



Explore Scientific PMC-Eight® Application Note PMC8-AN002: Connecting to the PMC-Eight with a Terminal Program to Configure the RN-131 WiFi Interface and Switching Between the WiFi Interface and the Serial Interface



The Explore Scientific PMC-Eight® Control System RN-131 WiFi module can be configured over the air using the default WiFi Interface (interface 1). The program Putty is used to configure the module once the connection to the “PMC-Eight-XX” SSID is enabled.

Additionally, the terminal program Putty can be used to switch the default interface from the WiFi Interface (interface 1) to the PGMR/SERIAL port (interface 0). This port uses an industry standard 9-pin female DB-sub style connector for Data Communications Equipment (DCE). Once the “ESX!” command is sent to the controller to toggle from the WiFi Interface (interface 1) to the PGMR/SERIAL port (interface 0), a USB to DB9 Serial adapter is required to communicate with the PMC-Eight. These adapters can be purchased online or at your local computer electronics supply store. They can be found online by searching for “USB to DB9 adapter”. It is recommended that you purchase an adapter that utilizes the popular FTDI chipset.

Once you are connected to the PMC-Eight via the PGMR/SERIAL port (interface 0) you can enter diagnostic mode to perform other functions. This is the subject of “Explore Scientific PMC-Eight® Application Note PMC8-AN004: Entering and Using the PMC-Eight Diagnostic Mode”

Once you have established communications with the PMC-Eight using the PGMR/SERIAL port, you can again switch the default interface back to the WiFi Interface (interface 1) by issuing the “ESX!” command over the PGMR/SERIAL port (interface 0). The Parallax Serial Terminal program is used to perform this switch back to the WiFi Interface (interface 1).

If you have any concerns or issues with your PMC-Eight after re-configuring your system, you can send your PMC-Eight Control System back to Explore Scientific for resetting the RN-131 back to the factory default values. There may be a fee associated with this service. Please call Customer Service for a Return Merchandise Authorization (RMA) number, and then ship your controller to:

Explore Scientific, LLC.
1010 S. 48th Street
Springdale, AR 72762
ATTN: Reset WiFi Configuration to Factory Default

REQUIRED ITEMS

NOTE: The software items listed below can be downloaded from the links included.

1. PMC-Eight Control System Box and Power Supply.
2. PC System with Internet Access.
3. USB to DB9 Serial Adapter (as needed).
4. Putty <https://www.chiark.greenend.org.uk/~sgtatham/putty/>
5. Parallax Serial Terminal <https://www.parallax.com/downloads/parallax-serial-terminal>

APPLICABLE PMC-Eight Hardware/Firmware Versions

1. PMC-Eight System Controller version 06B or later
2. PMC-Eight System Controller Firmware version 9T10 or later

PROCEDURE

First, install both programs by following the installation instructions included in the installation. The TELNET parameters to connect to the PMC-Eight for Putty are:

IP ADDRESS: 192.168.47.1
PORT: 54372

The serial port parameters to connect to the PMC-Eight for Putty and the Parallax Serial Terminal are:

BAUD Rate: 115200
Data Bits: 8
Stop Bits: 1
Parity: NONE
Flow Control: NONE

If you want to change the PMC-Eight WiFi RN-131 configuration then perform the following procedure:

NOTE: Please refer to the Microchip WiFly Command Reference Manual located here: <http://ww1.microchip.com/downloads/en/DeviceDoc/50002230B.pdf>

CAUTION: *You change these parameters at your own risk*, if you want to go back to the Explore Scientific default settings you will need to FIRST perform a Microchip RN-131 factory reset by issuing the command "factory RESET" at the <4.xx> prompt. After a factory reset, you will need to run the Explore Scientific configuration commands (see command list at the end of this application note to return your PMC-Eight® RN-131 configuration back to factory default

values.). Step 6 below will provide a list of the default parameters as set by Explore Scientific. Ensure that logging is enabled on the Putty terminal program to record these default parameters so that you will have a record of these default factory values.

1. Set your SSID to the PMC-Eight-xx, whatever yours is
2. Using Putty, TELNET into address 192.168.47.1 port 54372.
3. You should be greeted with the *HELLO* prompt of the RN-131 module
4. Enter "\$\$\$" and you should see "CMD".
5. Hit Enter again, and the version number prompt, i.e., "<4.41>" will be displayed.
6. Enter "get everything" and see that you get a list of all the parameters and what they are set to.

You can now enter configuration commands for the RN-131 module.

NOTE: If you change the default IP Address and Port number, then you need to use the new IP Address and Port number when connecting to the PMC-Eight with your terminal program

If you want to change the interface from the default WiFi Port (interface 1) to the Serial Port (interface 0), do the following:

NOTE: This assumes that you start with the delivered configuration of the PMC-Eight with the WiFi interface enabled

1. Set your SSID to the PMC-Eight-xx, whatever yours is
2. Using Putty, TELNET into address 192.168.47.1 port 54372.
3. You should be greeted with the *HELLO* prompt of the RN-131 module
4. Enter "###" you should see "Diagnostic Mode Disabled#"
5. Enter "ESX!" and you should see "ESX0!" which says that the interface was switched to the serial port (interface 0)

If you want to change the interface from the Serial Port (interface 0) to the WiFi Port (interface 1) then do the following:

1. Using the Parallax Serial Terminal, connect to the assigned serial port with connection parameters: 115200, N, 8, 1
2. Once connected, you should see the startup information scroll on the screen.
3. At the top line, enter "###" you should see "Diagnostic Mode Disabled#"
4. Enter "ESX!" and you should see "ESX1!" which says that the interface was switched to the WiFi port (interface 1)

RN-131 WiFi Module Explore Scientific Default Configuration Setup Commands

NOTE: It is suggested that you cut and paste each block of commands into the terminal and then manually type and enter the “save” command. Ensure that after each command is entered you receive the “AOK” response. Please refer to the Microchip WiFly Command Reference Manual located here: <http://ww1.microchip.com/downloads/en/DeviceDoc/50002230B.pdf>

```
set uart b 115200
set comm size 64
set dns addr 0.0.0.0
set dns backup 0.0.0.0
save
```

```
set dns name dns1
set ftp addr 0.0.0.0
set ftp time 200
save
```

```
set ip dhcp 4
set ip flag 0x47
set ip gate 192.168.47.1
set ip addr 192.168.47.1
set ip net 255.255.0.0
save
```

```
set ip host 0.0.0.0
set ip protocol 0x03
set ip remote 54372
set ip local 54372
save
```

```
set sys autosleep 0
set sys sleep 0
set sys wake 5
set sys trigger 0x01
save
```

```
set wlan auth 4
set wlan hide 1
set wlan join 7
set wlan chan 8
save
```

NOTE: In the following, set the SSID to your specific module SSID, replace the XX with your number.

```
set wlan ssid PMC-Eight-XX
set apmode ssid PMC-Eight-XX
set opt deviceid PMC-Eight
save
```

```
set wlan passphrase PMC-Eight
set apmode passphrase PMC-Eight
save
```

```
set wlan ext_antenna 1
save
```

Reboot

If you have any issues performing this procedure, or if you have any suggestions, comments or questions, please contact support@explorescientific.com or call our customer support number (866)252-3811.