5. Click **Save Settings**:

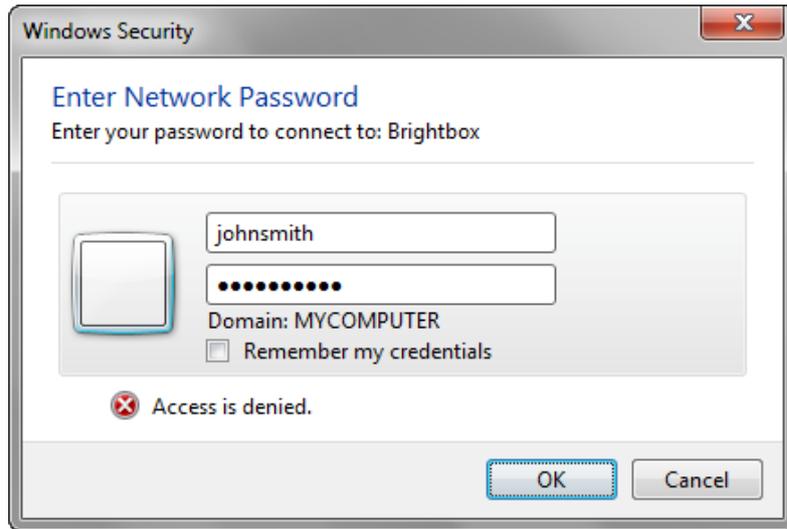


6. The router will apply the new settings:

**Applying changes. Please wait. The process may take up to 30 seconds.**  
**If you are making wireless changes you may need to reconnect to the wireless network.**



- The next time you attempt to access the attached USB drive, you will be prompted to enter the username and password. Enter the username and password as configured in Step 5 (Windows 7 and Mac OS X 10.7 screenshot examples below):



- Click **OK** or **Connect** to complete the connection to the attached USB drive. The files and folders on your drive will now be visible.

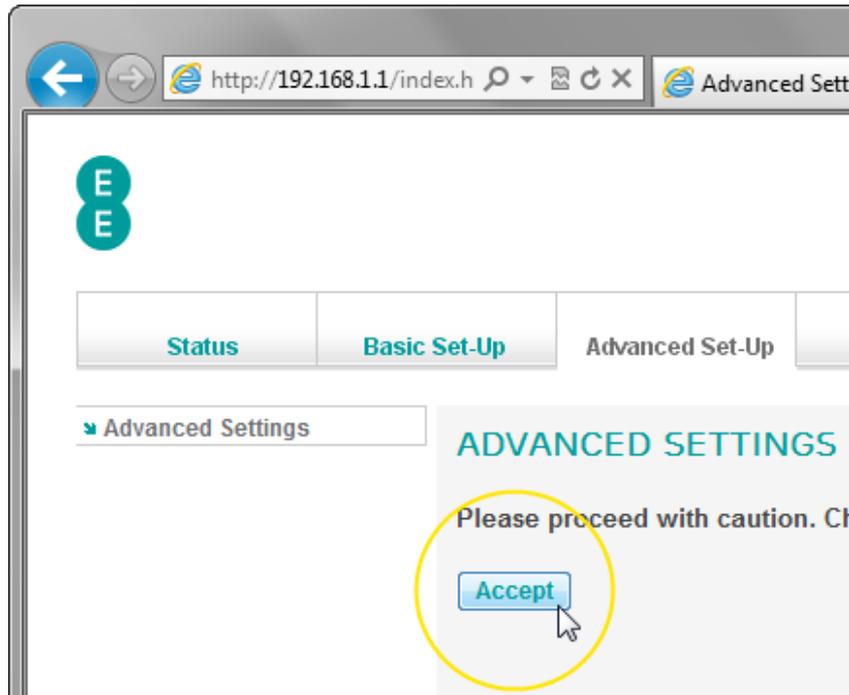


## CHAPTER 7: BRIGHT BOX ADVANCED SET-UP PAGES

The Advanced Set-Up pages contain configuration pages for a wide variety of advanced Bright Box router features.

To access the Advanced Set-Up pages:

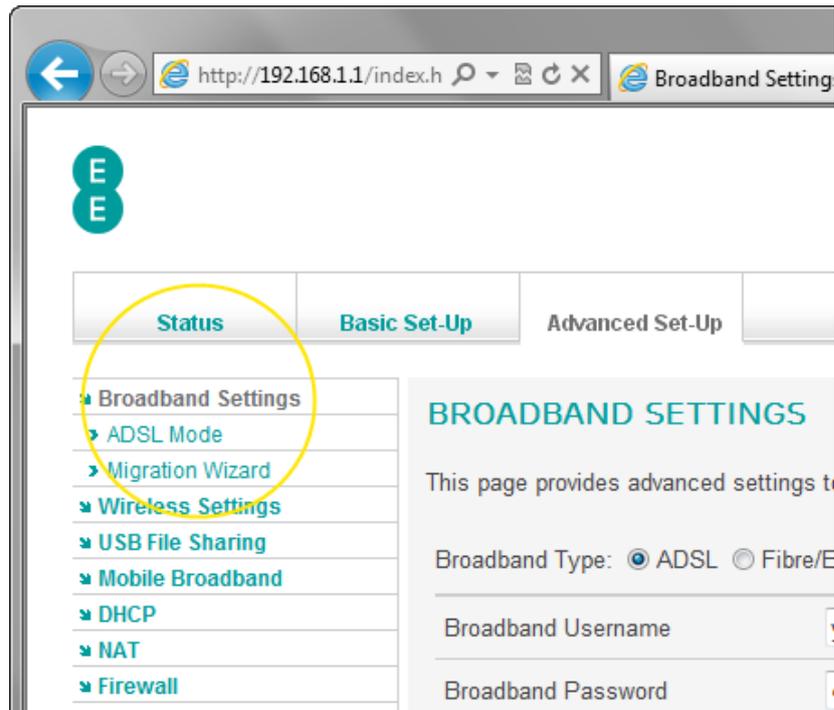
1. Login to the router's admin pages
2. Click on the **Advanced Set-Up** tab.
3. You'll be advised to 'Please proceed with caution..'. Click **Accept**.



### BROADBAND SETTINGS

The advanced Broadband Settings page is the first page displayed when accessing the **Advanced Set-Up** tab. The page contains many of the Broadband Settings in the **Basic Set-Up > Broadband Settings** page, with a few advanced configurable settings.

You can return to the advanced Broadband Settings page by clicking on the **Broadband Settings** item in the left hand navigation menu on the **Advanced Set-Up** pages:



## Description of Advanced Broadband Settings

Many of the advanced Broadband Settings are identical to those described in the **Basic Set-Up > Broadband Settings** page. See *Description of Broadband Settings* on page 49 for further information.

The following additional settings can be configured on the advanced page:

Section	Description
Connection Type	<p>This dropdown allows you to configure whether the Internet connection remains connected at all times, or whether the connection can go into an idle state after a period of inactivity. The router is set by default to be always connected.</p> <p>Select 'Always Connected' if you want your Internet connection to remain connected regardless of whether there is Internet traffic across the network.</p> <p>Select 'Auto – Trigger by Traffic' if you want to configure an idle timeout of the Internet connection after a certain period of inactivity. The Internet connection will be automatically re-established when the router detects Internet traffic. You must also set the idle timeout period in the 'Idle Time' field below.</p>
Idle Time	<p>This field lets you configure the amount of time that elapses before the Internet connection is terminated without detecting Internet traffic.</p> <p>The 'Connection Type' dropdown must be set to 'Auto – Trigger by Traffic' for this field to be configurable.</p>
Authentication Protocol	<p>This dropdown allows you to configure the type of authentication used for connecting to your Internet service. This option is set to 'CHAP' by default for EE</p>



	<p>Broadband.</p> <p>Select 'Auto' for automatic detection of the authentication protocol used to connect to your Internet service.</p> <p>Select 'CHAP' to use the Challenge Handshake Authentication Protocol for establishing an Internet connection. This is the correct setting for EE Broadband.</p> <p>Select 'PAP' to use the Password Authentication Protocol for establishing an Internet connection.</p>
Internet State	<p>This section shows the current state of your Internet connection, either 'Connected' or 'Disconnected'.</p> <p>You can also manually force the Internet connection to connect or disconnect by clicking on the 'Connect' or 'Disconnect' button to the right.</p>

### Using the button to force an Internet Connection/Disconnection

Whenever you make changes to any of the settings on the **Advanced Set-up > Broadband Settings** page, and press the **Save Changes** button, your Internet connection (PPP) will attempt to be re-established.

There may be occasions, say for troubleshooting, where you might want to manually Connect or Disconnect your Internet Connection (PPP) without making Broadband Settings changes.

If you are connected to the Internet (the 'Internet State' displays 'Connected') and you want to disconnect, click on the **Disconnect** button:



The 'Applying changes' message will be displayed, and the page will be displayed with the Internet State of 'Disconnected' visible. In the **Advanced Set-up > System > System Log** page the disconnected state appears as 'PPP connection down (VC1)'.

If you are disconnected from the Internet (the 'Internet State' displays 'Disconnected') click on the **Connect** button to attempt a reconnection:



The 'Applying changes' message will be displayed, and the page should be displayed with the Internet State of 'Connected' visible. In the **Advanced Set-up > System > System Log** page the disconnected state appears as 'PPP connection up (VC1)'.

**i** Please note that the **Connect** button will only successfully re-establish an Internet connection if your Internet service is working and the Bright Box has been setup correct. See *Chapter 3: Installation* on page 14 or *Chapter 8: Troubleshooting* on page 198 for further information.



## ADSL MODE

The **ADSL Mode** page allows you to change your ADSL connection mode (sometimes known as modulation type). The ADSL mode is used to establish a connection between your Bright Box router and your local Broadband exchange.

By default, the ADSL Mode is set to 'Automatic', and this is generally the best mode for your connection, as the correct connection type will be automatically negotiated between the exchange and your router. Bit Swapping and SRA (Seamless Rate Adaption) are also enabled by default. You can change these settings for troubleshooting purposes.

 Setting an incorrect ADSL Mode, Bit Swapping or SRA setting may prevent you from successfully connecting to the Internet. If you make changes to these settings and lose your Internet connection, please set back to 'Automatic' (with Bit Swapping and SRA enabled) and click **Save Settings**

### Description of ADSL Mode settings

The following settings can be configured on the **ADSL Mode** page:

Section	Description
ADSL Mode	This dropdown is used to configure the ADSL connection mode (modulation). This is set to 'Automatic' by default and this is usually the best option. You can also set the mode manually to 'G.992.1 (G.DMT)', 'G.992.3 (ADSL2)', 'G.992.5 (ADSL2+)', 'G.992.3 Annex-M' and 'G.992.5 Annex-M'
Bit Swapping	This option is used to enable or disable Bit Swapping on your ADSL connection. Bit Swapping is enabled by default and is used to help keep your ADSL line connection stable.
SRA	This option is used to enable or disable Seamless Rate Adaption (SRA) on your ADSL connection. SRA is enabled by default, and helps adapt your line sync speed automatically without disconnecting your Internet connection.

## MIGRATION WIZARD

This page allows you to easily migrate your Broadband service from EE ADSL to EE Fibre broadband or vice-versa. The page also displays the current default Broadband Type (either ADSL or Fibre/Ethernet) and is identical to the Migration Wizard found in **Basic Set-up > Broadband Settings > Migration Wizard**. For further details see *Migration Wizard* on page 55

## WIRELESS SETTINGS

The advanced Wireless Settings page allows you to Enable or Disable the wireless LAN on the Bright Box router, and works in the same way as on the **Basic Set-Up > Wireless Settings** page. See *How to enable or disable wireless* on page 63 for further details.

The page also allows you to manually run an Intelligent Wireless scan to find the least congested wireless channel. See *Using the Intelligent Wireless feature* on page 78 for further details.



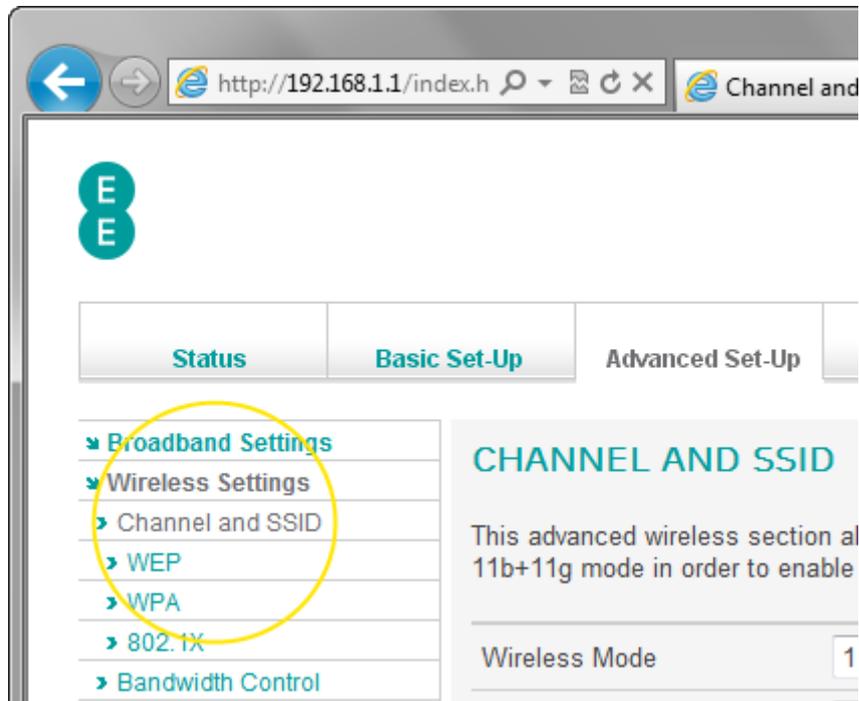
## CHANNEL AND SSID

The **Channel and SSID** page contains some advanced wireless configuration settings that give you extra control over the wireless channel and wireless bandwidth used by the Bright Box.

In addition you can configure the router to enable two additional SSID's to be broadcast providing different wireless network names and security types. You can also bind any of the router SSID's to separate Virtual LANs (VLAN's) to isolate local wireless networks.

To access the Channel and SSID page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **Channel and SSID** in the left hand navigation menu:



### Description of Channel and SSID settings

The following settings can be configured on the **Channel and SSID** page:

Section	Description
Wireless Mode	This dropdown is used to configure the 802.11 wireless mode the router is transmitting on. By default the router is set to transmit on '11b+11g+11n' mode.  See <i>how to change the wireless mode</i> on page 67 for further information.
Channel	This option is used to configure the 2.4GHz radio channel for wireless communication. By default the router will select the wireless channel with the least interference in the 'Auto' mode using the Intelligent



	<p>Wireless feature.</p> <p>See <i>how to change the wireless channel</i> on page 69 for further information.</p>
Extension Channel	<p>This option is used to configure the wireless extension channel when the 'Bandwidth' option is set to 20/40MHz mode, 'Channel' is set to 1-13 and 'Wireless Mode' is set to '11b+11g+11n' or '11n only'.</p> <p>The extension channel is used to double the wireless bandwidth of the router, allowing for faster transfer speeds across the wireless network.</p> <p>The extension channel is four channels above or below the primary wireless channel.</p> <p>Channels 5, 6, 7, 8 and 9 allow you to choose whether the extension channel is a frequency range above or below the primary channel to help avoid interference. Channels 1, 2, 3, 4, 10, 11, 12 and 13 will automatically select the extension channel for you (as only one extension channel will be available.)</p> <p>If your 'Channel' is set to 'Auto' then the Bright Box will decide which extension channel to use automatically based on the router's Intelligent Wireless feature.</p>
Bandwidth	<p>This option is used to configure the wireless bandwidth used for wireless N. This option is only available if the 'Wireless Mode' is set to '11b+11g+11n' or '11n only'.</p> <p>The wireless bandwidth is set to 20MHz by default on the Bright Box router.</p> <p>Select '20MHz' for speeds up to 144Mbps over your wireless network.</p> <p>Select '20/40MHz' to bond the wireless channels allowing you to double wireless speeds on your network up to 300Mbps.</p> <p>Please note that the wireless router is required to automatically use the 20MHz mode when another wireless network is transmitting in the same wireless frequency ranges. If the router is set to 20/40MHz bandwidth, it may still operate in 20MHz mode if it detects another wireless access point transmitting in a neighbouring frequency range.</p>
Multiple SSID Enable	<p>This setting allows you to enable or disable any of the three wireless network names (SSID's) supported by the router. By default, only SSID1 is enabled – this is your default wireless network.</p> <p>Tick the box to enable the relevant SSID. Ensure that you also enter a 'wireless network name (SSID)' in the field, set the 'security' and tick the 'broadcast SSID' option in order to configure an SSID to be transmitting the wireless network name.</p> <p>Untick the box to disable the relevant SSID and prevent it from transmitting over the wireless network.</p>



Multiple SSID wireless network name (SSID)	<p>This field allows you to create or edit the transmitting wireless network name for any of the three supported SSID's.</p> <p>By default only the wireless network name for SSID1 is configured.</p> <p>If the SSID 'enable' option is ticked, you must enter a wireless network name before saving.</p>
Multiple SSID security	<p>This setting allows you to configure the wireless security type for each of the three SSID's supported by the router. By default, wireless WPA security is enabled.</p> <p>Please note that to set the security to WEP mode, the 'wireless mode' option must be set to '11b+11g' mode.</p> <p>See <i>description of Wireless Settings</i> on page 59 for further information.</p>
Multiple SSID broadcast SSID	<p>This setting allows you to configure whether the wireless network name (SSID) is being transmitted by the router for each of the individual SSID's. By default the broadcast SSID setting is enabled for SSID1.</p> <p>Please ensure you enable this setting if you set up additional SSID's and wish for them to be visible to wireless network software.</p> <p>See <i>how to change the broadcast SSID option</i> on page 70 for further information.</p>
VLAN Grouping	<p>This setting allows you to configure which virtual LAN each of the wireless SSID's is associated with. VLAN binding gives you the ability to share your Internet connection with friends or family, while allowing you to keep computers or storage devices on a separate home network.</p> <p>By default all of the SSID's are bound to the default VLAN grouping. However you can also bind any of the SSID's to the optional VLAN2 and VLAN3.</p> <p>The VLAN interface network settings can be configured on the <b>Advanced Set-Up &gt; DHCP</b> page.</p>

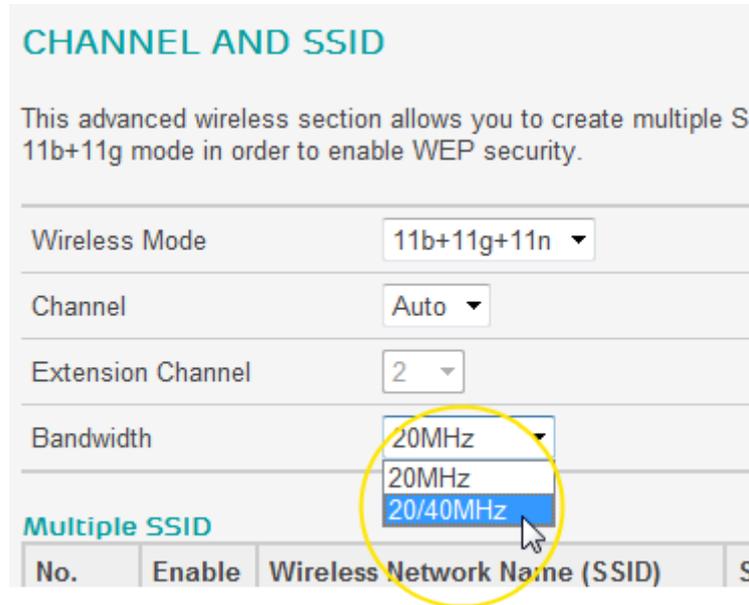
## How to change the wireless speed from 144Mbps to 300Mbps

By default, the Bright Box Wireless Router uses a wireless frequency bandwidth of 20MHz. When paired with a compatible wireless 802.11n adapter, this allows your computer to connect to the router at speeds of up-to 144Mbps.

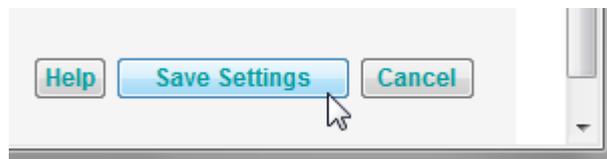
The router also supports speeds of up-to 300 Mbps by dual-bonding two wireless channels. You can enable this feature from the **Channel and SSID** page by changing the 'bandwidth' setting to '20/40MHz'. To do this from a computer connected to your Bright Box Wireless Router:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.

3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click on **Channel and SSID** in the left hand navigation menu to open the page.
5. Click on the 'Bandwidth' dropdown and select '20/40MHz':



6. Click **Save Settings**:



7. The router Wi-Fi will now be using the 20/40MHz bandwidth for speeds up to 300Mbps.

**i** Due to potential interference with other Wi-Fi networks, when the Bright Box is set to 20/40MHz mode, it will automatically switch between 40 and 20 MHz modes when it detects another access point operating in a neighbouring wireless channel nearby. Due to this requirement, you may not be able to gain the full benefit of the up to 300Mbps wireless speeds in your home if a neighbouring network is using a similar range of wireless channels (only speeds up to 144Mbps will be achievable).

**i** Wireless speeds will be dependent on the type of wireless adapter you are using to connect to the router. If your adapter is an older 802.11b/g standard, you will only be able to achieve speeds up to 54Mbps. Some wireless 802.11n adapters may also not be able to achieve speeds up to 300Mbps. Please check the manufacturers website for supported speeds or updated drivers for your device.

### How to set up multiple SSID's (multiple wireless network names)

The Bright Box Wireless Router supports up to 3 wireless network names (SSIDs). This section shows you how to set up an additional wireless network name with separate wireless password and home network address.

This could be particularly useful if :

- You only want to give somebody temporary access to your home network - you can then regularly change the password without disconnecting all of your own wireless devices.



- You want to keep files you've shared on your home network separate from other people.
- You want to limit the amount of bandwidth a certain person (or group of people) can use on your home network.

To set up an additional wireless network name (SSID):

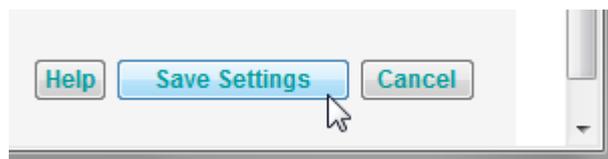
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **Channel and SSID** in the left hand navigation menu to open the page
5. In the **Multiple SSID** section tick the 'enable' option next to SSID2.
6. Enter a name for your new wireless network in the example below we named the SSID 'GuestWiFi'.
7. Tick the 'Broadcast SSID' option next to SSID2
8. Optional – if you want keep your home network separate to GuestWiFi, select 'VLAN2' in the 'SSID2' field under **VLAN Binding**. This will prevent people connecting to GuestWiFi from seeing computers on the BrightBox-wrfeta network:

Multiple SSID				
No.	Enable	Wireless Network Name (SSID)	Security	Broadcast SSID
SSID1	<input checked="" type="checkbox"/>	BrightBox-wrfeta	WPA	<input checked="" type="checkbox"/> Enable
SSID2	<input checked="" type="checkbox"/>	GuestWiFi	WPA	<input checked="" type="checkbox"/> Enable
SSID3	<input type="checkbox"/>		WPA	<input type="checkbox"/> Enable

VLAN Binding	
No.	VLAN Grouping
SSID1	Default
SSID2	VLAN2
SSID3	Default

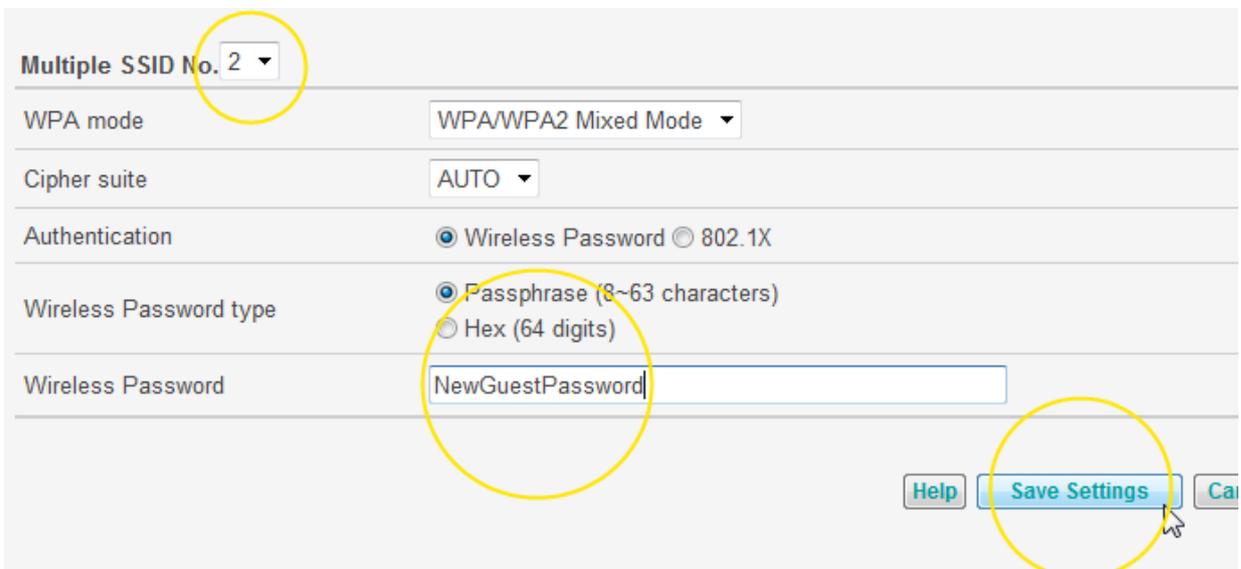
9. Click **Save Settings**:



10. Now you will need to set a password on the new SSID. Click on the **WPA** option under **Wireless Settings** in the left hand navigation area:



11. In the 'Multiple SSID No.' dropdown, select '2'
12. In the 'Wireless Password' field, enter a password for your new wireless network – the password should be between 8-63 characters
13. Click **Save Settings**:



14. You can now give your new wireless network name and password to guests.

**i** If you wish to set up one of your wireless network names in the WEP wireless security mode you will need to set the 'Wireless Mode' dropdown on the **Channel and SSID** page to '11b+11g'. You must then configure the WEP key/password on the **Advanced Set-Up > WEP**



page. With WEP security mode, you will only be able to use the router in the slower 802.11b/g standard (speeds up to 54Mbps), regardless of what wireless network name you are connecting to.

## WEP

This page can be used to configure the WEP (Wired Equivalency Protocol) security mode settings for your Bright Box router on any of the router SSID's. A full description of the WEP security settings and instructions on setting a WEP key (password) can be found on page 72

### How to set up a multiple SSID with WEP security

 Please note that WEP mode security is not as secure as the more modern WPA/WPA2 wireless security standard, and should only be used if a device you wish to connect to the network will only support WEP mode.

If your wireless adapter or software doesn't support the WPA security standard then you can set up an additional SSID using the WEP mode by following these instructions:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **Channel and SSID** in the left hand navigation menu to open the page
5. Click on the 'Wireless Mode' dropdown and select the '11b+11g' option.
6. In the **Multiple SSID** section tick the 'enable' option next to SSID2.
7. Enter a name for your new wireless network in the example below we named the SSID 'GuestWiFi'.
8. Click on the 'security' dropdown and select 'WEP'
9. Tick the 'Broadcast SSID' option next to SSID2
10. Optional – if you want keep your home network separate to GuestWiFi, select 'VLAN2' in the 'SSID2' field under **VLAN Binding**. This will prevent people connecting to GuestWiFi from seeing computers on the home BrightBox-wrfeta network:

### CHANNEL AND SSID

This advanced wireless section allows you to create multiple SSID's for your home network. Wireless Mode must be set to 11b+11g mode i

Wireless Mode: 11b+11g

Channel: Auto

Extension Channel: 2

Bandwidth: 20MHz

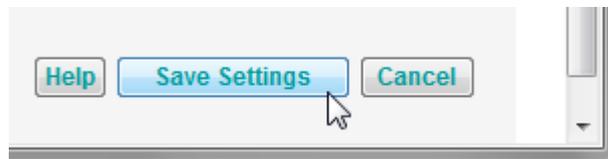
#### Multiple SSID

No.	Enable	Wireless Network Name (SSID)	Security	Broadcast SSID
SSID1	<input checked="" type="checkbox"/>	BrightBox-wrfeta	WPA	<input checked="" type="checkbox"/> Enable
SSID2	<input checked="" type="checkbox"/>	GuestWiFi	WEP	<input checked="" type="checkbox"/> Enable
SSID3	<input type="checkbox"/>		WPA	<input type="checkbox"/> Enable

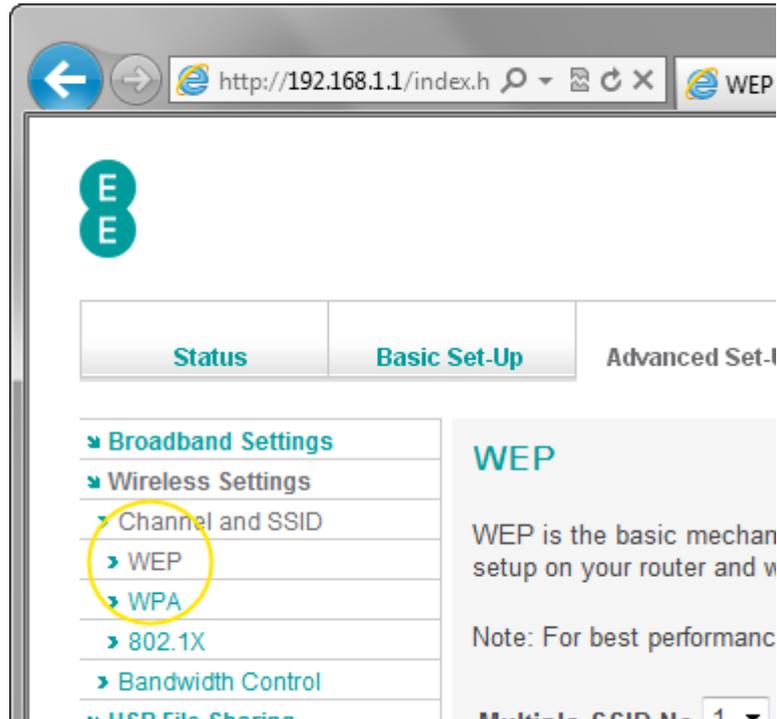
#### VLAN Binding

No.	VLAN Grouping
SSID1	Default
SSID2	VLAN2

11. Click **Save Settings**:



12. Now you will need to set a password on the new SSID. Click on the **WEP** option under **Wireless Settings** in the left hand navigation area:



13. In the 'Multiple SSID' dropdown select '2':
14. In the 'WEP Mode' select '128-bit'
15. In the 'Key Entry Method' select 'ASCII'
16. Click inside the **Key1** field - in the example below we used 'examplepass12'.

### WEP

WEP is the basic mechanism to transmit your data securely over the wireless network. Matching encryption

Note: For best performance avoid using WEP with 802.11n networks.

Multiple SSID No.

WEP Mode  64-bit  128-bit

Key Entry Method  HEX  ASCII

10/26 hex digits for 64-WEP/128-WEP

Default Key ID

Passphrase  (1~32 characters)

Key1

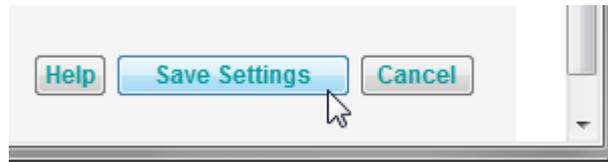
Key2

Key3

Key4



17. Click **Save Settings**:



18. Refresh your computer's wireless software - you can now connect to your new Wireless Network Name using the Key1 password value.

## WPA

This page can be used to configure the WPA (Wi-Fi Protected Access) security mode settings for your Bright Box router on any of the router SSID's. You can also use this page to configure advanced WPA settings such as the cipher suite, WPA authentication type and the wireless password type (Passphrase or Hex).

Please see *how to change to wireless WPA mode* on page 75 for instructions on changing to WPA security mode.

