Manually Assigning a Binding Code to a MultiHop Radio

OVERVIEW

To quickly replace radios or create ready-to-go spares in an existing network, use the manual binding feature to preset the binding code. The binding code ties all radios of a wireless network together and is required for radios to communicate with each other. By presetting the binding code in spare radios, replacing radios is quick and easy, minimizing the down time of the network.

Binding involves locking a MultiHop radio to a specific MultiHop radio configured as the wireless master. After a radio is bound, it only communicates with other radios using the same binding code. All radios within a single wireless network must use the same binding code.

When adding new devices to a network or replacing a damaged device, it may be useful to load the new or replacement device with the binding code without having to take down the network to put the master into binding mode.
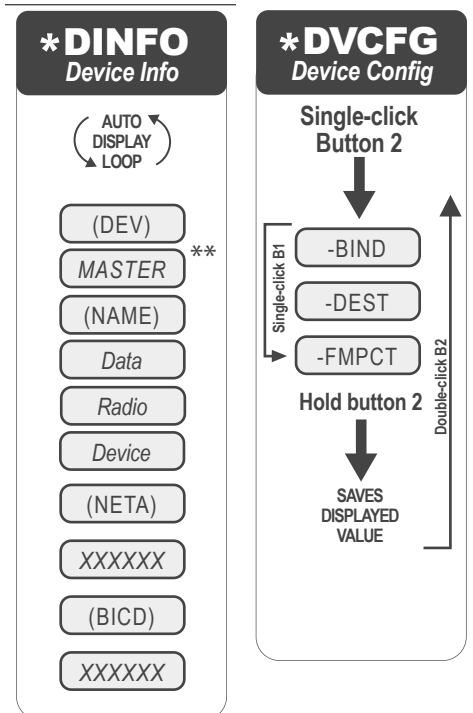
SETTING THE BINDING CODE USING THE MENU SYSTEM

Normally, all radios are bound together before they are physically installed. In a replacement situation, the radio master may not always be accessible. Using the manual binding process eliminates the need to put the radio master into binding mode and allows the wireless network to remain operational.

Obtain the existing binding code from the master radio by going to the *DINFO screen. The binding code is displayed under the BICD entry at the end of the parameter list.

To manually enter a binding code:

1. Single click button 1 to advance to the *DVCFG menu.
2. Single click button 2 to enter the DVCFG menu.
   -BIND displays on the screen as the first option under DVCFG.
3. Single click button 2 to display the binding code. Record this number if this is the binding code you are copying.
4. To change this binding code, use button 1 to increment the blinking digit. Use button 2 to advance, from left to right, to the next digit.
5. When you are finished making changes, press and hold down button 2 to save your changes. When the screen reads SAVE, release button 2.
6. The radio confirms your request to save. Press button 1 to reject your changes. Press button 2 to save your changes.
7. Double-click button 2 to exit the DVCFG menu.

Button 1 increments the blinking digit

Button 2 selects digits or saves changes

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Setting the Binding Code Using Modbus Registers and the MultiHop Configuration Tool

On a MultiHop master radio, the binding code is held in Modbus registers 6362–6363; maximum value of 999999. The binding code is automatically generated at the factory using the serial number of the master device, but can also be set using these Modbus registers or by using the LCD menu system on the master device.

Other devices (repeaters and slaves) in the MultiHop network store their binding code in Modbus registers 6364–6365. Typically, in the binding process the master radio sends its binding code to the repeater or slave; the repeater or slave stores this binding code in Modbus registers 6364–6365. The example reads a master radio's binding code, then writes the binding code to a slave radio.

Read the Master Radio's Binding Code

1. Connect the master device to the MultiHop Configuration Tool.
2. Read the master's binding code stored in Modbus registers 6362 and 6363. This screen shot shows that register 6362 = 1, 6363 = 56140.

Or Calculate the Master Radio's Binding Code

The factory binding code is a 32-bit value stored in two 16-bit registers within the master radio and can be calculated using the device's serial number. In this example, the master radio's serial number is 121676. (The serial number is printed on the device label, displayed within the menu system on the LCD, or is stored in Modbus registers 4104–4101 as ASCII values.)

For this example, the binding code is:

The value in Modbus register 6362 = Serial # ÷ 65536 = 121676 ÷ 65536 = 1
The value in Modbus register 6363 = Serial # − (Value of 6263)65536 = 121676 − (1)65536 = 56140

Write the Binding Code to the Slave Radio

1. Temporarily configure the slave radio to be a master Radio by altering the DIP switches on the device.
2. Connect to the MultiHop Configuration Tool.
3. Write the Modbus register values read from the master device's Modbus registers 6362 and 6363 into the attached device's registers 6364 and 6365.
4. When complete, change the DIP switches back to configure your slave radio into a slave radio.

Network View | **Register View** | **Device Config** | **Master Mode** | **Setup** | **Help**

Data Type
- Decimal
- Hexadecimal

Modbus Slave ID: 10

Read Registers

Register Information
Starting Register: 1   Number of Registers: 1

Polling Frequency
- One Time
- Every 1 seconds

Submit

Reg.	Value (DEC)
1	1

Write Registers

Register Information
Starting Register: 6364   Number of Registers: 2

Write

Reg.	Value (DEC)
6364	1
6365	56140

All MultiHop radios store two binding codes. Which code they use is dependent upon the DIP switches that establish if they are master, repeater, or slave radios.

- All radios are programmed from the factory with a binding code (stored in registers 6362 and 6363) calculated from their individual serial number as if they will be used as master radios.
- Repeater and slave radios use Modbus registers 6364 and 6365 to store the binding code they receive from a master radio during the binding process.

A single wireless network uses one binding code — the one that is transmitted from the master device during binding. Although a binding code calculated using the serial number is stored in registers 6362 and 6363 of slave and repeater radios, they use the binding code they receive during the binding process, stored in registers 6364 and 6365.