RJL Systems
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Setting up a Local Area Network (LAN)

WiFi connection on the Quantum VII

using a Bluetooth Low Energy (BLE) Terminal
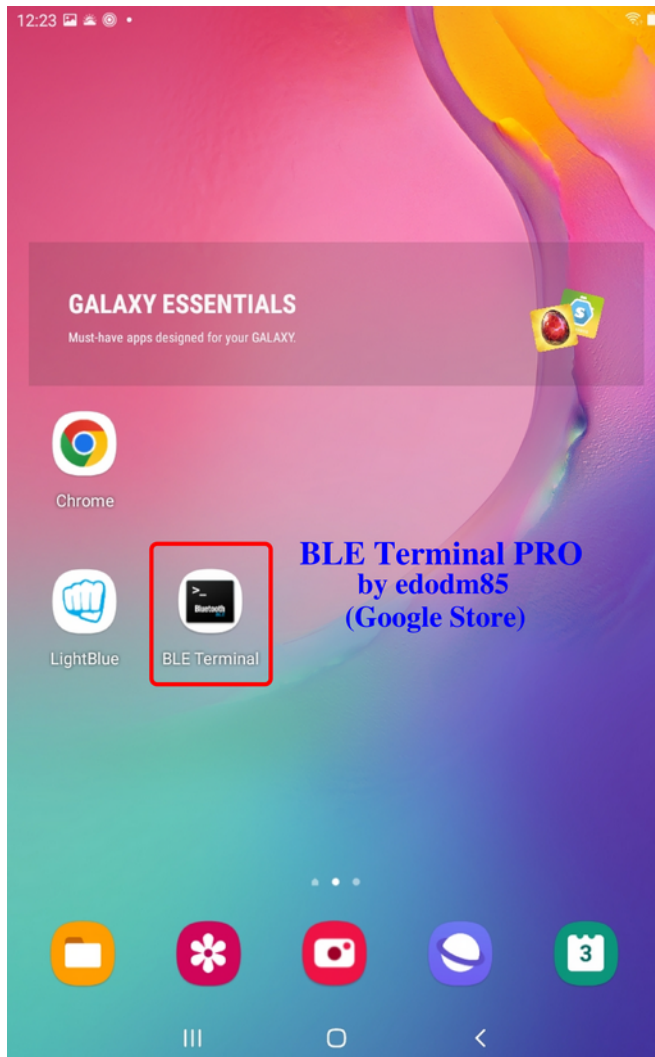
on Android phones or tablets

Introduction:

The Quantum VII has a Bluetooth Low Energy (BLE) radio built in that is accessed from the main menu as **SET WIFI SSID** (8 items down). When enabled the screen will display "BLE Radio Enabled" and the marque indicates **Set Local WiFi Info.** This means the WiFi information entered is your local area network (LAN) name and password. When this is set the Quantum VII WiFi server will connect to your LAN using DHCP (Dynamic Host Configuration Protocol). An unused IP address from the LAN is displayed on the Quantum VII for a browser connection and then displays the website built into the Quantum VII. This connection can also be used to set the internet GMT time and date automatically by selecting the menu item **SET NTP TIME DATE.**

The BLE setup has three (3) questions:
SSID (name of LAN)   *LAN Password*   *Time zone from GMT (ie. NY=5 EST*
                                                              LA= 8 PST Rome = -1 CET Tokyo = - 9)

