jrs eco wireless

JRS Eco 100 Era on Asus Low-EMF router

User Manual



Important: To enable your phone or other wireless device to wake up your Eco 100 router from no-signal mode, connect your device to the wifi using one of the following methods. You only need to do this once, after which the connection will be stored:

Method A: Scan the QR code below to connect your device.

Method B: Enter the wifi credentials of the hidden "jrs" network manually.

See inside this guide for detailed setup instructions.

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Safety information regarding wifi radiation from router and devices



Any wifi router emits electromagnetic radiation, which is shown to be potentially unsafe in numerous scientific studies, even if the emissions are below current official exposure limits. A number of studies are listed on our website at www.jrseco.com/science. You can reduce your exposure by limiting the duration of exposure and by increasing the distance between your body and the antennas. Any wifi device has antennas, either internal or external.

Although the JRS Eco firmware measurably reduces router electromagnetic field (EMF) emissions, JRS can't offer any safety guarantees regarding the router's electromagnetic radiation other than those legally required. **When transmitting large amounts of data or when manually set to maximum transmission power, the emission level of a router with JRS Eco firmware can be similar to that of standard wifi routers.**

Wifi is two-way traffic. Both the router and your wireless devices emit EMFs. **Although the JRS Eco firmware greatly reduces router radiation during stand-by and partly during operation, it does not reduce radiation from your wireless devices.** For each piece of data sent from the wifi router, a confirmation is sent back by your device. Wifi radiation from devices is very strong and you keep the device very close to your body. Especially in data-intensive applications such as video, wifi radiation from the device is high. Even when the router is off, your wireless device will still emit wifi radiation as long as its wifi is turned on. Most devices will intermittently send out wifi network scans, looking for available wifi networks.

Make sure to keep proper distance from the router when wifi is active. Position the router well away from places where you spend many hours a day, especially from sleeping areas (unless the wifi is turned off at night).

By using the JRS Eco firmware you agree to be aware of the risks and that the use of the router and firmware is at your own risk and responsibility.

It may be possible to reduce the transmit power of your computer's wifi adapter by adjusting its settings with the Windows® Device Manager.

You can minimize your exposure to electromagnetic radiation by working with a wired Internet connection. A hardwired Internet connection is radiation-free.

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1. The JRS Eco 100 wireless router: 100% radiation-free in stand-by

Congratulations on purchasing this low-EMF router featuring the unique **JRS Eco 100** firmware.

Ordinary wifi routers broadcast beacon signals 10 times a second, 24 hours a day. This generates a considerable amount of radiation in the home that can be clearly measured.

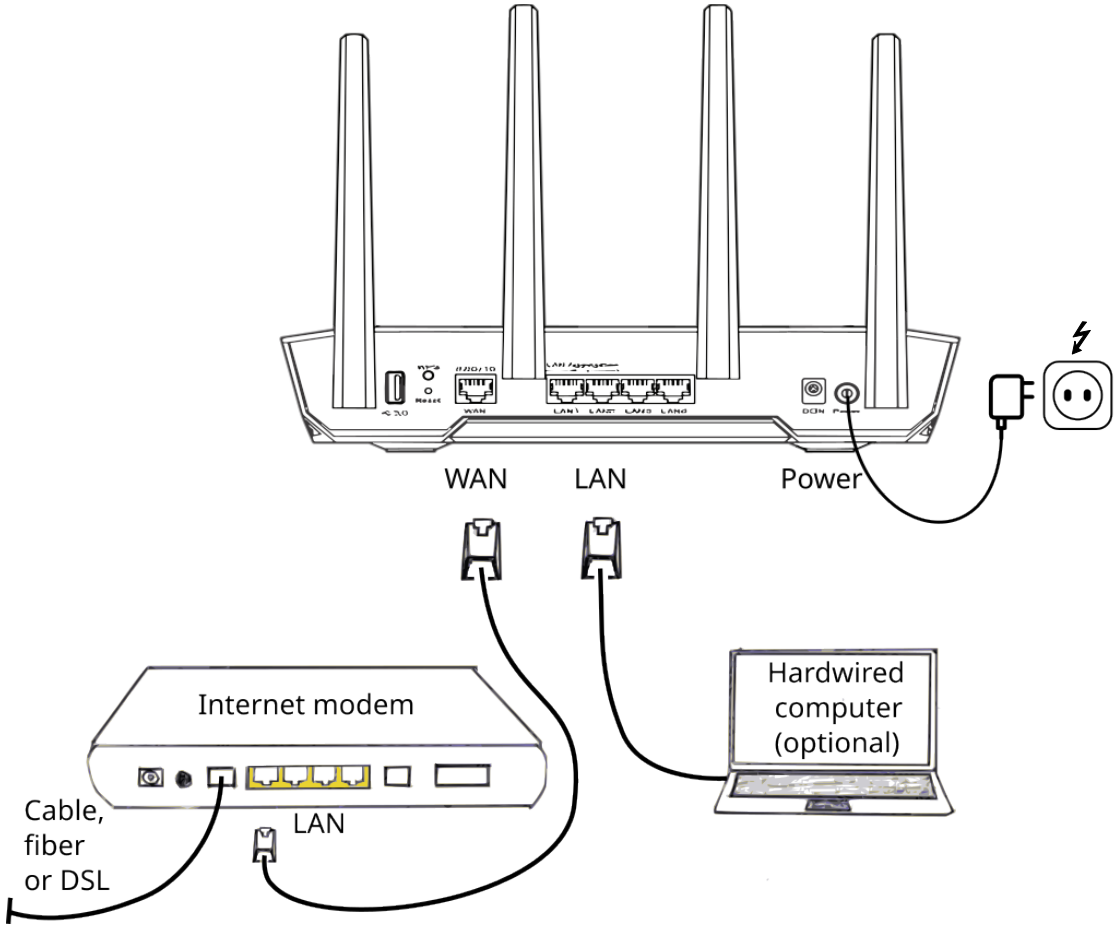
The unique **JRS Eco 100** firmware, running on a fast Asus® router, enables a Full Eco standby mode with zero electromagnetic emissions when no wireless devices are connected. It's truly **wireless on demand.**

The **JRS Eco 100** router switches the wireless signal back on immediately when you turn on wifi on your device or open the list of available networks. When wifi is active, the pulse frequency is reduced by 87%.

The globally unique **JRS Eco 100** technology is compatible with all brands and models of wireless devices: Android®, Apple®, Windows® and others.