To access the advanced WPA settings page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **WPA** in the left hand navigation menu:



### Description of WPA settings

The following table contains a description of the settings on the advanced WPA settings page:



Section	Description
Multiple SSID No.	<p>This option is used to configure which of the SSID's you are applying the WPA settings to. When you access this page, the default SSID number 1 is select.</p> <p>Select '2' or '3' to configure the other available SSID's. Remember you will need to enable the other SSID's on the <b>Channel and SSID</b> page for the changes to have any effect.</p>
WPA Mode	<p>This option is used to configure the Wi-Fi Protected Access security type mode for the selected SSID. By default the WPA Mode is 'WPA/WPA2 Mixed Mode' in order to provide maximum compatibility.</p> <p>Select 'WPA' for legacy devices that do not support the newer, more secure WPA2 security mode.</p> <p>Select 'WPA2' for devices that support the highly secure WPA2 mode. Note that older devices that only support the WPA mode may not be able to connect to the router with this setting.</p> <p>Select 'WPA/WPA2 Mixed Mode' for maximum wireless compatibility. Wireless devices supporting the highly secure WPA2 mode will connect in this mode, while older WPA only devices will also be able to connect to the router.</p>
Cipher Suite	<p>This option is used to configure the type of WPA encryption used for the selected SSID. By default the encryption type is automatically selected depending on the WPA mode a wireless connection is established in.</p> <p>Select 'AUTO' to allow the cipher to be automatically detected when a wireless connection is established. This will usually be AES with WPA2 and TKIP with the WPA mode.</p> <p>Select 'AES' to force the encryption cipher to use the Advanced Encryption Standard mode. This mode provides the maximum wireless speed and security for wireless 802.11n connections.</p> <p>Select 'TKIP' to force the encryption cipher to use the Temporal Key Integrity Protocol mode. This mode can be used for older wireless 802.11b/g adapters that do not support AES mode.</p>
Authentication	<p>This option is used to configure the WPA authentication type used to establish a wireless connection to the router for the selected SSID. By default the authentication type required is a wireless password.</p> <p>Select 'Wireless Password' to authenticate using a password method. This is the standard authentication method for most wireless adapters and devices.</p> <p>Select '802.1X' for authentication over a RADIUS</p>



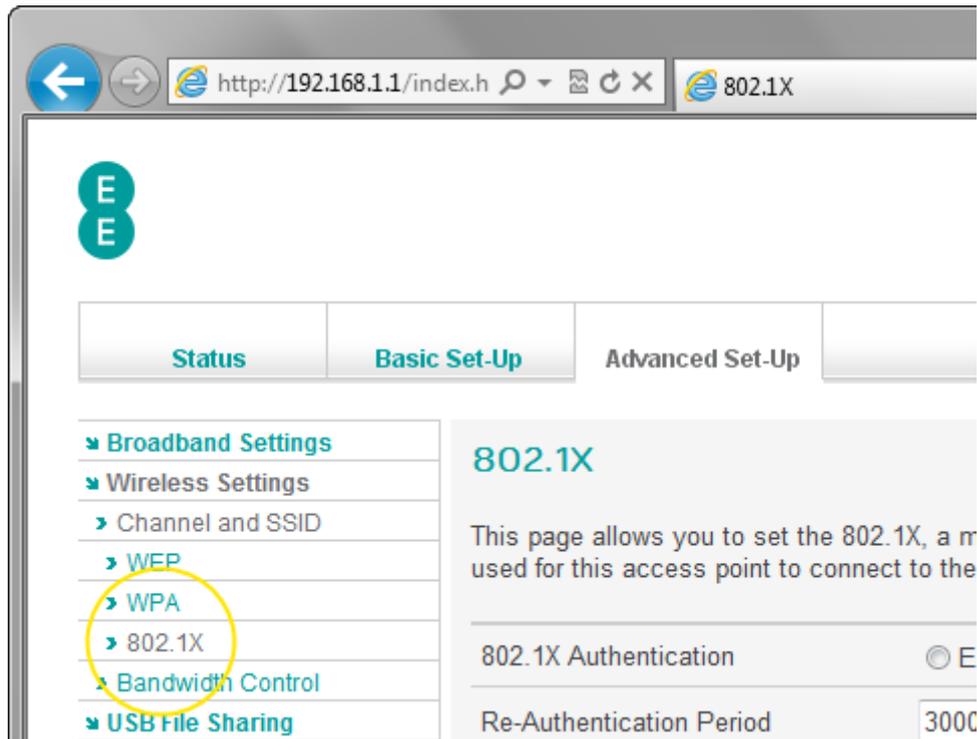
	server. EE Broadband does not provide support for this option. 802.1X server settings must be configured in the <b>Advanced Set-Up &gt; 802.1X</b> page if you select this option.
Wireless Password type	This field is used to configure the wireless password type used to establish a connection to the router's wireless network for the selected SSID. By default the router will use the passphrase type. Select 'Passphrase' for the wireless password to require a 8-62 ASCII character value (a-z, A-Z, 0-9). Select 'Hex' for the wireless password to require a 64 character hexadecimal value (A-F, 0-9)
Wireless Password	This field is used to configure the WPA wireless password used when making a wireless connection to the router for the selected SSID. Please note that the wireless password is case sensitive.

## 802.1X

802.1X is an enterprise authentication method that allows you to use an external RADIUS server for wireless authentication using the Extensible Authentication Protocol (EAP). This setting is sometimes known as WPA-Enterprise. EE is unable to offer 802.1X authentication, so you must provide your own RADIUS server for this option to work.

You can configure the router for 802.1X authentication over RADIUS by access the **802.1x** page in the advanced router admin pages:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **802.1x** in the left hand navigation menu:



### Description of 802.1x settings

The following table contains a description of settings on the 802.1x settings page:

Section	Description
802.1X Authentication	<p>The option allows you to configure whether WPA 802.1X wireless authentication is enabled or disabled on the router.</p> <p>Select 'Enable' to allow 802.1X authentication over RADIUS. You will also need to set the 'Authentication' setting on the <b>WPA</b> page to '802.1X' for the SSID.</p> <p>Select 'Disable' to switch off 802.1X authentication over RADIUS.</p>
Re-Authentication Period	<p>This field allows you to configure the amount of time in seconds the 802.1X server will reassign a session key to a connected client, requiring re-authentication. This is 30000 seconds by default.</p> <p>Setting a value of 0 will prevent re-authentication from occurring.</p>
Quiet Period	<p>This field allows you to configure the amount of time in seconds that the router will wait between failed authentication attempts. This is 60 seconds by default.</p>
Server Type	<p>This is the 802.1x authentication server type. Currently the only option is RADIUS.</p>
Server IP	<p>This field allows you to configure the IP address of the RADIUS authentication server for 802.1X. This may be an internal LAN or external Internet address.</p>



Server Port	This field allows you to configure the connection port of the RADIUS server. By default the value is 1812, and this is the usual port for a RADIUS server.
Secret Key	This field allows you to configure the secret key value shared between the RADIUS server and connecting clients.
NAS-ID	This field allows you to configure the request identifier of the Network Access Server (NAS).

## BANDWIDTH CONTROL

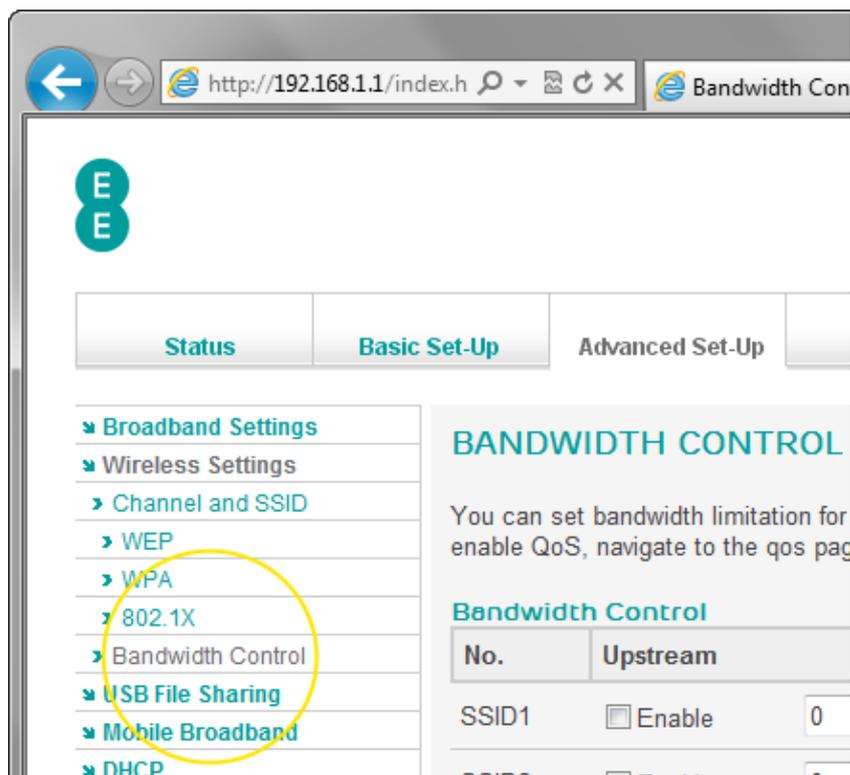
It is possible to control the amount of bandwidth allocated by each of the wireless network names (SSID's) on the Bright Box router. This feature is useful if you want to control the maximum upload and download speeds on a particular SSID – for example you may like to limit the connection speed of a member of your family who uses SSID2 to 1000kbps (about 1mbps) on download and 512kbps on upload.

This setting is often used in conjunction with multiple SSID's. See *how to setup multiple SSID's* on page 102 for further information.

 As Bandwidth Control is a Quality of Service (QoS) feature, you must also enable the 'QoS Module Function' in the **Advanced Set-Up > QoS** page for the Bandwidth Control to be applied.

To access the Bandwidth Control page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **Bandwidth Control** in the left hand navigation menu:





## Description of Bandwidth Control settings

The following table describes the settings on the Bandwidth Control page:

Section	Description
Upstream Enable	Check this option to enable Bandwidth Control on upstream (upload) traffic on the wireless LAN for SSID1, 2 or 3. You must also enter a value in the upstream Kbytes/sec field to set the maximum bandwidth allowed.
Upstream KBytes/sec	This field allows you to configure the maximum wireless bandwidth value for upstream (upload) traffic on the wireless LAN for SSID1, 2 or 3. The value is in Kilobytes per second (and not Kilobits) 1 Kilobyte per second = 8 Kilobits per second 128 Kilobytes per second = 1 Megabit per second
Downstream Enable	Check this option to enable Bandwidth Control on downstream (download) traffic on the wireless LAN for SSID1, 2 or 3. You must also enter a value in the downstream Kbytes/sec field to set the maximum bandwidth allowed.
Downstream KBytes/sec	This field allows you to configure the maximum wireless bandwidth value for downstream (download) traffic on the wireless LAN for SSID1, 2 or 3. The value is in Kilobytes per second (and not Kilobits) 1 Kilobyte per second = 8 Kilobits per second 128 Kilobytes per second = 1 Megabit per second

### How to limit the wireless bandwidth on an SSID

If you wish to limit the wireless bandwidth on a particular SSID, follow the steps below. The example below assumes that you have already set up SSID2 in the **Channel and SSID** page (see *how to set up multiple SSID's* on page 102 for instructions).

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Wireless Settings** in the left hand navigation menu to expand the Wireless Settings menu.
4. Click **Bandwidth Control** in the left hand navigation menu
5. In the SSID2 row check 'Enable' in both the 'upstream' and 'downstream' fields.
6. We will limit the upstream to 64 kilobytes (about 0.5 Mbps) – in the SSID2 upstream field enter a value of 64.
7. We will limit the downstream to 128 kilobytes (about 1 Mbps) – in the SSID2 downstream field enter a value of 128:

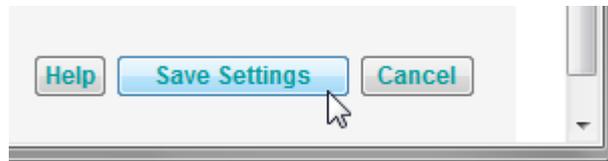
### BANDWIDTH CONTROL

You can set bandwidth limitation for each wireless LAN. QoS must also be enabled for bandwidth control to work. In order to enable QoS, navigate to the qos page, select Enable and click the save settings button

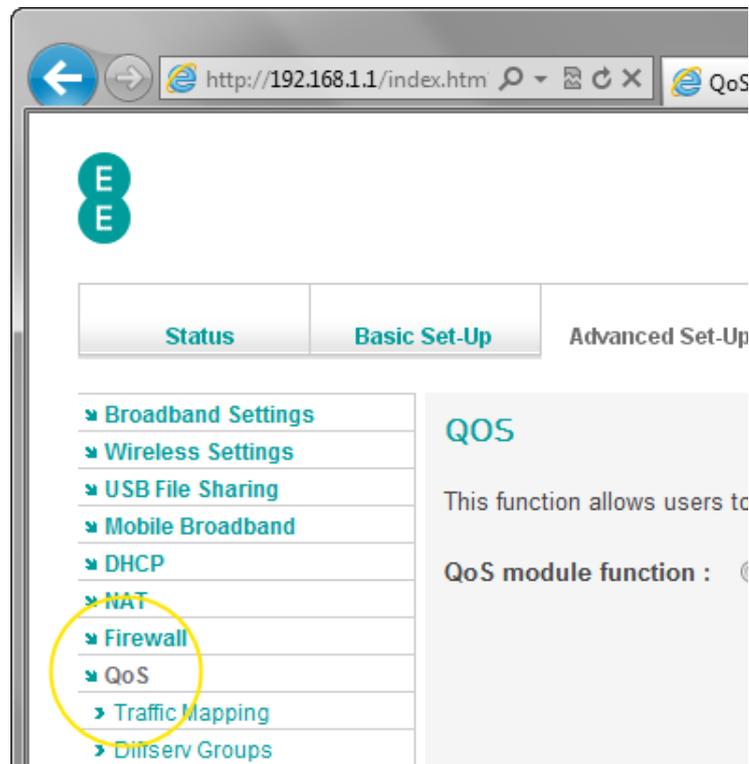
**Bandwidth Control**

No.	Upstream		Downstream	
SSID1	<input type="checkbox"/> Enable	0 KBytes/sec	<input type="checkbox"/> Enable	0 KBytes/sec
SSID2	<input checked="" type="checkbox"/> Enable	64 KBytes/sec	<input checked="" type="checkbox"/> Enable	128 KBytes/sec
SSID3	<input type="checkbox"/> Enable	0 KBytes/sec	<input type="checkbox"/> Enable	0 KBytes/sec

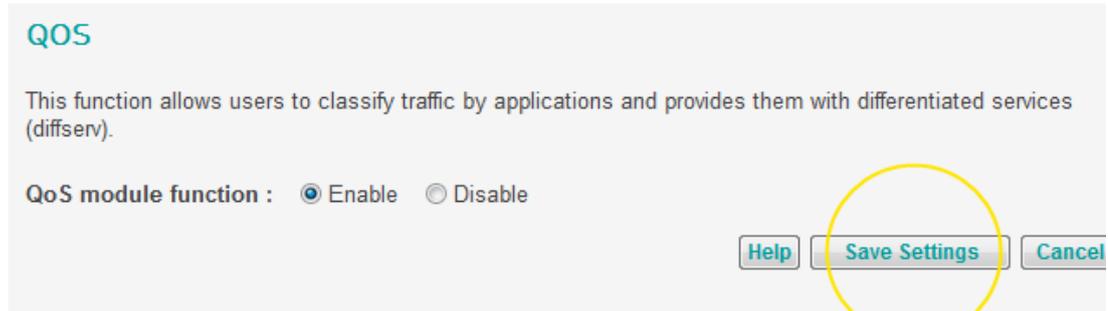
8. Click **Save Settings**:



9. Now we need to enable the Quality of Service function on the router for the Bandwidth Control to be applied. In the left hand navigation bar, click **QoS**:



10. Set the 'QoS module function' option to 'Enable' and click **Save Settings**:



11. Now establish a connection to your SSID2 wireless network, and the Bandwidth Control will be applied and your upload and download speeds will be limited.

**i** To disable the Bandwidth Control, simply navigate back to the **Bandwidth Control** page, and untick the enable option for both upstream and downstream. You can also apply Bandwidth Control to only upstream or downstream traffic on any SSID by ticking the relevant 'enable' option for the SSID.

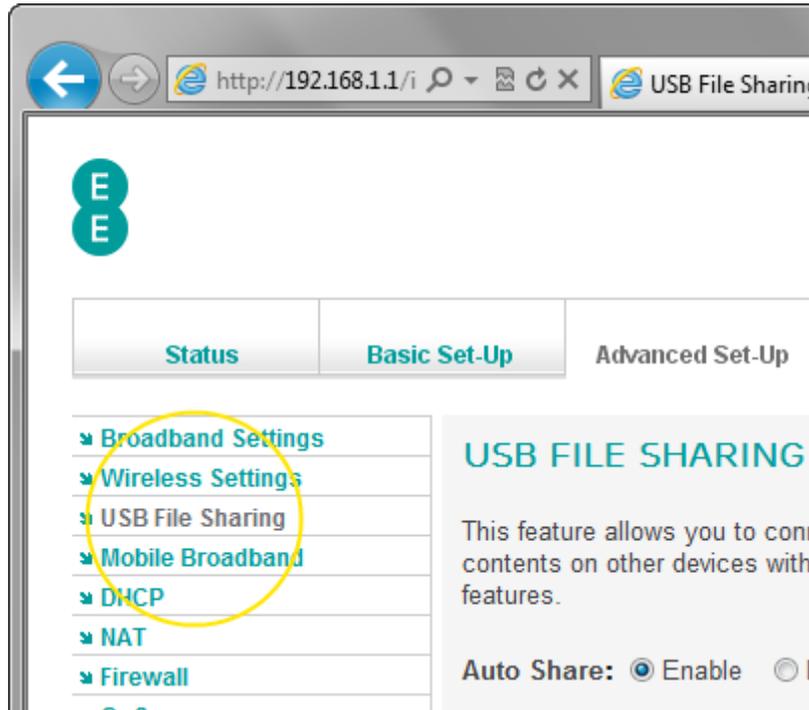
## USB FILE SHARING

The Bright Box router is designed to allow 'plug and play' functionality for USB hard drives connected to the router through the 'Auto Share' feature. The advanced **USB File Sharing** menu gives you extra features such as the ability to add individual user accounts for different levels of read/write access to the attached drive.

**!** If 'Auto Share' is enabled then you should configure your USB settings on the **Basic Set-Up > USB File Sharing** page. The **Advanced Set-Up > USB File Sharing** page should be used to configure the manual sharing option and multiple users.

To access the advanced **USB File Sharing** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **USB File Sharing** in the left hand navigation menu:



### Description of USB File Sharing settings

The table below contains a description of the settings on the **USB File Sharing** page :

Section	Description
Auto Share	This option is used to configure the Auto Sharing feature of USB File Sharing. Auto Sharing enables 'plug and play' of USB drives into the Bright Box. Select 'Enable' to allow auto sharing of USB drives. Select 'Disable' to switch off the automatic sharing of USB drives. You can still share drives with auto sharing disabled by connecting a drive to the router and configuring the sharing manually in the USB device section.
Samba Function	This option is used to enable or disable file sharing of the USB drive via the Samba protocol. Samba is a cross-platform file sharing protocol supported on Windows, Mac OS X and Linux. This option is enabled by default on the Bright Box router. Select 'Enable' to enable file sharing using the Samba protocol. This setting is recommended for all modern operating systems including Microsoft Windows, Mac OS X and Linux. Select 'Disable' to switch off file sharing using the Samba protocol. You will need to connect to the USB drive using an alternative protocol such as FTP or NFS.
Workgroup Name	This field is used to configure the Windows Workgroup that the shared USB drive belongs to. By default the workgroup associated with the USB drive is called 'Workgroup'. This is the standard workgroup name for Windows XP (Professional),



	<p>Windows Vista and Windows 7.</p> <p>If you've changed your workgroup name in Windows, you may need to change the Workgroup Name field to match your Windows workgroup in order to access the USB drive over the network.</p>
User Name	<p>This field displays the user name for each user account for USB File Sharing. You can protect access to a USB drive by requiring people to enter a username and password when they access the drive. You can configure the user account by clicking the <b>Add User</b> link.</p>
File Permissions	<p>This field displays the file permission for each user account for USB File Sharing. You can configure the user account by clicking the <b>Add User</b> link.</p> <p>If the field displays 'Read &amp; Write', the user can both read files from and write files to the USB drive.</p> <p>If the field displays 'Read Only' the user can open files or copy files on your USB drive. Files cannot be deleted, modified to moved to the USB drive.</p>
Configure	<p>If a user account has been created via the <b>Add User</b> link, you can click <b>Edit</b> to change the user account settings or click <b>Delete</b> to remove the user account.</p>
Add User	<p>Click the <b>Add User</b> link to create a new user account. You will be directed to page where you can enter a User Name, Password and set File Permissions for the account.</p>
Volume Name	<p>If a USB drive is connected to the router, this field will display the volume name assigned to the drive.</p>
File System	<p>If a USB drive is connected to the router, this field will display the file system type of the connected drive. FAT16 or FAT32 drives will display a value of 'FAT' while NTFS drives will display a value of 'NTFS'. Note that Apple Mac HFS or HFS+ file systems are not currently supported by the Bright Box router.</p>
Capacity	<p>This field displays the total storage capacity of the connected USB drive in Gigabytes (GB).</p>
Free Space	<p>This field displays the amount of free storage space available on the connected USB drive in Gigabytes (GB).</p>
Configure	<p>Click <b>Share</b> to add the USB to the NAS Shared List. This will display a page that will allow you to configure a Share Name and which user accounts are assigned to a particular shared drive.</p> <p>Click <b>Remove</b> to delete the USB drive from file sharing configuration. Please note that if the drive is still connected to the router, it will appear in the USB device list again when the router is restarted.</p>
Share Name	<p>This field displays the name of the shared drive as it appears in the Network, My Network Places or Finder in your operating system. This value is</p>



	configured when you click <b>Share</b> in the USB device section.
Volume Name	This field displays the volume name of the shared drive.
Available Users	This field displays the user account names associated with the shared drive. You can configure the users by clicking the <b>Add User</b> link. You can add users to the shared drive by clicking the <b>Edit</b> link in the NAS Shared List.
Configure	Click <b>Edit</b> to assign user accounts to the shared drive and display the current shared name. Click <b>Delete</b> to remove the shared drive from the NAS Shared List. If you remove the drive, it will no longer be accessible in your operating system.

### How to add user account access to a USB drive.

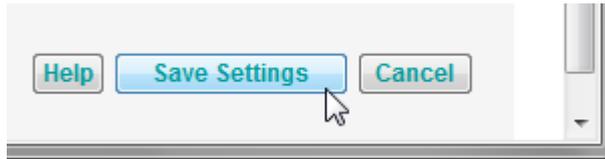
In order to create individual user accounts with different levels of read/write access for a shared USB drive, you must configure the drive sharing manually in the **Advanced Set-Up > USB File Sharing** page. This requires disabling the 'Auto Share' feature on the router.

To add a user account to the shared drive:

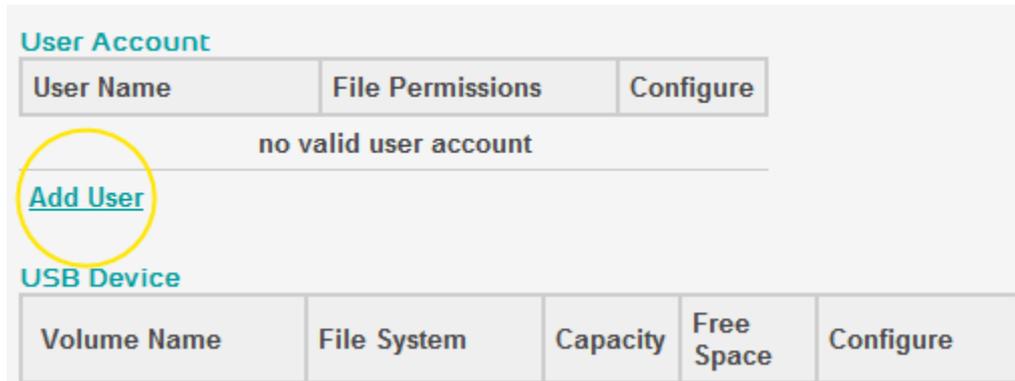
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **USB File Sharing** in the left hand navigation menu
4. On the 'Auto Share' option select 'Disable'
5. Ensure that the 'Samba function' is set to 'Enable'
6. Windows users: Ensure that the 'Workgroup Name' matches the workgroup name on your network (this is usually 'Workgroup'):



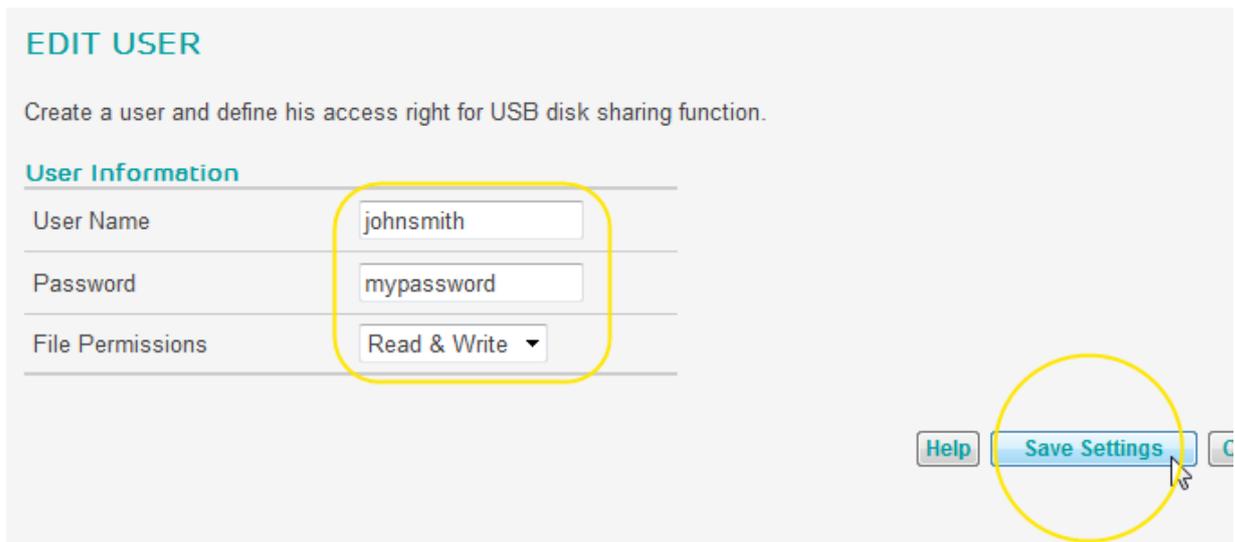
7. Click **Save Settings**:



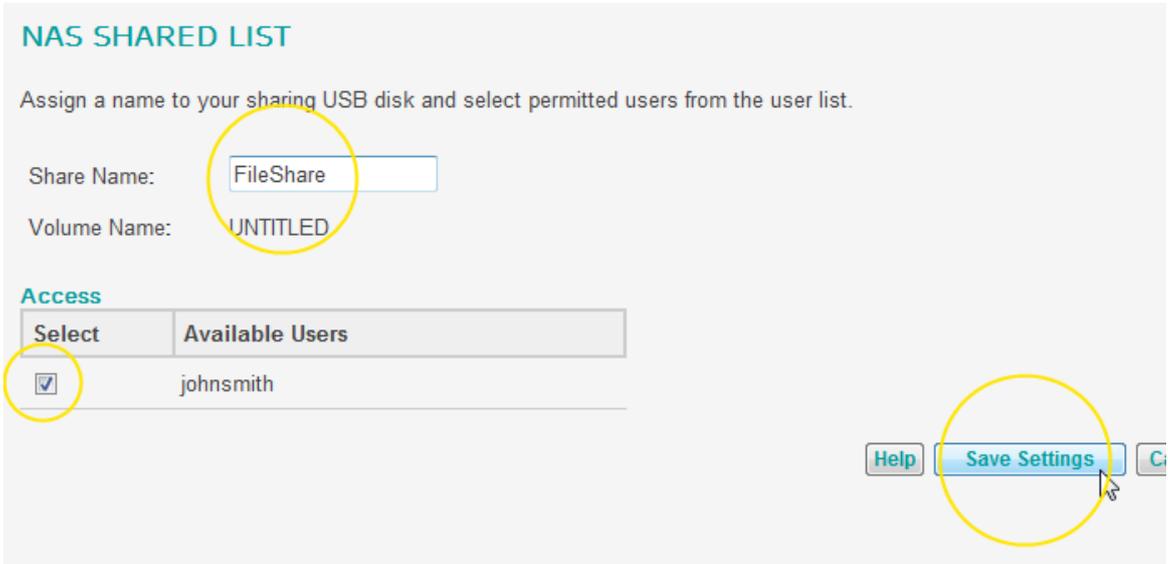
8. In the user account section, click **Add User**:



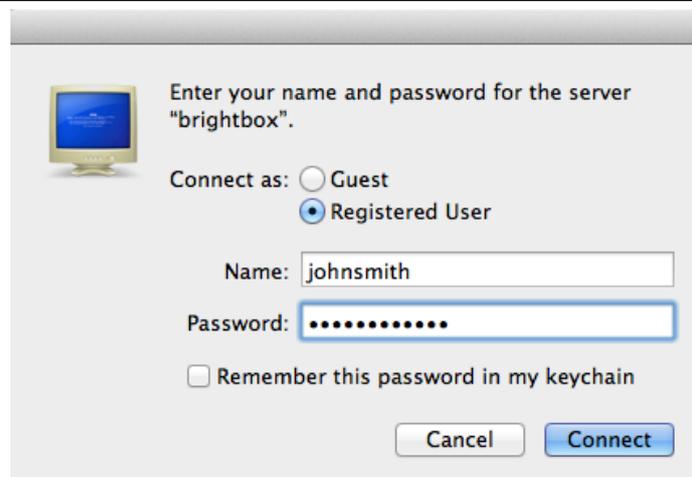
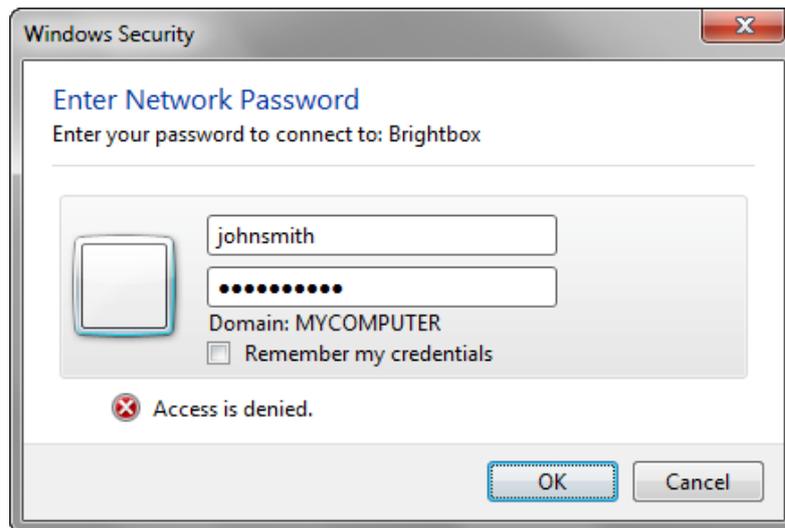
9. On the **Edit User** screen enter a 'User Name', 'Password' and select the 'File Permissions' type you want to assign the user (Read & Write or Read Only) and click **Save Settings**:



10. In the USB device section, click **Share** to display the **NAS Shared list** page
11. Optional: Change the Share Name for the drive (this is the name that appears in the Network on Windows or Mac OS X) if you want to give it a new name. Please ensure that the share name doesn't contain any spaces.
12. Tick the box next to the user account you created in step 9 and click **Save Settings**:



- Now you can access your shared drive on your network by selecting the drive, and entering the user name and password created in step 9 (screenshots below from Windows 7 and Mac OS X 10.7)





## MOBILE BROADBAND

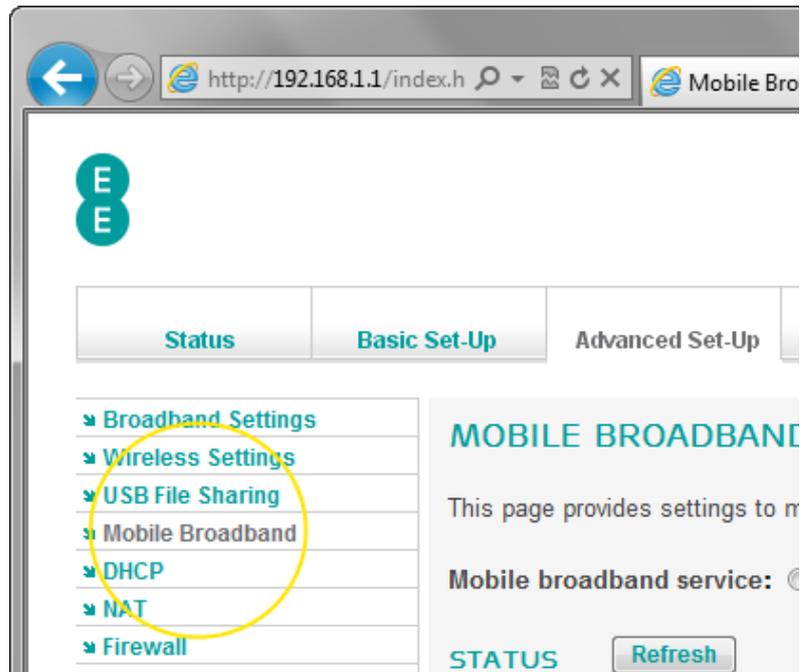
If you have a supported mobile broadband 3G USB dongle, you can connect it to the USB socket on your Bright Box router. This will allow you to share your 3G Internet service over your home network as an alternative to using ADSL broadband.

The EE router can use the following 3G USB dongle models for 3G Internet sharing:

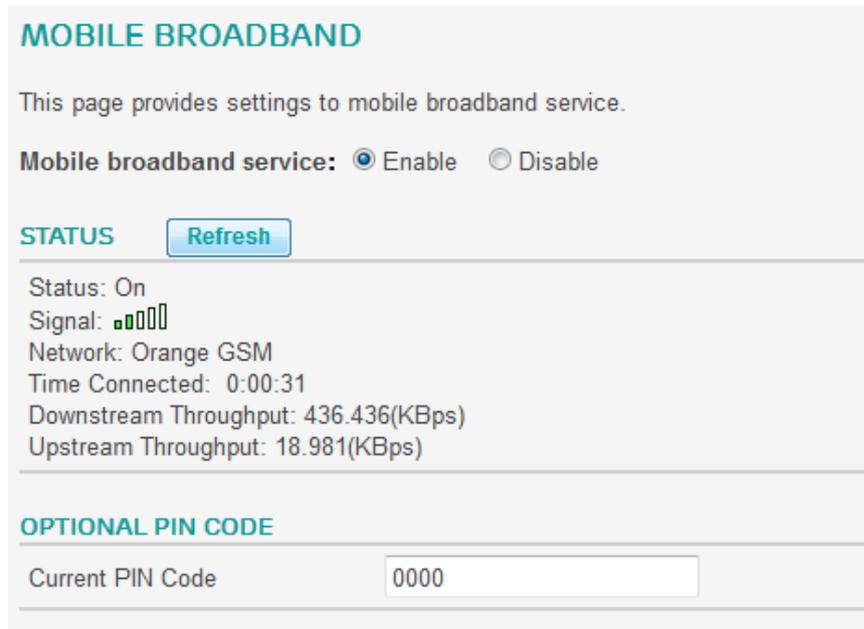
- E173
- E1752
- E1750
- E173

To enable the feature:

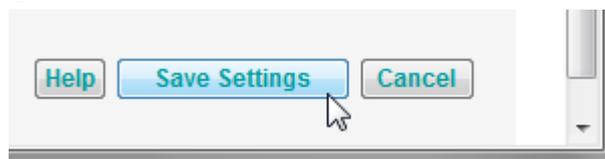
1. Plug the compatible mobile 3G USB dongle into the USB port on the rear of the router.
2. Login to the router's admin pages.
3. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
4. Click on **Mobile Broadband** in the left hand navigation menu:



5. Set the 'Mobile broadband service' option to 'Enable'
6. If your 3G connection requires a PIN code to make a connection to the Internet, enter the correct value in the 'Current PIN Code' field. If your 3G connection doesn't require a PIN code, leave this value as 0000.



7. Click **Save Settings**:



Please note that the Mobile Broadband feature is currently in beta so we regret we're unable to offer further support of the broadband dongle doesn't work.

## DHCP

This page allows you to change the router's DHCP (Dynamic Host Control Protocol) and gateway IP. DHCP is the method that the router uses to automatically assign IP addresses to your connected computers and devices so that they are able to access the local network and the Internet.

