

Introduction

Tri-Tech Medical WRT -Wireless Range Tester, is intended to be used to perform a sight survey to determine the most effective location between any two wireless alarms in the same network. It can be used to determine if repeaters are necessary and how many by measuring the actual signal strength to be sure of the signal integrity at the location tested.

Specifications:

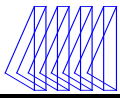
Two Range Testers are needed for testing with one being plugged into a laptop that has the software needed to perform the range test using the supplied USB cable assembly. This software is available from **Digi International** as a free download. If you need to perform a Range Test on previously installed Tri-Tech wireless alarms then only one Range Tester is required.

The Range Tester is powered by a long-life Lithium Ion Battery providing unlimited mobility of the tester. For recharging the battery, the Range Tester comes with a plug-in transformer (100-240 VAC x 5 VDC) with interchangeable International AC plug configurations and a battery charging cord.

The Range Test should be preformed while normal daily activity is taking place in the facility. Equipment turning on and off can affect the signal strength integrity and must be taken into account to provide valid test results.



Model WRT Series shown above



Range Test Procedure

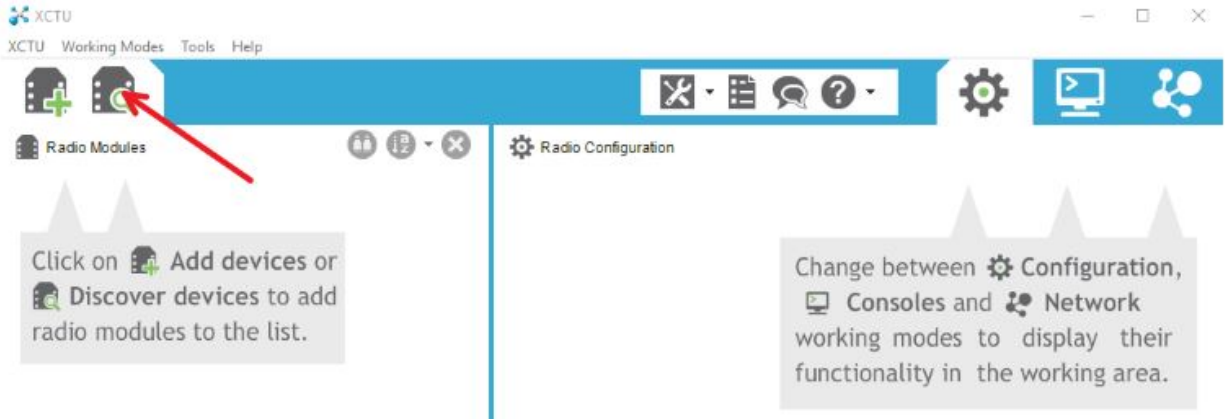
Must have a radio module in a separate device powered up and know its MAC address and you must have a range tester unit.

Plug the range tester unit into a PC that has the XCTU software installed.

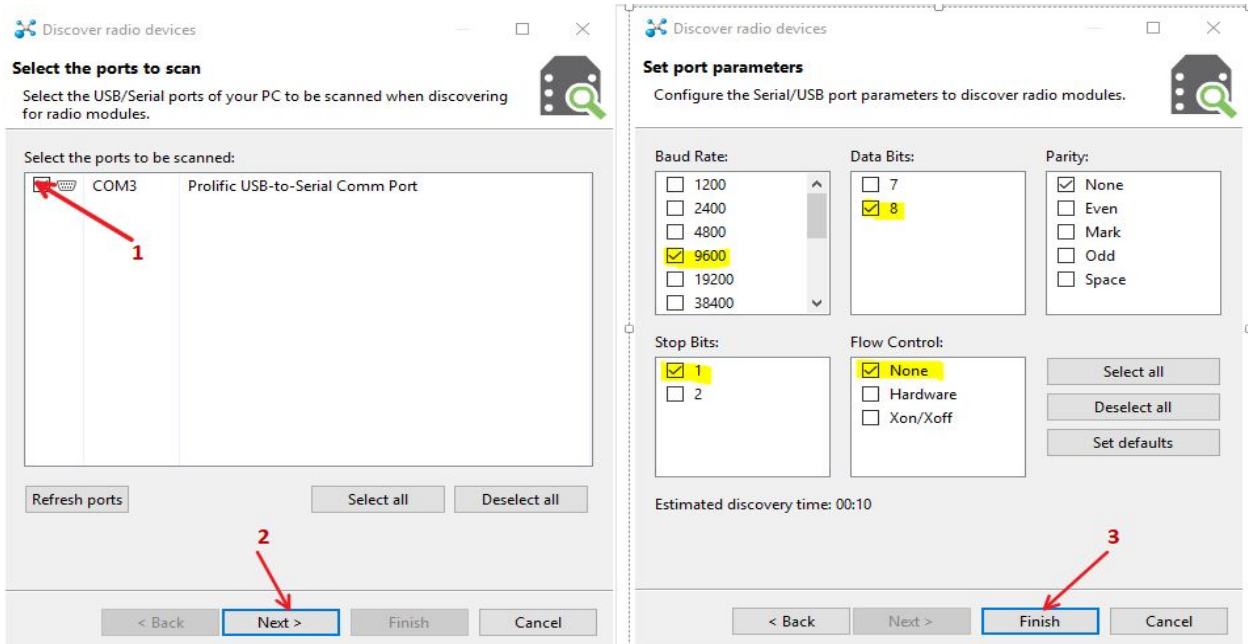
Turn on the range tester unit.