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2. Connecting your JRS Eco 100 Era router



1. Connect the included Ethernet cable from **LAN port 1** of your **Internet modem/router** to the **blue WAN port** of the **Eco router**.
2. Point the 4 antennas upward. Connect the power adapter to the router.
3. **Important! If your Internet modem has wifi built in, switch it off.** If you don't know how, see Chapter 5: Important: Switching off the built-in wifi of your Internet modem for more details.
4. Optionally, hardwire your computer to one of the 4 LAN ports of the Eco router.

In most cases the router will automatically detect the Internet connection,. If you are not getting Internet through the Eco router, please inform with your Internet Service Provider about the required settings. See also Chapter 17: Troubleshooting: I can connect to the wifi network, but I can't access the internet.

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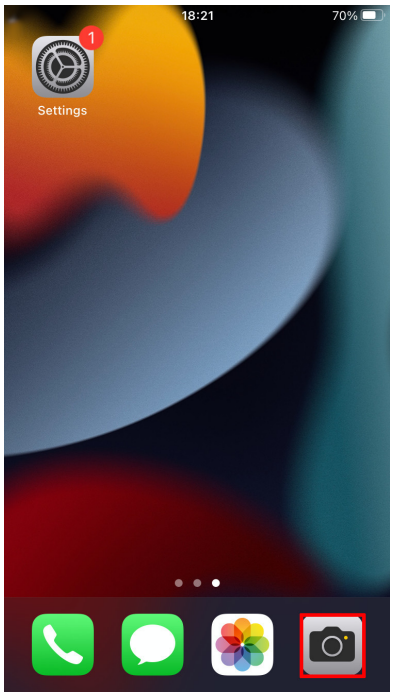
3. Connecting your wifi devices to the JRS wifi network

There is one difference between connecting wireless devices to the JRS Eco router and to regular wifi routers. To enable your device to wake the router from standby mode, you must set your device to connect to the hidden network named “jrs.”

This chapter explains how to do this for iOS, Android, and Windows devices. All you need to do is follow the one-time instructions for your devices below.

- *You can connect to the visible wifi network, "JRS-Eco-100", instead, and your device will have a connection. However, if you want your device to be able to wake the router from sleep mode – particularly Android and iOS devices – you must connect it to the hidden ‘jrs’ network.*
- *Tip: If the wifi lights are off and you can’t connect, press the WPS button on the router. See chapter 8.*

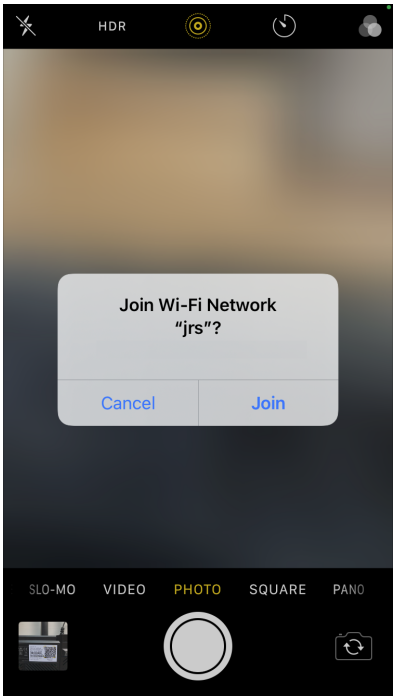
3.1. iOS®: iPhone®, iPad® or MacBook®



iOS setup, step 1.



Step 2.



Step 3.

1. Go to the camera app on your device.

2. Scan the QR code on the cover page of this booklet or on the bottom of your router.

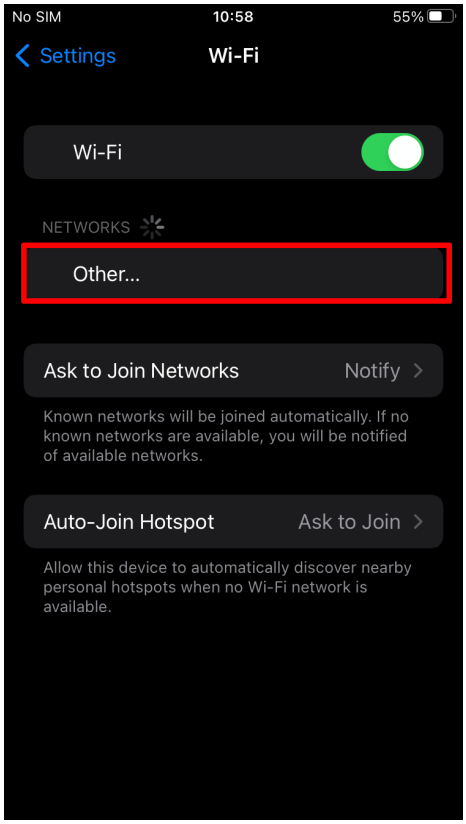
3. Click the Join button in the pop-up saying: Join Wi-Fi Network “jrs”?

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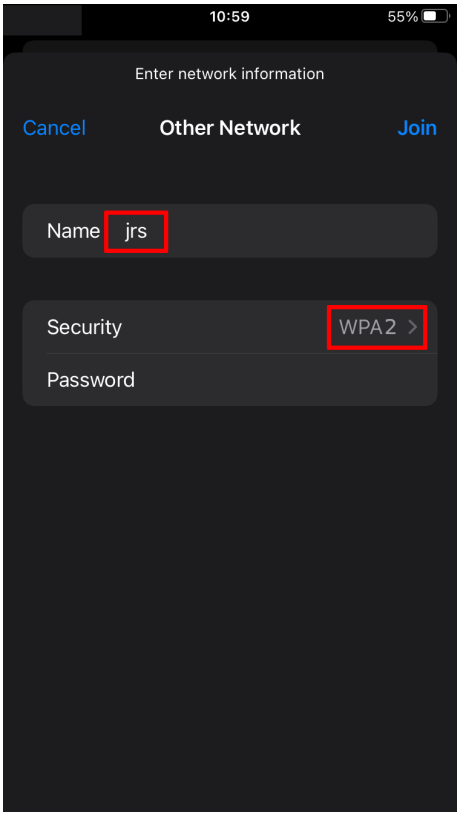
Your Apple device may issue a privacy warning about hidden networks. A wifi device that connects to a hidden network explicitly sends out a signal saying: 'I am searching for the network named [name]'. In most situations, this is not important. The connection, security, and encryption are exactly the same as with a non-hidden network.

If your iOS®-device cannot scan the QR-code:

1. Go to the wifi settings on your device.
2. Click 'Other'.
3. In the dialog that appears, enter the following:
    - Network name (SSID): jrs
    - Security type: WPA2
    - Password: The 10-digit number next to "Wifi pwd" on the QR code label on the bottom of the router and on the front page of this booklet.
4. Click 'Join'.



iOS manual setup, step 2.