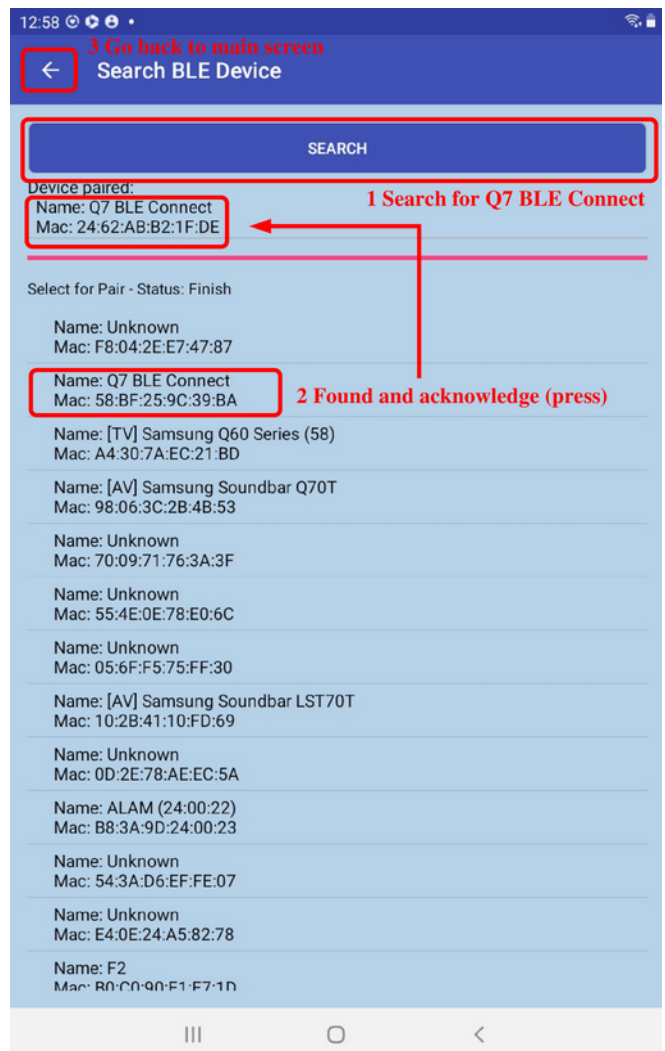**Setting up the BLE Terminal (edodm85) on a Android phone or tablet**

Searching for the Quantum VII BLE connection

From the main BLE Terminal application press the SEARCH button and the Bluetooth search screen will appear. Press the long SEARCH button and wait for the red line below the button to stop progressing. Listed below will be all the Bluetooth devices in your neighborhood including Bluetooth classic and BLE. The Name: **Q7 BLE Connect** should appear near the top of the list. Click **Q7 BLE Connect** area and it should appear under Device paired: Then click the back arrow at the top left. The Q7 BLE services and characteristics are now loaded into the BLE Terminal application. Please note the BLE pairing is automatic and does not require the classic "handshake" between classic Bluetooth devices.

BLE Terminal search for **Q7 BLE Connect**

BLE Search found **Q7 BLE Connect**

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Setting the duplex Read Write (R/W) BLE characteristic

The BLE radio on the Quantum VII is configured as a half duplex (read or write) character transmission known as a BLE characteristic. This read or write characteristic must be acknowledged from other characteristics. When the **Q7 BLE Connect** is automatically paired the CONNECT button in the main page is dark blue. Press it and wait for the button to change to DISCONNECT with white background, as shown below. Press the SELECT SERVICE button and the Characteristic View page will appear. Scroll to the bottom characteristic that **Properties TYPE** is **Unknown Characteristic** and check the R (read) W (write) buttons, as shown. Then press the SAVE AND EXIT button and the main page should appear with the CONNECT button back to dark blue. Click it again and wait for the SEND and READ button to turn dark blue. The BLE Terminal application is now ready for a keyboard text dialog between your phone/tablet and the Quantum VII to answer