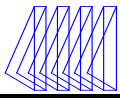
Launch the XCTU software.

Click on discover device per the below screenshot.

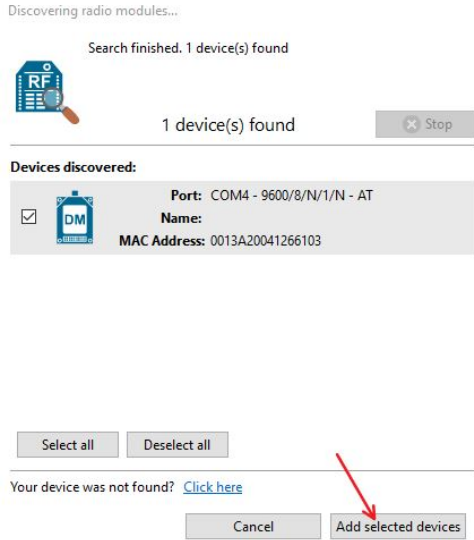


Next, select the port to scan and verify settings - Baud Rate: 9600, Data Bits: 8, Parity: None, Stop Bits: 1, Flow Control: None. Then click finish (See Screenshots below).

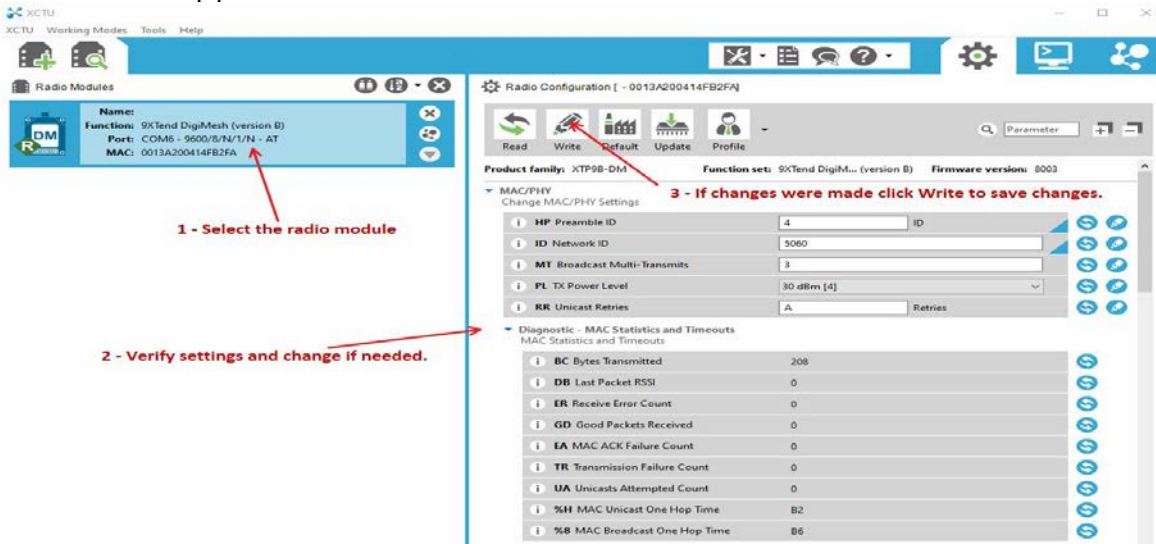




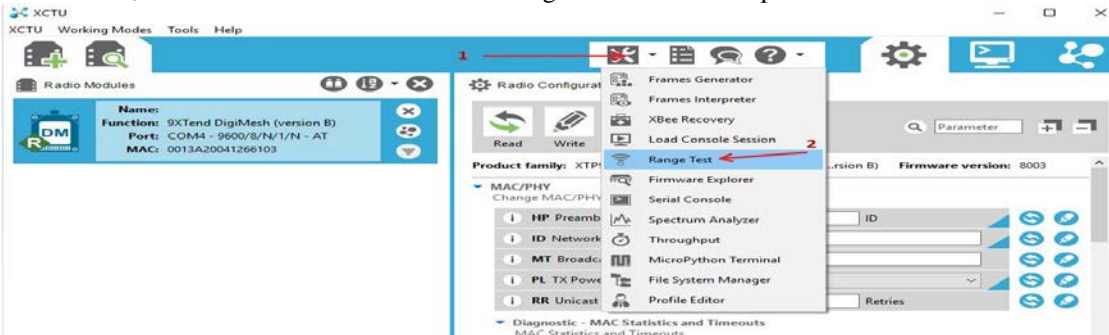
Once discovered, click on the add selected devices box per the screenshot below.



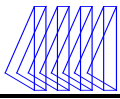