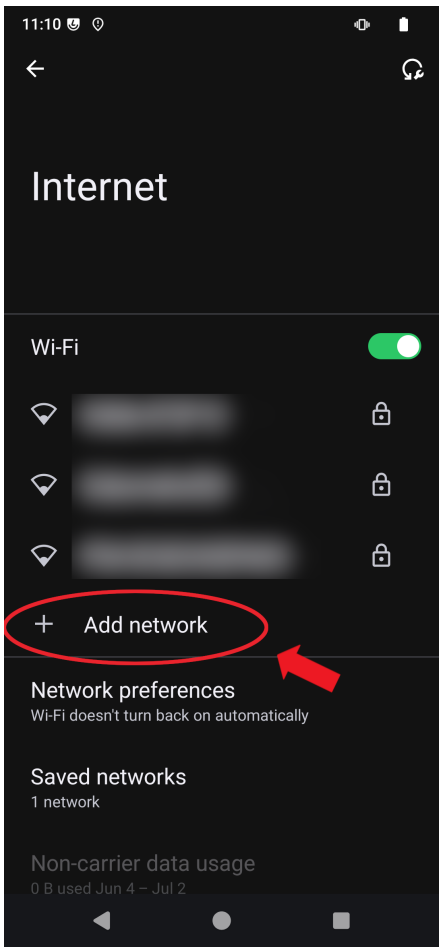


Step 3.

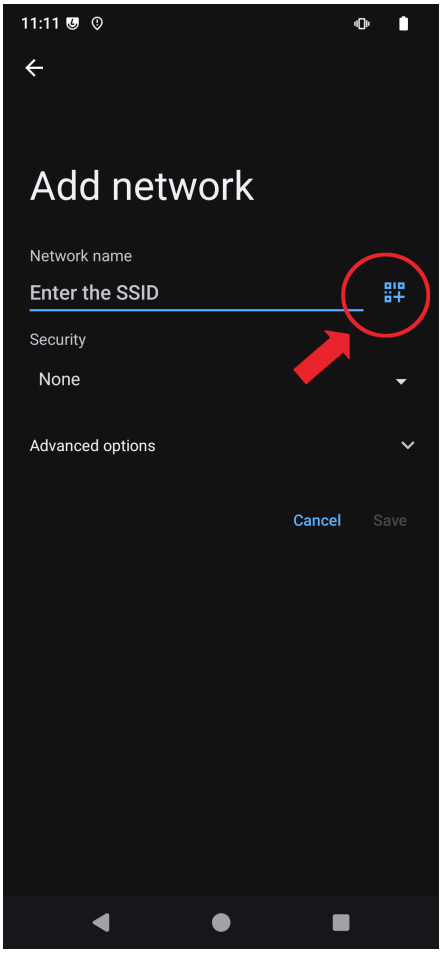
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3.2. Android® phone or tablet

1. Go to the wifi settings on your Android device and tap ‘Add network’.
2. Tap the QR code icon. See the red circle in the image below.
3. Scan the QR code on the bottom of your router or the cover page of this booklet.



Android setup, step 1.



Step 2.

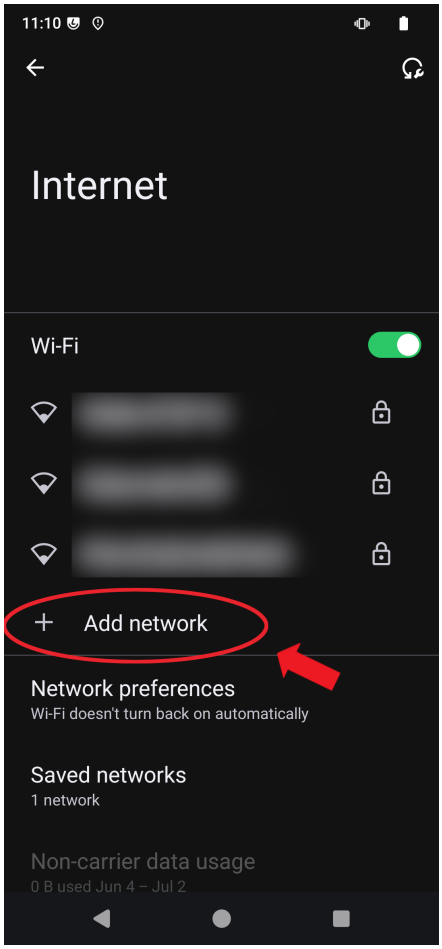


Step 3.

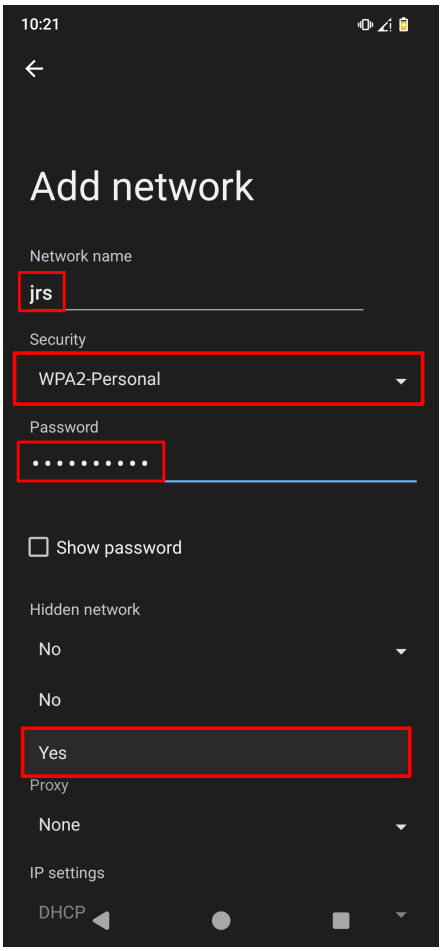
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If your Android® device cannot scan the QR-code:

1. Go to the wifi settings on your device.
2. Tap ‘Add network’.
3. In the dialog that appears, enter the following:
    - Network name (SSID): jrs
    - Security type: WPA2-Personal
    - Password: The 10-digit number next to “Wifi pwd” on the QR code label on the bottom of the router and on the front page of this booklet.
    - If Advanced options are available, set ‘Hidden Network’ to Yes.
4. Tap ‘Save’.



Android manual setup, step 1.



Step 2.

