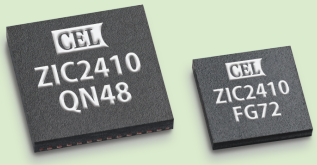


CEL's MeshConnect ICs combine a powerful RF transceiver with an industry-standard, 8051-based 8-bit microprocessor. Available in a QFN48 or VFBGA72 package, these low cost, highly integrated System-on-Chip radios can help simplify your design, reduce its size, lower its power consumption, and reduce your overall system costs.

At +8 dBm, the MeshConnect IC delivers the industry's leading output power. Combined with excellent –98 dBm receiver sensitivity, the MeshConnect IC provides a best-in-class link budget of 106 dB. The high output power ensures immunity to interference from other 2.4GHz transmissions, while the high sensitivity and link budget can help eliminate the need for power amplifiers and peripheral range extension components.

With 1 Mbps data rates and an on-chip Voice CODEC the MeshConnect IC can handle high-bandwidth voice/data transmission. A variety of other robust peripherals — battery monitor, temperature sensor, RSSI and AES encryption engines — are all designed to help lower your system component count.

MeshConnect ICs are ideal for home and building automation, lighting control, solar/wind, HVAC control, security networks, cable replacement, video, asset management, AMR/AMI, remote sensing and voice applications. With their low Tx, Rx and standby power consumption, they're an excellent choice when battery life is critical.

MeshConnect ICs are part of a broad family of CEL ZigBee products, including integrated radio modules and discrete power amplifiers, LNAs and RFIC switches for ZigBee range extension.

Part Numbers

ZIC2410QN48	48 pin QFN package
ZIC2410FG72	72 pin VFBGA package
ZICM2410P0-KIT2-1	Eval/ Development Kit
ZICM2410P2-KIT1-1	Extended Range evaluation board

California Eastern Laboratories
4590 Patrick Henry Drive
Santa Clara, CA 95054
408.919.2500
www.cel.com

CL-632A.09.22.10

Welcome to SNAP on the MeshConnect™

The evaluation boards in this kit are preloaded with ***SNAP*** firmware. SNAP is a high-performance mesh networking system that brings unprecedented speed, flexibility, and ease of use to embedded wireless products.

The boards are configured to accept USB, battery, or external power. Powering from USB is the default configuration. You can connect a PC to the USB port – by downloading the CP2102 Virtual COM Port driver. This driver is available on the web, and is also included on the CEL CD in this kit.

Right out of the box, the demo you see are being generated by a Python script running in SNAP on the ZIC2410. This script is called ZicMcastCtr.py – it is on the included Synapse CD in the "scripts" folder.

To get started with SNAP, you'll need to install the **Portal** GUI (located on the CD) and connect via USB to any of your evaluation boards. Portal provides a complete development environment which will allow you to experiment with the included sample scripts and develop your own application.

1. Install CP2102 drivers for USB port
2. Install Portal GUI application

More Scripts:

ZicLinkQuality	makes use of the LEDs to display dBm levels for range testing
ZicMcastCtr	uses the LEDs to show multicast connectivity between devices
ZicMonitor	displays ADC readings