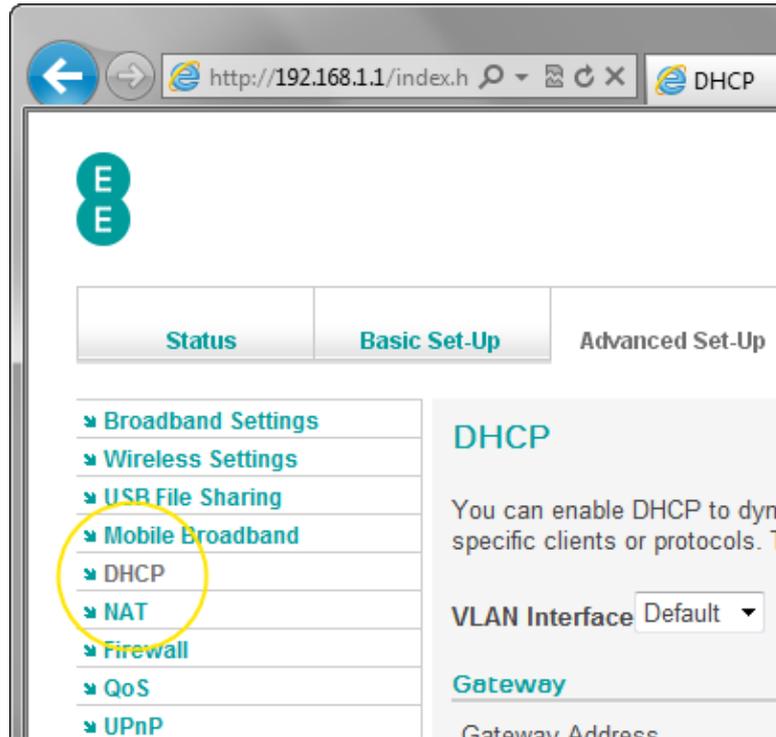
The page also allows you to create and configure DHCP address reservation entries that will assign the same IP address to a computer or device every time it connects to your router.

The page includes DHCP and gateway settings for the other two virtual LAN's (VLAN's) – VLAN2 and VLAN3, which may be useful if you've set up multiple wireless networks names (multiple SSID's) in the **Advanced Set-Up > Wireless Settings > Channel and SSID page**.

If you experience problems connecting to your router after changing settings, you may need to reset your router to factory default settings. To do this, insert a paper clip or pin into the reset hole on the back of the router for 6 seconds, release the button and then wait about 5 minutes for the router to re-connect to the Internet. See *how to restore the router to factory defaults* on page 179 for further information.

To access the advanced DHCP page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **DHCP** in the left hand navigation menu:



**Description of DHCP settings:**

The table below contains a description of the settings on the **DHCP** page:

Section	Description
VLAN Interface	<p>This dropdown allows you to configure which of the Virtual LAN's you are configuring the DHCP settings for. When you access the <b>DHCP</b> page, the 'Default' VLAN settings are visible.</p> <p>Select 'Default' to adjust the DHCP and Gateway settings for the standard virtual LAN. This is the VLAN that devices and computers will connect to using Ethernet or the standard Wireless Settings on the router.</p> <p>Select 'VLAN2' or 'VLAN3' to configure the DHCP and Gateway settings for either of the alternative virtual LAN's. These VLAN's can be used to isolate wireless networks, and are assigned to an SSID in the <b>Advanced Set-Up &gt; Wireless Settings &gt; Channel and SSID</b> admin page.</p>
Gateway Address	<p>This field is used to configure the gateway IP address for the routers local area network. On the default virtual LAN, this IP address is the same as you use to login to the Bright Box admin pages, and is '192.168.1.1' by default.</p> <p>On VLAN2 and VLAN3, the gateway IP address is 192.168.2.1 and 192.168.3.1 respectively, but these values can be altered.</p> <p>When configuring the Gateway IP address, ensure that the IP address does not match one of the other virtual LAN's.</p>



IP Subnet Mask	This field is used to configure the IP Subnet Mask for the router's local area network. By default the subnet mask is 255.255.255.0.
DHCP Server	<p>This option allows to you configure whether the router acts as a Dynamic Host Control Protocol (DHCP) server – handling the IP address of connected devices or computer automatically. This is enabled by default.</p> <p>Select 'Enable' to use the router as a DHCP server. When a computer connects to the router, the router assigns the local area IP addresses automatically.</p> <p>Select 'Disable' to switch off DHCP on the router. All devices connecting to the router must be individually configured with static IP addresses in order to access the network and Internet.</p>
Lease Time	<p>This dropdown allows you to configure the amount of time an IP address is allocated to a connected device using DHCP. By default, the IP address is allocated for two days, after which time the IP address will be automatically renewed by the router.</p> <p>You can select lease times from Ten Minutes to Two Weeks, or select the 'Forever' option, meaning that the IP address for a connected device will never automatically be re-assigned by the router.</p>
Start IP	This field is used to configure the starting range of IP addresses allocated to connected devices via DHCP. The default starting range is '2' (i.e. 192.168.1.2 for the default VLAN).
End IP	This field is used to configure the end range of IP addresses allocated to connected devices via DHCP. The default end range is '254' (i.e. 192.168.1.254 for the default VLAN).
Domain Name	This field is used to configure the domain name of your local network (if required) for DHCP. This value is 'default', and should not need to be changed for most operating systems.
Add Reserved IP	Click this link to reserve an IP address for a computer or device. Once an IP address has been reserved for that device, every time the device connects to your router, it will be assigned the same IP address.

### How to reserve an IP address for a computer or a device

You may wish to ensure that when a device or computer connects to your router, it is given the same IP address each time. This is useful if you are setting up port forwarding, access control rules or a DMZ for a particular device. For example if you want to set up a computer as a web server and require port forwarding rules to allow this, you will need to ensure that computer has the same IP address every time it connects to your router.

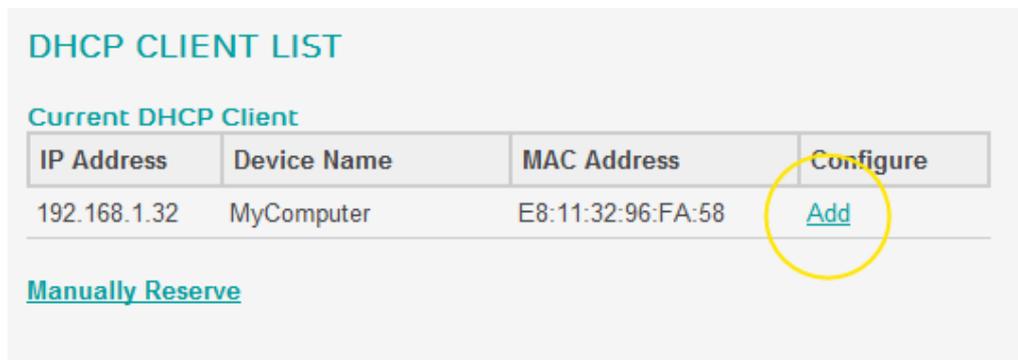
You can reserve addresses for up to 32 devices.

To reserve an IP address for a computer or device:

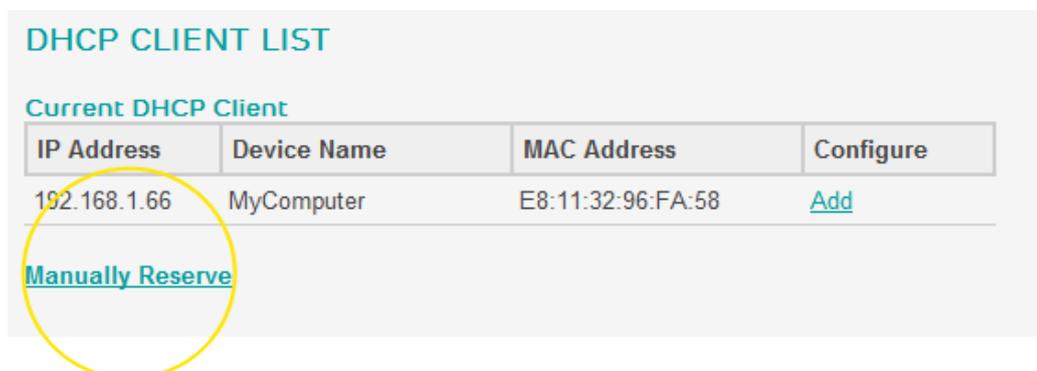
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **DHCP** in the left hand navigation menu.
4. Click on the **Add Reserved IP** link in the address reservation section:



5. If the computer/device is already connected to the Bright Box, on the **DHCP client list** page, select the computer or device you wish to permanently assign the IP address to and click the **Add** link. You can identify the computer or device by the device name, or if no device name is available, by the MAC address of the device. In this example we are going to reserve the IP address for 'MyComputer':



6. If the computer/device is not currently connected to the Bright Box, click the **Manually Reserve** link:



7. On the **Edit Reserved DHCP** page the current IP address of the device will be displayed (or 192.168.1.100 if you chose **Manually Reserve**). If you want to change the reserved IP address, enter any number between 2 and 254. Please note that you cannot reserve a number that has already been assigned to another device.
8. If you chose the **Manually Reserve** option, enter the MAC Address of the device you want to reserve and a **Device Name** (an easy to remember reference for the device)



- In this example we will reserve the IP address 192.168.1.10 for a device with a MAC Address of E8:B2:C3:D4:E5:F6 called 'My Laptop'.
- Click **Save Settings**:

**EDIT RESERVED DHCP**

IP Address: 192 . 168 . 1 . 10

MAC Address: E8 : B2 : C3 : D4 : E5 : F6

Device Name: My Laptop

[Help](#) [Save Settings](#) [Cancel](#)

- Now connect your device to the Bright Box. If your device is already connected to the Bright Box, and you changed the IP Address in Step 7 you will need to restart your device to apply the changes. Next time your computer is connected to the router it will automatically be assigned the IP address you have reserved.
- If you wish at any stage to change the IP address of, or remove the address reservation for the device, navigate back to the **DHCP** page and select the **Edit** or **Delete** links next to the address reservation entry:

**Address Reservation**

IP Address	Device Name	MAC Address	Configure
192.168.1.10	MyComputer	E8:11:32:96:FA:58	<a href="#">Edit</a> <a href="#">Delete</a>

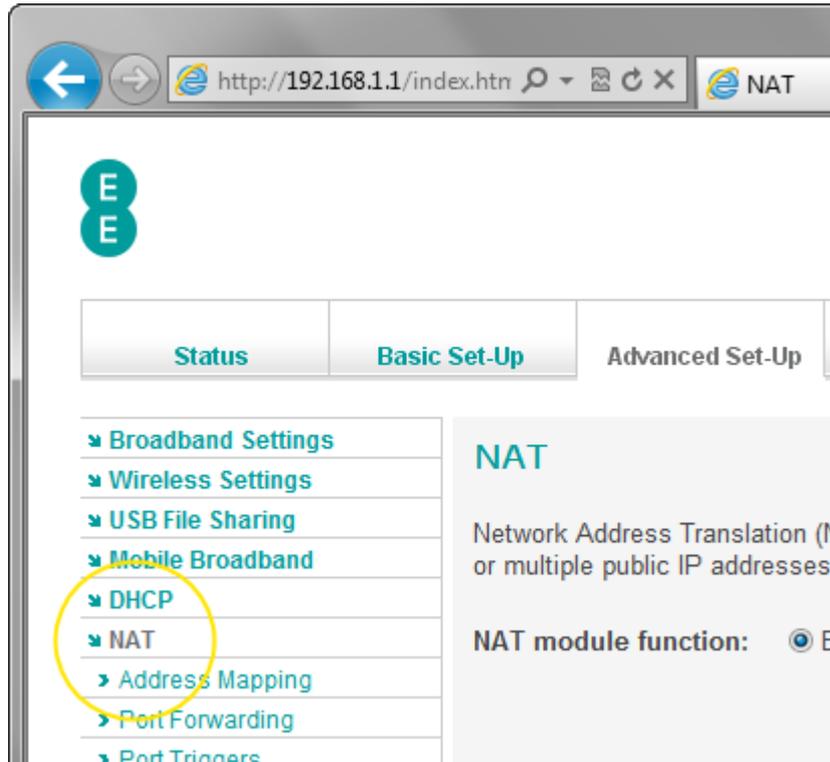
## NAT

Network Address Translation (NAT) is the mechanism that allows your router to route incoming Internet traffic to the correct devices on your local network using a single public IP address. NAT is enabled on the Bright Box router by default.

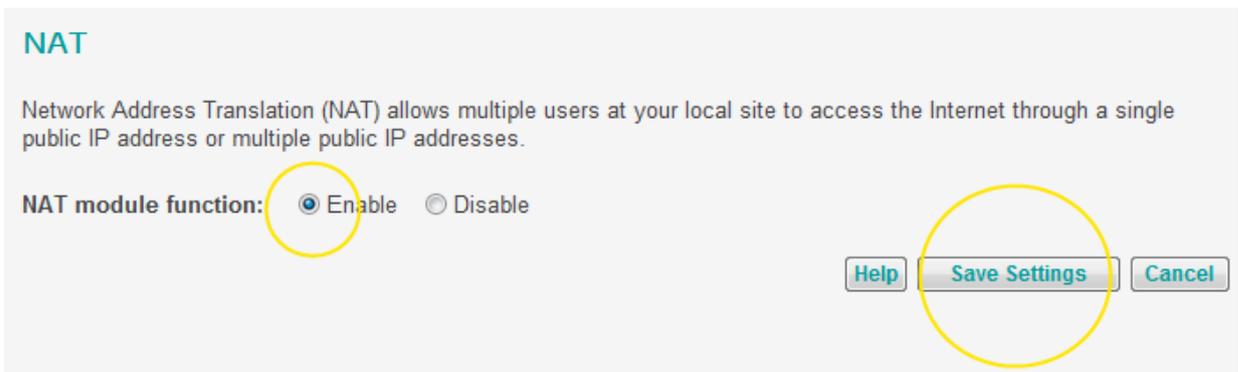
The **NAT** page in the router allows you to enable or disable the overall NAT setting for the router. You can also configure various NAT features such as address mapping, port forwarding, port triggers and view the NAT mapping table by clicking on the **NAT** item in the left hand navigation menu.

You can configure the NAT module as follows:

- Login to the router's admin pages.
- Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
- Click on **NAT** in the left hand navigation menu:



4. You can enable or disable the NAT module on the Bright Box router by selecting the option you want on the **NAT** page (in this example, we are selecting 'Enable') and pressing **Save Settings**:



**!** Please note that disabling NAT on the router may prevent you from accessing Internet services through your connected devices or computers, and is not recommended.

## ADDRESS MAPPING

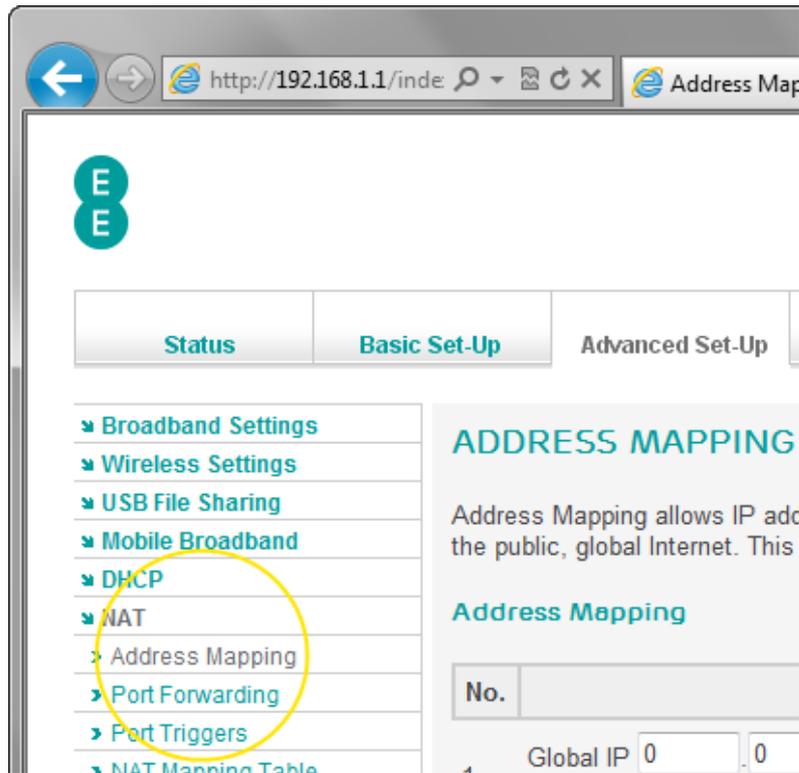
Address Mapping is a special feature that allows you to assign IP addresses in your local network to one or more addresses in a public network like the Internet. This feature is useful if you have multiple static global/WAN IP addresses and wish to divide local networks into different groups.

**!** This feature is not currently supported for EE Broadband users.

To access the Address Mapping page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **NAT** in the left hand navigation menu to expand the NAT menu items

4. Click on **Address Mapping** in the left hand navigation menu:



### Description of Address Mapping settings

The table below contains a description of the settings on the **Address Mapping** page :

Section	Description
Number	This field is the index for the address mapping entry. You can configure up to 10 address mapping entries.
Global IP	Use this field to configure the global (WAN/Internet) IP address you wish to share for the address mapping entry.
Virtual IP range	Use this field to configure the range of local LAN IP addresses that will share the global IP address.

## PORT FORWARDING

Port Forwarding can be used to ensure that certain types of data are sent to a specific computer, device or server connected to your home network. This may be required if you're having problems using a particular online game, or maybe if you're an advanced user running a web server from your home network.

For security purposes the router will normally block incoming traffic that is not a direct response to a request from a computer on your local network. The Port Forwarding feature will allow you to create special exception rules that allow incoming Internet traffic of certain types (designated by Port Numbers) to be forwarded to a particular computer on your network without being blocked by the router.

Before setting up a Port Forwarding rule, it is a good idea to reserve an IP address for the device you wish to set up the rule for. You can do this in the **Advanced Set-Up > DHCP**



admin page, under the address reservation section. See *how to reserve an IP address* on page 124 for further information.

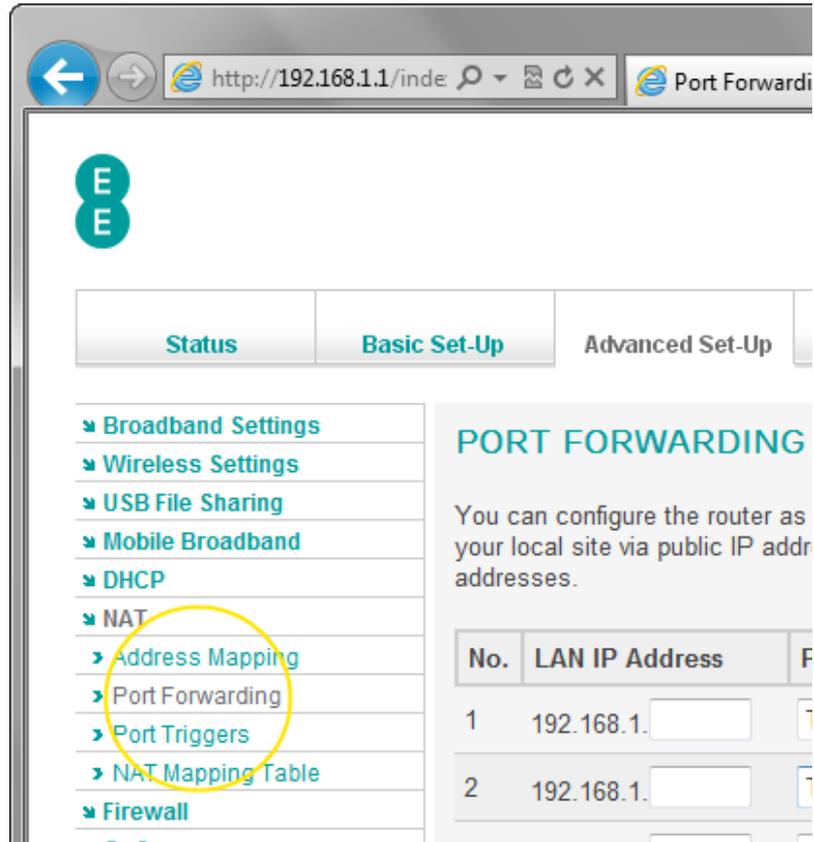
Please refer to the manual or support service of the particular application or game for information on which ports you should be forwarding. The following table contains a list of common port forwarding ports.

Application	Protocol	Port Number
Telnet	TCP	23
FTP	TCP	21
SMTP	TCP	25
POP3	TCP	110
H.323	TCP	1720
SNMP	UDP	161
SNMP Trap	UDP	162
HTTP (Web)	TCP	80
PPTP	TCP	1723

A list of port numbers can also be found at [http://www.iana.org/ assignments/port-numbers](http://www.iana.org/assignments/port-numbers).

To access the **Port Forwarding** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **NAT** in the left hand navigation menu to expand the NAT menu items
4. Click on **Port Forwarding** in the left hand navigation menu:



### Description of Port Forwarding settings

The table below contains a description of the settings on the **Port Forwarding** page:

Section	Description
Number	This field is the index for the port forwarding entry. You can configure up to 20 port forwarding rules on the router.
LAN IP address	This field is used to configure the LAN IP of the device on your local network you wish to forward the particular traffic type to.  It is recommended that you reserve an IP address on the <b>DHCP</b> admin page for a particular device, as the port forwarding rule will not work if the LAN IP address configured in this page doesn't match that of the device.
Protocol Type	This dropdown is used to configure the traffic protocol type that will be forwarded to your local device.  Select 'TCP' for Transmission Control Protocol traffic forwarding.  Select 'UDP' for User Datagram Protocol traffic forwarding.  Select 'TCP&UDP' to allow forwarding of both traffic types. Select this option if you are unsure which type to use.
LAN Port	This field is used to configure the internal port that traffic will be forwarded to on the LAN IP address for



	<p>the port forwarding rule. For example, if you are running an FTP server on your local network, you will need to forward traffic to Port 21.</p> <p>Please refer to the manual supplied with your particular software to determine which LAN port you should be forwarding to.</p>
Public Port	<p>This field is used to configure the external/public port that incoming traffic from the Internet will be requesting to use.</p> <p>In most cases, the public port is the same as the LAN port.</p>
Enable	<p>This option is used to configure whether Port Forwarding has been activated for the particular Port Forwarding entry.</p> <p>Tick this box to enable the port forward rule for the entry, or untick the box to disable the port forward rule.</p>
Clean	<p>Click this button to remove the particular port forwarding entry. All of the settings configured for the entry will be deleted.</p>

## How to set up a port forwarding entry

In order to set up a port forwarding entry on the Bright Box router, follow these steps:

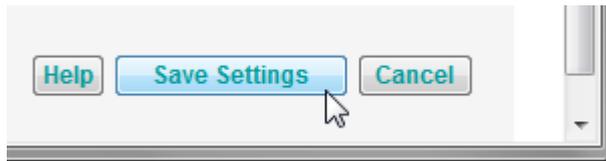
1. Reserve an IP address for the computer you wish to set up port forwarding on. You can do this in the **Advanced Set-Up > DHCP** admin page. See *how to reserve an IP address* on page 124 for further information.
2. Login to the router's admin pages.
3. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
4. Click on **NAT** in the left hand navigation menu to expand the NAT menu items
5. Click on **Port Forwarding** in the left hand navigation menu.
6. Enter the IP address of the computer that you reserved an address for - in the example below this was 192.168.1.17.
7. Select the 'protocol type' i.e. 'TCP', 'UDP' or 'TCP&UDP' – in the example below we are using 'TCP'
8. Enter the 'LAN Port' - in the example below we're opening port 21 for FTP.
9. Enter the 'Public Port' - in the example below we're opening port 21 for FTP
10. Tick the 'Enable' option.

**PORT FORWARDING**

You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses.

No.	LAN IP Address	Protocol Type	LAN Port	Public Port	Enable	
1	192.168.1.17	TCP	21	21	<input checked="" type="checkbox"/>	<a href="#">Clean</a>
2	192.168.1.	TCP			<input type="checkbox"/>	<a href="#">Clean</a>

11. Click **Save Settings**:



12. The settings will be applied and the Port Forwarding entry will now be enabled on your connected LAN device.

## PORT TRIGGERS

Port triggering is similar feature to port forwarding, although it offers a dynamic opening of specific ports for any computer on your network (whereas port forwarding is specific to a specific device connected to your network).

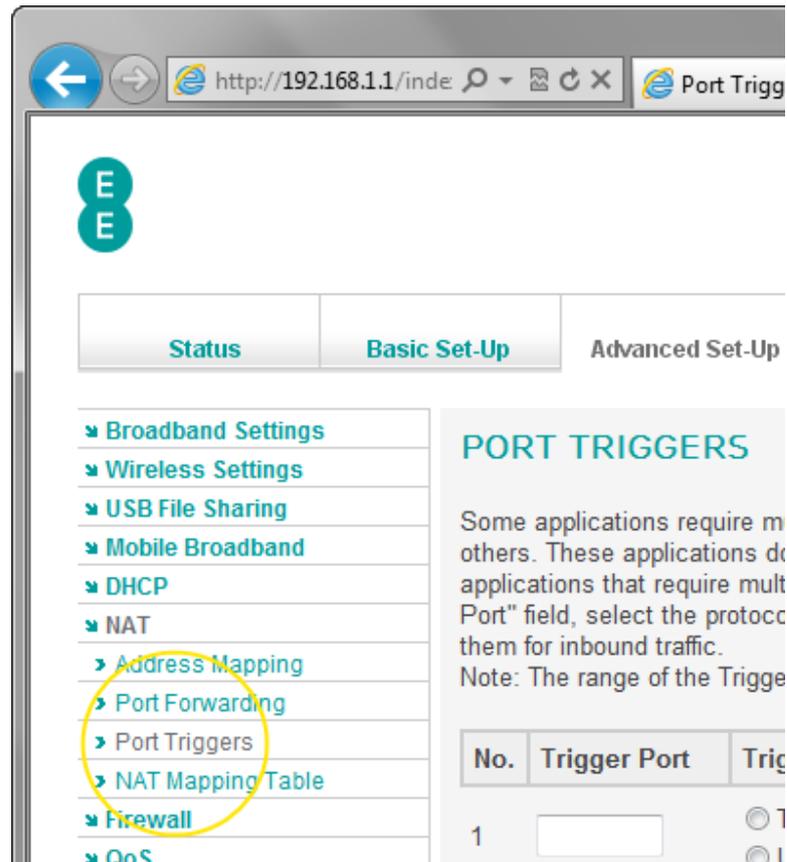
This feature is useful when multiple computers on your network need to port forward the same port at different times, or when the incoming port is different to the outgoing port.

Some applications require multiple connections such as multiplayer gaming, video conferencing and voice over IP phones. These application will use an outgoing 'trigger port', which can then temporarily open up a range of public ports to allow incoming traffic to reach the application correctly. When the ports are no longer used they will be automatically closed by the router.

To configure port triggering, you will need to know which incoming ports an application needs to use and also the outgoing 'trigger port' that is used by the application to trigger the opening of those incoming ports. Refer to the application manufacturers support documentation for information on the correct ports to use.

To access the **Port Triggers** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **NAT** in the left hand navigation menu to expand the NAT menu items
4. Click on **Port Triggers** in the left hand navigation menu:



### Description of Port Trigger settings

The table below contains a description of the settings on the **Port Triggers** page :

Section	Description
Number	This field is the index for the port trigger entry. You can configure up to 10 port triggering rules on the router.
Trigger Port	This field is used to configure the trigger port that an application uses to open the incoming public ports. Please refer to the instructions supplied with your software to determine which trigger port you should be using.
Trigger Type	This dropdown is used to configure the traffic type on the trigger port. Select 'TCP' for Transmission Control Protocol traffic triggering Select 'UDP' for User Datagram Protocol traffic triggering. Please refer to the instructions supplied with your software to determine which trigger traffic type you should be using.
Public Port	This field is used to configure the public incoming ports that are opened when the trigger port is activated by your software. You can enter a single public port, multiple ports



	<p>separated by a comma (,) or a range of ports using a dash (-).</p> <p>Please refer to the instructions supplied with your software to determine which public ports you should be using.</p>
Public Type	<p>This dropdown is used to configure the traffic type on the incoming public ports.</p> <p>Select 'TCP' for Transmission Control Protocol traffic triggering</p> <p>Select 'UDP' for User Datagram Protocol traffic triggering.</p> <p>Please refer to the instructions supplied with your software to determine which incoming public traffic type you should be using.</p>
Enable	<p>This option is used to configure whether a port triggering is activated for the particular Port Forwarding entry.</p> <p>Tick this box to enable the port trigger rule for the entry, or untick the box to disable the port trigger rule.</p>
Popular applications	<p>This dropdown can be used to select from a number of applications for port triggering, allowing you to copy those application settings into a port trigger entry.</p> <p>Applications include Battle.net, Dialpad, ICU II, MSN Gaming Zone, PC-to-Phone, Quick Time 4</p>
Copy To	<p>This button is used in conjunction with the dropdown to select which row of a port trigger entry in the table above you want to copy the Popular Application settings to. Click <b>Save Settings</b> to apply.</p>

## How to set up a port trigger rule

In order to set up a port triggers entry on the Bright Box router, follow these steps:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **NAT** in the left hand navigation menu to expand the NAT menu items
4. Click on **Port Triggers** in the left hand navigation menu.
5. In the 'trigger port' field enter the outgoing 'trigger' port associated with the application. In this example we are using port 28800 for MSN Gaming Zone
6. In the 'trigger type' select either TCP or UDP for the traffic type of the trigger port. In this example we are using UDP for MSN Gaming Zone.
7. In the 'public port' set the range of incoming public ports that will be opened when the trigger port is activated. You can enter a single public port, multiple ports separated by a comma (,) or a range of ports using a dash (-). In this example we are using ports 6667,2300-2400,47624,28800,29000 for MSN Gaming Zone.
8. In the 'public type' select either TCP or UDP for the traffic type of the incoming ports. In this example we are using TCP for MSN Gaming Zone.



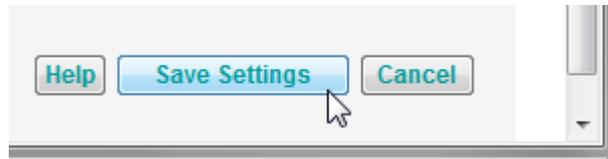
9. Tick the 'enable' box to enable the port triggering entry:

**PORT TRIGGERS**

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications don't always work when Network Address Translation (NAT) is enabled. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the public ports associated with the trigger port to open them for inbound traffic.  
Note: The range of the Trigger Ports is from 1 to 65535.

No.	Trigger Port	Trigger Type	Public Port	Public Type	Enable
1	<input type="text" value="28800"/>	<input type="radio"/> TCP <input checked="" type="radio"/> UDP	<input type="text" value="6667,2300-2400,47624,28800-29000"/>	<input checked="" type="radio"/> TCP <input type="radio"/> UDP	<input checked="" type="checkbox"/>
2	<input type="text"/>	<input type="radio"/> TCP <input type="radio"/> UDP	<input type="text"/>	<input type="radio"/> TCP <input checked="" type="radio"/> UDP	<input type="checkbox"/>

10. Click **Save Settings**:



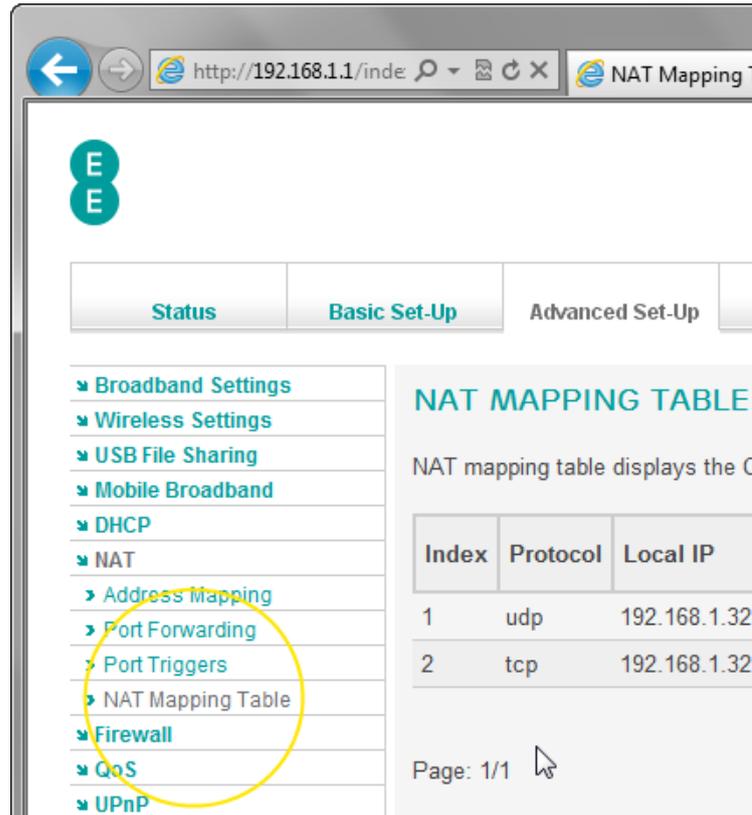
11. The settings will be applied and the port trigger entry will now be enabled for your application on all devices on your network.

## NAT MAPPING TABLE

The NAT mapping table page contains a list of port forwarding entries for the current router session. These port forwarding entries could reflect those created manually in the Port Forwarding page, or those automatically established by the UPnP (Universal Plug and Play) feature of the router.