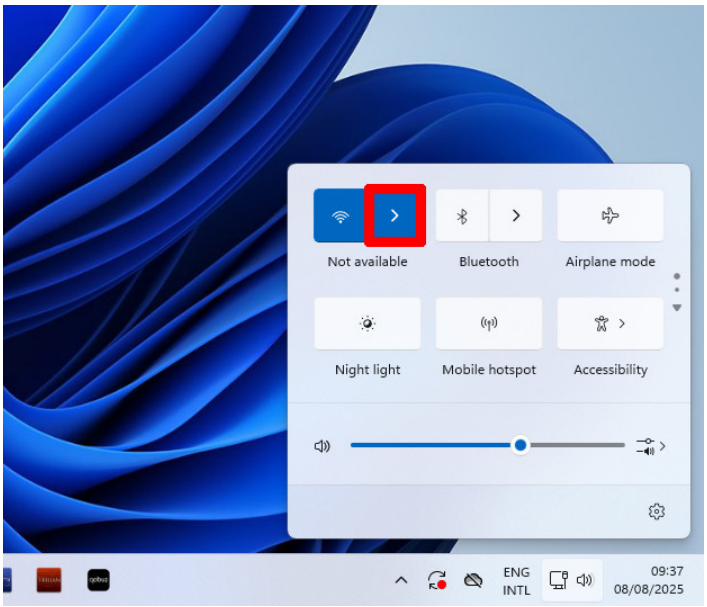
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3.3. Windows®

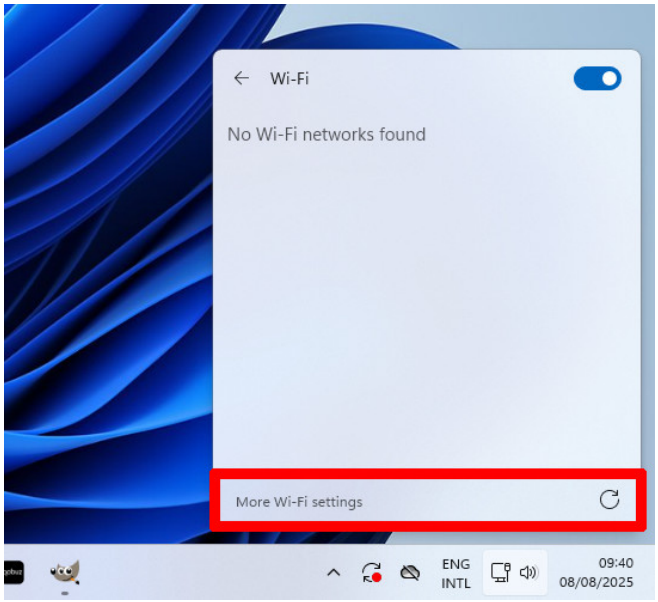
On Windows, connecting to the hidden 'jrs' network is only needed when you have set Windows to use randomized hardware addresses.

1. Go to the wifi settings.
2. Click 'More wifi settings'.
3. Click 'Manage known networks'.
4. Click 'Add network'.
5. In the dialogue box that appears, fill in the fields as described on the right.

- Network name (SSID): jrs
- Security type: WPA2-Personal
- Password: 10-digit number next to "Wifi pwd" on QR code label on router and on front page of booklet.
- Tick the options 'Connect automatically' and 'Connect even if this network is not broadcasting'.

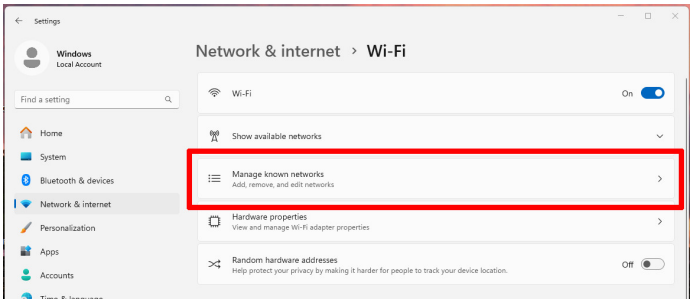


Windows manual setup, step 1.

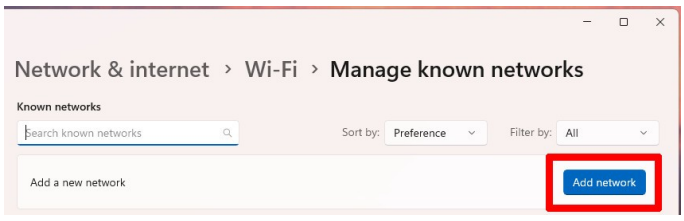


Step 2.

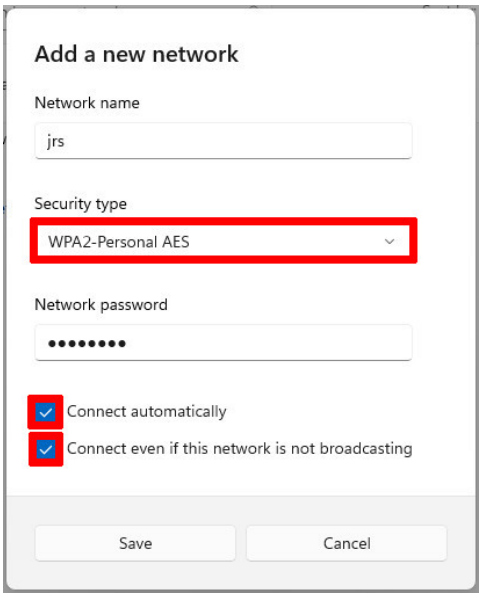
3.



4.



5.



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3.4. Why the hidden ‘jrs’ network?

Connecting to the hidden ‘jrs’ network is needed on devices that do so-called MAC (hardware) address randomization. It is usually not required on older devices, on Windows devices, and on IoT devices.

The hidden network does not add to the emissions, because both network beacons (visible + hidden) are sent in one single 'pulse'.

If the JRS wifi network doesn't appear in the list of available wifi networks on your wireless device when the Eco 100 router is in Full Eco sleep mode, that is when you need to connect your device to the hidden 'jrs' network.

4. Important: Switching off the built-in wifi of your Internet modem/gateway

If your Internet modem/gateway has built-in wifi, remember to switch it off to eliminate EMFs and interference. You don't need the wifi signal anymore because the Eco router takes over the wifi function. The provider should always allow you to disable the wifi. (For example, some people have a gaming router, which they want to let take over the wifi.)

Some Internet modems have a switch to turn off the wifi. Alternatively, you can turn it off in the modem's settings menu, which can be accessed via a web browser by entering the correct IP address, which is usually listed on the modem's label. Alternatively, you can search for a DIY manual online by entering the name of your provider, the make and model of your modem. You can also contact your provider's customer service for assistance.

