Beacon Setup and Use with SmartZone	
Applies to:	SmartZone Users
Objective:	This Technical Reference describes the beacon controller and beacon hardware and setup necessary to work with SmartZone. It also describes the SmartZone setup and operation for beacons.
Documentation Reference:	Consult the manufacturer's website, www.controlbyweb.com, for current product documentation for the X301 WebRelay Controller.
Pre-Requisites:	The beacon controller firmware must be version 1.12

Description

Beacons can be used to aid guided patching and tracing operations in the data center. When a Move, Add, or Change (MAC) request or Trace operation between two PViQ panels is remotely initiated in SmartZone, it is not always obvious where the two panels are located. Beacons, installed on top of each cabinet and properly configured in SmartZone, will illuminate when any panel located in the cabinet is involved in a MAC or Trace operation. The idea is to first guide the technician to the correct cabinet using the beacon and then further guide the technician to the correct port by looking at LEDs on the PViQ panel.

Hardware

 The hardware necessary to provide the beacon feature consists of 2 beacons, 1 beacon controller, and its power adapter.

The beacon controller is actually a Xytronix relay controller, model X301, which switches 12VDC current on and off to each beacon as instructed to do so via SmartZone. **Note**: SmartZone does not support relay controllers from other manufacturers. Each beacon controller controls 2 beacons which are connected to the beacon controller via 12AWG wires.

The beacon controller can be mounted to a cabinet. It is DC-powered and requires an AC-to-CD power brick. The beacon controller has a standard 10/100 Ethernet connection to the network side and a screw-down terminal block on the beacon side. The beacons are connected to the relay controller via 12AWG wire. Typically, the

beacon controller controls one beacon in the same cabinet as the beacon controller and another beacon in an adjacent cabinet. To fully deploy the beacon function, every cabinet would need a beacon, whereas, only every other cabinet would need a beacon controller.

Bill of Materials

The Bill of Material for the beacon, beacon controller, and associated items are shown in Appendix I. The beacon controller is a third-party device and cannot be purchased through Panduit. Beacons can be purchased directly from the manufacturer or through Panduit. **Note**: Panduit provides limited support for third party devices.

Wiring Diagrams

The wiring diagram is shown in Appendix II. Power is connected to the first 2 screw terminals and to each set of screw terminals controlling the beacons. Use 12AWG wire to connect the beacons to the respective screw terminals as shown.

Mounting

The beacon controller can be mounted to the cabinet, rack, or rack-mounted shelf using Velcro or screws as shown in Appendix III. The beacons can be mounted to the top of a cabinet or rack using Velcro or screws. The power brink should be secured to the cabinet, rack, or rack-mount shelf using Velcro, cable ties, or some other fastener.

Power

The beacon controller is powered with an AC to DC power adapter. The AC input may need an adapter to work with regional plugs. Xytronix sells adapter plugs for use in the U.K., EU and Australia. The 2 wires of 12-volt side of the adapter are screwed down to the terminal block as shown in Appendix II.

Beacon Controller Firmware

The beacon controller firmware must be version 1.12. The firmware version can be seen on the Main tab of the web interface as shown below.

 SmartZone only supports firmware version 1.12. Use of previous versions of firmware has detrimental results. See the Xytronix X301 user's manual for firmware upgrade procedure. See the manufacturer's website, www.controlbyweb.com, for firmware.
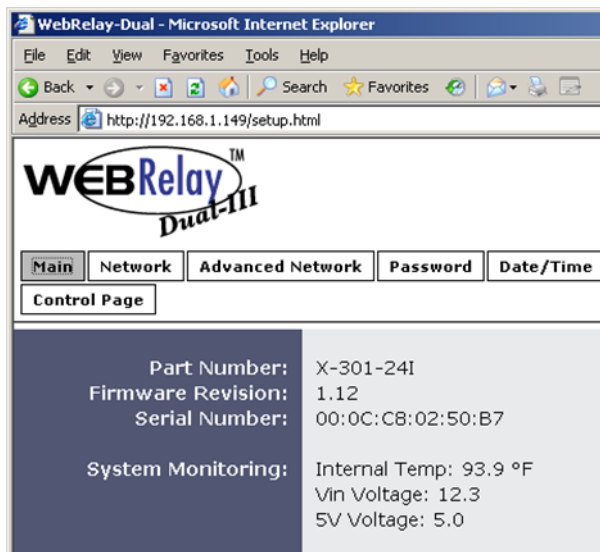
Beacon Controller testing

The beacon controller and connected beacons should be tested to verify correct wiring and ensure operation. See Appendix IV for testing procedures.