To access the NAT Mapping Table page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **NAT** in the left hand navigation menu to expand the NAT menu items
4. Click on **NAT mapping table** in the left hand navigation menu:



You can refresh the NAT mapping table by clicking the **refresh** button at the bottom of the page

The table below contains a description of the fields on the **NAT mapping** page :

Section	Description
Index	This field is the index for the NAT port mapping entry.
Protocol	This field is the traffic type for the NAT mapping entry. This will either be 'TCP' for Transmission Control Protocol entries or 'UDP' for User Datagram Protocol entries.
Local IP	This field is the IP address for the device on your local network which is associated with the NAT mapping entry.
Local port	This field is the port for the device on your local network which is associated with the NAT mapping entry.
Pseudo IP	This field is the translated IP address for the NAT mapping entry. This address is usually the WAN IP address assigned to you Internet connection by your ISP
Pseudo Port	This field is the translated port for the NAT mapping entry and will usually match the local port number.
Peer IP	This field is the IP address of the remote/originating NAT mapping source on the Internet/WAN.
Peer Port	This field is the port of the remote/originating NAT

	mapping source on the Internet/WAN.
--	-------------------------------------

## FIREWALL

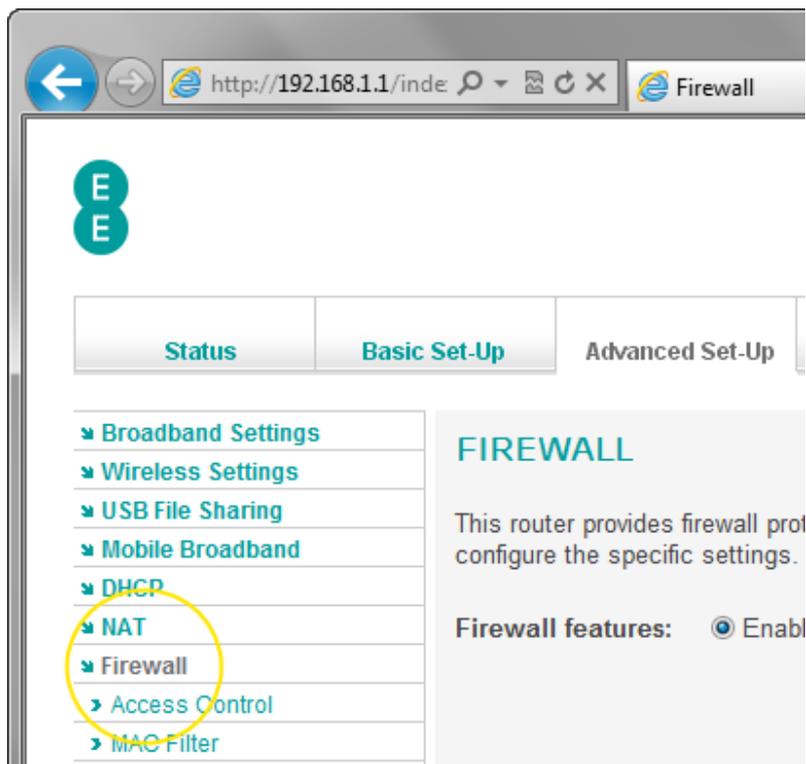
The Bright Box router contains an internal firewall that is designed to protect your router and local network from unwanted external intrusion. The firewall includes stateful packet inspection (SPI) technology that analyses different traffic types and only allows those through that are initiated from a device or computer on your own network.

The router firewall also includes a number of configurable features such as access control (allowing you to block certain traffic types), MAC filter (allowing only certain devices to access the network), URL Blocking, access control Schedule Rules, Intrusion Detection and a DMZ (De-militarized zone).

The firewall is enabled by default on the Bright Box router.

To access the firewall settings:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu:



You can enable or disable the NAT module on the Bright Box router by selecting the option you want on the **Firewall** page and pressing **Save Settings**:

## FIREWALL

This router provides firewall protection. For applications that require unrestricted access to the internet you can configure the specific settings.

Firewall features:  Enable  Disable

Help

Save Settings

Cancel



Please note that disabling the firewall on the router is not recommended except in exceptional circumstances (such as for testing purposes). Disabling the firewall may open up the router and local network to unwanted intrusion from the Internet.

## ACCESS CONTROL

The access control feature of the router's firewall allows you to block certain types of Internet traffic to devices or computers on your network. For example you may wish to block all POP3 and SMTP email traffic on a particular computer.

The access control setting allows you to block traffic for individual computer IP addresses, or for a range of IP addresses on your network. You can select from a number of pre-defined traffic types (based on port numbers), or define your own application port or a whole range of ports to block.

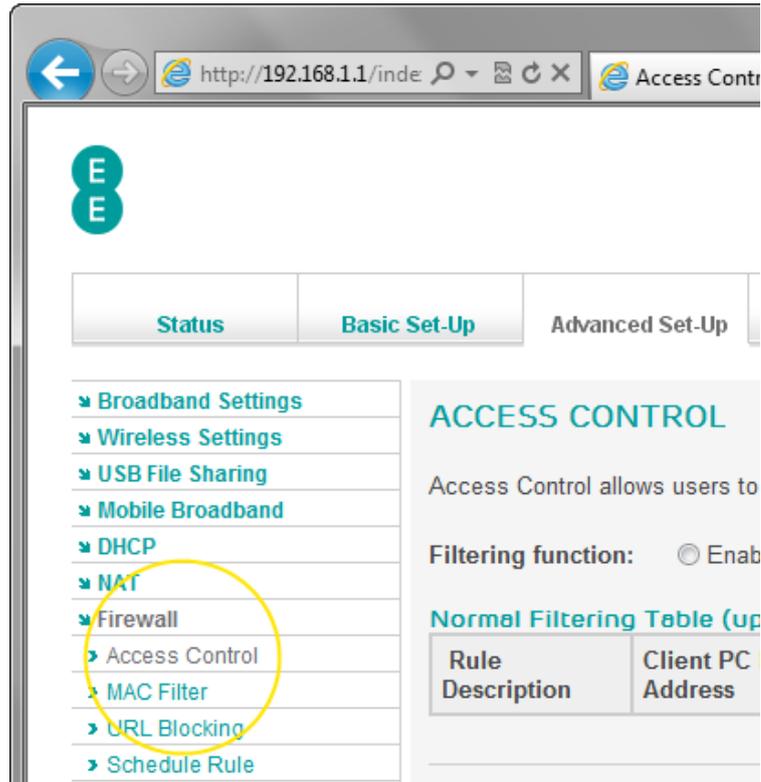
If you have defined a schedule rule on the **Advanced Set-Up > Firewall > Schedule Rule** page, you can also apply that to the access control rule, allowing you to block traffic only at certain days or times of the day.

Before setting up an access control rule, it is a good idea to reserve an IP address for the device you wish to set up the rule for. You can do this in the **Advanced Set-Up > DHCP** admin page, under the address reservation section. See *how to reserve an IP address* on page 124 for further information.

You can create access control rules for up to 10 devices.

No access control rules are enabled by default; however you can create rules by navigating to the **Access Control** page as follows:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **Access Control** in the left hand navigation menu:



**Description of settings on the Access Control page**

The table below contains a description of the settings on the **Port Triggers** page :

Section	Description
Filtering function	This option is used to configure whether the access control setting is enabled or disabled on the router. Select 'Enable' to switch on access control rule blocking on the router. You will still need to create a device filtering rule in order for blocking to work. Select 'Disable' to switch off access control rule blocking on the router. If any device filtering rules have been created they will still appear in the filter rule table, but will not be active.
Rule Description	The field is the name that you have given to the device filtering rule when you create the rule by clicking the <b>Add Device Filtering Rule</b> link.
Client PC IP Address	This field displays the IP address or range of IP addresses of the device or computer on your local network that you have applied the device filtering rule to. You enter the address or address range by clicking the <b>Add Device Filtering Rule</b> link.
Client Service	This field displays the name of the types of traffic blocking rules applied to the devices or computers on your local network. You select the service(s) for the rule by clicking on the <b>Add Device Filtering Rule</b> link. Possible client service names include 'http', 'urlblock', 'smtp', 'nntp', 'pop3', 'https', 'ftp', 'telnet',



	'h323','dns','snmp','pptp','l2tp','tcp','udp' or 'user' (for a user defined rule).
Schedule Rule	<p>This field display the type of schedule rule applied to the device filtering rule. The schedule rule defines the day and time a blocking rule is applied</p> <p>A schedule rule can be created on the <b>Advanced Set-Up &gt; Firewall &gt; Schedule Rule</b> page. The rule is applied on by clicking the <b>Add Device Filtering Rule</b> link.</p> <p>By default this value will be 'Always Blocking', meaning that the traffic type is always blocked, and no schedule rule has been applied.</p>
Configure	<p>If a device filtering rule has been created, then you can edit the rule by clicking the <b>Edit</b> link. This will display the <b>Edit Device Filtering Rule</b> page.</p> <p>You can delete a device rule by clicking the <b>Delete</b> link. Deleting a rule will mean that the blocking for the rule will no longer occur.</p>
Add Device Filtering Rule	<p>Click this link to create a new device filtering rule for access control. This will display the <b>edit device filtering rule</b> page where you can define the rule description, client IP address range and client device service (the traffic types that are blocked).</p>

## How to create an Access Control rule

You may wish to create an access control rule to block specific types of Internet traffic on devices or computers on your network.

The following example will show you how to create an access control rule to block FTP and Email sending/receiving on a connected computer.

To create an access control rule:

1. Reserve an IP address for the computer you wish to set up the access control rule on. You can do this in the **Advanced Set-Up > DHCP** admin page. See *how to reserve an IP address* on page 124 for further information.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **Access Control** in the left hand navigation menu.
5. Select the 'Enable' option on the **Access Control** page and click **Save Settings**:

## ACCESS CONTROL

Access Control allows users to define the traffic type permitted or not-permitted to WAN port service.

Filtering function:  Enable  Disable

### Normal Filtering Table (up to 10 devices)

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
------------------	----------------------	----------------	---------------	-----------

no filtering rules specified

[Add Device Filtering Rule](#)

[Help](#) [Save Settings](#) [Cancel](#)

- Click the **Add Device Filtering Rule** link:

### Normal Filtering Table (up to 10 devices)

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
------------------	----------------------	----------------	---------------	-----------

no filtering rules specified

[Add Device Filtering Rule](#)

- On the **Edit Device Filtering Rule** page, enter a rule description – in this example we will enter 'FTP and Email'
- Enter the IP address or range of addresses of the computer or device on your network you wish to block traffic on. You can block access on all computers by entering '192.168.1.2 ~ 192.168.1.254' – In this example we will block traffic on the computer 192.168.1.10 only by entering a range of '192.168.1.10 ~ 10'
- Tick the 'blocking' box for the client device services you wish to block. These are the traffic types (and port numbers) that will be blocked by the access control – in this example we will select 'File Transfer' for FTP and 'E-mail Sending' and 'E-mail Receiving' for Email.



## EDIT DEVICE FILTERING RULE

This page allows users to define service limitations of client devices, including IP address, service type and scheduling rule criteria. For the URL blocking function, you need to configure the URL address first on the "URL Blocking Site" page. For the scheduling function, you also need to configure the schedule rule first on the "Schedule Rule" page.

Rule Description:

Client Device IP Address:  ~

### Client Device Service:

Service Name	Detail Description	Blocking
WWW	HTTP, TCP Port 80, 3128, 8000, 8001, 8080	<input type="checkbox"/>
WWW with URL Blocking	HTTP (Ref. URL Blocking Site Page)	<input type="checkbox"/>
E-mail Sending	SMTP, TCP Port 25	<input checked="" type="checkbox"/>
News Forums	NNTP, TCP Port 119	<input type="checkbox"/>
E-mail Receiving	POP3, TCP Port 110	<input checked="" type="checkbox"/>
Secure HTTP	HTTPS, TCP Port 443	<input type="checkbox"/>
File Transfer	FTP, TCP Port 21	<input checked="" type="checkbox"/>
Telnet Service	TCP Port 23	<input type="checkbox"/>

10. Do not change the 'Schedule Rule' option, leave it as 'Always Blocking' and click **Save Settings**:

Scheduling Rule (Ref. Schedule Rule Page):

11. The access control rule has now been created and enabled and appears in the filtering table.

## ACCESS CONTROL

Access Control allows users to define the traffic type permitted or not-permitted to WAN port service.

Filtering function:  Enable  Disable

### Normal Filtering Table (up to 10 devices)

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
FTP and Email	192.168.1.10	smtp,pop3,ftp	Always Blocking	<a href="#">Edit</a> ; <a href="#">Delete</a>

12. You can delete the access control filtering rule at any time by clicking the **delete** link next to the rule in the table. You can also change the rule description, client IP address range or client device services by clicking the **edit** link.

**i** If you want to block a particular application that is not listed in the 'client device service' list, you can do this in the 'user define service' section on the **Edit Device Filtering Rule** page. You can configure up to 5 different ranges of ports to be blocked for either TCP or UDP traffic. Please refer to your software instructions or user manual for information on the ports that are used and need to be blocked. In the example below we have blocked port ranges 200-213 and port 1500 for TCP traffic:



**User Define Service**

Protocol:  TCP  UDP

Port Range: 200 ~ 213, 1500 ~ 1500, 0 ~ 0, 0 ~ 0, 0 ~ 0

## MAC FILTER

MAC Filtering is a firewall feature that allows you to control which devices are allowed to access your network and use your Internet connection.

You can define up to 32 separate devices in the MAC filtering table on the router – access is configured by entering the MAC address of the computer or device into the table or you can select from a list of devices already connected to your router.

Once a device or number of devices has been added to the table, only those devices can connect to the router and establish a connection through to the Internet when the MAC Address Control setting has been enabled. Any device not on the MAC filter list will be unable to connect to the router.

There are no default MAC filter rules created in the router.

To access the MAC filter page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **MAC filter** in the left hand navigation menu:

MAC FILTER

The MAC filter when enabled w feature can support up to 32 de

MAC Address Control:

MAC Filtering Table (up to 32 lines)

Line	MAC Address
1	



## Description of MAC Filter settings

The table below contains a description of the settings on the **MAC Filter** page :

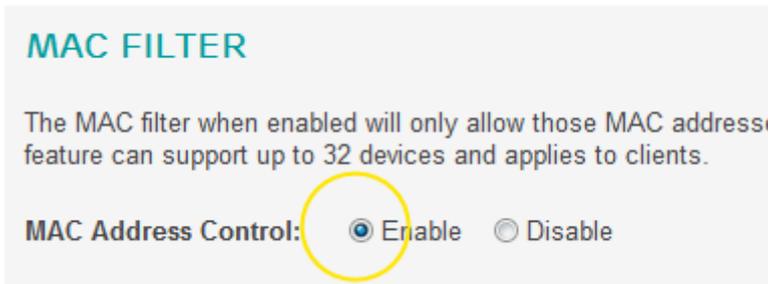
Section	Description
MAC Address Control	<p>This setting allows you to specify whether the MAC Address Control filter has been switched on or off.</p> <p>Select 'Enable' to switch on MAC address control filtering. You must also create at least one entry in the MAC Filtering table for you to be able to enable this setting. When enabled, only those MAC addresses listed in the filtering table can connect to the router.</p> <p>Select 'Disable' to switch off MAC address control filtering. Entries may remain in the MAC Filtering table, but will not be applied, and any device can connect to the router.</p>
Line	<p>This value is the index for the MAC Filtering table entry.</p>
MAC address	<p>This field is used to manually enter the MAC Address of the devices that are allowed to connect to the router. You can configure up to 32 different device MAC Addresses.</p> <p>The MAC address is a 12-character hexadecimal code (character 0-9, A-F), and may be found on a sticker on the body of the device you wish to connect to the router. If the device is already connected to the router, you can select the MAC address from the 'DHCP Client List' dropdown.</p>
DHCP Client List	<p>This dropdown allows you to select the MAC address of a device that is already connected to the router and add it to the MAC Filtering table by using the <b>Copy To</b> button (after selecting an index number from the dropdown).</p> <p>If you are unsure which MAC address relates to which device, the <b>Status</b> page will display connected device by device name and MAC address.</p>

### How to set up a MAC filter rule

As an added security feature, you may like to enable the MAC filter on your Bright Box Wireless Router. This means that only computers/ devices with a MAC address that you approve can use your Internet connection.

To enable a MAC filter:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **MAC Filter** in the left hand navigation menu
5. On the 'MAC Address Control' option select 'Enable':



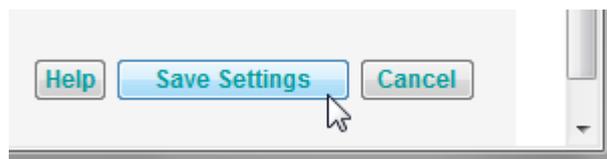
6. Enter the MAC address(s) of the computer(s) or device(s) you wish to allow access to.
7. The easiest way to do this is to scroll to the bottom of the MAC filter page, locate your device in the 'DHCP client list', and select **Copy To** to automatically insert the MAC address into your chosen field.



8. Alternatively, you can type the MAC address of the computer or device that you wish to allow access into the MAC address field:



9. Click **Save Settings**:



10. The MAC Address filter will now be applied. Only the device(s) that you have added to the MAC address filter table will be able to connect to the router.

**!** If you have created a MAC filter rule, and can no longer connect to the router you may need to reset your router to factory default settings. To do this, insert a paper clip or pin into the reset hole on the back of the router for 6 seconds, release the button and then wait about 5 minutes for the router to re-connect to the Internet.

## URL BLOCKING

The URL Blocking feature of the Bright Box router firewall allows you to restrict certain web sites from being accessed by either all computers, or specific computers or devices on your home network.

This feature may be useful if you want to block access to particular sites, for example Facebook from your child's computer.



You can define a page either by a URL such as `http://www.example.com` or by a single keyword found in the URL of the web page, such as 'example'.

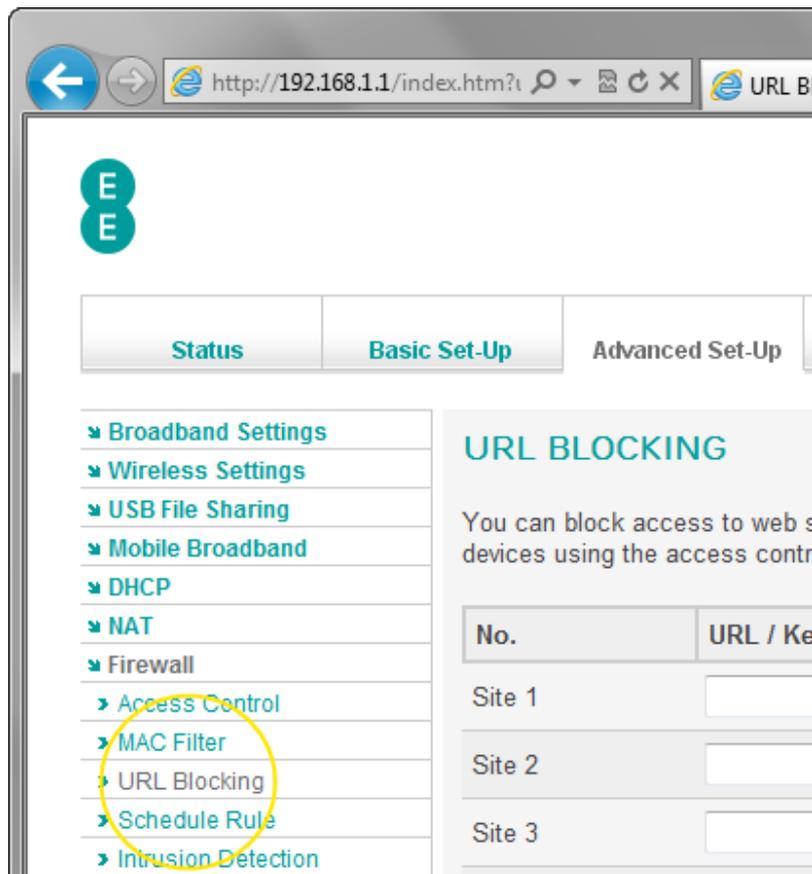
You can define URL Blocking rules for up to 30 web sites or keywords.

URL Blocking is then activated by creating an access control rule on the **Advanced Set-Up > Firewall > Access Control** page using the 'WWW with URL Blocking' service option. The rule can be applied to an IP address of a single computer on your network or a range of IP addresses.

Before setting up an URL Blocking rule, it is a good idea to reserve an IP address for the device you wish to set up the rule for. You can do this in the **Advanced Set-Up > DHCP** admin page, under the address reservation section. See *how to reserve an IP address* on page 124 for further information.

To access the URL Blocking page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **URL Blocking** in the left hand navigation menu:



### How to create a URL Blocking rule

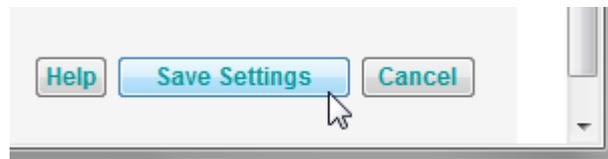
To block access to particular web sites on your computers or attached devices:



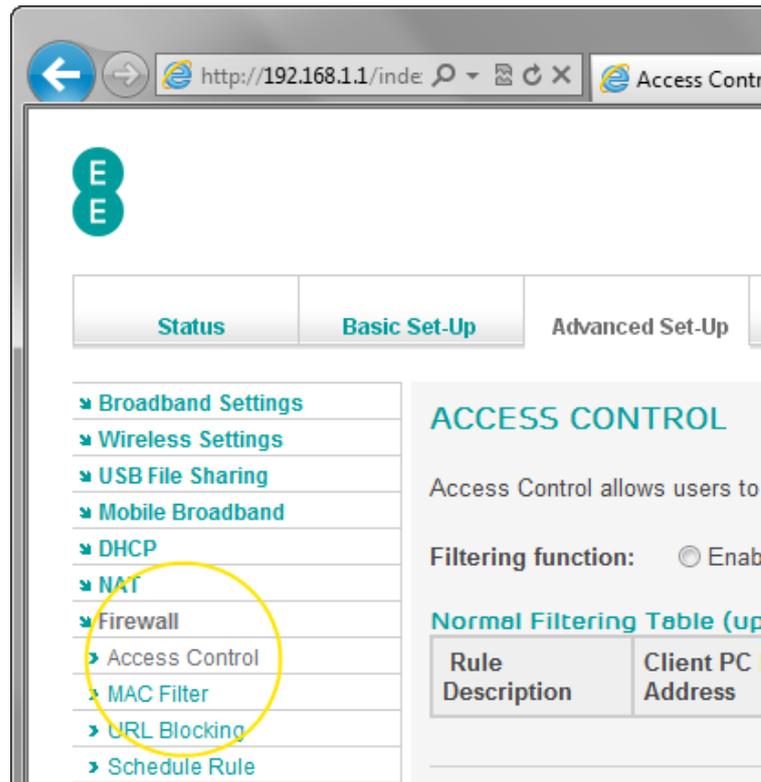
1. Reserve an IP address for the computer you wish to set up the access control rule on. You can do this in the **Advanced Set-Up > DHCP** admin page. See *how to reserve an IP address* on page 124 for further information.
2. Login to the router's admin pages.
3. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
4. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
5. Click on **URL Blocking** in the left hand navigation menu.
6. Enter the URL of the web address you wish to block, for example - www.example.com, or just a keyword out of the URL e.g. (you don't need to enter both) – example:

No.	URL / Keyword
Site 1	www.example.com
Site 2	example
Site 3	

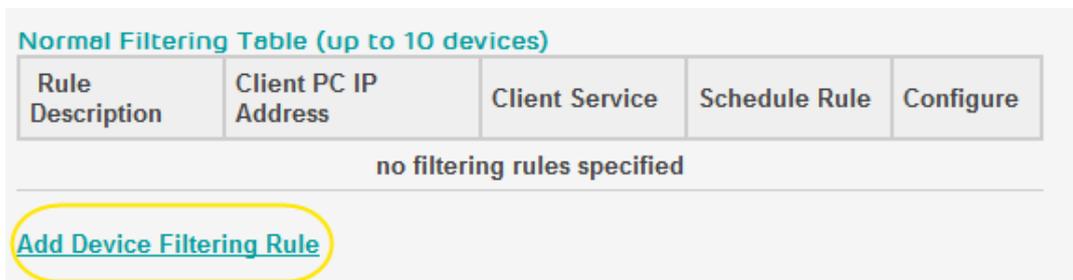
7. Scroll to the bottom of the page and click **Save Settings**:



8. Now, in the left hand navigation menu select **Access Control**:



9. Click the **add device filtering rule** link:



10. On the **edit device filtering rule** page, enter a rule description – in this example we will enter 'URL Blocking'
11. Enter the IP address or range of addresses of the computer or device on your network you wish to block the URL on. You can block the URL on all computers by entering '192.168.1.2 ~ 254' – In this example we will block the URL on the computer 192.168.1.10 only by entering '192.168.1.10 ~ 10'
12. Tick the 'blocking' box for the 'WWW with URL Blocking' service:

## EDIT DEVICE FILTERING RULE

This page allows users to define service limitations of client devices, including IP address, service type and scheduling rule criteria. For the URL blocking function, you need to configure the URL address first on the "URL Blocking Site" page. For the scheduling function, you also need to configure the schedule rule first on the "Schedule Rule" page.

Rule Description:

Client Device IP Address: 192.168.1.  ~

### Client Device Service:

Service Name	Detail Description	Blocking
WWW	HTTP, TCP Port 80, 3128, 8000, 8001, 8080	<input type="checkbox"/>
WWW with URL Blocking	HTTP (Ref. URL Blocking Site Page)	<input checked="" type="checkbox"/>
E-mail Sending	SMTP, TCP Port 25	<input type="checkbox"/>

13. Do not change the 'Schedule Rule' option, leave it as 'Always Blocking' and click **Save Settings**:

Scheduling Rule (Ref. Schedule Rule Page):

14. Select the 'Enable' option for the 'Filtering function' the **Access Control** page and click **Save Settings**:

## ACCESS CONTROL

Access Control allows users to define the traffic type permitted or not-permitted to WAN port service.

Filtering function:  Enable  Disable

### Normal Filtering Table (up to 10 devices)

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
My URL Block	192.168.1.10	urlblock	Always Blocking	<a href="#">Edit</a> ; <a href="#">Delete</a>

[Add Device Filtering Rule](#)

15. The URL Blocking rule will now be active, and any attempt to access the URL or a URL containing the keyword entered in step in a web browser will prevent the page from being displayed.

If you want to remove the URL Blocking rule at any time, navigate back to the **Access Control** page and click the **Delete** link next to the URL Blocking rule:



**Normal Filtering Table (up to 10 devices)**

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
My URL Block	192.168.1.10	urlblock	Always Blocking	<a href="#">Edit</a> ; <a href="#">Delete</a>

 Once a rule has been created, you can navigate back to the **URL Blocking** page and update the URL list at any time, adding or deleting entries as you see fit.

## SCHEDULE RULE

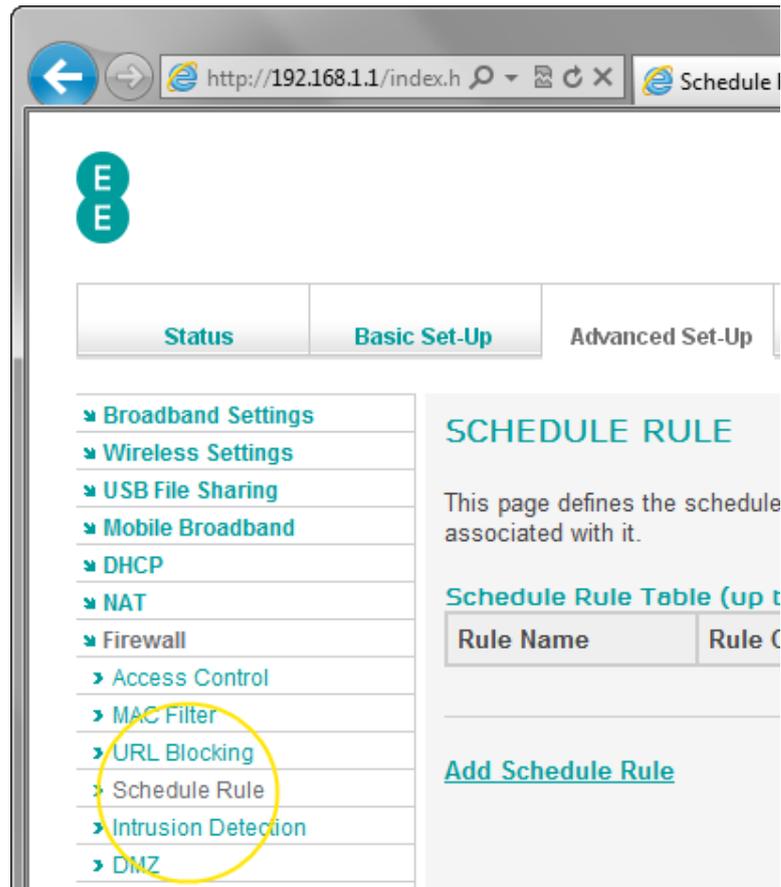
The Schedule Rule page allows you to create schedules to apply to the access control rules. This may be useful if you wish to restrict certain types of Internet traffic at particular times of the day (or night), for example to help protect your children online.

You can create schedule rules from Sunday – Saturday or create an ‘Every Day’ rule. For each day you can specify a start time and end time for the rule to be applied.

When you create an access control rule, you can specify from the ‘Scheduling Rule’ dropdown which schedule rule you want to apply. Traffic will then be blocked only for the times configured in the schedule rule.

To access the **Schedule Rule** page:

1. Login to the router’s admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the ‘Please proceed with caution’ page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **Schedule Rule** in the left hand navigation menu:



### How to create a Schedule Rule for Access Control

To create a schedule rule, and apply the rule to an access control rule, follow these steps:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **Schedule Rule** in the left hand navigation menu.
5. Click the **Add Schedule Rule** link:



- Enter a value in the 'name' field for the schedule – this name will appear in the 'Scheduling Rule' dropdown on the **Access Control** page when you define the access control rule. In this example we will call the rule 'Block 21-23.59'.
- Enter a value in the 'comment' field for the schedule. This can be any value and will appear in the table on the **Schedule Rule** page. In this example we will call the comment 'Nine to Midnight'
- In the 'activate time period' fields you can enter the times you want the schedule rule to apply. You can use the 'Every Day' week day to apply the schedule on every day of the week, or specify particular days you want the rule to apply. Please ensure that the start time is earlier than the end time, and 24 hour clock notation is used (8:30 for 08:30am or 17:50 for 5:50pm for example). If you want to have the schedule apply for the full day enter a start time of '0:00' and an end time of '23:59'. In this example we will set the start time to '21:00' (9pm) and end at 23:59 (midnight).

**EDIT SCHEDULE RULE**

Please enter times in the 24 HR clock format.

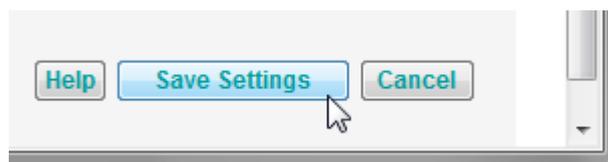
Name:

Comment:

**Activate Time Period**

Week Day	Start Time (Hh:mm)	End Time (Hh:mm)
Every Day	<input type="text" value="21"/> : <input type="text" value="00"/>	<input type="text" value="23"/> : <input type="text" value="59"/>
Sunday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>

- Click **Save Settings**:

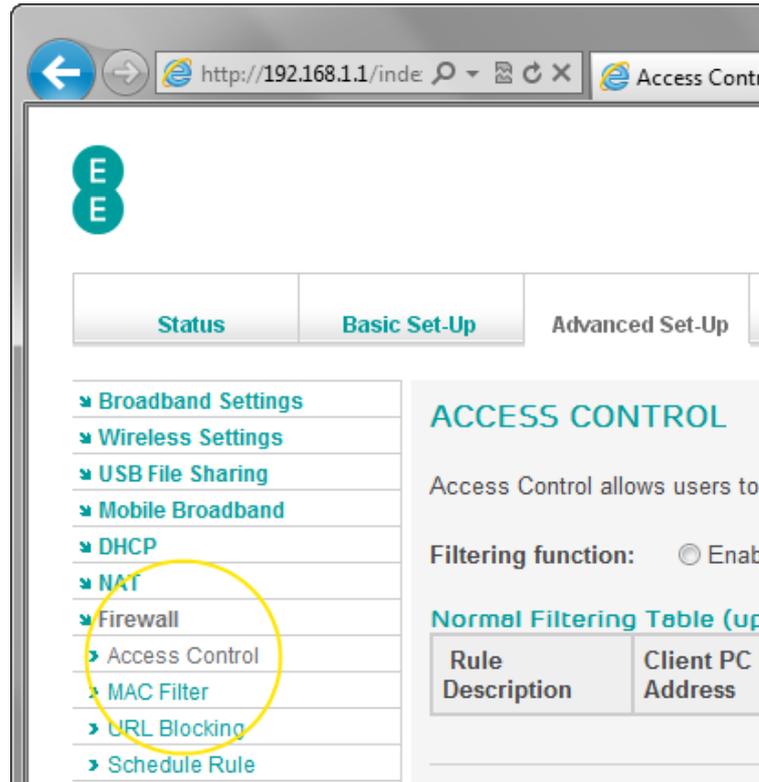


- The new schedule rule will appear in the Schedule Rule table:

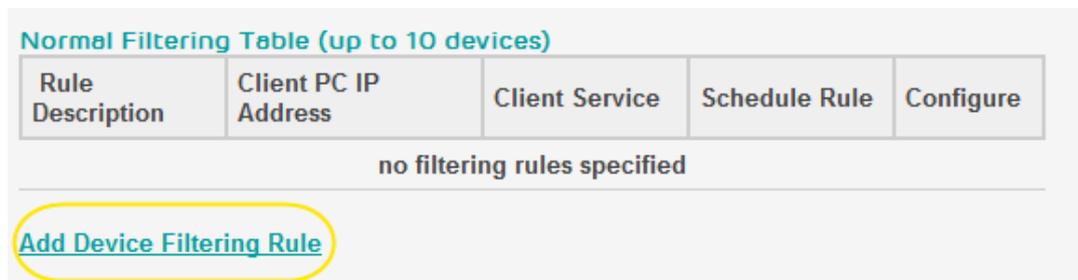
**Schedule Rule Table (up to 10 rules)**

Rule Name	Rule Comment	Configure
Block 21-23.59	Nine to Midnight	<a href="#">Edit</a> ; <a href="#">Delete</a>

- Next, click on **Access Control** in the left hand navigation menu:



12. Click the **Add Device Filtering Rule** link:



13. On the **Edit Device Filtering Rule** page enter a rule description – in this example we will enter 'All traffic'

16. Enter the IP address or range of addresses of the computer or device on your network you wish to block the URL on. You can block the URL on all computers by entering '192.168.1.2 ~ 254' – In this example we will block the URL on the computer 192.168.1.10 only by entering '192.168.1.10 ~ 10'



17. Select the type of traffic you want to block by ticking the 'blocking' box next to the service name. You can select multiple services to block, or block custom ports in the 'user define service' section. In this example we will block 'TCP' and 'UDP' (i.e. all traffic):
18. Click on the 'Scheduling Rule (Ref. Schedule Rule Page)' dropdown and select the schedule rule you created in steps 6-8 – in this example 'Block 21-23:59'
19. Click **Save Settings**:

The screenshot shows a configuration interface with the following elements:

- Two rows for blocking services: 'TCP' with 'All TCP Port' and 'UDP' with 'All UDP Port'. Both have checked boxes in the right column.
- A section titled 'User Define Service' with radio buttons for 'TCP' (selected) and 'UDP'. Below are several 'Port Range' input fields, each containing '0 ~ 0'.
- A 'Clear' button below the port range fields.
- A dropdown menu labeled 'Scheduling Rule (Ref. Schedule Rule Page):' with 'Block 21-23:59' selected.
- Buttons for 'Help', 'Save Settings', and 'Cancel' at the bottom right.