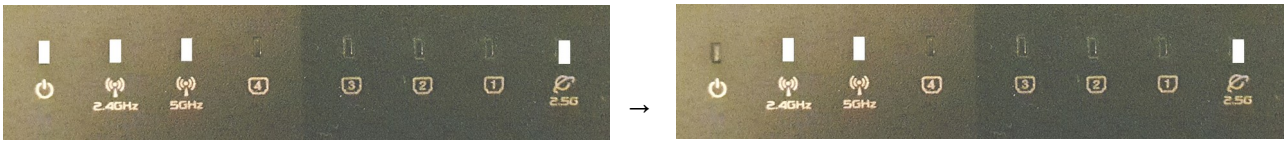
If your internet provider operates a public wifi network through its modems, make sure you turn this off too. In some cases, you will need to do this via a separate web page of your Internet provider, for which you will require a personal login. To check whether your modem is no longer emitting wifi, hold your phone next to it and scan for wifi networks. Make sure there isn’t a strong wifi network at the top of the list with the provider's name.

Instructions on how to disable wifi for the most common providers can also be found on jrseco.com.

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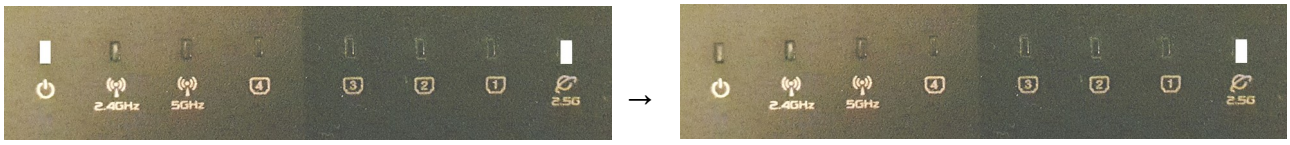
5. Using the Eco 100 Era router

Lights in Learning mode



3.4 sec. 0.3 sec.
(Repeats every 3.7 seconds: Power light on for 3.4 sec., off for 0.3 sec.)

Lights in Full Eco sleep mode



3 sec. 1 sec.
(Repeats every 4 seconds: Power light on for 3 sec., off for 1 sec. Wifi lights are off.)

When you have first installed the Eco 100 router, it will be in **Learning mode**. Its wifi signal will be active and waiting for the first wireless device to connect. In order to recognize which devices are yours, the router will keep a list of devices that you have previously connected to it: the registration list. You can view the list in the router settings menu.

When no new devices have been registered for 24 hours, the router automatically switches to **Full Eco mode**. Then when no wireless devices are connected, it will turn off the beacon signal fully in standby, thereby reducing EMF emissions to zero. The router will only wake up in the following two situations:

1. It receives a connection request from a device with a MAC (hardware) address that is in the registration list.
2. It receives a connection request for the hidden network ‘jrs’ from a device with any MAC (hardware) address.

Your wireless device will send the above connection requests when you enable wifi or open the list of available networks. Type 2 requests will only be sent by your device if you have connected it to the hidden ‘jrs’ network.

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ADVANCED SETTINGS

6. How do I access the router's settings menu?

The router's settings menu can be accessed by typing http://192.168.4.1 in the address bar of your browser. Please note that it is only accessible from a computer that is directly connected to the Eco router's wifi or its LAN ports. Log in with the username 'root' and the 10-digit 'Router pwd' or 'Admin key' found on the label on the bottom of the router. All JRS Eco settings can be found under the heading 'Eco 100 Wifi'.

To change the administrator password for accessing the settings menu, go to **System -> Administration** -> Router Password tab. (The administrator password is a different setting from the wifi password.)

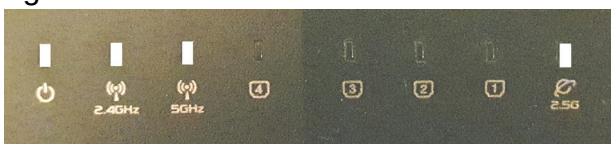
7. How can I turn the wifi on and off?

There are several ways to turn the JRS Eco 100 Era router's wifi off and back on.

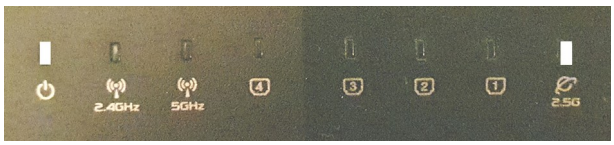
7.1. Using the WPS button on the router

On the JRS Eco 100 Era, the small WPS button on the back acts as a wifi on/off button. Press the button for 1 second to turn off the wifi. When successful, the wifi lights on the router will turn off. Press again to turn the wifi back on. Even if the wifi has been turned off by the wifi scheduler, you can use the WPS button to turn the wifi back on.

Lights for wifi active / wifi off



Wifi active



Wifi off

7.2. Wifi Scheduler page in the settings menu

From the router's settings menu, go to **Eco 100 Wifi -> Wifi Scheduler** and use the 'Activate Wifi' button (to turn it on) or the 'Disable Wifi forced' button (to turn it off). This has exactly the same effect as the WPS button. To set up a time schedule for the Wifi Scheduler, see 9.

7.3. Permanently deactivate a wifi band

It is possible to permanently deactivate an entire wifi band (2.4 or 5 GHz) if you wish, to reduce radiation even further. See 11.3.

7.4. Automatic Full Eco mode

If you turn off wifi on all your wifi devices (phones, etc.) so that the devices are no longer connected to wifi, the Eco 100 router will automatically go into 100%

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radiation-free Full Eco sleep mode. Once you turn wifi back on on one of your devices, the router's wifi will automatically turn back on.

8. How can I set times when the wifi turns off, for example at night?

The JRS Eco 100 Era has a Wifi scheduler/timer, which allows you to schedule times when the wifi turns off, e.g. at night, and turns back on, e.g. in the morning. This allows you to ensure that the router turns off the wifi even if there are still wifi devices connected. The wired ports will continue to function as normal.

- Log in to the router's settings screen.
- Go to the **Eco 100 Wifi -> Wifi Scheduler** page and check the box next to ‘Enable wifi schedule’ under the heading ‘Global Settings’.
- You can set the rules under the heading ‘Schedule Rules’. You can create different rules for different days of the week. There are two default example rules: ‘Business Hours’ and ‘Weekend’. By checking ‘Enable’ for a rule, you activate it. You can also edit or delete a rule. To create a new rule, click on the ‘Add’ button at the bottom.
- In most cases, you will want to check ‘Force disabling wifi even if stations associated’: disable wifi even if there are still devices connected. Otherwise, the router will wait to disable it's wifi until there are no more devices connected.
- When you are finished, click 'Save & Apply' at the bottom.