Once the radio module has been successfully added to the XCTU interface, select the device box in the Radio Modules column to read the current settings of the radio. Verify or change settings if needed and click on the write box at the top per screenshot below.



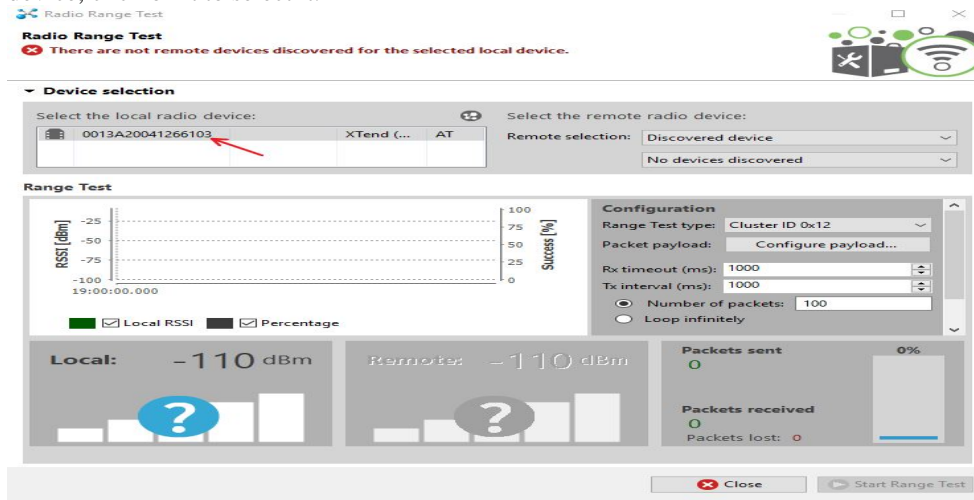
When done, click on the tools icon and select Range Test from the dropdown menu.



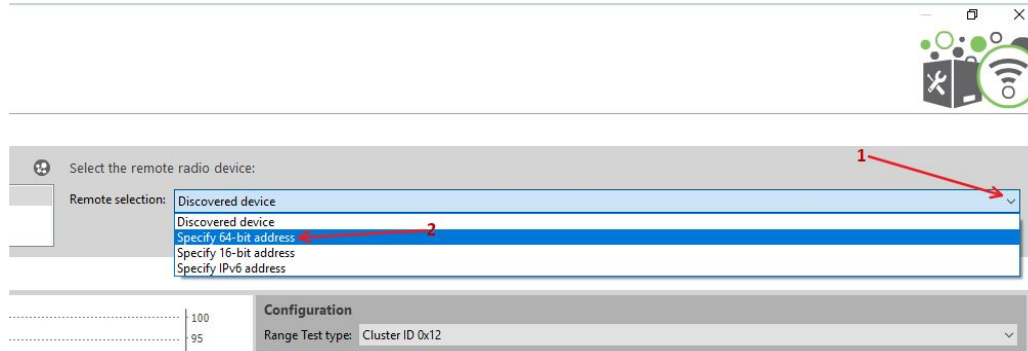
Maximize the screen



The MAC address of the radio installed in the range test unit will be shown in the upper left box of the local device, click on it to select it.