19. Select the 'Enable' option for the 'Filtering function' the **Access Control** page and click **Save Settings**:

The screenshot shows the 'ACCESS CONTROL' page with the following details:

- Text: 'Access Control allows users to define the traffic type permitted or not-permitted to WAN port service.'
- 'Filtering function:' with 'Enable' selected (radio button) and 'Disable' unselected.
- Section: 'Normal Filtering Table (up to 10 devices)'
- Table:
 

Rule Description	Client PC IP Address	Client Service	Schedule Rule	Configure
All traffic	192.168.1.10	tcp,udp	Block 21-23:59	<a href="#">Edit</a> ; <a href="#">Delete</a>
- Section: 'Add Device Filtering Rule'
- Buttons for 'Help', 'Save Settings', and 'Cancel' at the bottom right.

20. The access control rule with the schedule rule has now been created. The access control will only be applied at the scheduled time – in this example 21:00 – 23:59 every day of the week.

**i** If you want to delete a schedule rule, you must first delete the associated access control rule on the **Access Control** page. When the associated access control rule has been deleted, you will then see a 'Delete' link in the Schedule Rule table in the **Schedule Rule** page.

**Schedule Rule Table (up to 10 rules)**

Rule Name	Rule Comment	Configure
Block 21-23.59	Nine to Midnight	<a href="#">Edit</a> ; <a href="#">Delete</a>

[Add Schedule Rule](#)

## INTRUSION DETECTION

You can configure special firewall intrusion detection settings in the **Intrusion Detection** admin page. The Intrusion Detection feature includes two key features. Stateful Packet Inspection (SPI) and Hacker Prevention.

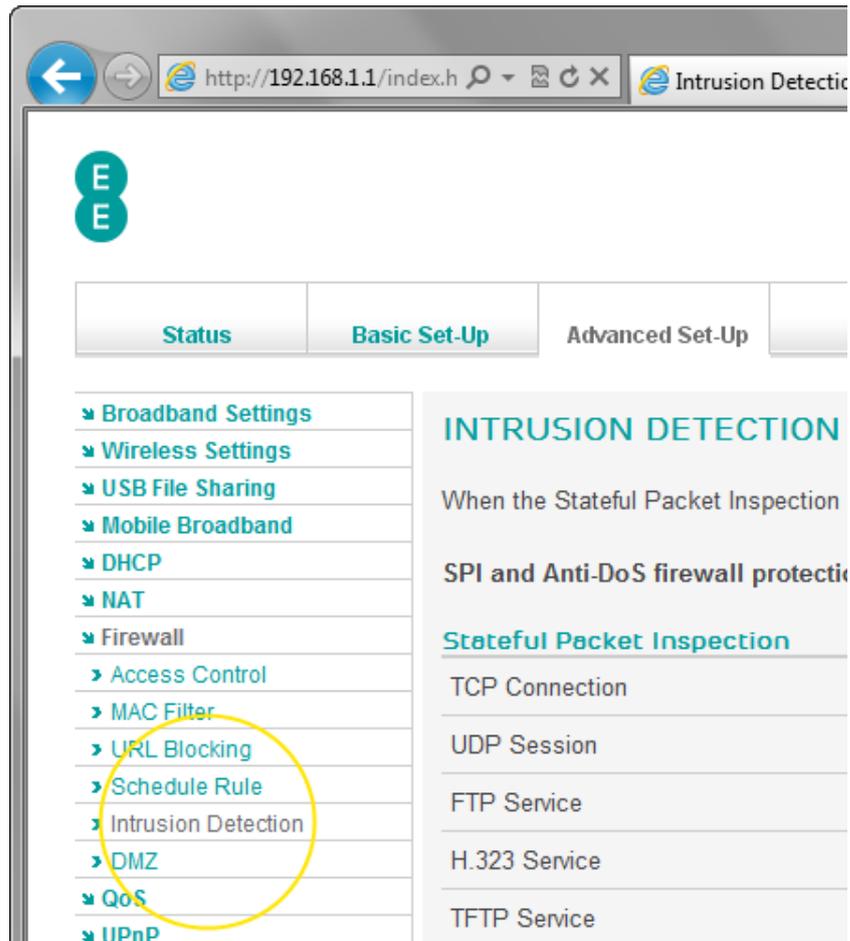
Stateful Packet Inspection (SPI) limits the access of incoming traffic. By default the SPI feature is turned on, and all the incoming packets from the Internet will be blocked unless they are initiated from a device or computer connected to the router. You can configure SPI settings for a number of different traffic types and disable the SPI, allowing those types of traffic to automatically be allowed through the router firewall.

In addition you can also configure the 'Discard Ping to WAN Interface' setting on this page. Usually an ICMP ping message from the Internet to your WAN IP address would not generate a ping response (and would timeout), protecting your router from being visible to potential hackers. You can disable this setting if you wish to allow your device to respond to ICMP ping messages.

 Please note that disabling the SPI or Discard Ping to WAN Interface options is only recommended for temporary diagnostic/troubleshooting purposes. Leaving any of these settings disabled may make your router and local network vulnerable to attack from hackers.

You can access the Intrusion Detection page as follows:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **Intrusion Detection** in the left hand navigation menu:



**Description of Intrusion Detection settings:**

The table below contains a description of the settings on the **Intrusion Detection** page :

Section	Description
SPI and Anti-DoS firewall protection	This option allows you to configure the SPI and Anti Denial of Service protection on the router firewall. By default the SPI firewall and Anti-DoS setting is enabled to protect your router and network  Select 'Enable' to switch on SPI (Stateful Packet Inspection) firewall and Anti Denial of Service settings on the router. Selecting this option will tick all of the individual SPI service rules.  Select 'Disable' to switch off the SPI and Anti Denial of Service protection on the router. Selecting this option will untick all of the individual SPI service rules.
TCP Connection	This option enables or disables the SPI firewall for all TCP (Transmission Control Protocol) traffic.
UDP Session	This option enables or disables the SPI firewall for all UDP (User Datagram Protocol) traffic.
FTP Service	This option enables or disables the SPI firewall for all FTP (File Transfer Protocol) traffic.
H.323 Service	This option enables or disables the SPI firewall for all



	H323 traffic for videoconferencing or Netmeeting.
TFTP Service	This option enables or disables the SPI firewall for all TFTP (Trivial FTP) traffic.
SIP Service	This option enables or disables the SPI firewall for all SIP (Session Initiation Protocol) traffic for videoconferencing or VoIP.
RTSP Service	This option enables or disables the SPI firewall for all RTSP (Real Time Streaming Protocol) traffic.
L2TP Service	This option enables or disables the SPI firewall for all L2TP (Layer 2 Tunnelling Protocol) traffic.
PPTP Service	This option enables or disables the SPI firewall for all PPTP (Point to Point Tunnelling Protocol) traffic.
IPSec Service	This option enables or disables the SPI firewall for all IPSec (Internet Protocol Security) traffic.
Discard Ping to WAN Interface	This option allows you to configure whether the router will discard ICMP ping traffic from the WAN. This is enabled by default.  If you select 'Disable', then an ICMP ping response from the router will occur if pinged from the WAN, making the WAN IP address of the router visible and potentially vulnerable.

## DMZ

The Bright Box Wireless Router stops Internet traffic getting to your internal network unless traffic is initiated by a computer or device on your network or you've set up port forwarding or port trigger rules.

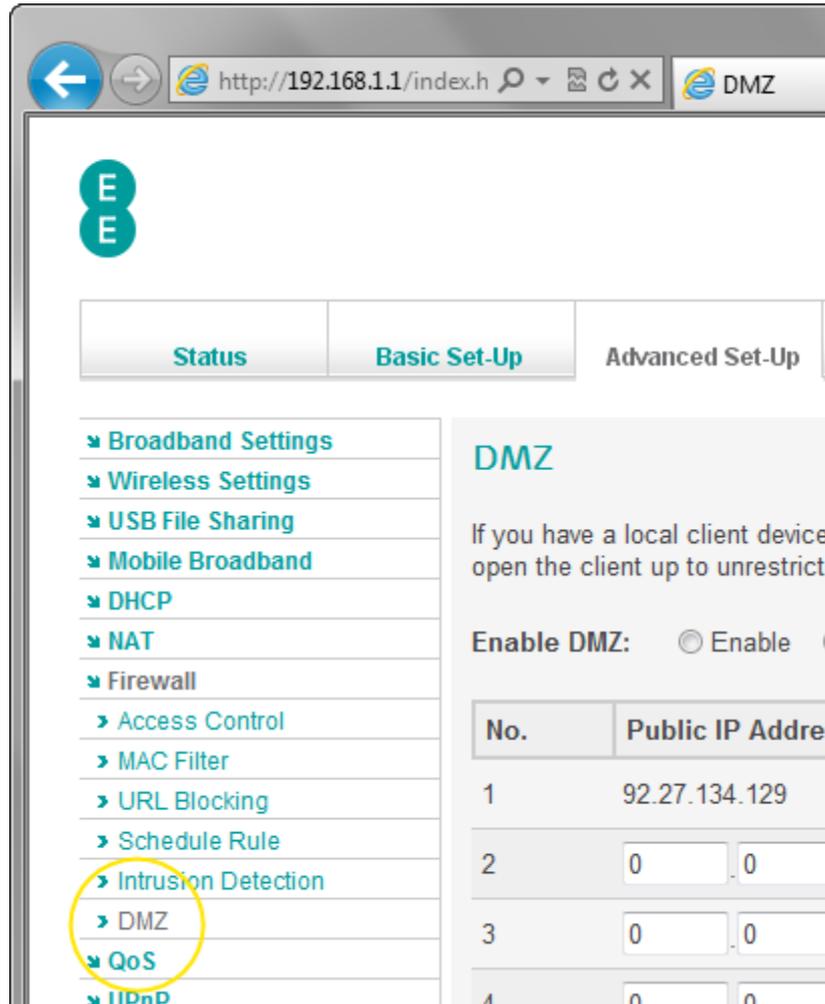
If you think your router is stopping a particular application (for example an online game or video conferencing) from working correctly, you can temporarily add the computer or device's IP address into the 'Demilitarized Zone' (DMZ) as a test. This will mean that many of the router firewall features are bypassed for this computer while the DMZ is active.

Before setting up the DMZ, it is a good idea to reserve an IP address for the device you wish to put inside the DMZ. You can do this in the **Advanced Set-Up > DHCP** admin page, under the address reservation section. See *how to reserve an IP address* on page 124 for further information.

 Please be aware that the DMZ should only be used for testing or diagnostic purposes, as it will make the computer inside the DMZ potentially vulnerable to external attack or hacking. Use the Port Forwarding or Port Triggering functions to create specific port rules to allow traffic through the router firewall.

To access the DMZ configuration page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **DMZ** in the left hand navigation menu:



## Description of DMZ settings

The table below contains a description of the settings on the **DMZ** page:

Section	Description
No.	This field is the index for the router DMZ entry.
Public IP Address	This field is used to configure the public (Internet) IP address of the DMZ entry. Index number 1 cannot be configured, but will always reflect the current Internet IP address assigned to the router. Index numbers 2 – 8 allow you to configure manual public IP addresses for the DMZ. These entries must be unique, and not match another entry in the list. They are suitable if you have multiple static IP addresses and are not supported for EE Broadband users.
Client IP Address	This field is used to configure the IP address of the device or computer on your local network that you are putting inside the DMZ, to allow incoming and outgoing traffic to be unimpeded by the firewall. It is recommended that you create a reserved IP address in the <b>DHCP</b> page for any computer you

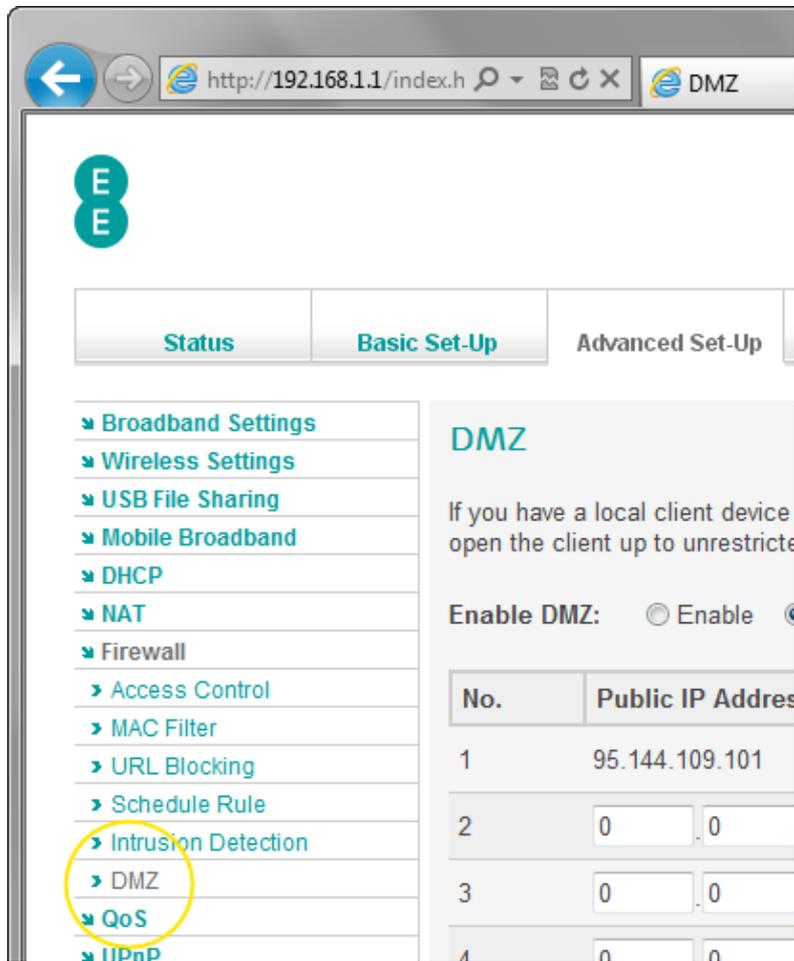
	want to put in the DMZ.
--	-------------------------

### How to add a computer to the De-militarized zone (DMZ)

If you think your Bright Box Wireless Router is stopping a particular application from working correctly, you can temporarily add the computer or device into the 'Demilitarized Zone' (DMZ) as a test. While this is safer than completely disabling your firewall, we suggest that you don't leave your computer unprotected in the DMZ.

To add a computer to the DMZ:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Firewall** in the left hand navigation menu to expand the Firewall menu
4. Click on **DMZ** in the left hand navigation menu:



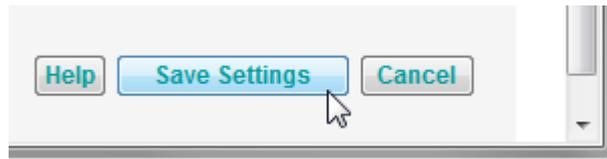
5. In the 'Enable DMZ' option, select 'Enable'



- In the 'client device IP address' field for Index 1, enter the IP address of the computer you wish to add to the DMZ. In this example we will add 192.168.1.10:

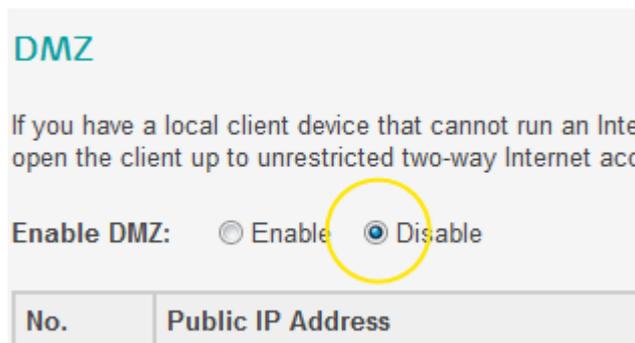


- Click **Save Settings**:



- The computer will now be in the router's DMZ.

**⚠️** Ensure that when you have completed any troubleshooting with a computer inside the DMZ, you disable the DMZ. You can do this by navigating to the **DMZ** page and selecting the 'Disable' option and clicking **Save Settings**:



## QoS

By default all types of Internet traffic on the Bright Box router are given the same priority as any other type. QoS, or Quality of Service is a feature of the Bright Box router that allows you to give priority to certain types of Internet traffic for applications on your network (i.e. VoIP or online gaming) or to prioritise traffic from a particular computer or device on your home network.

To configure QoS, you must define the types of traffic that you want to prioritise, either from a pre-defined list or custom port numbers. You can also prioritise individual devices on your network by MAC address, IP address or by the connected Ethernet ports or wireless SSID's.



Once the traffic type is defined, you select a priority for the traffic type from Highest to Lowest. You define the traffic types and set these priority levels on the **Traffic Mapping** page.

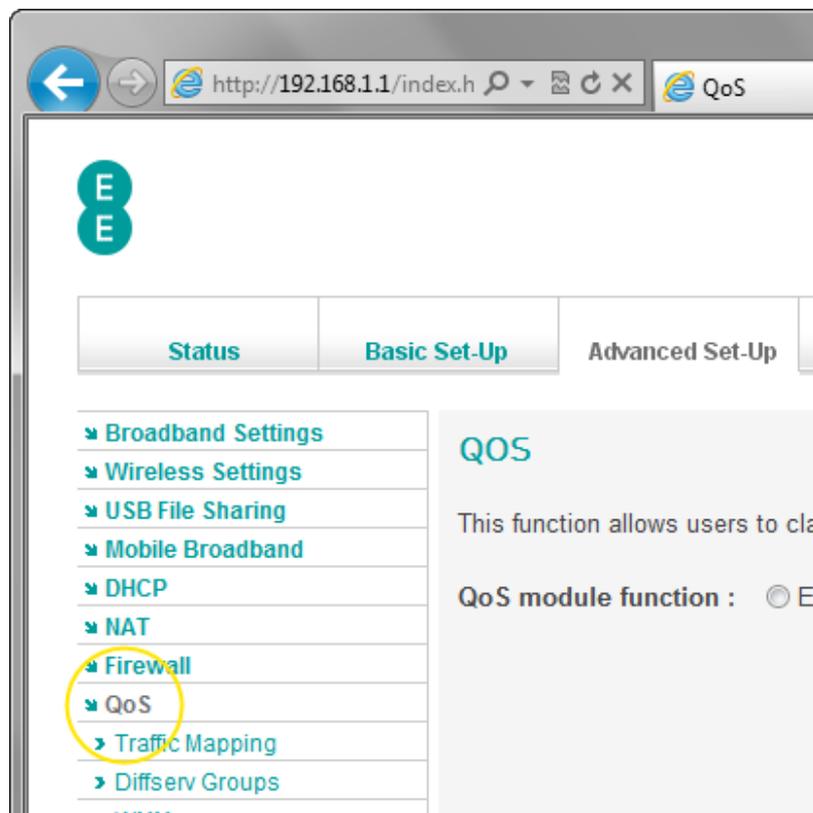
Once you have defined the traffic types and their priorities, you can then allocate a minimum bandwidth for each priority (or differentiated service group – diffserv group) to shape how the traffic is managed on your Internet connection. You allocate the minimum bandwidths in the **Diffserv Groups** page.

You can also enable and disable the WMM (Wi-Fi Multimedia) quality of service setting, prioritising video and voice traffic over your Wi-Fi connection.

### How to enable Quality of Service on the router

Quality of Service is disabled on the Bright Box router by default, in order to configure QoS, you first need to enable the QoS module. To do this:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the QoS menu:



4. In the 'QoS module function' option, select 'Enable' and click **Save Settings**:



## QoS

This function allows users to classify traffic by applications and provides them with differentiated services (diffserv).

QoS module function :  Enable  Disable

Help

Save Settings

Cancel

5. The QoS module is now enabled, you can now define the traffic types and priorities in the **Traffic Mapping** page.

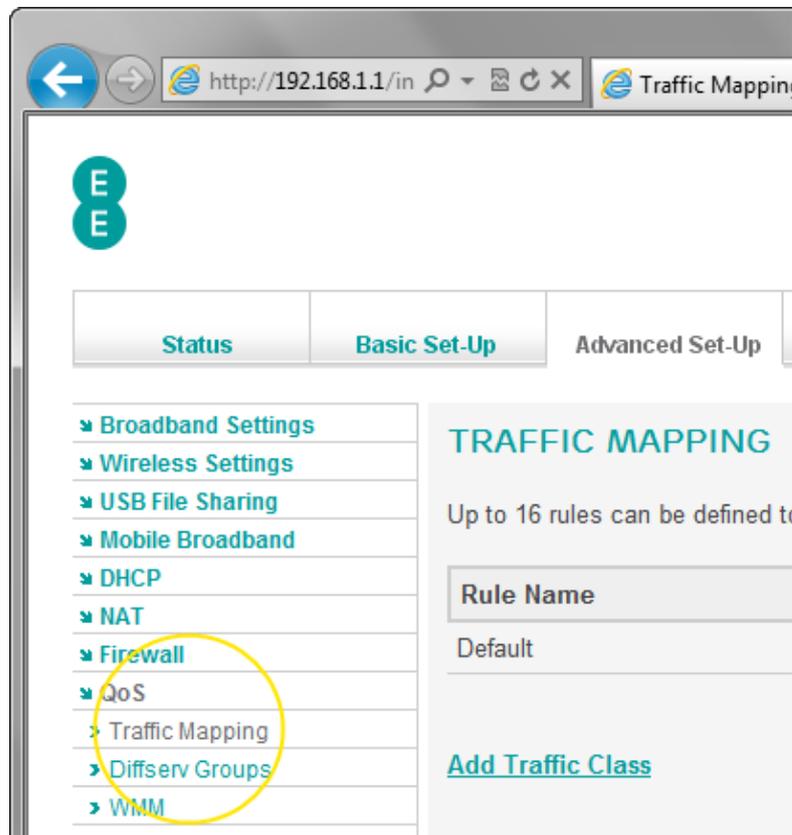
## TRAFFIC MAPPING

The **Traffic Mapping** page is used to create rules for the different application traffic types or connected computers on your network and then to assign each rule a level of prioritisation for traffic shaping.

You can create a maximum of 16 different traffic mapping rules for Quality of Service.

To access the Traffic Mapping page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the quality of service menu
4. Click on **Traffic Mapping** in the left hand navigation menu:

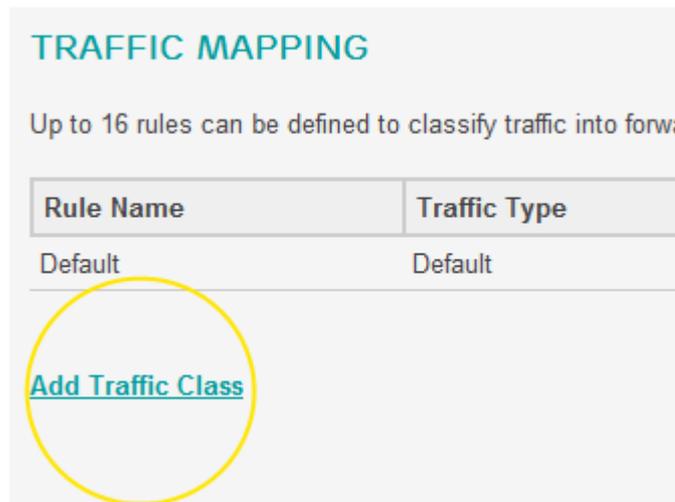


## How to create a Quality of Service Traffic Mapping rule

To configure Quality of Service, you must configure the traffic mapping rule for the type of traffic, or devices on your network you want to prioritise.

To create a Quality of Service traffic mapping rule:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the quality of service menu
4. Click on **Traffic Mapping** in the left hand navigation menu.
5. Click on the **Add Traffic Class** link:



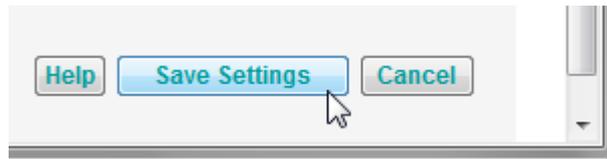
6. On the **Edit Traffic Class** page, enter a name for the traffic mapping rule you are creating – in this example we will call it 'FTP'.
7. Use the 'Traffic Type' dropdown to select either the type of application (Voice, Online Games, Video), specific applications (Applications), connected devices or computer (MAC Address, IP Address, Incoming Port) or application ports (TCP/UDP) you want the quality of service setting to apply to. In this example we are selecting a Traffic Type of 'Applications' and an 'Applications' of 'FTP'. See *quality of service traffic type descriptions* on page 165 for a list of other traffic types.
8. Select the Priority you want to give to this traffic type. There are eight priority levels (Highest, Higher, High, Medium, Normal, Low, Lower and Lowest) to choose from. The traffic shaping effect of the priority applied to each level will be configured in the **Diffserv Groups** page. In this example we will select 'Low':

### EDIT TRAFFIC CLASS

To specify a rule first define the class by the traffic type : forwarding group this class is mapped to.

Rule Name	FTP
Traffic Type	Applications
Applications	FTP
Priority	Low

9. Click **Save Settings**:



10. The traffic mapping rule has now been created and will appear in the Traffic Mapping table:

### TRAFFIC MAPPING

Up to 16 rules can be defined to classify traffic into forwarding groups.

Rule Name	Traffic Type	Priority	Configure
FTP	Applications	Low	<a href="#">Edit</a> <a href="#">Del</a>
Default	Default	Medium	<a href="#">Edit</a>

[Add Traffic Class](#)

11. Now you can set the traffic shaping of the priority group in the **Diffserv Groups** page.

**i** If you want to create a traffic mapping rule for a particular device on your local network rather than a specific application type, select the 'MAC Address', 'IP Address' or 'Incoming Port' options from the 'Traffic Type' dropdown. In the example below, the 'High' priority traffic rule would be applied to any device connected to Ethernet Port 1.



## EDIT TRAFFIC CLASS

To specify a rule first define the class by the traffic type forwarding group this class is mapped to.

Rule Name	<input type="text" value="Ethernet 1"/>
Traffic Type	<input style="border: 2px solid yellow; border-radius: 10px;" type="text" value="Incoming Port"/>
Incoming Port	<input style="border: 2px solid yellow; border-radius: 10px;" type="text" value="Ethernet Port1"/>
Remark DSCP as	<input type="text" value="Don't Remark"/> (the first 6 b
Priority	<input type="text" value="High"/>

### Quality of Service Traffic Type descriptions:

The table below describes the traffic types available for Quality of Service traffic mapping rules in the **Edit Traffic Class** page.

Section	Description
Voice Device	Select this option to create a Quality of Service rule for voice traffic services (VoIP).
Online Games	Select this option to create a Quality of Service rule to priorities online/multiplayer game traffic.
Video	Select this option to assign a Quality of Service rule to prioritise video traffic over the Internet.
Applications	You can select from a number of pre-configured application types for the Quality of Service rule. such as MSN Messenger, Yahoo Messenger, Skype. FTP (File Transfer Protocol), E-mail, SNMP (Simple Network Management Protocol), Telnet, WWW (Web traffic), VPN (Virtual Private Networks), IGMP (also known as ping) If you select the 'add a new application' option, you can define three different ranges of services ports for TCP, UDP or TCP/UDP (BOTH) traffic. Please refer to you application instructions for the ports you should configure.
MAC Address	Select this option to assign a Quality of Service rule to a single MAC Address of a device or computer connected to your local network.
IP Address	Select this option to assign a Quality of Service rule to a single IP address, a range of IP addresses or all IP addresses on your local network. You can select either incoming/local traffic (for a device on your network) or outgoing/remote traffic (to a location on the Internet).
TCP/UDP	Select this option to assign a Quality of Service rule to individual ports or a range of ports for TCP, UDP



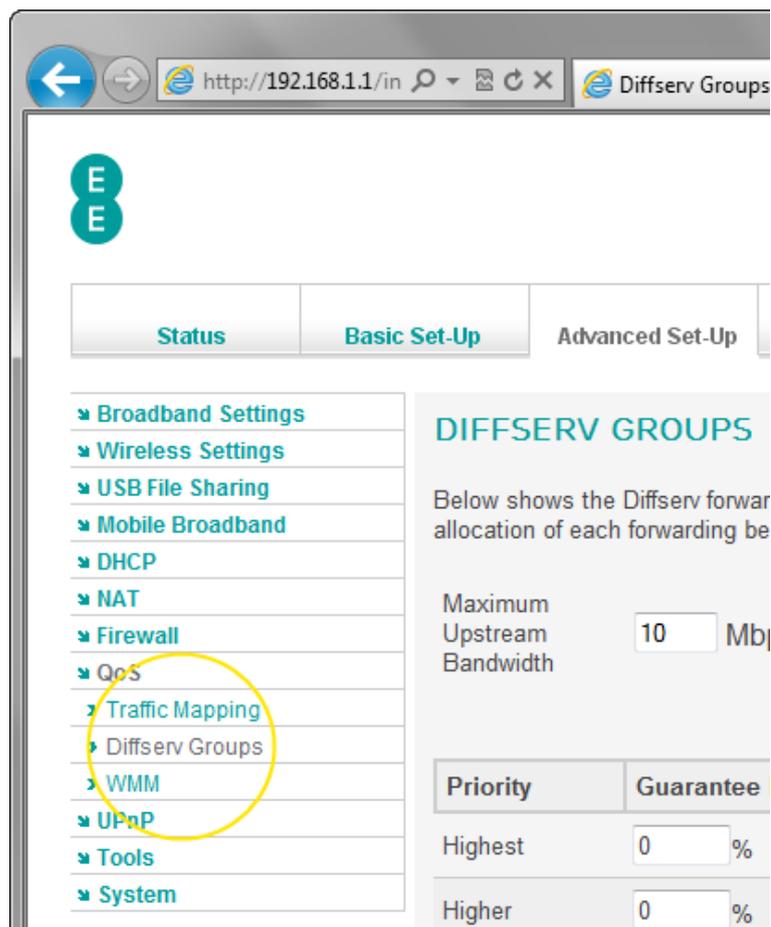
	or TCP/UDP (BOTH) traffic.
Incoming Port	Select this option to assign a Quality of Service rule to traffic from a device connected to the router either by Ethernet (Ethernet Ports 1-4) or over the wireless LAN (SSID 1-3).

## DIFFSERV GROUPS

The **Diffserv Groups** page is used to configure the levels of traffic prioritisation for Quality of Service traffic shaping. Once you have defined the traffic types (or devices) you want to shape on the **traffic mapping** page, you need to decide how much bandwidth you will apply to the prioritisation.

To access the **Diffserv Groups** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the quality of service menu
4. Click on **Diffserv Groups** in the left hand navigation menu:



### How to apply bandwidth prioritisation for Diffserv Groups

As you can see from the **Diffserv Groups** page, there are eight levels of traffic prioritisation (known as Diffserv Groups):

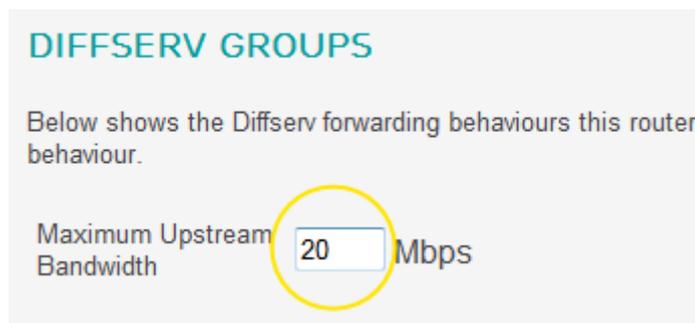


- Highest
- Higher
- High
- Medium
- Normal
- Low
- Lower
- Lowest

By default, no bandwidth minimum has been applied for any of the Diffserv Groups, meaning that a traffic mapping rule associated with a particular level will not be shaped (and will achieve the maximum available bandwidth available over the network).

To apply bandwidth prioritisation for any of the Diffserv Groups:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the quality of service menu
4. Click on **Diffserv Groups** in the left hand navigation menu.
5. If you are using EE Fibre Broadband, set the 'Maximum Upstream Bandwidth' value to the correct setting for the upload speed of your Fibre service. To help determine your upload speed, you can run a Broadband speedtest online. In this example we will assume a 20 Mbps upload speed:

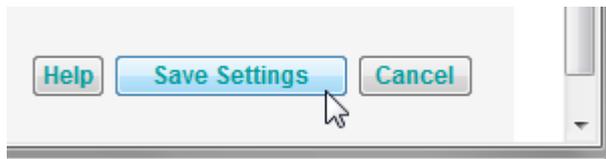


Please note that EE ADSL broadband users will not need to enter a 'Maximum Upstream Bandwidth', this is determined automatically.

6. Select a group you wish to apply bandwidth shaping to, this may be one that you had applied to a traffic mapping rule you created on page 163 earlier.. In this example we will update the 'Low' group for the 'FTP' rule we previously created.
7. In the 'guarantee minimal bandwidth' field, enter the percentage bandwidth you want to guarantee to the group. This means that if you normally have 1 Mbps of uplink transfer speed, and you set the 'Low' group to 20%, then you will be guaranteed last least 0.2 Mbps (200Kbps) transfer speeds for any traffic mapping rule using the 'Low' diffserv group.  
In this example we will enter '20' in the 'Low' group, to guarantee 20% of the available bandwidth.
8. Optional: If you want to allow more bandwidth for a traffic mapping rule if extra bandwidth is available (for example, if no other traffic types are using the available bandwidth at the time), tick the 'allow more' box.

Priority	Guarantee Minimal Bandwidth	Allow More
Highest	0 %	<input type="checkbox"/>
Higher	0 %	<input type="checkbox"/>
High	0 %	<input type="checkbox"/>
Medium	0 %	<input type="checkbox"/>
Normal	0 %	<input type="checkbox"/>
Low	20 %	<input checked="" type="checkbox"/>
Lower	0 %	<input type="checkbox"/>
Lowest	0 %	<input type="checkbox"/>

9. Click **Save Settings**



10. The bandwidth prioritisation for the diffserv group is now set. If you have already created the traffic mapping rule on the **Traffic Mapping** page, and have enabled the Quality of Service module on the **QoS** page, then you will find that Quality of Service settings will be applied to your selected traffic type or device.

You may wish to configure the bandwidth for all of the Diffserv Groups, if so ensure that the total percentage for all groups in the 'guarantee minimal bandwidth' column does not exceed 100%.