There are also three buttons under Global settings:

- 'Activate wifi': This allows you to manually enable wifi, thereby overriding the Wifi scheduler. It has the same effect as pressing the WPS button on the back of the router.
- 'Disable wifi gracefully': This causes the router to wait until the last device logs off the wifi, and then it will turn off the wifi.
- ‘Disable wifi forced’: This causes the router to turn off the wifi immediately. It has the same effect as pressing the WPS button on the back of the router.

9. Parental control: how can I block access to inappropriate content?

You can set up an OpenDNS family shield in the Eco 100 router that will block access to inappropriate content. This will route domain name requests through the OpenDNS filter service.

- Log into the router’s settings menu and go to the Network -> Interfaces -> WAN page.
- Go to the Advanced Settings tab and untick ‘Use DNS servers advertised by peer’.
- In the field ‘Use custom DNS servers’ that now appears, enter the following IP addresses of the OpenDNS servers:

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    - Primary DNS: 208.67.222.222
    - Secondary DNS: 208.67.220.220
- Click on Save & Apply.

10. How can I adjust the transmit power of the router?

The JRS Eco 100 Era comes with a default transmit power setting of 20 milliwatts (previously 63 milliwatts). This is lower than standard routers, and you can reduce it further if you wish, or increase it, depending on the size of your home and how much range you want.

- Log in to the router's settings screen.
- Go to **Eco 100 Wifi -> Set Power / Range**.

You can use the sliders to adjust the transmit power. Try to find a setting that gives you enough signal in your home, but not too much.

There are two separate sliders: one for 2.4 Gigahertz and one for 5 Gigahertz. All modern routers have 2 frequencies. The 2.4 GHz has the best range, and the 5 GHz allows you to achieve the highest wifi speed, but 5 GHz is more attenuated by walls and ceilings. If you want, you can also switch off the 5 GHz completely, see 11.3.

11. How do I change the wifi password, name, or other settings of a wifi network?

Log in to the router's settings screen and go to the **Eco-100 Wifi -> Wifi Networks** page.

11.1. Changing the name or wifi password of a wifi network

In the default configuration of the JRS Eco 100 Era router, there are 4 networks:

- 2.4 GHz band (longest range):
    - 1. *jrs* (hidden network)
    - 2. *JRS-Eco-100* (visible network)
- 5 GHz band (highest speed):
    - 3. *jrs* (hidden network)
    - 4. *JRS-Eco-100-5* (visible network)

To change the name or password of one of these wifi networks, click on the ‘Change’ button next to the relevant wifi network. A settings window will open.

- To change the name of the wifi network, go to the 'General Setup' tab and change the 'Name (SSID)' field.
- To change the wifi password for the network, go to the 'Wireless Security' tab and change the 'Wifi password (Key)' field. You can use the button with the asterisk to make the password visible.

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Then click the “Save” button at the bottom of the window. The window will close. **Next, click the “Save & Apply” button at the bottom of the page to apply the changes.**

The ‘jrs’ network, which we recommend connecting your devices to, is available on both wifi bands under the same name. Please note that if you change the password for the ‘jrs’ network, you must make exactly the same change for both 2.4 GHz and 5 GHz (two entries). Networks with the same name must also have the same wifi password!

11.2. Adding wifi networks

You can add a guest network, for example, using the ‘Add’ button for the desired wifi band (2.4 or 5 GHz).

11.3. Deactivating an entire wifi band (2.4 or 5 GHz)

It is possible to permanently deactivate an entire wifi band (2.4 or 5 GHz) if you wish, e.g. to reduce radiation even further. All wifi networks on this band will then no longer be available. To do this, press the red ‘Disable’ button for one of the wifi bands 2.4 or 5 GHz. This wifi band will now always remain off (deactivated). *Please note: If you press Disable for 2.4 GHz, the Full Eco function will not work and the 5 GHz wifi, if active, will not go into Full Eco sleep mode when no wifi devices are connected. If you want to disable one wifi band, we therefore recommend choosing 5 GHz.* This makes it possible to permanently deactivate the 5 GHz band to reduce radiation, while still being able to switch the 2.4 GHz band on and off by pressing the WPS button. Pressing the WPS button will only switch the non-deactivated wifi bands on and off. If you later decide to re-enable the wifi band, you can use the Enable button.

11.4. Advanced

- **Removing wifi networks:** In general, we recommend leaving the wifi networks as they are. If you still want to remove the visible networks, e.g. because you don't need them, you can do so using the ‘Remove’ button. *The additional wifi networks do not result in more radiation, because the beacon signals from all wifi networks are transmitted in a single pulse.*
- **Automatic selection of 2.4 or 5 GHz by your devices:** Your device (e.g., phone) automatically selects the best connection for the ‘jrs’ network: 2.4 or 5 GHz. If you do not want this and want to be able to explicitly choose the wifi band on your phone, you can rename the 5 GHz ‘jrs’ to, for example, ‘jrs5’.
- **Advanced wifi network settings:** With the ‘Advanced settings’ button next to a wifi network, you can change advanced settings for this network, such as the security type. *Regarding WPA2/WPA3 security: The router is set to WPA2 security by default, since many older devices that only support WPA2 are still in circulation. However, if you do not use such devices,*

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you can safely switch the security for all wifi networks to WPA3. Although a WPA2/WPA3 mixed mode is available, the WiFi Alliance no longer recommends its use for wifi routers as it is not always stable with all devices.

12. How do I set the Era/Eos router to Access Point mode or to Wireless Eco 100 Repeater mode?

Do you have a second Eco 100 router and would you like to expand your WiFi network? Would you like to create one single WiFi network in your home, consisting of a main Eco 100 router and a secondary Eco 100, with seamless switching when moving with your phone or laptop from one router to the other? Then you can choose to set the second Eco 100 router either to Access Point mode or to Wireless Eco 100 Extender/Repeater mode.

- For Access Point mode, which is the lowest EMF option, you need to hardwire the second Eco 100 router by connecting it to a LAN port on the main Eco 100 router via an Ethernet cable.
- For Wireless Eco 100 Repeater mode, you don't need to run a cable to the secondary unit.

In Access Point and Repeater modes, the secondary unit acts as a simple network switch. This gives you access to network drives or printers connected to your main router. This is because, unlike in Router mode, all devices connected to the secondary unit (via the WAN and LAN ports or WiFi) are on the same local area network (LAN), creating a single network. The main router will assign IP addresses to the devices connected through the secondary unit.