SYNAPSE

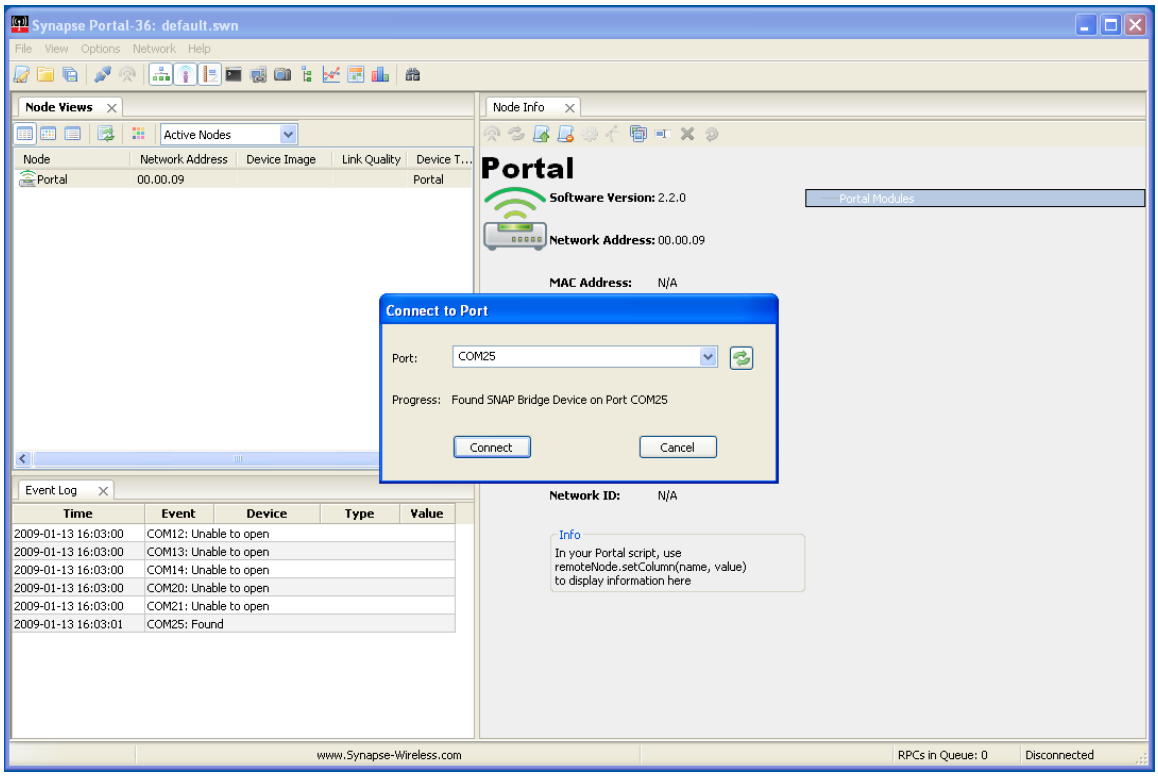
Wireless Technology to Control and Monitor Anything from Anywhere™

Getting started with SNAP on the MeshConnect™

Wireless Technology to Control and Monitor Anything from Anywhere™

Step 1: Connect to device with Portal

We will continue to use USB1 (uart1) for communication with Portal. After the device is reset, start Synapse Portal software and your new SNAP device will be discovered on the COM port assigned to USB1.



Step 2: Set MAC Address

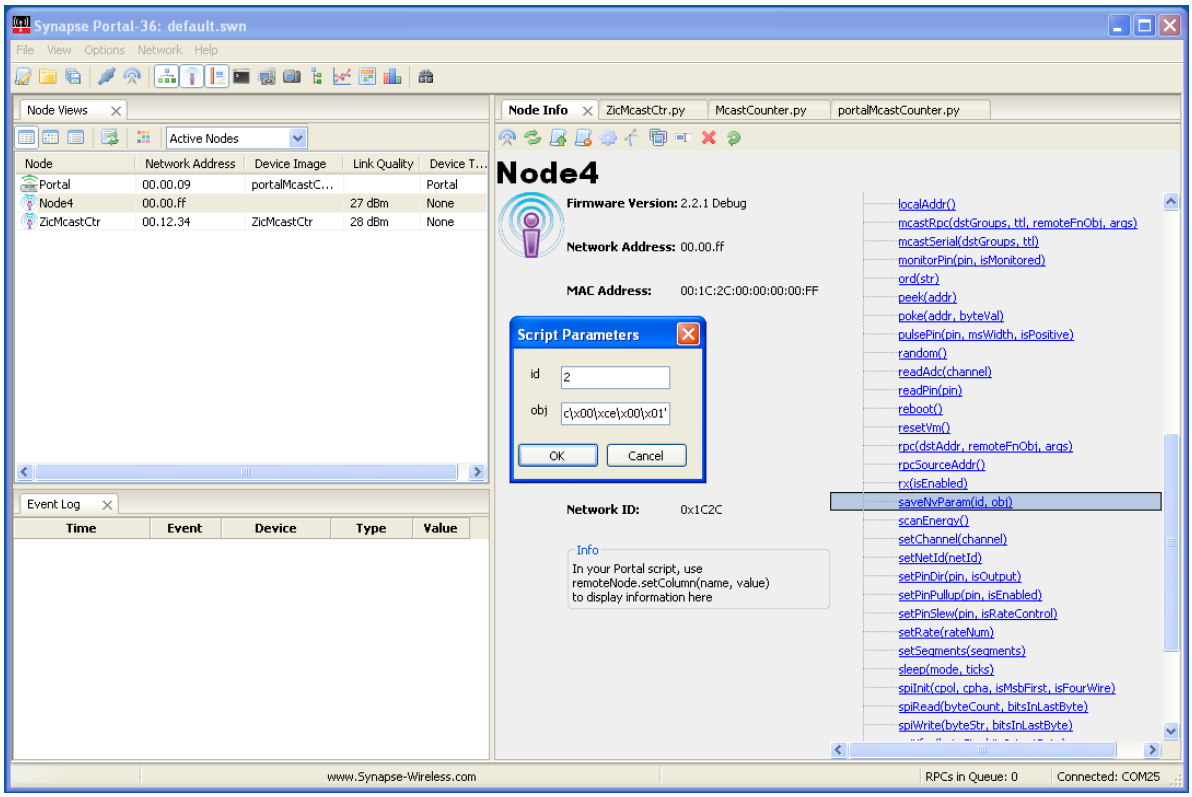
This step isn't necessary if your just beginning, as the MAC addresses have been previously set at CEL. However, if you've previously erased the SNAP firmware image and are reloading SNAP onto the evaluation boards (or additional modules) than this step must be preformed.