RJL Systems example
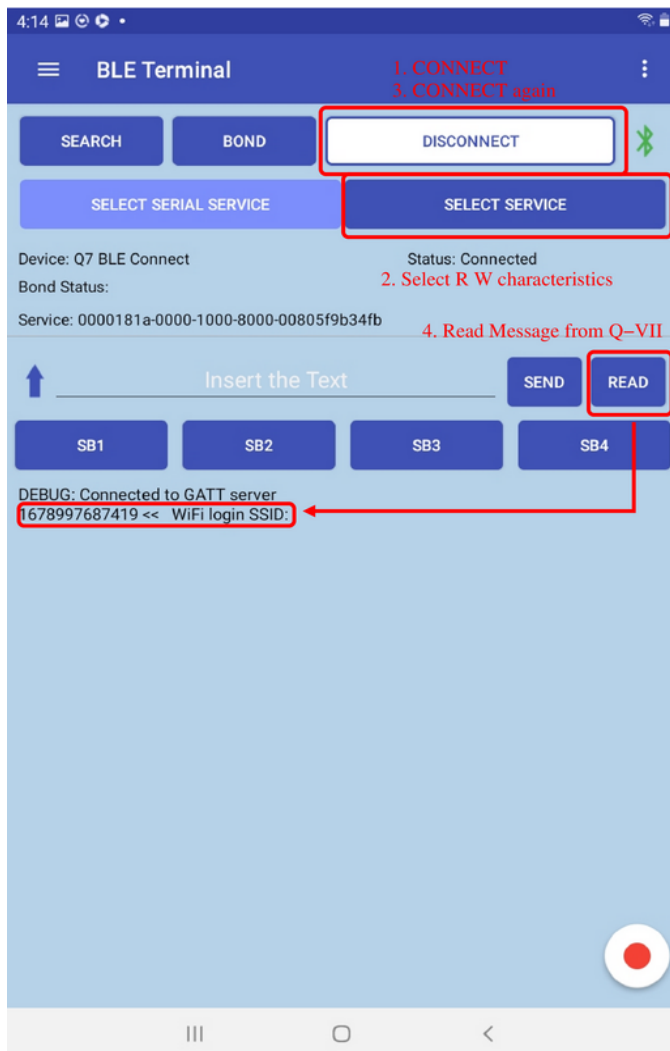
 1 **SSID:** RJL   2 **Passkey:** rjlxxxxxx   3 **Time Zone**: 4
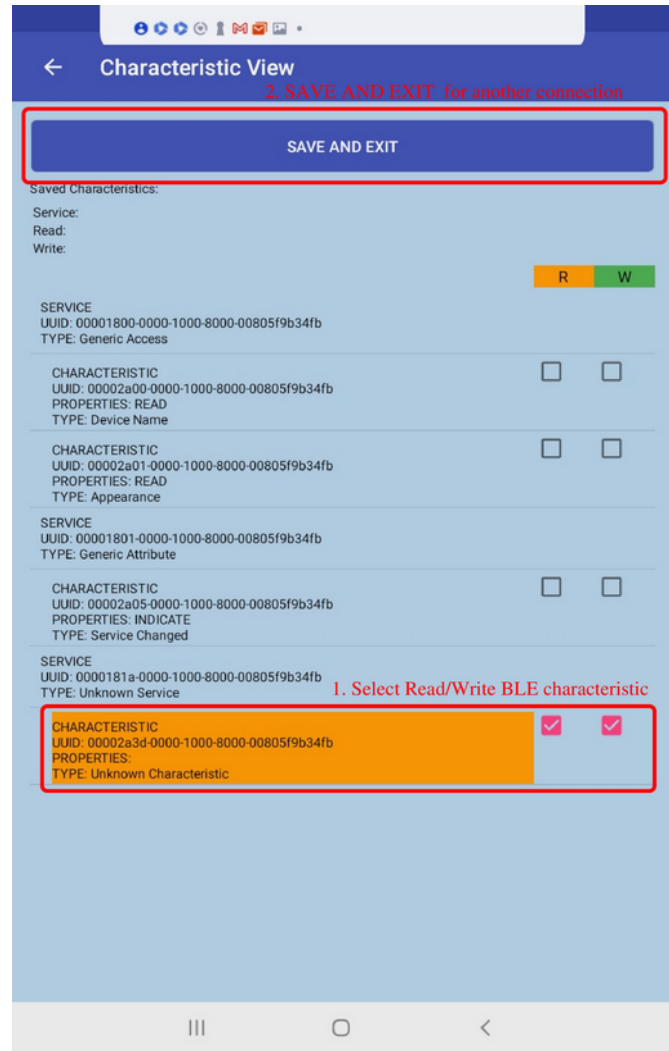
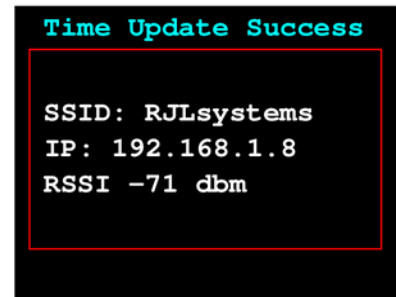Once set this does not have to be done again.