*You cannot use Access Point or Wireless Repeater mode for the **first** Eco router if your Internet modem is in 'bridge mode' or lacks routing functionality. (This is always the case if your modem only has one LAN port.) For the second Eco router, you can always use Access Point mode or Wireless Repeater mode.*

12.1. To set the Eco router to Access Point mode

- Log in to the router settings menu
- Go to the **Eco 100 Wifi -> Operation Mode** page
- In the 'Wifi password' field under 'Switch to Access Point mode (wired WAN),' enter the WiFi password for the main router, if you want the access point's WiFi password to be set the same. If you prefer, you can also choose a different password, or enter 'keep' to leave the access point's WiFi password as it is.
- Click the 'Go' button under 'Switch to Access Point mode (wired WAN)'
- The router will restart.

Please note that the router's settings menu will no longer be accessible via the old address, http://192.168.4.1, and will be assigned a new IP address. To find this, log in to the main router and check the list of DHCP leases. You can also use a network scanning app, such as Fing.

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12.2. To set the Eco router to Wireless Repeater mode

The Eco 100 Wireless Repeater mode gives you the first WiFi repeater that emits radically less radiation—a measurable 87% fewer beacon pulses during use, and is completely radiation-free when no devices are requesting WiFi. It's fully compatible with Full Eco standby mode: If you pair it with a JRS Eco 100 router as your main router, the main Eco 100 router also turns off its WiFi after the repeater has shut down its WiFi.

It works like a relay run

Imagine your phone is connected to a JRS router in Eco 100 Wireless Repeater mode, and the repeater is connected to the main JRS Eco 100 router. When paired in this way, the system creates a **propagation effect for zero-emission standby**:

1. Your phone turns off WiFi
2. The JRS repeater detects this and shuts down its WiFi signal
3. The main JRS router detects the repeater went dormant and **also turns off its WiFi**
4. The entire system becomes radiation-free

To set the operation mode of the router to Wireless Repeater mode:

- Log in to the router settings menu of the unit that you want to make into a repeater.
- Go to the **Eco 100 Wifi -> Operation Mode** page
- *If you want to connect the repeater to a main router that is not an Era or Eos model, first create a WiFi network on the main router of the type 'WDS Access Point' with the name 'JRS-Eco-100-WDS'. (If you are using an Era/Eos main router, this will be done automatically.)*
- In the 'Wifi password' field under 'Switch to Repeater mode (wireless WAN),' enter the WiFi password for the main router with which you want to set up the wireless connection. The repeater's password will be set to the same value.
- Click the 'Go' button under 'Switch to Repeater mode (wireless WAN)'
- The router will restart.

Please note that the router's settings menu will no longer be accessible via the old address, http://192.168.4.1, and will be assigned a new IP address. To find this, log in to the main router and check the list of DHCP leases. You can also use a network scanning app, such as Fing.

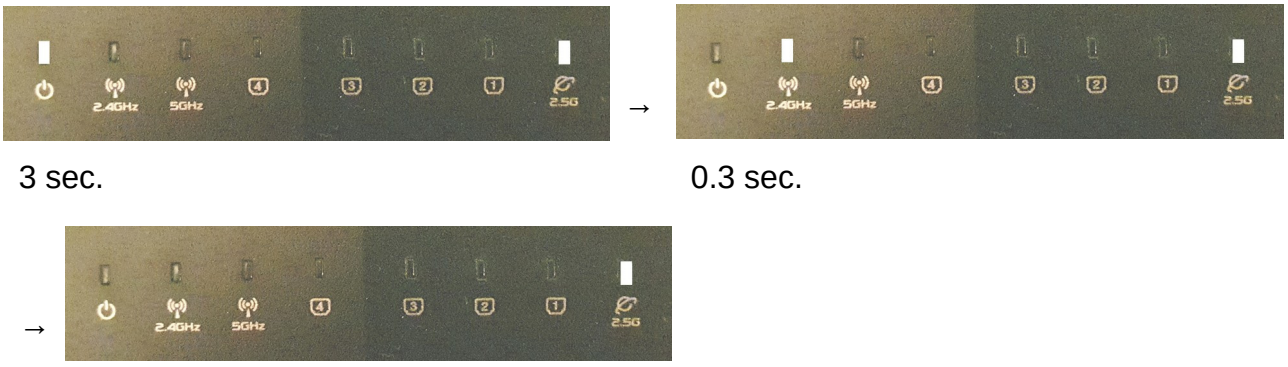
If the router reboots without switching to Wireless Repeater mode, it was unable to configure the main router or connect to it. Please make sure the main router is within range and check its WiFi password. In case of a main router that is not an Era or Eos model, make sure that a WiFi network of the type "WDS Access Point" with the name "JRS-Eco-100-WDS" exists on the main router.

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Radiation in Wireless Repeater Mode, and wired connections

If no WiFi devices or wired devices are connected to the repeater, it will automatically switch to radiation-free sleep mode, completely disabling both the WiFi beacons and the WDS connection to the main router. The repeater is then completely radiation-free. If a computer or other device is connected to one of the repeater's 4 wired LAN ports, but no WiFi devices are connected to the repeater, it will enable the wireless WDS connection to the main router but will not activate the WiFi beacons. As soon as you then, for example, turn off the PC—which disconnects the wired LAN connection—the repeater will disable the wireless WDS connection to the main router, making the repeater completely radiation-free again. Thanks to this system, the repeater always emits as little radiation as possible. If you turn the PC back on, the repeater will re-enable its WDS connection.

Lights in 'No wifi beacons, WDS link active' mode



(Repeats every 4 seconds: Power light on for 3 sec., WiFi 2.4 GHz light on for 0.3 sec., both off for 0.7 sec.)

12.3. To revert to the default setting (Router mode)

The menu also offers the option to revert to Router mode, which is the default operating mode.

The router's WiFi password will be reset. See the label on the bottom of the device for the WiFi password.

In this mode, the WAN and LAN sides of the router are in different subnetworks. Routing between the WAN and LAN takes place and via the secondary router it is not possible to access a network drive or printer connected to the main router.

- Log in to the router settings menu
- Go to the **Eco 100 Wifi -> Operation Mode** page
- Click the 'Go' button under 'Revert to Router Mode'
- The router will restart.

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13. How can I reset the router to its default settings?

To reset the JRS Eco 100 Era router to its default settings, first wait until it has fully booted up and the lights are steady. You can then reset the router in one of the following ways. In both cases, the router will restart and be ready with the default settings after a few minutes.

- **Option 1 – Using the ‘Reset’ button**

  Use a paperclip to press and hold the recessed ‘Reset’ button for about 10 seconds, until the power light starts flashing rapidly.

- **Option 2 – Using the settings menu**

  Log in to the router settings menu and go to the **System -> Backup / Flash Firmware** page. Then click on the ‘Perform Reset’ button.