Click on remote device drop down and select 'Specify 64-bit address'.



Type the remote devices MAC address in the box below.

Check cluster ID - should be: 0x12.

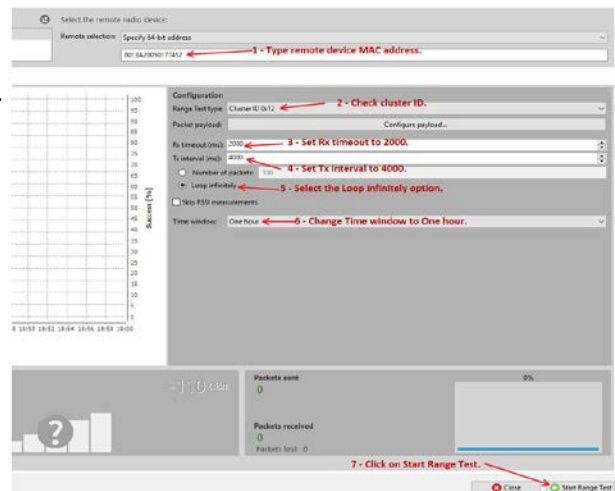
Set the Rx timeout to 2000 (2000 milliseconds = 2 seconds).

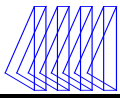
Set the Tx time interval to 4000 (4000 milliseconds = 4 seconds).

Click on the loop infinitely circle.

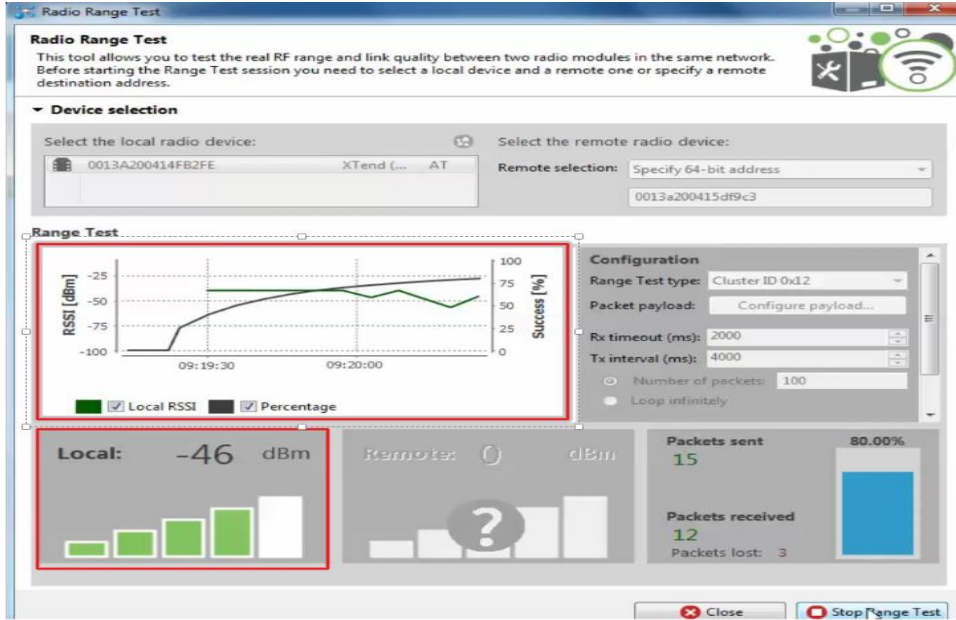
In the time window dropdown, select 1 hour.

Click on start range test (see screenshot below).





Recommended RSSI values are between -40 and -67 dBm and are displayed in the Range Test interface with both a bar graph and a line graph (see red boxes in screenshot below).



Explanation of RSSI values.



Signal Strength	
-30 dBm	Max achievable signal strength. The client can only be a few feet from the AP to achieve this. Not typical or desirable in the real world.
-67 dBm	Minimum signal strength for applications that require very reliable, timely packet delivery.
-70 dBm	Minimum signal strength for reliable packet delivery.
-80 dBm	Minimum signal strength for basic connectivity. Packet delivery may be unreliable.
-90 dBm	Approaching or drowning in the noise floor. Any functionality is highly unlikely.

Please Note:

- There is a built-in timer that counts down from 30 seconds every time a packet is received by the wireless radio. This creates a delay between the time the last packet was received and when the panel goes into alarm.
- While performing a range test, it is recommended to turn off all other Tri-Tech Wireless radios so they are not inadvertently relaying packets during the testing period.