Performing the Procedure

The beacon controller must first be setup using its web-based user interface. See the Xytronix WebRelay X301 Quick Start guide available on the manufacturer's website, www.controlbyweb.com, for details.
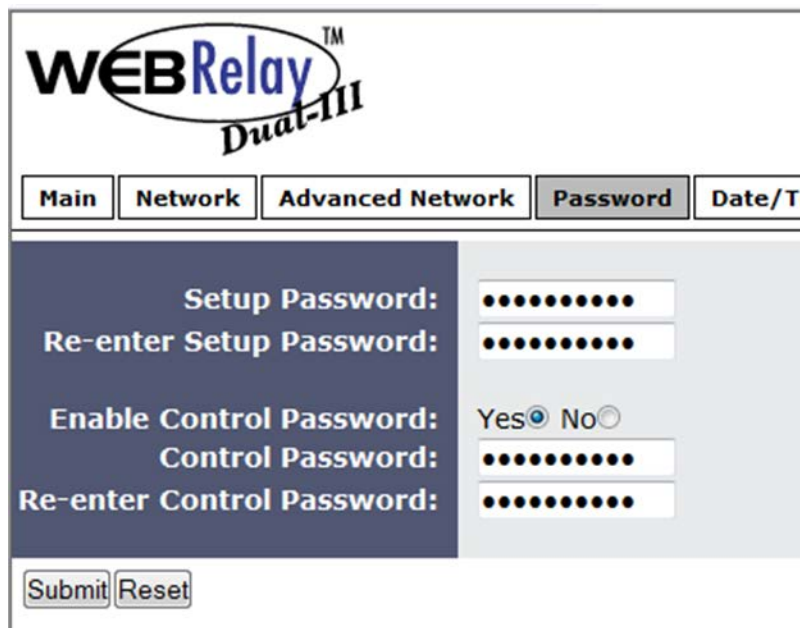
The IP address and other network parameters should be set up for the customer's environment along with SNMP community strings, SmartZone server IP address and beacon controller name.

IP Address

The IP address is setup on the Network tab.

SNMP Community String

In order for SmartZone to write to the Beacon Controller, the SNMP community string must be set up. This is done on the Password tab of the web interface under the Control password section as shown below. Set Enable Control password to Yes and type the password. The password should also be entered into SmartZone's SNMP strings in the SNMP tab in the System Administration module.

SmartZone Server IP address

Set SNMP Enabled to Yes and enter the IP address of the SmartZone server next to SNMP Manager IP in the Advanced Network tab.

Beacon Controller Name

Enter the Beacon Controller name in the Main Header Text field under the Control Page Setup tab. This is the display name SmartZone will use in the Location Tree after the Beacon Controller is discovered. It is important to have a unique name for each Beacon Controller to distinguish each one in SmartZone.

SmartZone setup for the Beacon Controller and Beacons

Allow SmartZone to write to the beacon controller

Go to the System Administration module, select System Configuration tab and the System Properties tab and select Y for the option Allow writing to Beacon devices.
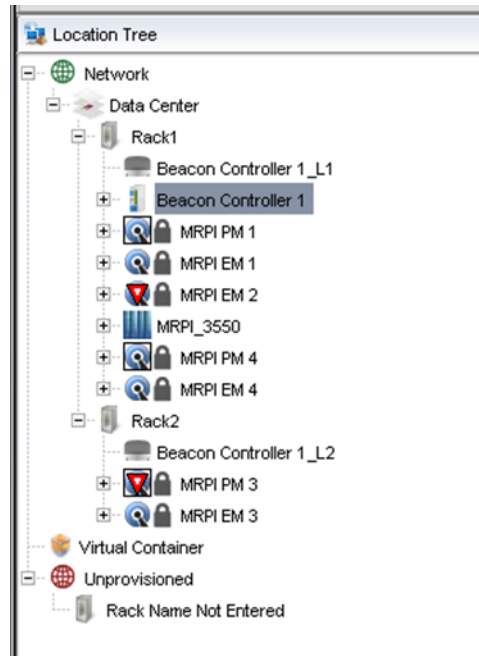
Beacon Controller Discovery