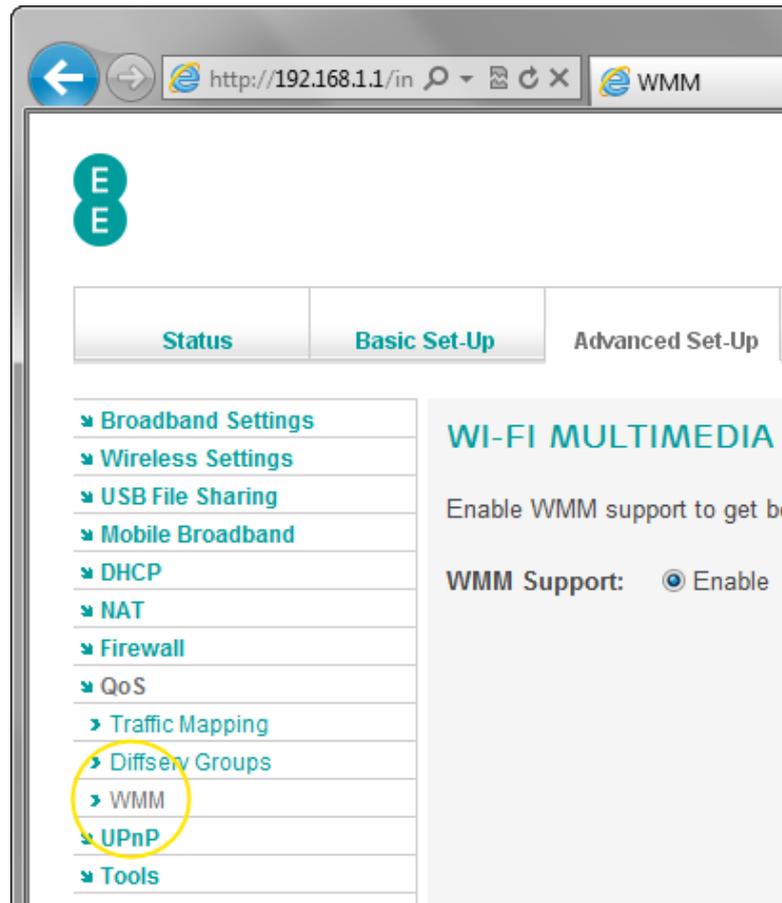
## WMM

WMM (Wi-Fi Multimedia) is a feature used by the Bright Box router providing Quality of Service for multimedia applications on the router's wireless network. This can improve performance when using services such as voice over IP (VoIP), video streaming, audio and online gaming by automatically prioritising traffic in these categories over other traffic types.

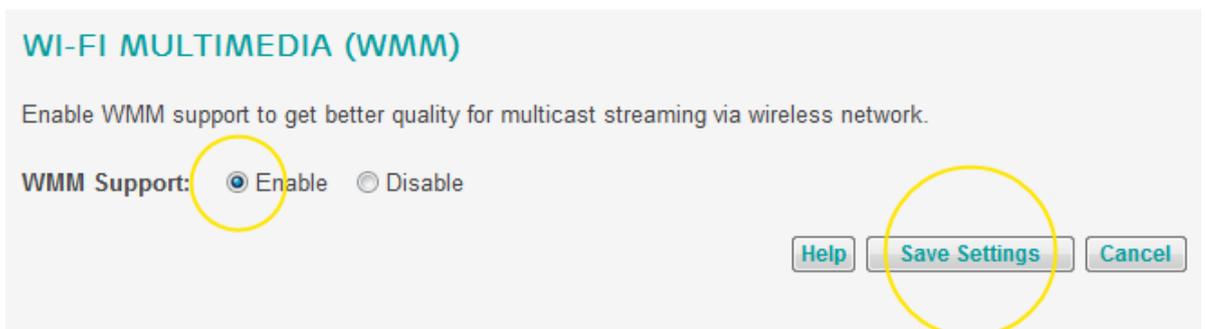
To take full advantage of WMM, both the router and the client device or computer need to support WMM, as do the applications making use of the video or voice traffic. If the client device does not support WMM, traffic priority is managed with the standard 'best effort' method.

To enable WMM functionality on the router:

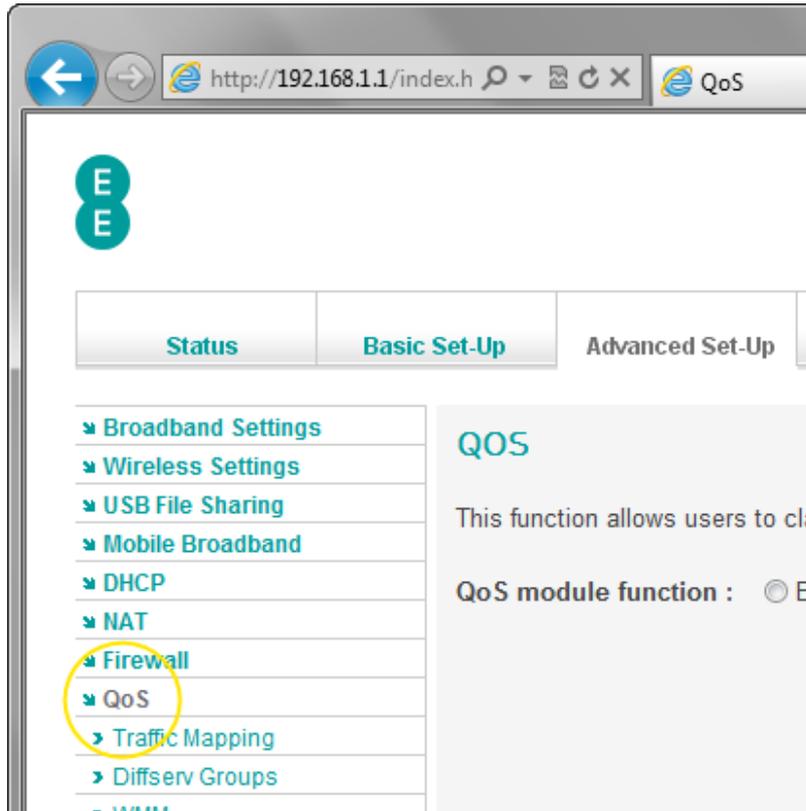
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **QoS** in the left hand navigation menu to expand the quality of service menu
4. Click on **WMM** in the left hand navigation menu:



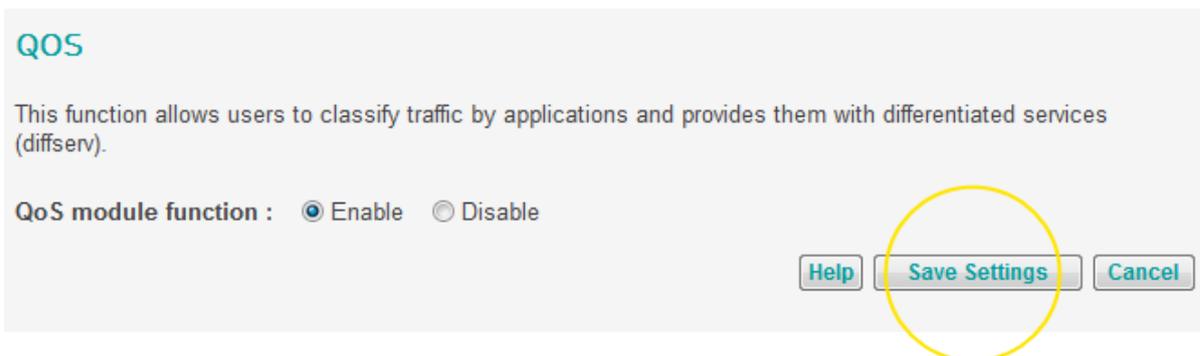
5. On the 'WMM Support' option select 'Enable' and click **Save Settings**.



6. If you have not already enabled the Quality of Service module, you will need to do so. Click on **QoS** in the left hand navigation menu :



7. In the 'QoS module function' option, select 'Enable' and click **Save Settings**:



## UPNP

UPnP (Universal Plug-and-Play) is a technology that offers seamless operation of online gaming, video messaging, and other applications that are UPnP compliant.

Applications such as online games, peer-to-peer file sharing and instant messaging require the router's firewall to be configured in a specific way to work correctly which normally means setting up port forwarding or triggering manually. An application that is UPnP compliant has the ability to communicate with the Bright Box Wireless Router, automatically configuring the router firewall and removing the need to do this manually.

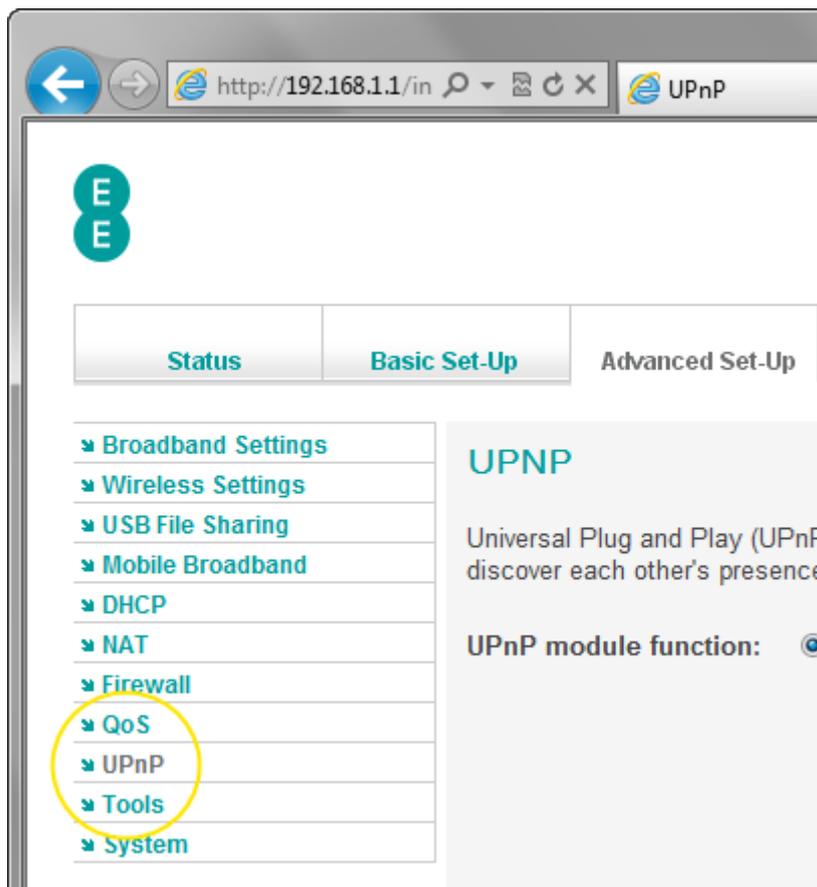
UPnP is enabled on the Bright Box Wireless Router by default meaning that UPnP compliant applications and devices will work correctly on your home network as soon as they are connected to the router.



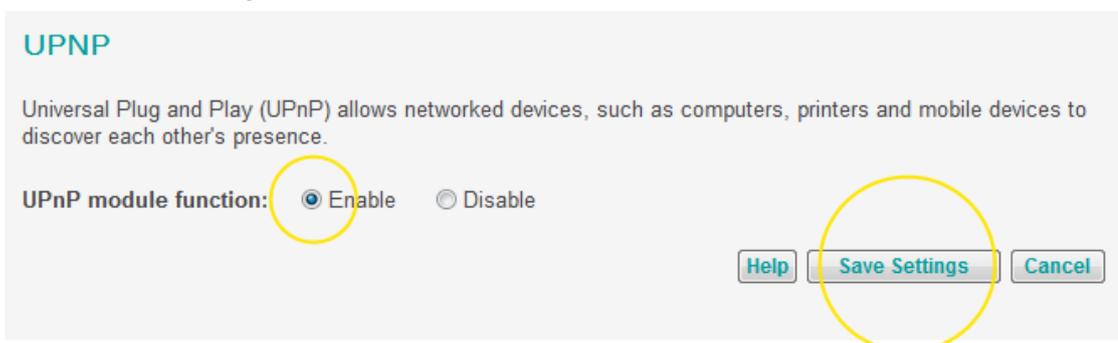
UPnP can be disabled so that connected devices and application don't manage their own firewall settings. Please be aware that disabling UPnP may cause applications to stop working correctly, and may require manually configuring firewall port rules on the **Port Forwarding** and **Port Triggers** pages.

You can enable or disable UPnP on the router by doing the following:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **UPnP** in the left hand navigation menu:



4. On the 'UPnP module function' option, select the option you want, either 'Enable' to switch UPnP on (this is the default setting) or 'Disable' to switch off UPnP – in this example we are selecting 'Enable'.
5. Click **Save Settings**:



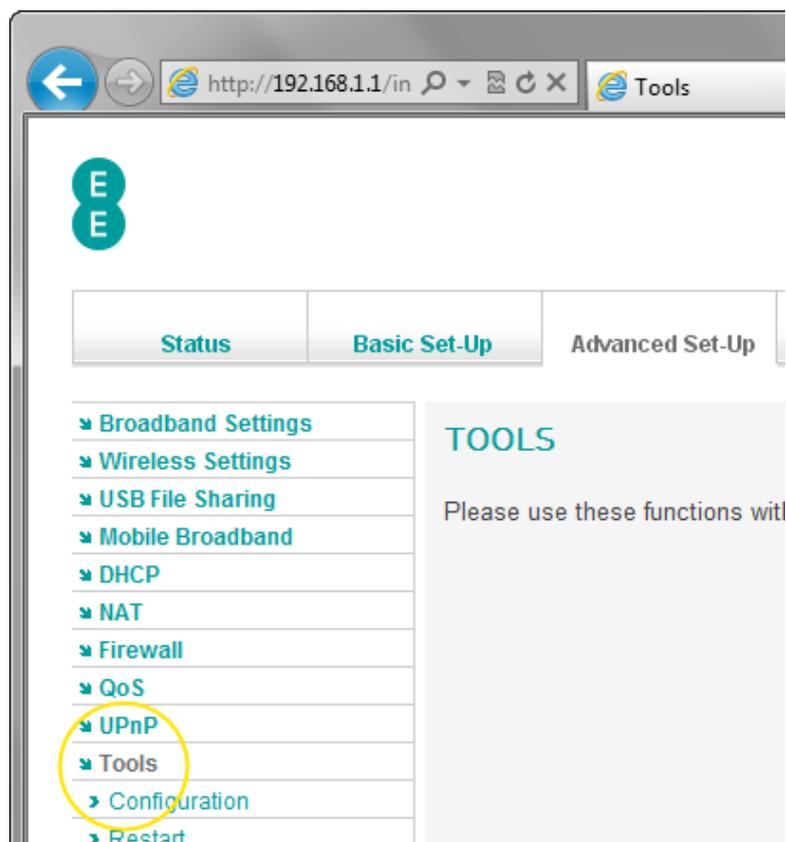


## TOOLS

The Tools section contains a number of features to help manage your router. You can back up and restore your router settings on the **Configuration** page. You can reboot your router on the **Restart** page, restore the router to its factory settings on the **Factory Default** page and update the router firmware from a file on the **Firmware** page.

To access the Tools features:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Tools** in the left hand navigation menu:



4. Now you can select the tools features by clicking on **Configuration**, **Restart**, **Factory Default** or **Firmware Upgrade** in the left hand navigation menu.

## CONFIGURATION

The Bright Box router is configured for EE Broadband out of the box, however you may wish to make changes to the router settings at any time. The **Configuration** page allows you to make a backup of your router's settings, and also restore those settings at a later time.

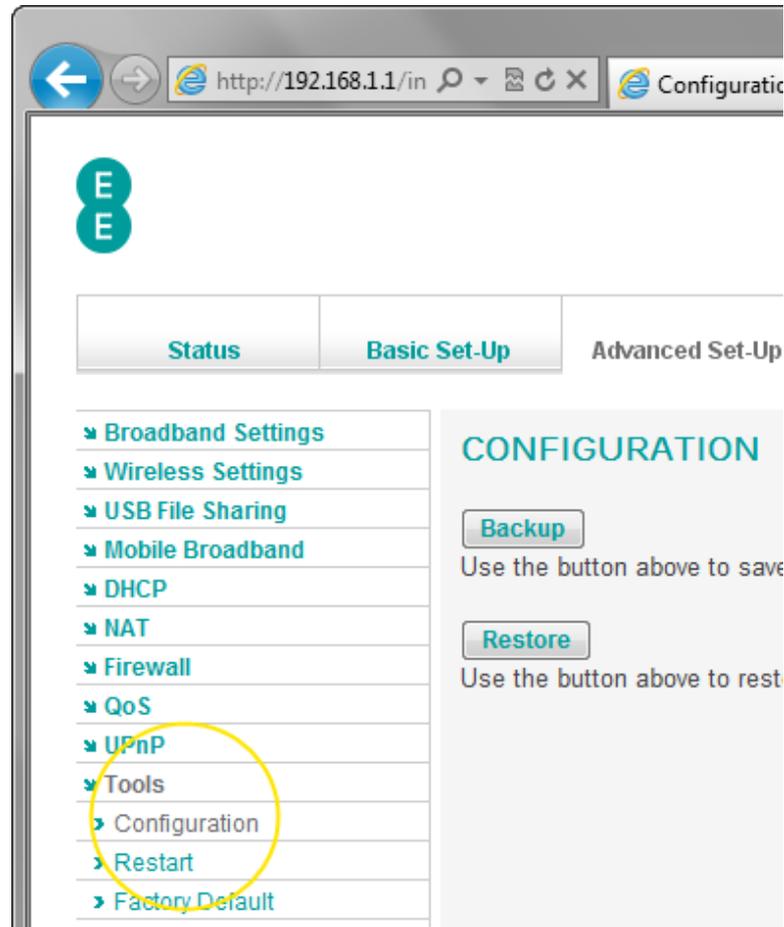
This is particularly useful if you've made a number of advanced settings changes (such as creating port forwarding for online gaming) and need to return to your router to factory default settings. You can factory reset the router and then re-apply the custom configuration changes by restoring from the configuration file.

To access the **Configuration** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.



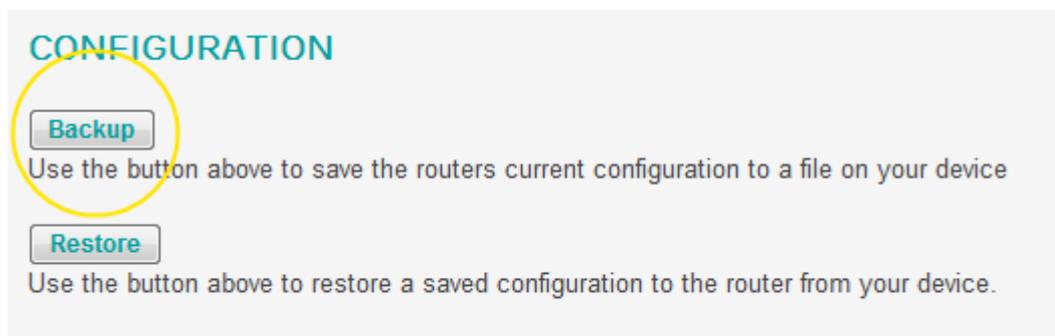
3. Click on **Tools** in the left hand navigation menu to expand the Tools menu:
4. Click on **Configuration** on the left hand menu:



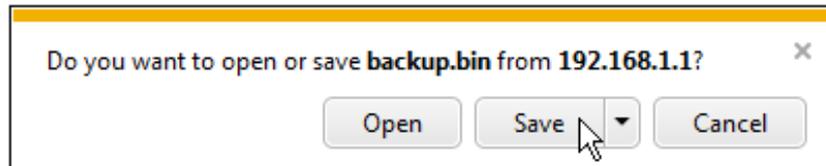
### How to save a copy of your router's settings

To back up the Bright Box router configuration settings in a file that you can restore at any time, do the following:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Tools** in the left hand navigation menu to expand the Tools menu:
4. Click on **Configuration** on the left hand menu
5. Click the **Backup** button:



- You may be presented with an option to save a file called 'backup.bin'. This is the router configuration file. Click **Save** (or **Save As** if you want to specify a save location yourself).



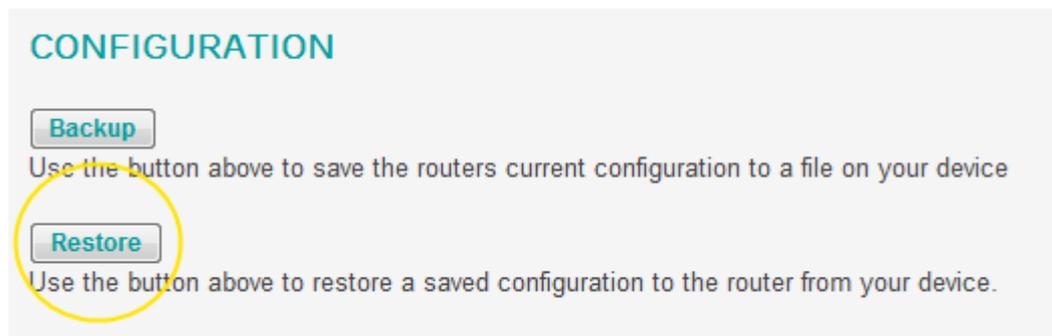
- The configuration file will be saved to your computer. This is normally saved in your computer's download folder. It is recommended that you store this file in a memorable location. By default the file would be located in the following folders:
  - On a Windows Vista/7 computer with Internet Explorer or Firefox this would be C:\Users\[username]\Downloads.
  - On a Windows XP computer with Internet Explorer 8 C:\Documents and Settings\[username]\My Documents
  - On Mac OS X this would be /Users/[username]/Downloads

If you want to rename the backup.bin file to something more memorable you can, just ensure that you keep the .bin extension at the end of the file name in order to be able to restore from it later.

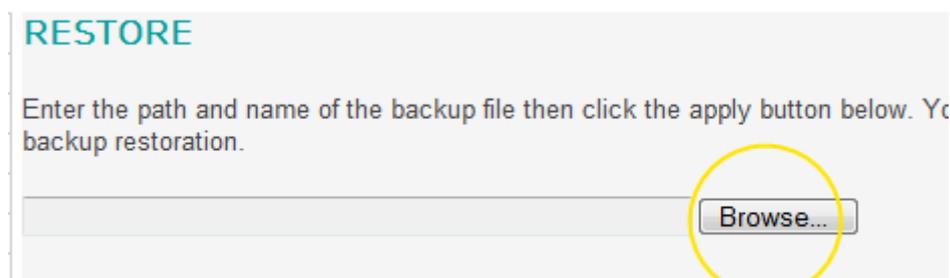
### How to restore your router's settings from a backup

To restore your router's settings from a previously saved backup file (backup.bin):

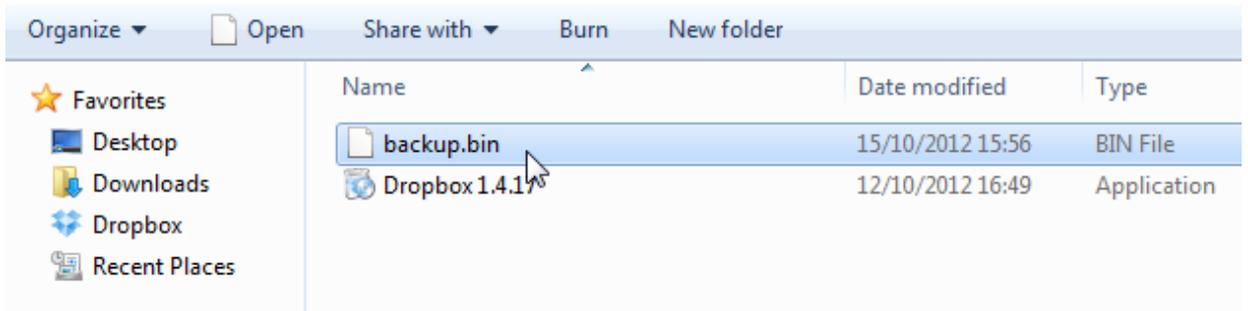
- Login to the router's admin pages.
- Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
- Click on **Tools** in the left hand navigation menu to expand the Tools menu:
- Click on **Configuration** on the left hand menu:
- Click the **Restore** button:



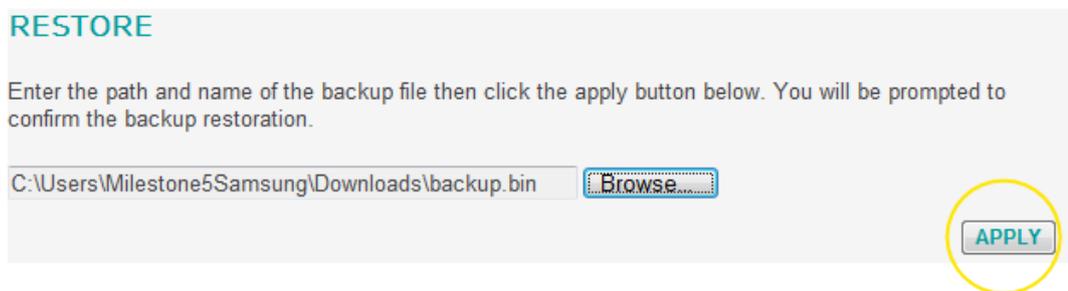
- Click on the **Browse...** button:



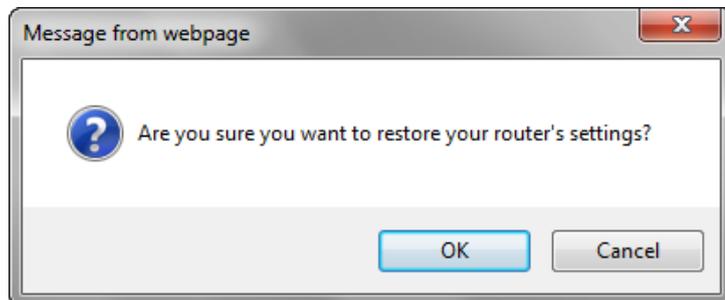
7. Select the location of the 'backup.bin' file that you previously saved. For example, in the 'Downloads' folder:



8. Double click the backup.bin file, and then on the **Restore** page click **Apply**:



9. When prompted whether you want to restore your router's settings, click **OK**:



10. The restoration of the router settings from the configuration file will begin. This process will take 99 seconds to complete:

**Do not turn off your router, please wait until configuration has been restored.**

seconds remaining.

11. The router will be automatically rebooted, and after 99 seconds you will be returned to the router admin page login screen. Your router settings will now have been restored

## RESTART

If you're having problems with your Internet connection, you may be able to fix the problem by restarting the router from the **Restart** admin page.

Restarting the router from the **Restart** page is the same as powering the router off and on. You may find it is more convenient to power the router off and on using the power switch on the back of the router if you are nearby, or not logged into the admin pages. However if

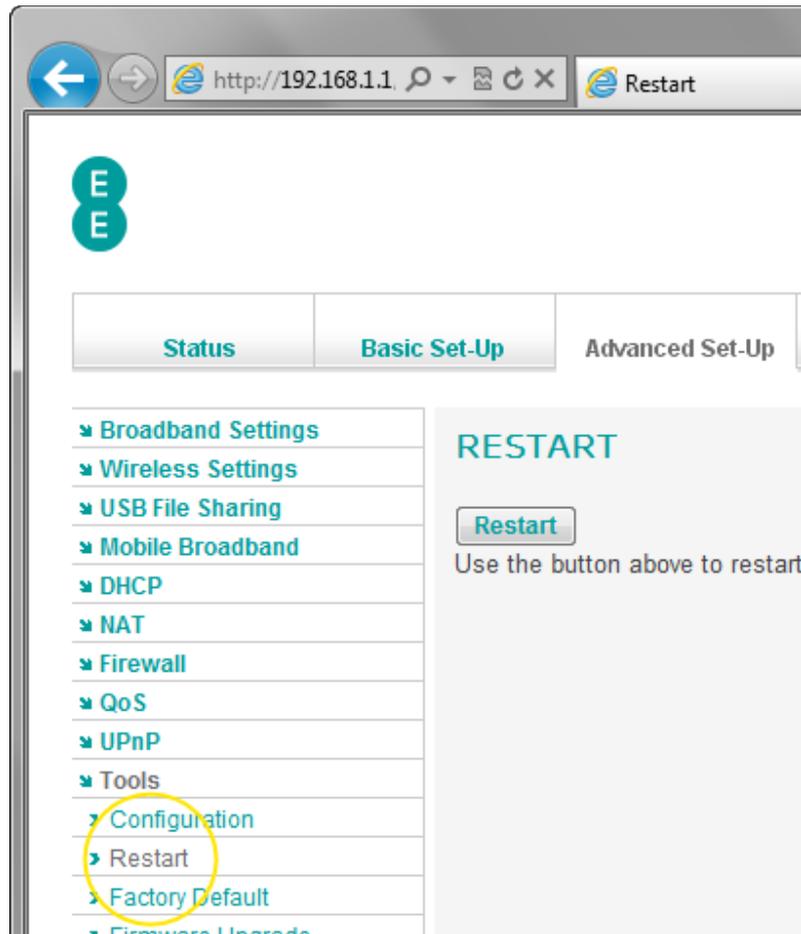


you are away from the router (for example connected over a wireless connection) you may find it more convenient to restart the router in the admin page.

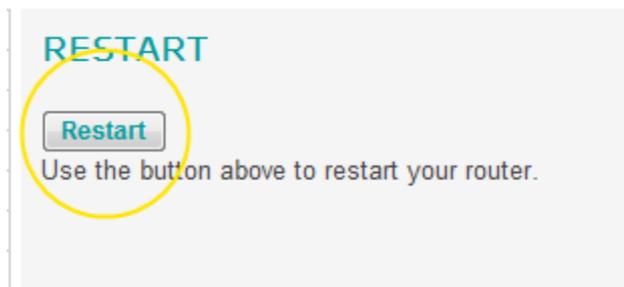
## How to restart your router

To restart the Bright Box router:

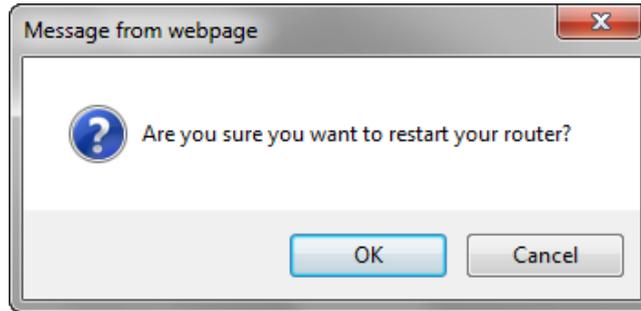
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Tools** in the left hand navigation menu to expand the Tools menu:
4. Click on **Restart** on the left hand menu:



5. Click the **Restart** button:



6. Click **OK** when prompted whether you want to restart your router:



7. The restart will begin. This process will take 99 seconds to complete:

 **Do not turn off your router, please wait until router has restarted.**

seconds remaining.

8. The router will be automatically rebooted, and after 99 seconds you will be returned to the router admin page login screen.

## FACTORY DEFAULT

If you have changed settings in your router and this is causing problems accessing the Internet, you may need to reset the router back to its factory settings in order to fix the problem.

There are two methods you can use to restore the router to its factory settings:

1. Reset using the **Factory Default** admin page
2. Reset using the reset button on the back of the router.

Both methods will be described in this section.

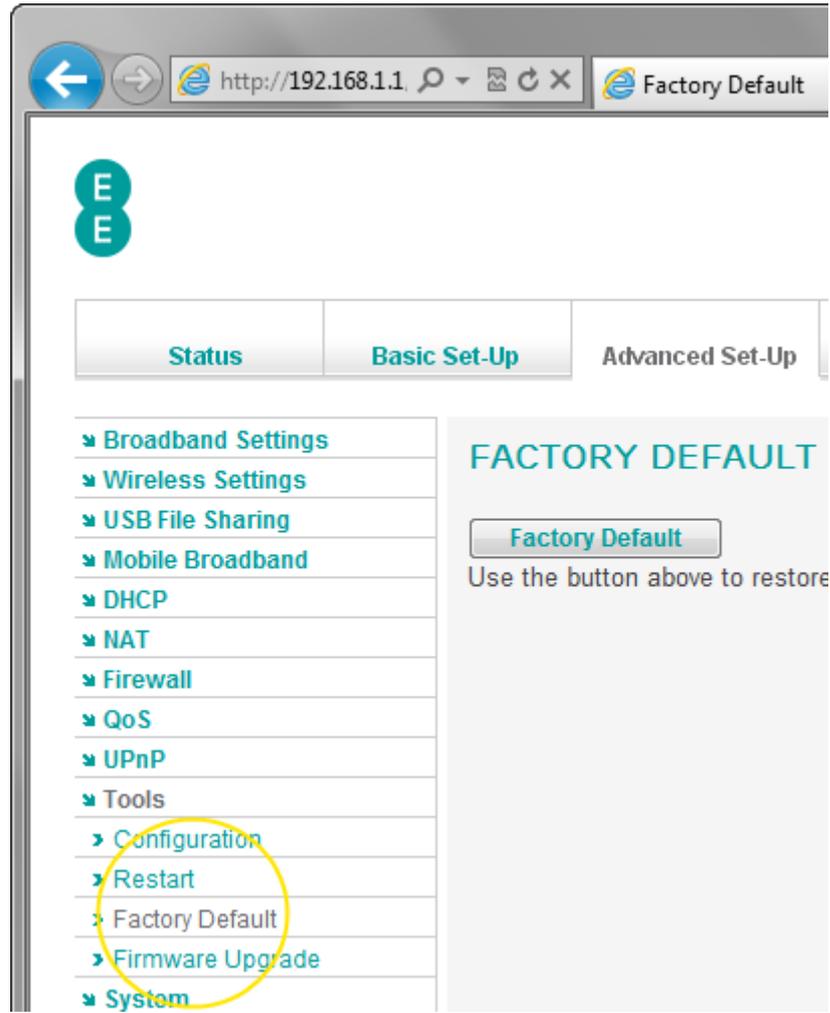
 Factory resetting the router will cause any custom settings that you have configured to be removed. For example if you have changed Wi-Fi settings such as the wireless network name or password, or created port forwarding rule, these will be reset back to default setting. You may wish to save a copy of your router settings before factory resetting. See *how to save a copy of your router's settings* on page 173 for instructions.

 A full list of default settings for the Bright Box router can be found in Appendix A: Router Default Settings.