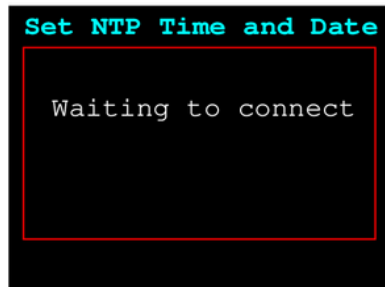*Main BLE Terminal after Q7 BLE Connect*   **BLE Read/Write characteristics**

SSID, Passkey and Time Zone **Dialog between Quantum VI and your phone/tablet**

This blue Bluetooth application creates a WiFi connection on a Quantum VII to access its website for access to classic or real time BIA reports and access to on-line body composition assessment. Once set up for a local area network (LAN) it does not have to be done again. The WiFi connection information and calibration parameters are saved on the 8 GB SD card and read each time the Quantum VII is turned on.

Assume both the SEND and READ buttons are dark blue (enabled). Press the READ button and **WIFI login SSID**: will be displayed on both the Quantum VII and the BLE Terminal application. Click the red line next to the SEND button and a keyboard will appear at the bottom. Type the name of your local area network (LAN) and then click the SEND button. The next question will automatically appear **Wifi SSID Passkey.** Backspace <[x] the **WIFI login SSID** off the keyboard and enter the Passkey. Press the SEND button and the **WiFi Time Zone** will appear. Backspace <[x] again and enter the time offset from GMT time. New York is 5 EST and Rome is -1 CET. Press the SEND button again and **WIFI Setup Done** will appear on the Quantum VII. Now press the ON button for shutdown. It is now safe to kill the BLE terminal application.

BLE Terminal application on a phone/tablet   *Quantum VII display screen*
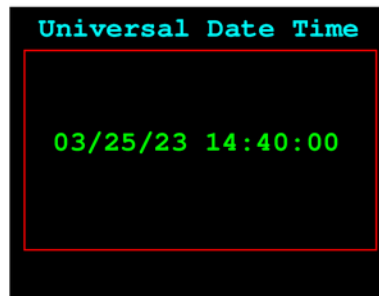
Checking the WiFi connection

The Quantum VII can automatically be connected to the internet time and date standard by selecting menu item **SET NTP TIME DATE**. This is done by taping the display screen and scrolling down (down push button) to the 9th item. Set by pressing the ON button and wait for the following events below to be display on the screen. The Quantum VII date and time are now permanently set. However, the date and time can be adjusted manually with the **SET TIME MANUALLY** and **SET DATE MANUALLY** menu items.

Set NTP Time and Date	WIFI DHCP CONNECTED	Time Update Success
Waiting to connect	SSID: RJLsystems IP: 192.168.1.8 RSSI −71 dbm	SSID: RJLsystems IP: 192.168.1.8 RSSI −71 dbm

Universal time adjusted for time zone (Detroit, Michigan +5 EST).

Universal Date Time
03/25/23 14:40:00

Reducing BLE Terminal Screen Clutter

The main screen has three small vertical lines on the top left corner. Click them and scroll to the second item **Settings.** Press this label and the setting screen will appear.

Send/Receive Format should be ASCII. Scroll to the bottom and disable the debugging buttons. Then press the left arrow on the top left corner and go back to the main BLE Terminal page . The dialog between the BLE Terminal and the Quantum VII is now much cleaner.