SmartZone treats the beacon controller as another network device that can be discovered. SmartZone does not actually discover the beacons but will automatically add 2 beacons for every beacon controller it discovers. SmartZone will join L1 and L2 to the name of the beacon controller to indicate the beacons.
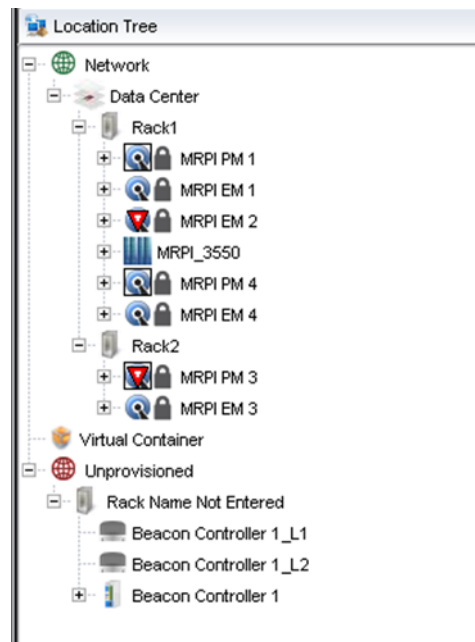
## Beacon Controller and Beacon placement

Place the Beacon Controller in its rack by dragging it to its rack or using cut and paste. Similarly, drag or cut and paste the beacons to their racks.

Beacon Association with Beacon Controller

SmartZone cannot discover the beacons that are connected to a beacon controller but it will automatically add 2 beacons and associate them with the beacon controller. The association is shown in the Association tab.

To check the associated beacons, highlight the beacon controller and click the **Association** tab.
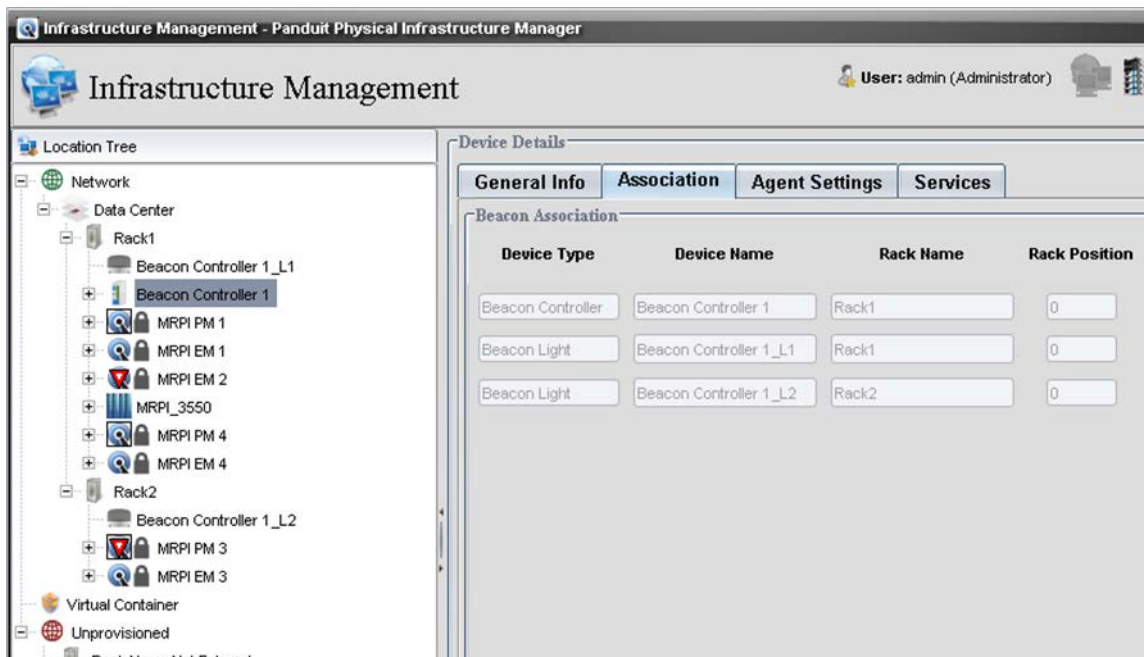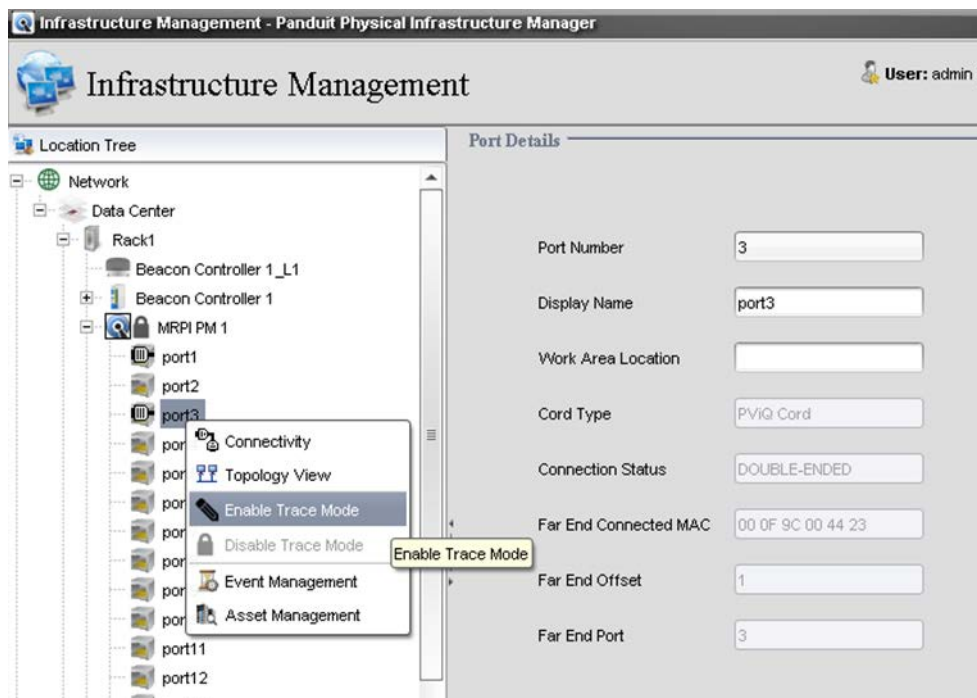
Operation in SmartZone