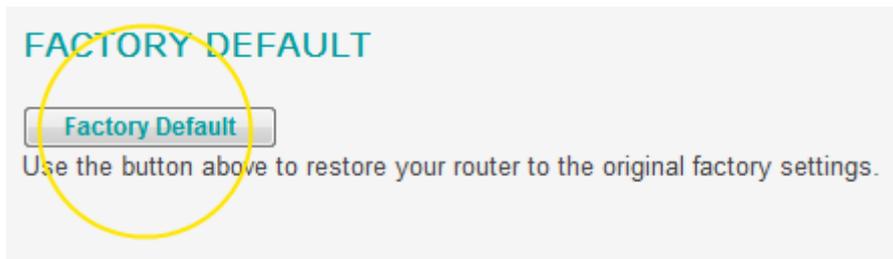
### How to restore the router to factory defaults from the router admin page

To restore the router from its factory settings from the router admin page:

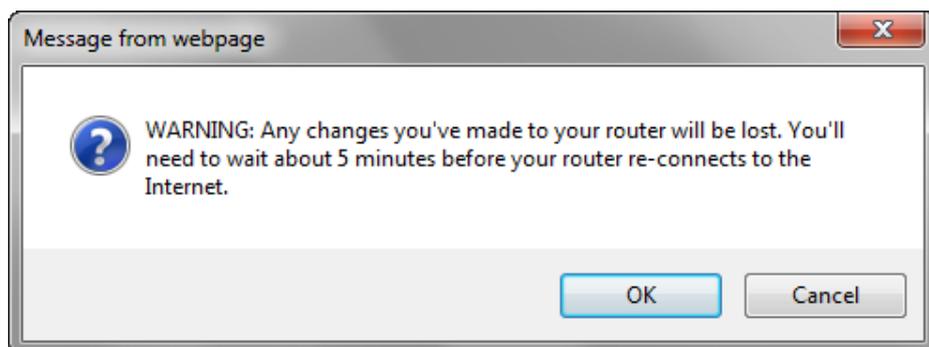
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Tools** in the left hand navigation menu to expand the Tools menu:
4. Click on **Factory Default** on the left hand menu:



5. Click on the **Factory Default** button:



6. A warning dialog box will be displayed. Click **OK** to proceed with the restoration of factory default settings, or click **Cancel** if you want to keep the current settings:



7. A 'Do not turn off your router, please wait until default configuration has been applied' message and timer will be displayed for 99 seconds.

 **Do not turn off your router, please wait until default configuration has been applied.**

seconds remaining.

8. The router login page will be displayed after the router has rebooted. As restoring to factory default settings will remove your Internet connection settings, it will take about 5 minutes before your Internet connection is automatically restored. If this doesn't happen you can manually update your broadband username and password to make a connection to the Internet. See *how to manually update the broadband username and password* on page 52.

### How to restore the router to factory defaults from the reset button on the router

You can restore the router to factory default settings by using the reset button on the back panel of the router. To do this:

1. Ensure the router is plugged in and turned on:
2. Find a thin object that will easily fit into the Reset button hole at the back of the router. A paper clip is ideal.
3. Insert the paper clip into the reset hole as far as it will go and hold for 6 seconds:



4. Release the button – the WPS and LAN1-4 lights will flash and then turn off briefly.
5. The router will now restart. As restoring to factory default settings will remove your Internet connection settings, it will take about 5 minutes before your Internet connection is automatically restored. If this doesn't happen you can manually update your broadband username and password to make a connection to the Internet. See *how to manually update the broadband username and password* on page 52.

## FIRMWARE UPGRADE

The router firmware (or router software) is stored on an internal flash memory chip in the Bright Box router. It is possible to update this firmware through the Bright Box admin pages. If we need to release an up-to-date version of firmware in this way, we may provide a firmware file download at the page below:



www.ee.co.uk/brightbox

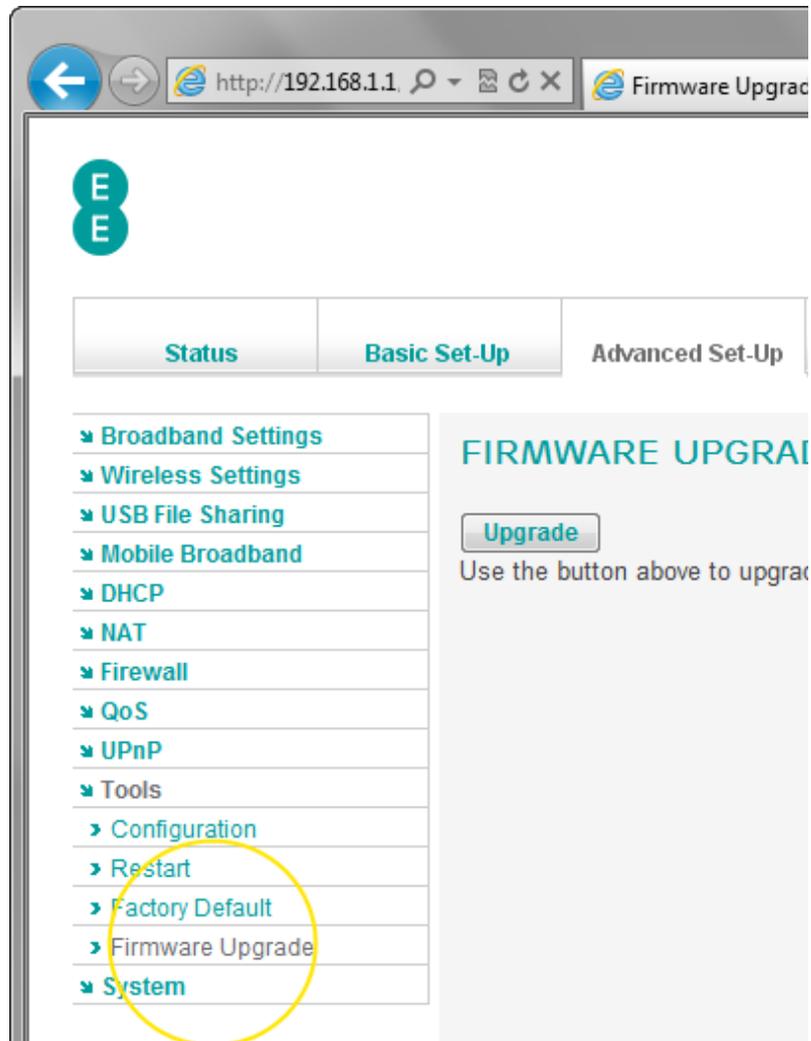
The firmware file will usually have a .bin file extension. For example – 'BrightBox\_FW\_V0.09.94.0006.bin'

**i** If you have applied custom settings to the router, you should find that these are automatically carried across during the upgrade. However it may be possible that the new firmware needs to change router settings, in which case you will find any further information in the firmware release notes supplied by EE.

### How to upgrade your router with a firmware file

To upgrade the Bright Box router from a firmware file supplied by EE:

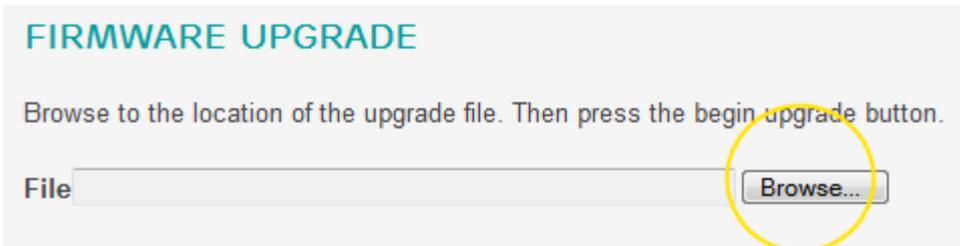
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **Tools** in the left hand navigation menu to expand the Tools menu:
4. Click on **Firmware Upgrade** on the left hand menu:



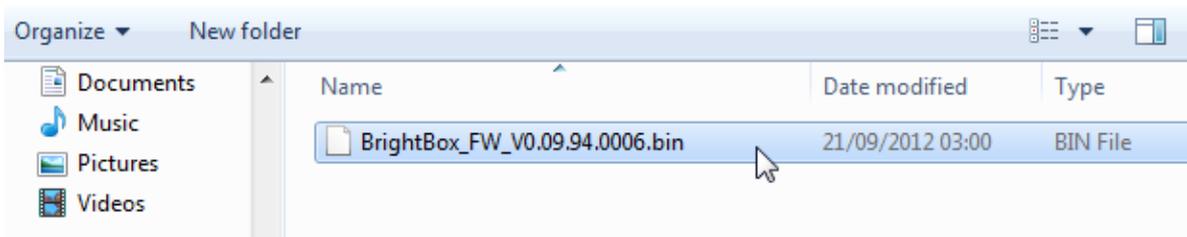
5. Click on the **upgrade** button:



6. Click on the **Browse** button on the **Firmware Upgrade** page:



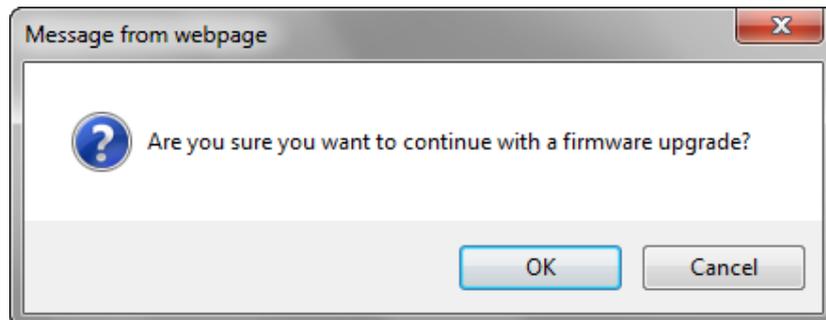
7. Navigate to the location of the router firmware on your computer and double click on the firmware file;



8. Click on the **begin upgrade** button on the **Firmware Upgrade** page:



9. You will be prompted to confirm that you want to continue with the firmware upgrade. Click the **OK** button to confirm you want to upgrade the router, or click **Cancel** if you don't want to upgrade:



10. A 'Do not turn off router, please wait until firmware update has completed' message will be displayed. The firmware upgrade process may take up to 199 seconds.



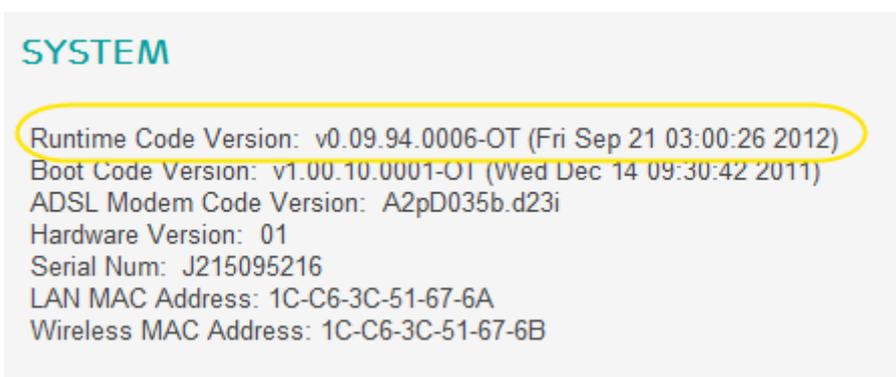
 **Do not turn off your router, please wait until firmware update has completed.**

199 seconds remaining.

11. The router will restart as a part of the firmware upgrade and the router login page will be displayed when the upgrade is complete.

Your current router settings will normally be carried across to the new firmware, however it may be possible that certain settings are changed or reset to factory defaults. If your broadband username and password settings are reset, it may take about 5 minutes before your Internet connection is automatically restored. If this doesn't happen you can manually update your broadband username and password to make a connection to the Internet. See *How to manually update the broadband username and password* on page 52.

12. You can confirm that your firmware has been successfully upgraded by logging back into the admin pages and navigating to the **Advanced Set-Up > System** page. The 'Runtime Code Version' should now match the version of the firmware supplied by EE:

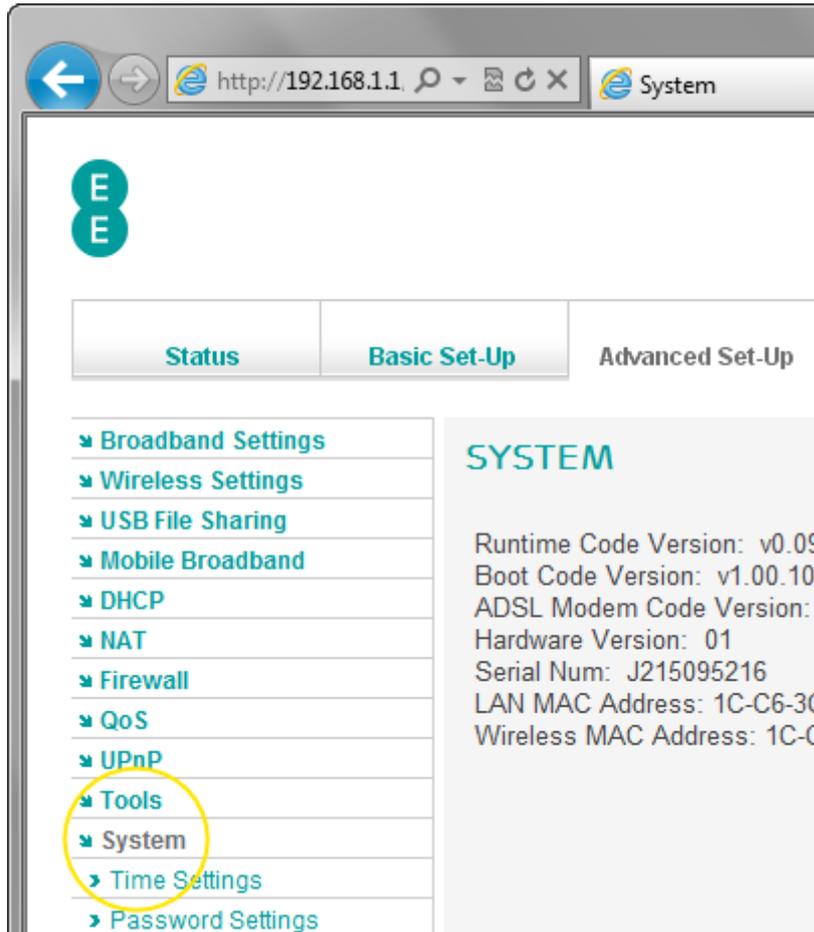


## SYSTEM

The System pages contain a number of additional configuration features and information pages. The **System** page will display details about your router hardware and software. The **Time Settings** page will allow you to set whether your router is synchronized with an Internet time server. The **Password Settings** page will allow you to change the login password for the router admin pages. **DDNS** page allows you to configure the router for DynDNS or TZO dynamic DNS settings. The **ADSL Status** page will display information about your ADSL broadband connection and the **System Log** page will allow you to view system information messages from your router.

To access the **System** page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu:



The **System** page displays additional details about your router, including hardware, MAC address and software information.

The following table describes the information on the **System** page:

Section	Description
Runtime Code Version	This field displays the firmware (or software) version of the Bright Box router. This value will be updated if you upgrade the router firmware. See <i>How to upgrade your router with a firmware file</i> on page 180.
Boot Code Version	This field displays the boot code version of the Bright Box router.
ADSL Modem Code Version	This field displays the ADSL modem code version of the Bright Box router. This version may or may not be updated if you upgrade the router firmware.
Hardware Version	This field displays the hardware version of the router. This version will not change if you upgrade the router firmware, and relates to the physical router unit.
Serial Num	This field displays the Serial Number of the router. The serial number is also displayed on the sticker on the bottom of the router unit.
LAN MAC Address	This field displays the 12-digit MAC address of the LAN Interface of the router. The LAN MAC address is also displayed on the sticker on the bottom of the



	router unit.
Wireless MAC Address	This field displays the 12-digit MAC address of the wireless interface of the router.

## TIME SETTINGS

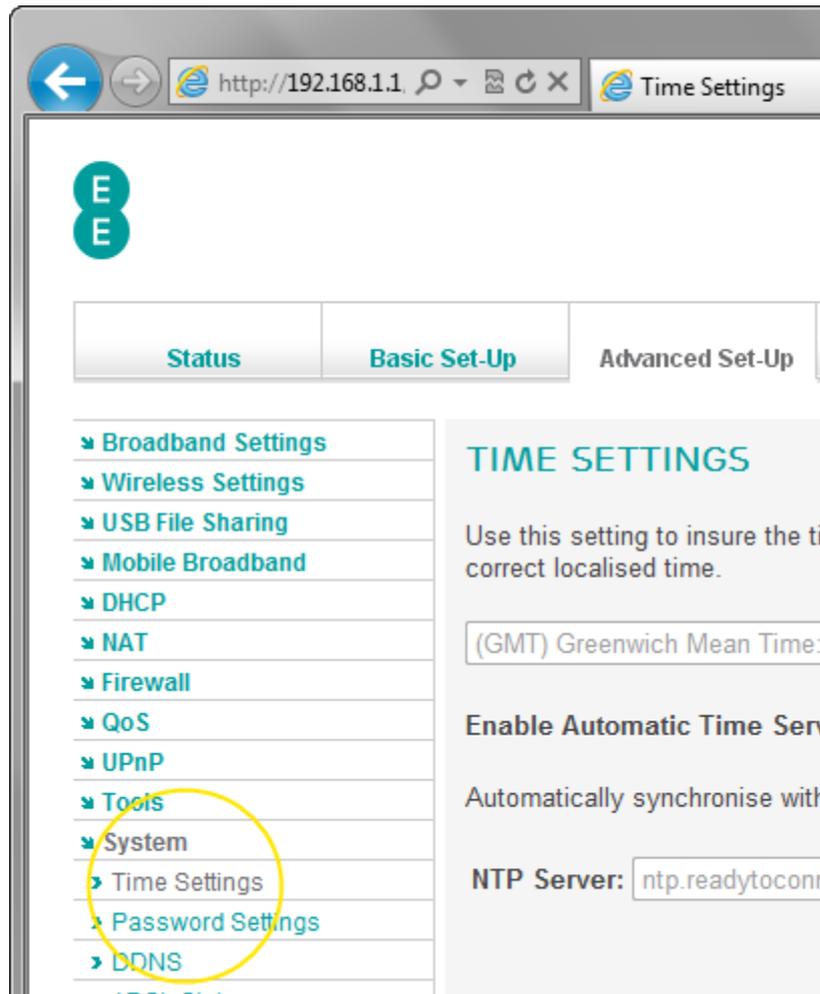
Your Bright Box Wireless Router keeps time by connecting to a Network Time Protocol (NTP) server as soon as you connect to the Internet. This allows the router to synchronize the system clock to time settings on the Internet. This is important, as it means the logs on your router displayed in the **System Log** page, and any time based scheduled rules you set up in the **Schedule Rule** are correct.

The synchronisation to the NTP time service is enabled by default on the Bright Box router. The default NTP server is `ntp.readytoconnect.co.uk` and is synchronised to Greenwich Mean Time (GMT).

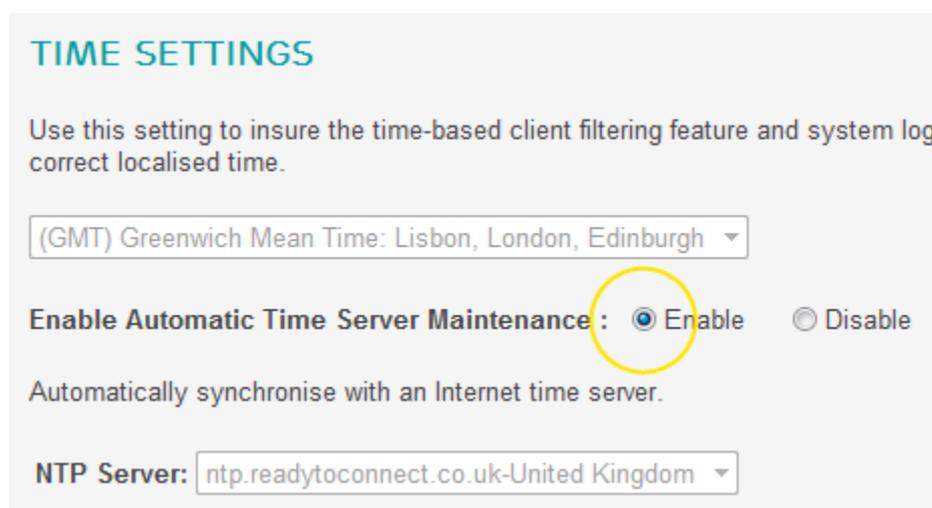
It is possible to disable the NTP time synchronisation, although this is not recommended as it will prevent the correct time being displayed in the System Log and schedule rule not working.

To update the Automatic Time Server Maintenance setting:

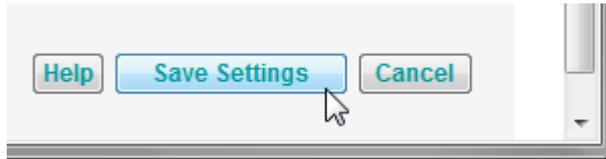
1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:
4. Click on **Time Settings** on the left hand menu:



- On the 'Enable Automatic Time Server Maintenance' option select 'Enable' to switch on time synchronisation with the NTP server, or select 'Disable' to switch off time synchronisation. In this example we'll select 'Enable':



- Click **Save Settings**:



 Please note that it is not possible to update the Time Zone or NTP Server options, these are fixed and optimised for EE Broadband.

## PASSWORD SETTINGS

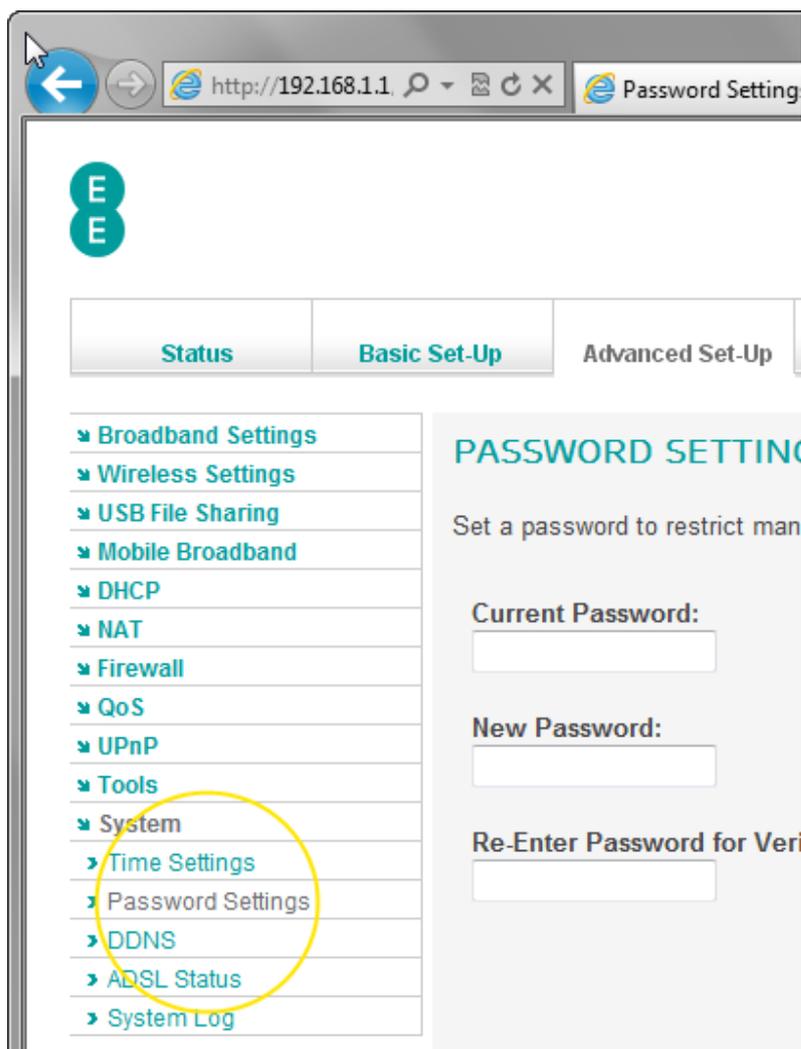
From the **Password Settings** page, you can change the password you use to log into the router's admin pages. This may be for security reasons or to change it to something more memorable.

The **Password Settings** page can also be used to change the Idle Time Out for the admin pages. The timeout dictates maximum time of inactivity before you are logged out of the admin pages and need to log back in.

 If you changed your password from the default and you forget your new password, you can return your router to factory default settings. See *How to restore the router to factory defaults* on page 179. You'll find your original password printed on the sticker on the bottom of the router or on the 'KEEP MEE' card that came with your router.

To access the Password Settings page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:



## How to change the router's admin password

To change the password for the router's admin pages:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:
4. Click on **Password Settings** on the left hand menu:
5. On the **Password Settings** page, enter the current password for the admin pages in the 'Current Password' field. If you are still using the password that the router was sent with then this will be printed on the sticker on the bottom of the router, or on the 'KEEP MEE' card that was sent with the router
6. Enter the new password for the admin pages in the 'New Password' field. The password is case sensitive, so 'MYPASSWORD', 'MyPassword' and 'mypassword' are all different passwords.
7. Re-enter your new password in the 'Re-enter Password for verification' field

### PASSWORD SETTINGS

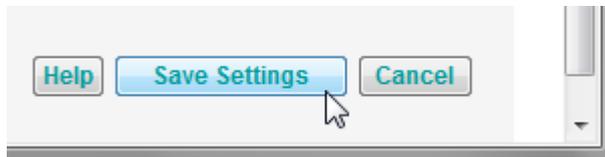
Set a password to restrict management access to the router.

**Current Password:**  **Idle Time Out:**  Min  
(Idle Time =0 : NO Time Out)

**New Password:**

**Re-Enter Password for Verification:**

8. Click **Save Settings**



9. The password change will be applied and the router login page will be displayed again. Enter your new admin password in the password field to log back into the admin pages. The username will remain as 'admin':

### Login Screen

**Username:**

**Password:**

### How to change the time out period of the admin pages

If you find that you are being timed out of the router admin pages too quickly, you can change the minimum time before a timeout occurs, or switch off the time out altogether. By default, you will be timed out of the router's admin pages after 10 minutes of inactivity. To change the time out period:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:
4. Click on **Password Settings** on the left hand menu.
5. On the **Password Settings** page enter the new time out period (in minutes) in the 'Idle Time Out' field. You can enter a value between 0 and 99. If you want to ensure that you are never timed out of the admin pages, then set the value to 0. In this example we will change the time out period to 15 minutes:

### PASSWORD SETTINGS

Set a password to restrict management access to the router.

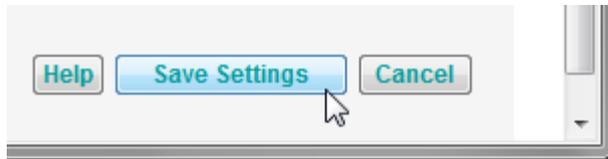
Current Password:

New Password:

Re-Enter Password for Verification:

Idle Time Out:  Min  
(Idle Time =0 : NO Time Out)

6. Click **Save Settings**



**!** Only one administrator can be logged into the router admin pages at any time. The router determines the administrator by the IP address of the person logged into the admin pages. If you want to leave the admin pages, remember to click the **logout** link at the top right hand corner of the pages. If you don't logout, another user on a different computer cannot login until the timeout time expires. If you have set the timeout period too long (or set to 0) then you will need to power your router off and on to reset access to the admin pages on another computer.

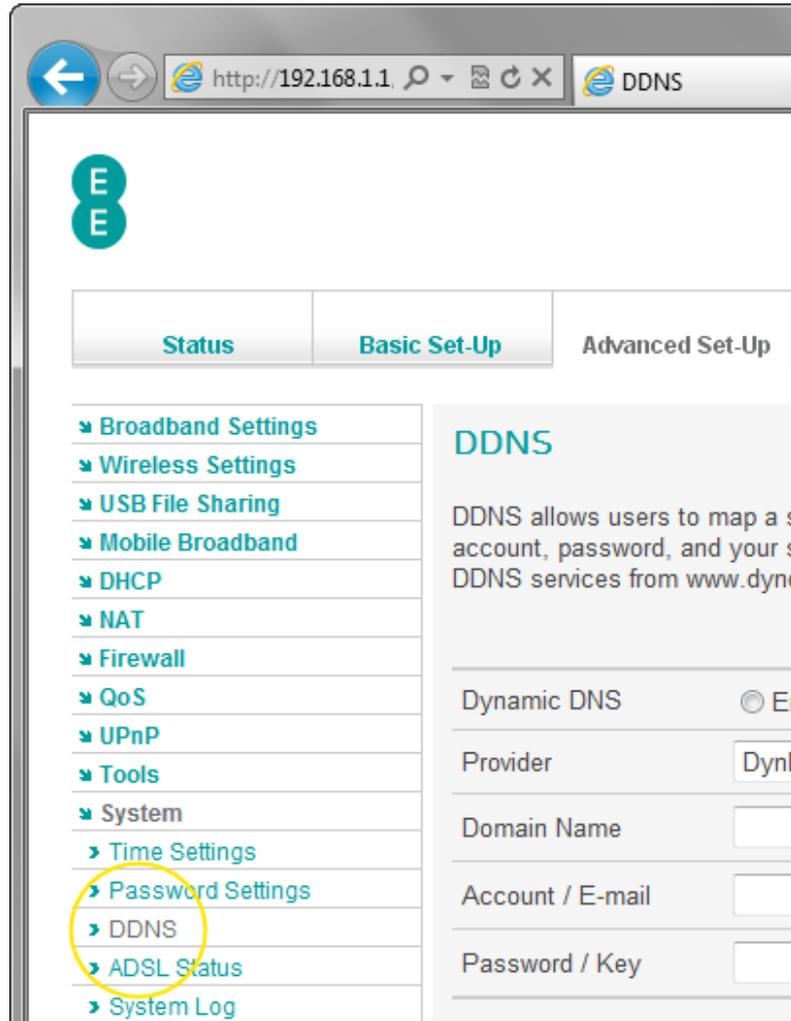
## DDNS

The **DDNS** page allows you to configure the Dynamic DNS service for your router. Dynamic DNS is online service that allows you to register a domain name and have any traffic that tries to access that domain name be forwarded to your router's Internet IP address. This feature is particularly handy for EE Broadband users who will have a different Internet IP address each time the router is restarted.

By setting up a Dynamic DNS service with either DynDNS (dyndns.org) or TZO (tzo.com) and configuring the Dynamic DNS settings in the router's **DDNS** page, the router will inform those services of your current IP address and forward traffic directed to your domain – for example yourname.dyndns.com to the router. You can couple Dynamic DNS with Port Forwarding to have traffic directed to a web server or similar application on your local network without having to enter the Internet IP address manually each time.

To access the Dynamic DNS page:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:
4. Click on **DDNS** on the left hand menu:



## How to configure your router for Dynamic DNS

To configure the Bright Box router to use a dynamic DNS service:

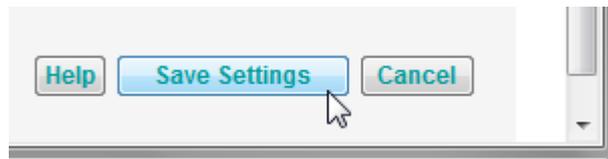
1. Register a Dynamic DNS account at either TZO.com or DynDNS.com. In the account control panel you will want to make note of the 'Hostname', 'Username' and 'Password' values.
2. Login to the router's admin pages.
3. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
4. Click on **System** in the left hand navigation menu to expand the System menu:
5. Click on **DDNS** on the left hand menu.
6. On the 'Dynamic DNS' option, set to 'Enable'
7. Select your Dynamic DNS provider from the 'Provider' dropdown, this can either be DynDNS.org or TZO.com.
8. Enter the host/domain-name for your service In the 'Domain Name' field, this usually looks like yourname.dyndns.org or myaccount.tzo.com or similar.
9. Enter your account name for your service in the 'Account / E-mail' field. This is the name you use to login to your Dynamic DNS account online.
10. Enter your password for your service in the 'Password / Key' field. This is the password you use to login to your Dynamic DNS account online:

**DDNS**

DDNS allows users to map a static Domain Name to a dynamic IP address account, password, and your static Domain Name from a DDNS service provider. DDNS services from www.dyndns.org and www.tzo.com.

Dynamic DNS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Provider	DynDNS.org ▼
Domain Name	myrouter.dyndns.org
Account / E-mail	mydnsservice
Password / Key	••••••••

11. Click **Save Settings**:



12. Your Dynamic DNS host will now be configured with your current Internet IP address, and this will be updated every time you are assigned a new IP address by EE Broadband (usually when you restart the router).

**i** For security purposes the Bright Box router does not allow you to remotely login to the admin pages over the Internet, either directly through the router IP address or over a Dynamic DNS service. You can use Dynamic DNS to access applications such as a web server on your local network in conjunction with Port Forwarding.

## ADSL STATUS

You can see information on your current EE ADSL connection in the **ADSL Status** page. The page displays information such as the status of your link and operation mode, along with line synchronisation speeds, noise margins, line attenuation and error correction statistics.

This information might be useful in diagnosis of ADSL line connection issues, and could be requested by an EE support agent.