14. Troubleshooting: The router does not enter Full Eco standby mode

When the router is in Full Eco standby mode, the 2.4 and 5 GHz wifi lights are off and the power light turns off for 1 second every 4 seconds. See the image in chapter 6: Using the Eco 100 router. If this does not happen, the router is not in Full Eco standby mode. There are a number of possible causes for this:

- **The router is still in Learning Mode**

  After you have installed the Eco 100 Era router, it first enters **Learning Mode**. To recognize which devices belong to you, the router keeps a list of devices that you have previously connected to the router: the registration list. Then, if no new wifi devices are added to the registration list within 24 hours, the router automatically switches permanently to Full Eco mode, in which it is completely radiation-free when no devices are connected to the wifi. If you wish, you can skip the learning mode via the settings menu on the **Eco 100 Wifi -> Pro Settings** page.

- **There are devices connected to the wifi**

  In the router's settings menu, on the **Eco 100 Wifi -> Registered Devices** page, you can see which devices are keeping the router's wifi active. These are the devices with ‘Connected now’ next to them. To put the router into standby/sleep mode, you need to turn off the wifi on these devices. Even if your wireless devices are not connected but their wifi is still on, they can still send connection requests that keep the router awake.

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- **Location Services**

  You may need to disable the ‘improve location accuracy’ setting on your wireless device or disable location services altogether. If the setting is enabled, your device will continue to broadcast wifi scans even when wifi is turned off!

15. Troubleshooting: The router does not wake up from Full Eco sleep mode when I turn on wifi on my device

To activate the Eco router from zero-EMF standby mode, modern wifi devices such as phones must be connected to the hidden network *“jrs”*. You only need to set this up once on your device; your device will then save the data and activate the router automatically the next time. You may notice that this is necessary if the wifi network *“jrs”* is not listed among the available wifi networks on your wifi device when the Eco 100 router is in Full Eco sleep mode. By connecting to the hidden network *“jrs”*, you ensure that the Eco 100 router can recognize the connection request from your wifi device. Always connect to this hidden network *“jrs”.* If you have previously connected to one of the visible networks *“JRS-Eco-100(-5)”* on your device, we recommend deleting it using the ‘Forget’ option.

16. Troubleshooting: The wifi connection is disrupted, my devices cannot find the JRS Eco network, or the connection is slow

Is the wifi connection interfering, are devices unable to find the wifi network of the JRS Eco 100 Era router, is the connection faltering or is it very slow? This may be due to interference from other wifi networks. These could be your neighbors' wifi routers, a printer broadcasting a Wifi-Direct network, or even other wireless systems that share the 2.4 GHz wifi frequency (including Bluetooth). Also, if the built-in wifi of your internet modem (e.g., Comcast, Verizon, etc.) is not turned off, this can severely disrupt the signal of the Eco router. After all, in most cases, the Eco router is located right next to the internet modem. If this is the case, see: *Important: Switching off the built-in wifi of your Internet modem/ gateway* The best solution to these problems is to switch off the sources of interference. If that doesn't work, you can set the Eco router to a different channel. The procedure below will help you identify the sources of wifi interference and set the router to a free channel.

1. Go to the settings menu of the JRS Eco 100 Era router.
2. Go to the **Status -> Channel Analysis** page. Once the scan is complete, all occupied wifi channels will be displayed. (You can check the wifi names to see whether the wifi of your internet modem is turned off.) *Note that the entry ‘Local Interface’ refers to the Eco router itself.* (If the scan displays “No data” for 2.4 GHz and yields no results, go to the Eco 100 Wifi - Set Power/Range page, adjust the transmission power for 2.4 GHz slightly, click Save & Apply, and then return to the Status -> Channel Analysis page

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and run the scan again.) Look for a free channel with the least interference. In step 5, you can set the Eco 100 router to this channel. Please note: wifi channels partially overlap each other, and only channel sets with a minimum distance of 5 (e.g. 1, 6, and 11) do not overlap at all.

3. If there are no channels available that are completely free, check the signal strengths of neighboring wifi networks and choose a channel on which only a weak network is present. Because the wifi channels overlap to some extent, it is best to choose a channel that does not have any very strong interferers right next to it.
4. In addition to scanning the 2.4 GHz band, it is also possible to perform a scan for the 5 GHz band by clicking on the ‘radio1 (5GHz)’ tab. However, there is usually little to be found there because the 5 GHz frequency is more strongly attenuated by walls.
5. Now we will set up the selected free channel. Go to the **Eco 100 Wifi -> Wifi Networks** page and press the Edit button next to ‘2.4GHz Radio (longest range)’. Under ‘Channel’ next to ‘Operating Frequency’, you can set the selected channel. When you are done, click the ‘Save & Apply’ button at the bottom of the page.
6. It is recommended to keep ‘Width’ (the channel bandwidth) at 20 MHz for 2.4GHz, otherwise there is a high chance of overlap with neighboring wifi networks, if there are.
7. To increase the range of the Eco 100 router, you can also increase the transmission power.

*Optional: If some of your devices still have a poor connection, there are two relevant settings on the **Eco 100 Wi-Fi -> Pro Settings** page. You may need to reduce the beacon interval to 500 ms or lower. This has to do with the devices themselves and only occurs in exceptional cases. If that doesn't help, you can maximize compatibility on the 2.4 GHz band by unchecking the box next to the "Minimize Startup Pulse" setting. Click "Save & Apply" when you have finished making changes.*

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17. Troubleshooting: I can connect to the wifi network, but I can't access the Internet

Does your phone or other device display the message 'no internet connection' even though it is connected to the wifi of the JRS Eco 100 Era router?

If the Eco router does not receive an Internet connection via its WAN port, the light above the globe (2.5G) icon will turn red:



Error: no Internet connection

You can check the following points to resolve the issue.

- **Check the Ethernet cable**

  First, ensure that the connection between the Eco router and the Internet modem is correct. The Ethernet cable should go from the WAN port on the Eco router to a port labeled 'LAN' on your Internet modem. If your Internet modem has multiple LAN ports, use port 1.

- **Turn off your Internet modem for five minutes**

  Your Internet modem/router may be in Bridge Mode. *This is always the case if your modem only has one LAN port.* In this case, your Internet service provider (ISP) only allows one unique device (with a unique MAC address) to be connected directly to it. If this is the first time you have connected the Eco router, you may need to reset the connection to the provider network.

  To do this, remove all Ethernet cables from your modem and turn it off for five full minutes. Then, wait until the modem has finished starting up before connecting the Eco router to LAN port 1.

- **Configure the correct settings for the WAN connection**

  If you are still unable to connect to the Internet, ask your Internet provider for the necessary settings. See the FAQs on jrseco.com for more details.

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You can find more answers in the FAQs on www.jrseco.com



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