When a MAC or Trace operation is initiated in SmartZone, the corresponding beacons will illuminate in SmartZone.
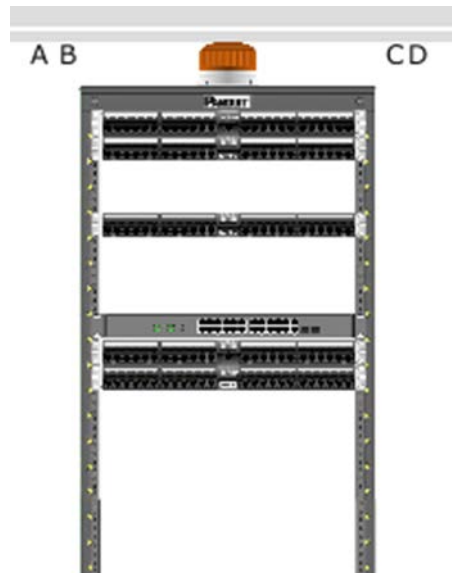
Trace Mode example

Turn on **Trace Mode** for any panel port in a rack where a beacon is located. As shown below, port 3 for panel 1 in rack 1 is enabled for Trace Mode.


Port 3 is connected to a panel in rack 2. The beacons on top of racks 1 and 2 in the data center will illuminate. SmartZone will reflect the illumination in the GUI as shown below.
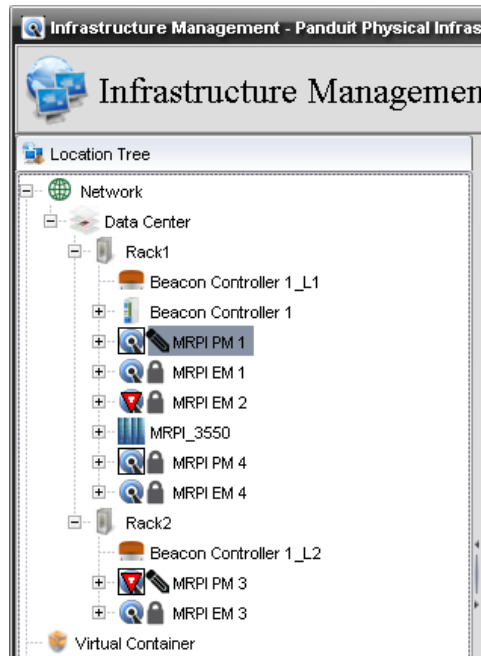
When the beacon is illuminated, SmartZone will also reflect it in graphical view. For example, by selecting graphical view for rack 1, the beacon is depicted in an illuminated state.