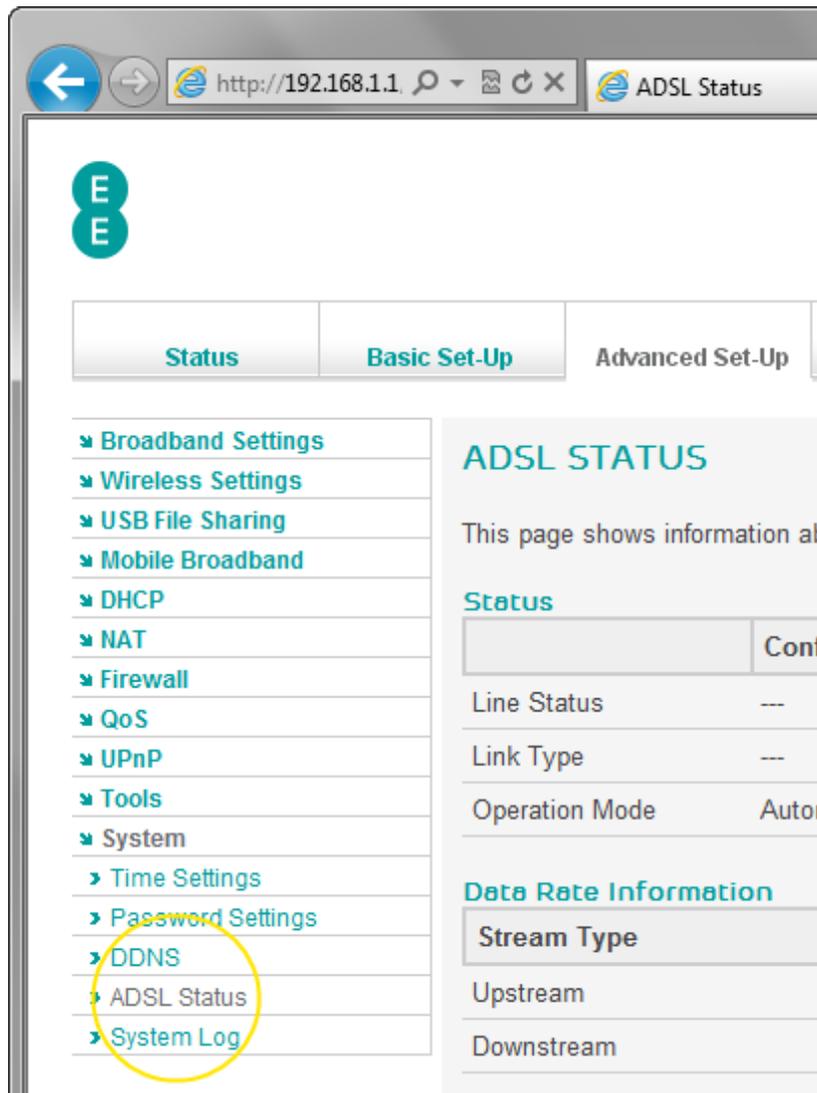
**i** For EE Fibre broadband, the ADSL Status page will not display line statistics and the 'Line Status' will appear as 'IDLE'

To access the ADSL line status for your ADSL broadband connection:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:



4. Click on **ADSL Status** on the left hand menu:



The following table describes the information displayed on the **ADSL Status** page:

Section	Description
Link Status	<p>This is the current synchronisation status of your ADSL connection.</p> <p>The value will display 'IDLE' if your ADSL connection is unable to synchronise with broadband exchange or you are using the EE Fibre broadband service.</p> <p>The value will display 'TRAINING' if your ADSL connection is currently in the process of synchronising with the broadband exchange.</p> <p>The value will display 'SHOWTIME' if your ADSL link has been successfully established with the exchange.</p> <p>The 'configured' column for the Link Status will always display '—'.</p>
Link Type	This is the type of ADSL link established with the



	<p>broadband exchange.</p> <p>The value will display either 'Interleaved Path' or 'Fast Path'</p> <p>The 'configured' column for the Link Status will always display '—'.</p> <p>If the 'current' column displays '—' then no ADSL link has been achieved, and may indicate a problem with your ADSL line.</p>
Operation Mode	<p>This value is the ADSL operating mode as synchronised with the broadband exchange.</p> <p>The value will display 'G992.5(ADSL2+)' for ADSL2+ (up to 24Mbps) or 'G.992.1 (G.DMT)' for IPStream (up to 8Mbps) on EE Broadband</p> <p>The 'configured' operation mode will always display 'Automatic'.</p> <p>If the 'current' column displays '—' then no ADSL link has been achieved, and may indicate a problem with your ADSL line.</p>
Upstream Data Rate	<p>This value is the Upstream (Upload) ADSL data rate in Kilobytes per seconds (Kbps.)</p> <p>Please note that this is the rate synchronised with the broadband exchange – your actual Internet upload speeds may be lower than this value depending on the service you are using.</p>
Downstream Data Rate	<p>This value is the Downstream (Download) ADSL data rate in Kilobytes per seconds (Kbps.)</p> <p>Please note that this is the rate negotiated with the broadband exchange – your actual Internet download speeds may be lower than this value depending on the service you are using.</p>
Noise Margin	<p>These values are the upstream and downstream Signal to Noise Margin (sometimes known as an SNR) on your ADSL line.</p> <p>This is the ratio between the strength of the signal and the background noise on the line expressed in decibels.</p>
Line Attenuation	<p>These values are the upstream and downstream attenuation rates on your ADSL line.</p> <p>This is a measure of the loss of signal strength between your router and the broadband exchange expressed in decibels. The further you are from your exchange the higher the downstream attenuation rate.</p>
Output Power	<p>These values are the near end (from router) and far end (from exchange) power levels output between your router and broadband exchange.</p> <p>The output power will increase the further you are from your exchange.</p>
Fast Path FEC Correction	<p>These values are the count of Forward Error Correction (FEC) detected on the ADSL line with a</p>



	Fast Path link.
Interleaved Path FEC Correction	These values are the count of Forward Error Correction (FEC) detected on the ADSL line with an Interleaved Path link.
Fast Path CRC Error	These values are the count of Cyclic Redundancy Check (CRC) errors detected on the ADSL line with a Fast Path link. The values represent a re-sent packet due to corruption and may indicate noise on the line.
Interleaved Path CRC Error	These values are the count of Cyclic Redundancy Check (CRC) errors detected on the ADSL line with an Interleaved Path link. The values represent a re-sent packet due to corruption and may indicate noise on the line.
Loss of Signal Defect	These values are the count of events where a temporary loss of signal between the exchange and the router has been recorded, but the ADSL connection has not been lost.
Fast Path HEC Error	These values are the count of Header Error Check (HEC) errors detected on the ADSL line with a Fast Path link. This is a count of the errors on an ATM cell header. A high number of HEC errors in a short time period may cause throughput to slow down.
Interleaved Path HEC Error	These values are the count of Header Error Check (HEC) errors detected on the ADSL line with an Interleaved Path link. This is a count of the errors on an ATM cell header. A high number of HEC errors in a short time period may cause throughput to slow down.
Error Seconds	These values are the count of the number of seconds where at least one error has been detected over the ADSL line.

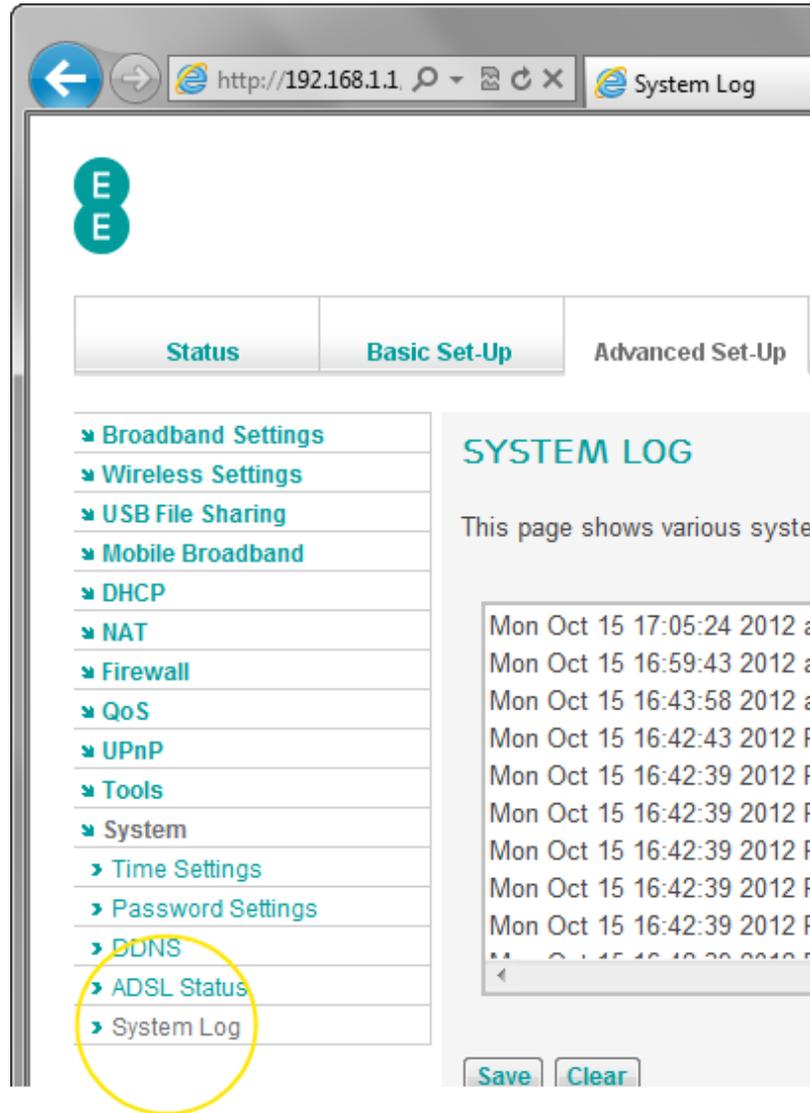
## SYSTEM LOG

The System Log shows a list of important events that have occurred since your router was last powered on or restarted. The log can be used to troubleshoot issues with your broadband connection, and can also be saved to a text file for later diagnostics.

The log is displayed in descending order by time (most recent events first).

To access the System Log:

1. Login to the router's admin pages.
2. Click on the **Advanced Set-Up** tab and click **Accept** on the 'Please proceed with caution' page.
3. Click on **System** in the left hand navigation menu to expand the System menu:
4. Click on **System Log** on the left hand menu:



### Description of System Log entries

The following table contains a description of the entries that may appear in the Bright Box System Log:

Section	Description
WAN link up (ADSL)	The router ADSL connection has synchronised with the broadband exchange.
WAN link down (ADSL)	The router ADSL connection has lost its link with the exchange after previously being connected. May indicate a problem with the broadband line.
PPP: Starting daemon	The PPP (Point-to-Point Protocol) software has started up.
PPP: Stopped daemon	The PPP (Point-to-Point Protocol) software has stopped. You can restart the daemon by clicking the <b>Connect</b> button on the <b>Advanced Set-up &gt; Broadband</b> settings page (see page 97)



PPP: LCP/IPCP sending/received CONFREQ	The Point-to-Point Protocol has sent or received a Configure-Request message.
PPP: LCP/IPCP sending/received CONFACK	The Point-to-Point Protocol has sent or received a Configure-ACK (Acknowledge) message.
PPP: LCP/IPCP sending/received CONFNAK	The Point-to-Point Protocol has sent or received a Configure-NAK (Negative Acknowledge) message.
PPP: LCP/IPCP sending/received CONFREJ	The Point-to-Point Protocol has sent or received a Configure-Reject message.
PPP: LCP/IPCP sending/received TERMREQ	The Point-to-Point Protocol has initiated a request to terminate the PPP connection.
PPP: LCP/IPCP sending/received TERMACK	The Point-to-Point Protocol has responded to the TERMREQ with an acknowledgement to close the PPP connection.
PPP connection up (VC1)	A connection to the Internet has been established using Point-to-Point Protocol.
PPP connection down (VC1)	A previous connection to the Internet has been lost over Point-to-Point Protocol.
PPP: LCP up	Link Control Protocol is up.
PPP: LCP down	Link Control Protocol is down and the Internet connection has been lost. May indicate a problem with the broadband line, or an incorrect broadband username and password.
PPP: IPCP up	Internet Protocol Control Protocol is up
PPP: IPCP down	Internet Protocol Control Protocol is down. May indicate a problem with the broadband line, or an incorrect broadband username and password.
PPP: CHAP authentication succeeded	Broadband authentication has been successful.
PPP: CHAP authentication failed	Broadband authentication has failed, check to see whether the broadband username and password are correct.
PPP: CHAP not supported	Challenge Handshake Authentication Protocol is not supported on this broadband connection. Check that you are using the correct authentication protocol for your broadband line.
PPP: PAP not supported	Password Authentication Protocol is not supported on this broadband connection. Check that you are using the correct authentication protocol for your broadband line.
Possible DoS attack detected from [IP Address] [MAC Address]	The router has detected a Denial of Service attack from the listed IP and MAC Address. A Denial of Service attack may be triggered by the following events - Zero Length IP, Ping of Death, IP Spoofing, Smurf Attack, Snork Attack, UDP Port



	Loopback or Port Scanning (with invalid TCP flags or more than 20 TCP connections in 4 seconds).
admin login success from [IP Address]	A login to the router admin pages has been successful by the listed IP address
admin login duplicate from [IP Address]	The listed IP address has attempted to login to the router admin pages when somebody else is already logged in.
admin login error from [IP Address]	A login to the router admin pages has not been successful, an incorrect username and/or password has been entered by the listed IP address.
admin timeout from [IP Address]	An idle timeout on the admin pages has occurred for the listed IP address.
admin logout from [IP Address]	The listed IP address has logged out of the router admin pages.

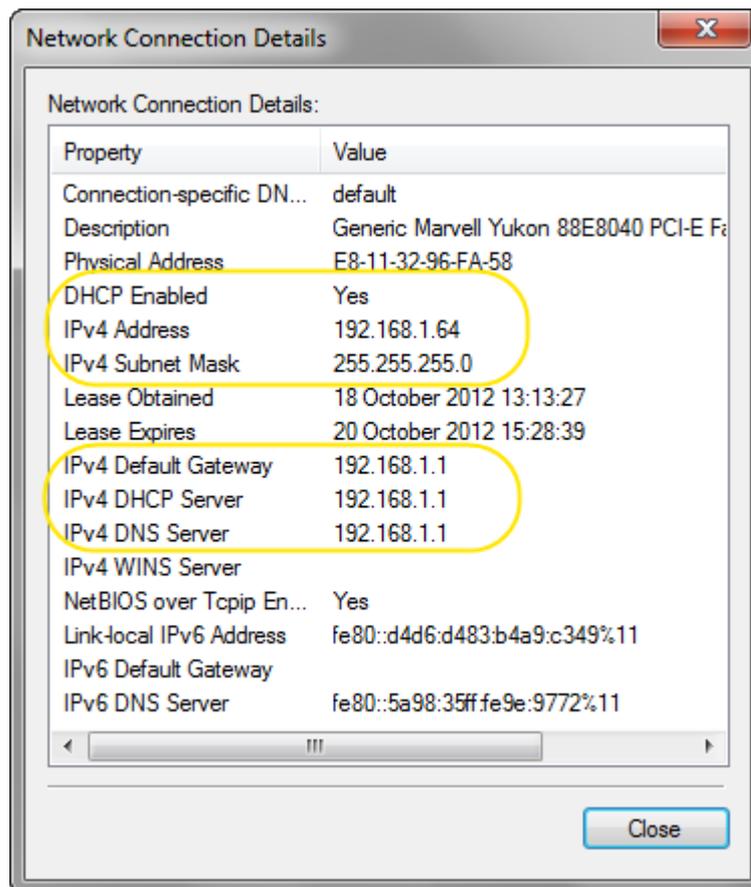
## CHAPTER 8: TROUBLESHOOTING

The following section contains troubleshooting tips for various issues you may encounter when using your Bright Box Wireless Router. For further assistance, EE Broadband customers may call us on 0844 873 8586.

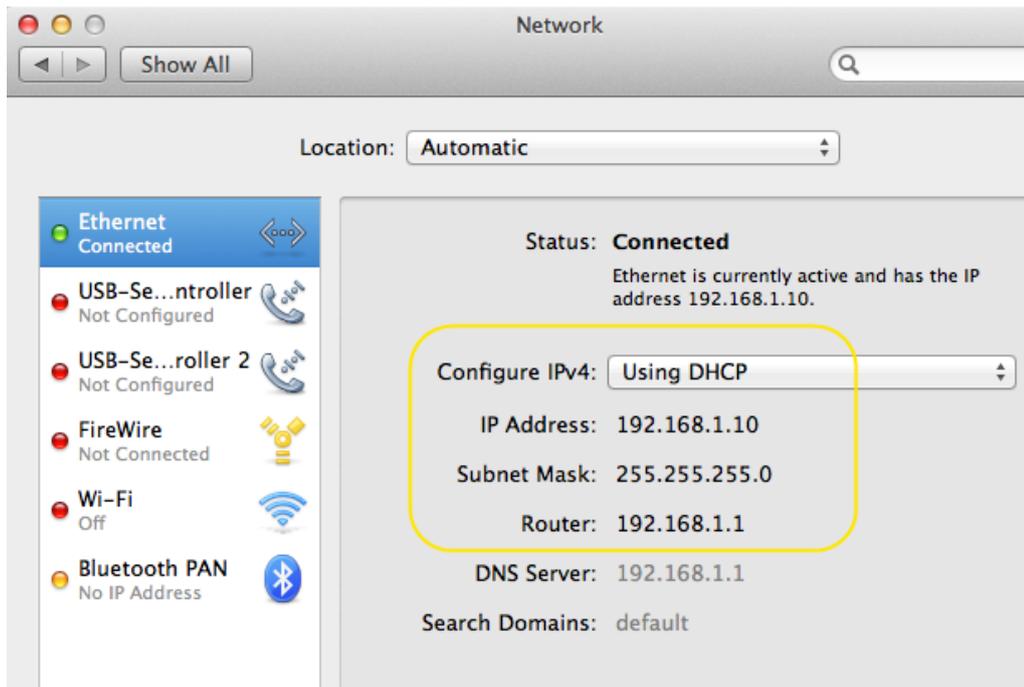
### Unable to display the router admin pages using 192.168.1.1

First check to see whether your computer has a connection to the Bright Box router. Open a web browser and attempt to access the router admin pages by entering 192.168.1.1 in the browser address bar. If you're unable to log in to the router admin pages in your web browser on 192.168.1.1, check the following:

- First check that the router is powered on and the Power light is lit.
- If you're connected to the router using an Ethernet cable, check that the Ethernet cable is correctly plugged into one of the router's LAN ports, and into the Ethernet plug on your computer. The LAN light for the connected port on the front of the router should be lit. See *Chapter 3: Installation* for more information on setting up your Bright Box.
- Microsoft Windows: If you're connected to the router using a wireless or Ethernet connection, check the **Network Connection Details** screen and verify that DHCP Enabled is 'Yes', IPv4 Address is '192.168.1.x' (x representing a number between 2 and 254), IPv4 Subnet Mask is '255.255.255.0', IPv4 Default Gateway is '192.168.1.1', DHCP Server is '192.168.1.1' and DNS Server is '192.168.1.1'



- Apple Mac OS X: You can check the network settings in **Network Preferences > Advanced... > TCP/IP**. Configure IPv4 should read 'Using DHCP', 'IPv4 Address' is '192.168.1.x' (x representing a number between 2 and 254), 'Subnet Mask' is '255.255.255.0', Router is '192.168.1.1'.



- If the 'DHCP Enabled' value displays 'No' (or 'Configure IPv4' isn't 'Using DHCP' on a Mac) then your computer might be using a static IP address rather than DHCP. Change your network settings to 'Obtain an IP Address Automatically' (on Windows) or 'Using DHCP' on Mac OS X.
- If the IPv4 Address displays 169.254.x.x then your computer has had trouble communicating with the router's DHCP server – reboot your computer and restart the router before trying again.
- If you're connecting to the router over a wireless connection, try connecting to the router with the black Ethernet cable supplied with the Bright Box.
- Close your browser window and re-open the browser, attempt to access 192.168.1.1 again.
- If you have previously used another router prior to the Bright Box, clear your browser's temporary Internet files, cookies and cache and try to log in to 192.168.1.1 again.
- Check that your web browser isn't configured to establish a dial-up connection. In Internet Explorer you can find this setting in **Internet Options** and clicking the **Connections** tab. Internet Explorer should be set to 'Never Dial a Connection' (or this option should be greyed out).
- Check that your web browser isn't configured to use a Proxy Server. In Internet Explorer you can find this setting in **Internet Options** and clicking on the **Connections** tab. Click on **LAN Settings** and ensure that the 'Use a Proxy Server...' box is unticked and that 'Automatically detect settings' is ticked.

### Unable to connect to the Internet

If you are able to access the router admin pages, but cannot get a connection through to the Internet then either there is a problem with your broadband line, or your router is not correctly configured to connect to EE Broadband. See *Chapter 3: Installation* for more information on setting up your Bright Box.

- For ADSL Broadband: Check that one end of your grey broadband cable is connected to the DSL port at the back of the router.
- For ADSL Broadband: Check that the other end of your grey broadband cable is connected to the DSL port on your microfilter.
- For ADSL Broadband: Check that your microfilter is connected to your telephone socket, ideally the master socket in your house



- For ADSL Broadband: Check that all of the telephone sockets in your house have an ADSL microfilter connected to them.
- For Fibre broadband: Check that the Ethernet cable is connected between the WAN port on the Bright Box and the LAN 1 port on the modem.
- For Fibre broadband: Check that the Fibre broadband modem is powered on.
- Check that your EE ADSL or Fibre broadband service is up and running - you should have received a text and email when it is (this can take up to 10 working days from the date you placed your order).
- Check that the Broadband light on the front of your router is solid green. This indicates that your router has synchronised with the EE broadband service. If the Broadband light is not lit or is flashing continuously, and all of the above checks have been undertaken then there may be a fault on your broadband line. Please contact EE Broadband support.
- For ADSL Broadband: You can also check the status of your ADSL connection by logging into the router admin pages on 192.168.1.1 and navigating to the **Status** page. If the 'Broadband State' reads 'Disconnected' then there may be a fault on your broadband line. Please contact EE Broadband support.

#### INTERNET

Broadband Type: ADSL  
Broadband State: Disconnected  
Internet State: Disconnected  
Time Connected: --:--:--  
Downstream Rate: 0kbps  
Upstream Rate: 0kbps  
Internet IP Address: 0.0.0.0

- Log in to the admin pages in your browser on 192.168.1.1 and navigate to the **Status** page. If the Broadband State is 'Connected' but the Internet State is 'Disconnected' (and the Internet IP Address is '0.0.0.0') then you may have incorrect broadband username or password.

#### INTERNET

Broadband Type: ADSL  
Broadband State: Connected  
Internet State: Disconnected  
Time Connected: --:--:--  
Downstream Rate: 5760kbps  
Upstream Rate: 448kbps  
Internet IP Address: 0.0.0.0

- Navigate to the **Basic Set-Up > Broadband Settings** page and check that the 'Broadband Username' and 'Broadband Password' fields contain the correct credentials for your EE Broadband service. If either of these values are wrong, update them with the correct details and click **Save Settings**. Navigate back to the **Status** page and check to see if the 'Internet State' displays 'Connected' and an 'Internet IP Address' is visible. If so, try to display a page in your web browser.
- If your Broadband username and password are correct, check the other settings on the **Basic Set-Up > Broadband Settings** page. For EE Broadband they should be as follows:
  - Broadband Type is 'ADSL' (for ADSL broadband) or 'Fibre/Ethernet' (for Fibre broadband)
  - Protocol is 'PPPoA' (for ADSL broadband) or 'PPPoE' (for Fibre broadband)
  - VPI/VCI is '0/38' (for ADSL broadband only)

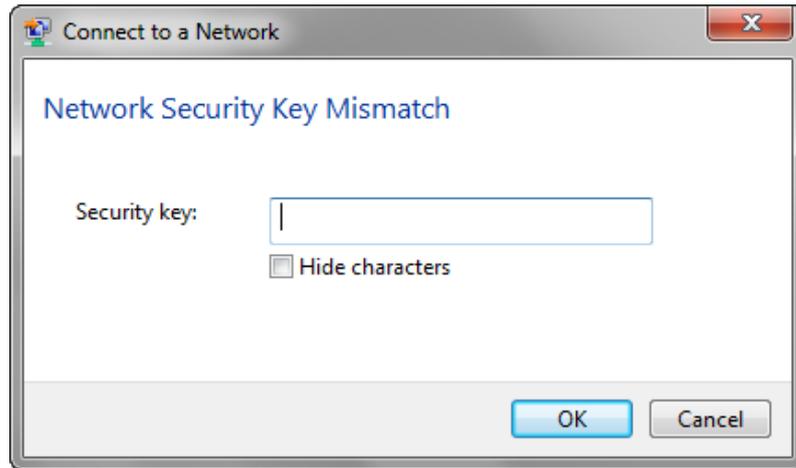


- Encapsulation is 'VC MUX' (for ADSL broadband only)
- Internet IP Address is 'Dynamic'
- DNS IP Address is 'Obtain from ISP'
- MTU is '1492'
- Make any necessary changes and click **Save Settings** to apply. Navigate back to the **Status** page and check to see if the 'Internet State' displays 'Connected' and an 'Internet IP Address' is visible. If so, try to display a page in your web browser.
- Check that any firewall or anti-virus software isn't blocking your Internet connection on your local computer. Temporarily disable your firewall or anti-virus software to see if this makes a difference. Remember to re-enable the software after you have tested this, otherwise you may leave your computer vulnerable.
- If none of the above works, you may wish to restore your Bright Box router to factory default settings. To do this, use a paper clip or similar object and hold down the reset button on the back of the router for about 6 seconds before releasing it. The router will be restarted. It will take about 5 minutes before your Internet connection is automatically restored. If this doesn't happen you can manually update your broadband username and password to make a connection to the Internet. See page 179 for further details.

### Unable to establish a wireless connection with the router

If you are having problems establishing a wireless connection, you might want to check the following:

- Check to see if the wireless software on your computer can see the Bright Box wireless network. Your Bright Box router's wireless network name is displayed on the sticker on the bottom of the router and on the 'KEEP MEE' card that came with the router.
- If your wireless software can see other wireless networks, but not the Bright Box wireless network name then move your computer closer to the router, about 6 feet away.
- If you still cannot see the wireless network name, then double check that the Wireless light on the front of the router is lit. If it is not lit, then connect your computer to the router using the black Ethernet cable. Login to the router admin pages and navigate to the **Basic Set-Up > Wireless Settings** page and check that the 'Enable or disable wireless' option is set to 'Enable'. If not, set to 'Enable' and click **Save Settings**. See *How to enable or disable wireless* on page 63.
- Check that the 'Broadcast SSID' option is set to 'Enable' on the **Basic Set-Up > Wireless Settings** page. If not, set to 'Enable' and click **Save Settings**.
- Check that the 'Wireless Channel' is set to 'Auto' on the **Basic Set-Up > Wireless Settings** page. If the channel is set to 12 or 13, change it back to 'Auto' and click **save settings**.
- If you can see your wireless network but cannot connect to it – and you have an old wireless adapter, check that the adapter supports WPA or WPA2 wireless security modes. If the adapter only supports the older WEP security standard you will either need to purchase a new adapter, or alternatively set up the router in WEP wireless mode. See *How to change to wireless WEP mode* on page 72 for further details.
- If you try to connect to your router's wireless network and see a 'Network Security Key Mismatch' error or 'Invalid Password' message, you might want to double check that you are entering the correct wireless password. The wireless password for your router is displayed on the sticker on the bottom of the router and on the 'KEEP MEE' card that came with the router. The password is also case sensitive, so ensure that the Caps-Lock is not engaged.



- If you are trying to connect using WPS (Wi-Fi Protected Set-Up) and this is failing, then try to establish a wireless connection using the standard password method instead. Please note that if you are running Windows Vista, you may need to select the 'I want to enter the network key or passphrase instead' link.
- If none of the above works, you may wish to restore your Bright Box router to factory default settings. To do this, use a paper clip or similar object and hold down the reset button on the back of the router for about 6 seconds before releasing it. The router will be restarted. It will take about 5 minutes before your Internet connection is automatically restored. If this doesn't happen you can manually update your broadband username and password to make a connection to the Internet.

### Poor wireless signal strength and speeds or the wireless connection is lost

If you are suffering from poor wireless signal strength and speeds, or your wireless connection to the Bright Box router is intermittently lost then try the following:

- If possible, place your computer closer to the router, but at least 1.8 meters (6 ft.) away.
- Position your router away from walls wherever possible. The more walls between your router and your computer(s), the more the wireless signal strength will be degraded.
- Position your router away from any large metal objects or metal furniture.
- Position the router away from sources of electrical and radio interference such as microwaves, fans, and other computers.
- Some devices such as Bluetooth adapters, wireless phones and baby monitors may share the 2.4GHz frequency of your wireless router, so keep these away from the router.



- Update the software drivers for your wireless adapter to the latest available from your manufacturer. Visit the manufacturers web site for information on updating drivers.
- Press the WPS button on the back of the router briefly to activate the Intelligent Wireless feature. The router will re-scan for the best wireless channel to use, avoiding interference from other wireless routers where possible. See *Using the intelligent wireless feature* on page 78 for more details
- Ensure that the 'Channel' setting in the **Basic Set-Up > Wireless Settings** page is set to 'Auto'. When the router is powered on it will select the best wireless channel to use avoiding interference from other wireless routers where possible.
- If you have an older wireless 'B/G' adapter on your computer, consider upgrading to a wireless 'N' adapter – this will provide you with greater wireless speeds and may improve your wireless range.

### **Problem sharing files with a USB drive connected to the router.**

If you are having problems sharing files or detecting a USB drive connected to the Bright Box router, please check that you have followed the steps describe on page 88. You may also want to check the following:

- Verify that the USB drive is correctly plugged into the USB port on the back of the router.
- Check that the connected USB drive is listed in the **USB device** section of the router **status** page. If no drive is listed then the router may be having a problem detecting the drive format.
- Check that the 'Auto Share' function in the **Basic Set-Up > USB File Sharing** page is set to 'Enable', and that 'Security Control' is set to 'Disable'.
- The USB drive must be FAT, FAT32 or NTFS file system formatted. Apple Mac HFS, HFS+ or Linux formatted drives may not be detected by the Bright Box router.
- If the USB drive is appearing in the **USB device** section of the router **status** page, but is not detected by your operating system, check that the Workgroup name of your computer matches the 'Workgroup name' setting found on the **Basic Set-Up > USB File Sharing** page. You can find your computer's workgroup name in the **Control Panel** and then **System** settings, under 'Computer name, domain and workgroup settings' section.
- If you have recently disconnected the USB drive, try reconnecting the drive to the router USB port and restarting the router by powering it off and then on. This will cause the router to re-detect the USB drive when the router restarts.
- Try rebooting your computer, your operating system should attempt to re-detect network locations after it has been rebooted.
- On Windows Vista/Windows 7, ensure that the Network Discovery setting is set to 'Turn on network discovery' and that File and Printer Sharing is set to 'Turn on file and printer sharing'. These settings can be found in **Control Panel > Network and Sharing Centre**.



## APPENDIX A: DEFAULT ROUTER SETTINGS

The following table lists the default settings for the EE Bright Box wireless router. To restore the router to default settings, see page 177

Section	Setting	Default Value
Router Admin Pages	URL	192.168.1.1
	Username	admin
	Password	<i>Unique value - see sticker on bottom of router or "KEEP MEE" card.</i>
Broadband Settings	Broadband Type	ADSL (ADSL broadband) Fibre/Ethernet (Fibre broadband)
	Broadband Username	readytoconnect@fs
	Protocol	PPPoA (ADSL broadband) PPPoE (Fibre broadband)
	VPI/VCI	0/38
	Encapsulation	VC MUX
	Internet IP Address	Dynamic
	DNS IP Address	Obtain from ISP
	MTU	1492
Wireless Settings	Enable or Disable Wireless	Enable
	Wireless Mode	11b+11g+11n
	Channel	Auto (Intelligent Wireless)
	Wireless Network Name (SSID)	<i>Unique value - see sticker on bottom of router or "KEEP MEE" card.</i>
	Broadcast SSID	Enable
	Security	WPA
	WPA Mode	WPA/WPA2 Mixed Mode
	Wireless Password	<i>Unique value - see sticker on bottom of router or "KEEP MEE" card.</i>
Wi-Fi Protected Setup	Wi-Fi Protected Setup (WPS)	Disable
USB File Sharing	Auto Share	Enable
	Workgroup Name	Workgroup
	File Permissions	Read & Write
	Security Control	Disable
Advanced Broadband Settings	Connection Type	Always Connected
	Authentication Protocol	CHAP
ADSL Mode	ADSL Mode	Automatic



	Bit Swapping	Enable
	SRA	Enable
Wireless – Channel and SSID	Bandwidth	20MHz
	SSID1	Enable
	SSID2	Disable
	SSID3	Disable
	VLAN Binding – SSID1	Default
	VLAN Binding – SSID2	Default
	VLAN Binding – SSID3	Default
Wireless – WEP	WEP Mode	64-bit
	Key Entry Method	ASCII
	Key1	WKEY1
	Key2	WKEY2
	Key3	WKEY3
	Key4	WKEY4
Wireless – WPA	WPA Mode	WPA/WPA2 Mixed Mode
	Cipher Suite	AUTO
	Authentication	Wireless Password
	Wireless Password Type	Password (8~63 characters)
	Wireless Password	<i>Unique value - see sticker on bottom of router or 'KEEP MEE' card.</i>
Wireless – 802.1x	802.1X Authentication	Disable
	Re-Authentication Period	30000
	Quiet Period	60
	Server Type	RADIUS
	Server IP	0.0.0.0
	Server Port	1812
	Secret Key	<i>blank</i>
	NAS-ID	<i>blank</i>
Wireless – Bandwidth Control	SSID1-3 Enable	Disable
	SSID1-3 Upstream Kbps	0
	SSID1-3 Downstream Kbps	0



Advanced USB File Sharing	Auto Share	Enable
	Samba Function	Enable
	Workgroup Name	Workgroup
	User Accounts	None
	NAS Shared List	None
Mobile Broadband	Mobile Broadband Service	Disable
	Current PIN Code	0000
DHCP	Gateway (VLAN 1/2/3)	192.168.1.1/192.168.2.1/192.168.3.1
	IP Subnet Mask (VLAN 1-3)	255.255.255.0
	DHCP Server (VLAN 1-3)	Enable
	Lease Time	Two Days
	Start IP (VLAN 1/2/3)	192.168.1.2/192.168.2.2/192.168.3.2
	End IP (VLAN 1/2/3)	192.168.1.254/192.168.2.254/192.168.3.254
	Domain Name (VLAN 1-3)	guest
	IP Reservation	none
NAT	NAT Module Function	Enable
NAT – Address Mapping	Address Mapping	none
NAT – Port Forwarding	Port Forward Entries	none
NAT – Port Triggers	Port Trigger Entries	none
Firewall	Firewall features	Enable
Firewall – Access Control	Filtering Function	Disable
	Filtering Entries	none
Firewall – MAC Filter	MAC Address Control	Disable
	MAC Filter Entries	none
Firewall – URL Blocking	URL Block Entries	none
Firewall – Schedule Rule	Schedule Rule Entries	none
Firewall – Intrusion Detection	SPI and Anti-DoS protection	Enable
	SPI – TCP Connection	Enable



	SPI – UDP Session	Enable
	SPI – FTP Service	Enable
	SPI – H.323 Service	Enable
	SPI – TFTP Service	Enable
	SPI – SIP Service	Enable
	SPI – RTSP Service	Enable
	SPI – L2TP Service	Enable
	SPI – PPTP Service	Enable
	SPI – IPsec Service	Enable
	Discard Ping to WAN Interface	Enable
Firewall – DMZ	Enable DMZ	Disable
	DMZ Entries	none
QoS	QoS Module Function	Disable
QoS – Traffic Mapping	QoS Rules	Default only with Medium Priority
QoS – DiffServ Groups	Maximum Upstream Bandwidth	10 Mbps (Fibre broadband) or current Upstream sync rate (ADSL broadband)
	DiffServ Groups Minimal Bandwidth	All 0%
	DiffServ Groups Allow More	All Disabled
QoS – WMM	WMM Support	Enable
UPnP	UPnP Module Function	Enable
System – Time Settings	Enable Automatic Time Server Maintenance	Enable
	Time Zone	GMT – Greenwich Mean Time: Lisbon, London, Edinburgh
	NTP Server	ntp.readytoconnect.co.uk
System – Password Settings	Idle Time Out	10 Minutes
System – DDNS	Dynamic DNS	Disable
	Provider	DynDNS.org
	Domain Name	<i>blank</i>
	Account/Email	<i>blank</i>
	Password/Key	<i>blank</i>