After connecting, the first thing you need to do is set a unique MAC address for the device. In production, this is typically done by an automated test fixture. Until it is set, the default MAC is 00:1C:2C:00:00:00:00:FF. This must be changed for proper network operation!

For temporary engineering evaluation purposes, assign MAC addresses as follows:

```
\x00\x1C\x2C\x00\x00\xCE\x00\x01
```

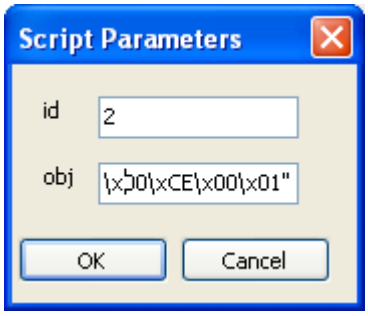
Increment the last hex-byte for each successive device, up to 255. Note that the string above is shown in the format required by Portal's '**saveNvParam**()' BuiltIn function. This is the function we'll use to program the MAC address, as shown on top of page 3:



Click on **saveNvParam()** in the Node Info panel's **BuiltIn** function tree (you may have to scroll down to find it – they're alphabetized.)

Fill-in the MAC NV parameter:

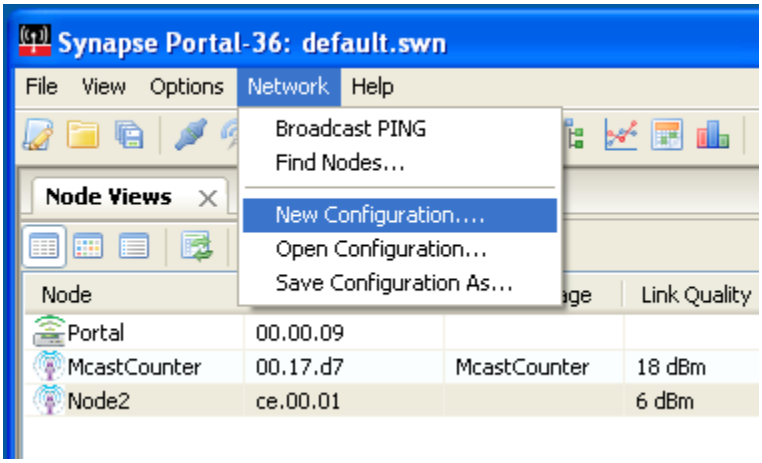
id = 2
obj = " mac address " ← *Note: must be in quotes*



← *Note:* Full MAC not shown here – all 8 bytes required!

Next, reboot the device to put the new MAC into effect. You can do this either with physical HW reset, or click the **reboot** button in Portal.

Finally, refresh Portal's view of the Network by selecting the "New Configuration" menu item as shown below. Portal will ping the network and find your SNAP devices at their currently assigned MAC addresses.



Step 3: Try Uploading a Script!

You can do this over-the-air, or while serially connected via USB. The ZIC2410 SNAP nodes are interoperable with other SNAP devices. You can, for example, use a CEL USB stick as the bridge for Portal to configure and control a mixed network of ZIC2410 and other SNAP based devices.

The first script we suggest trying is an implementation of our Multicast Counter demo, which uses the facilities of the ZIC2410 Eval Board (**ZicMcastCtr.py**)

This script uses SW4 (int0) and SW5 (int1) to initiate UP/DOWN multicast counts.

CEL California Eastern Laboratories
4590 Patrick Henry Drive, Santa Clara, CA 95054-1817
Tel. 408-919-2500 FAX 408-988-0279 www.cel.com