Returning the panels to secure mode, turns off the beacons on top of the racks in the data center and SmartZone reflects this by showing a gray beacon image.
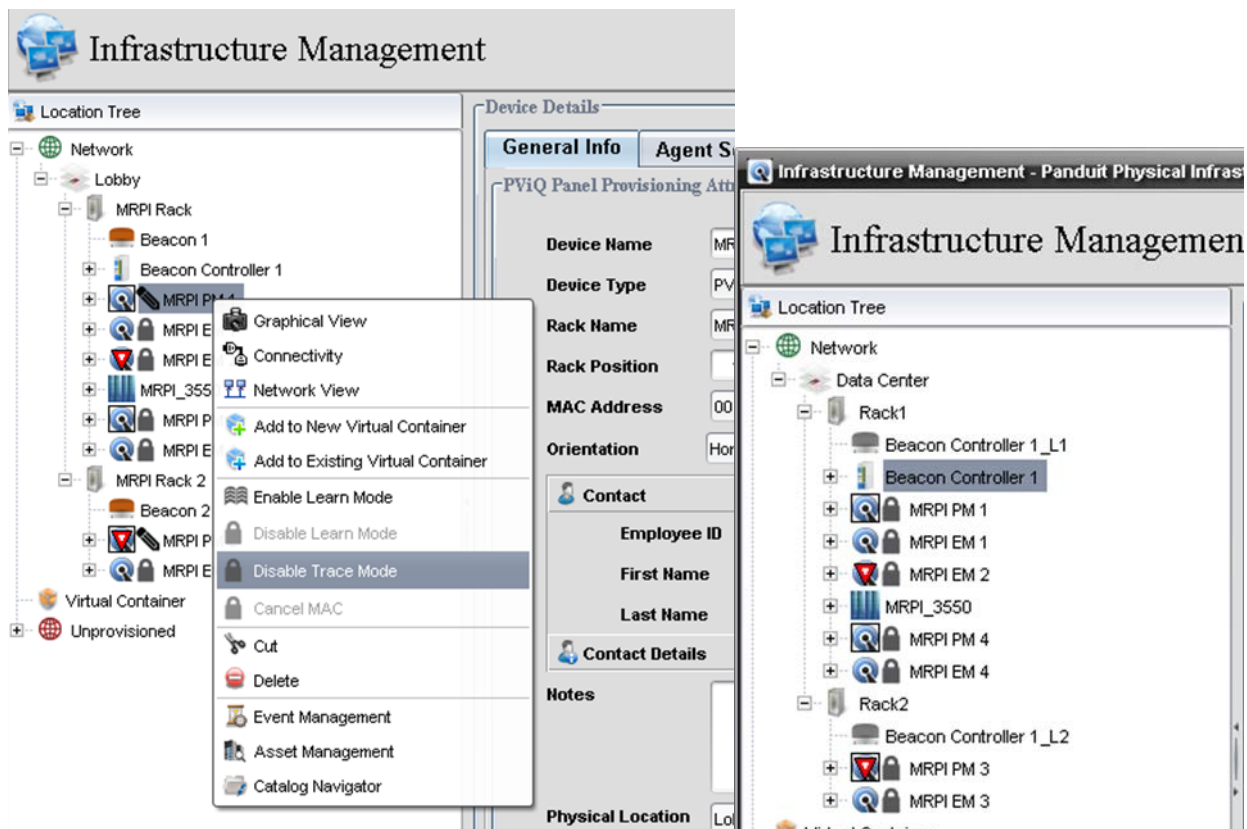
MAC Mode example

When a MAC is issued between any 2 panels in racks where beacons are located, the beacons illuminate in the data center and SmartZone also reflects it in the GUI. For example, a disconnect request is made between a panel in rack 1 and a panel in rack 2 and the resultant SmartZone beacon response is shown.
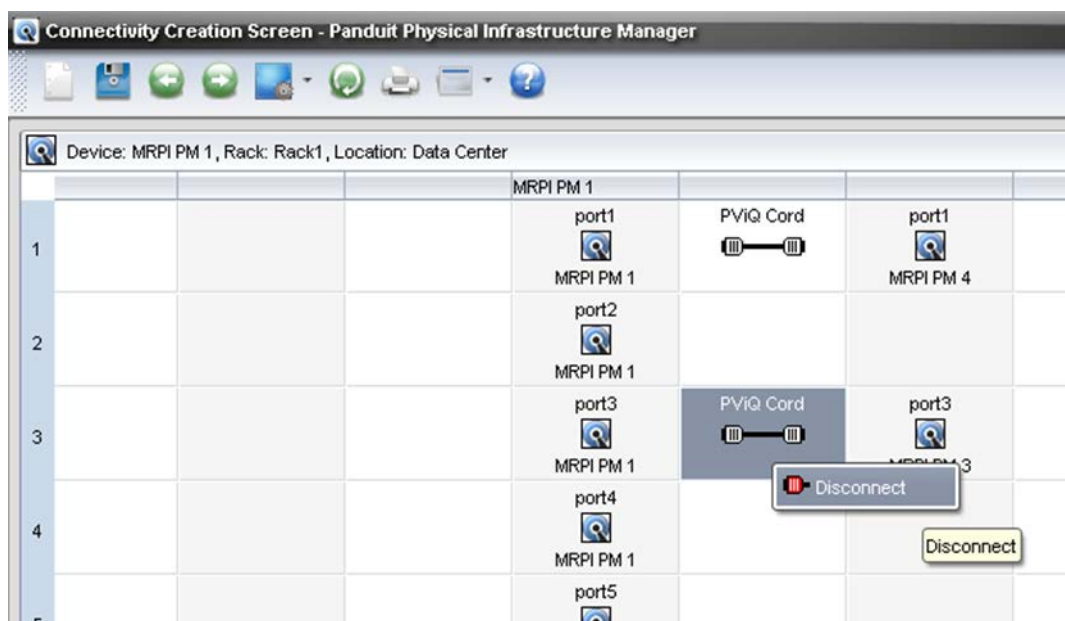
The beacons illuminate in the data center and SmartZone reflects this in the GUI.
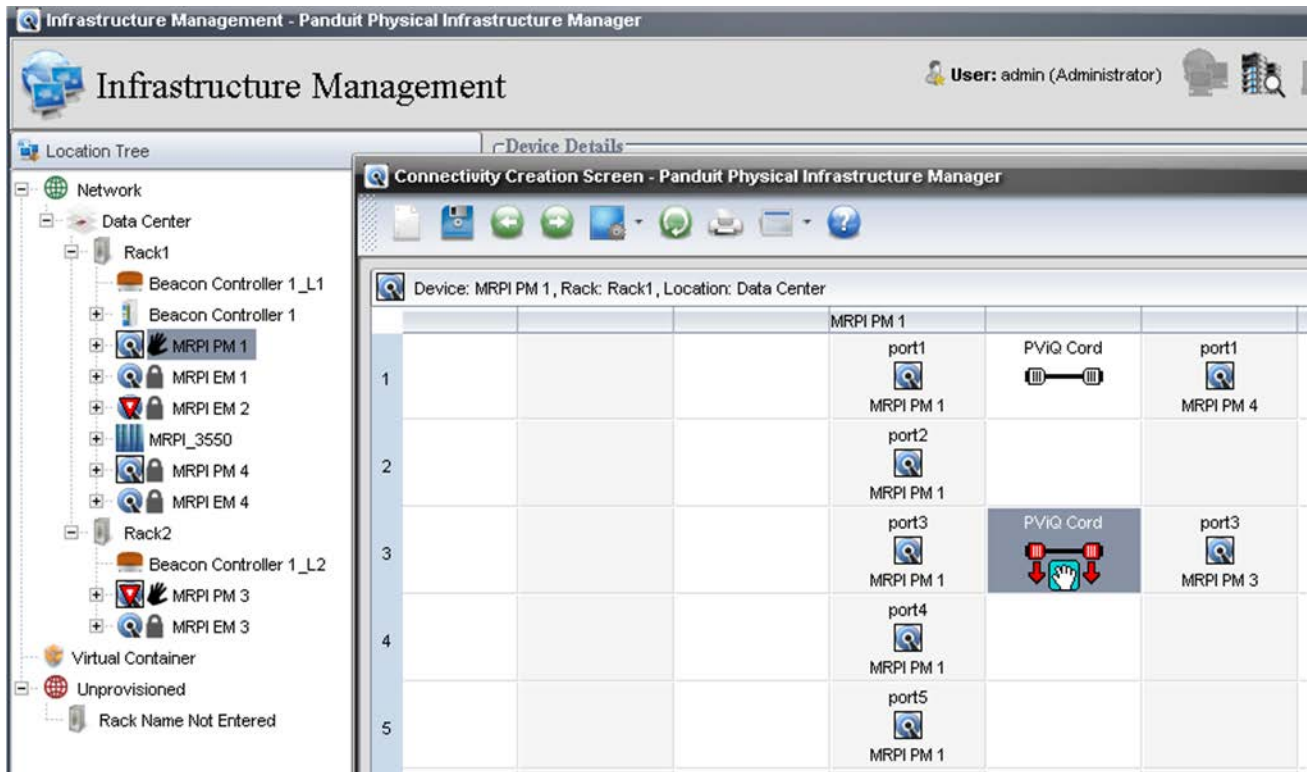
As the technician physically removes one end of the patch cord, one beacon turns off and SmartZone reflects this. The remaining beacon continues to flash guiding the technician to the other rack involved in the MAC request.
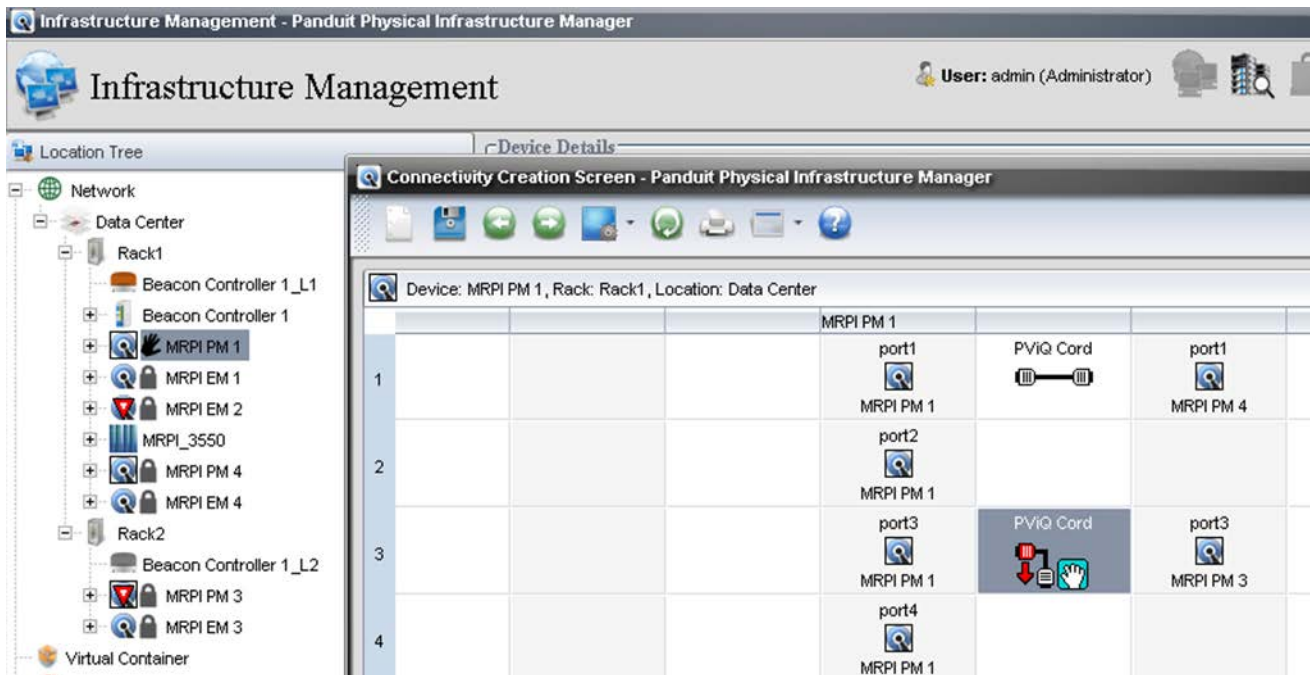
As the technician removes the other end of the patch cord completing the MAC request, both beacons turn off and SmartZone reflects this.
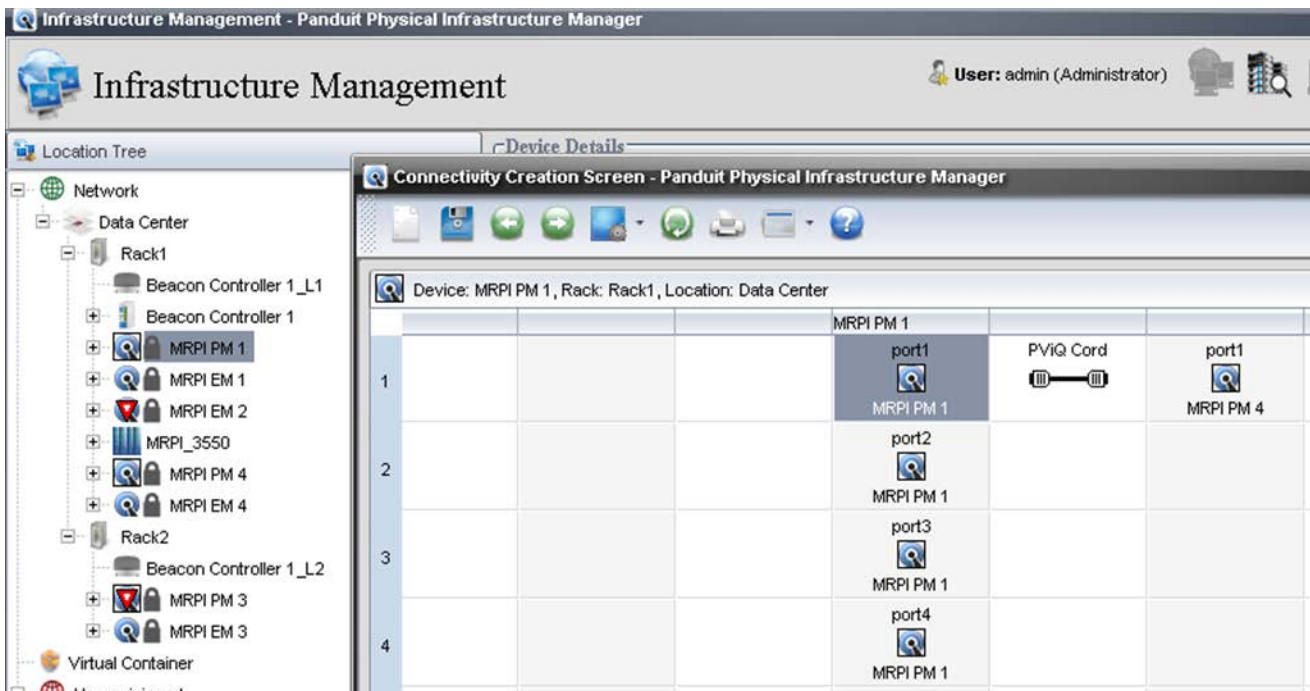

Operation of Beacons outside of SmartZone

The beacons will illuminate based on Trace operations made from the panel pushbuttons or as a result of setting location mode from a Telnet session.

Trace Mode initiated from the panel pushbuttons.

If a technician initiates a trace from the panel pushbuttons between 2 panels with beacons in the racks, the beacons will illuminate showing the technician the location of the rack where the other end of the patch cord is connected.
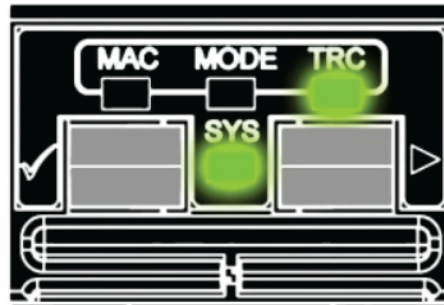
Location mode initiated via a telnet session

It can be very helpful to guide a technician to a panel via the set mode location function initiated via Telnet. For this scenario, the beacon will illuminate if it is in the same rack as the panel.

```
192.168.1.100 - PuTTY

Welcome to Panduit Shell ...
This system is to be used by authorized personnel only.

Username:admin
Password:*******

You are using PAN SHELL command line interface, Version 1.0.0
Last logon: Unavailable

PSH > set mode 1 location
PSH >
```
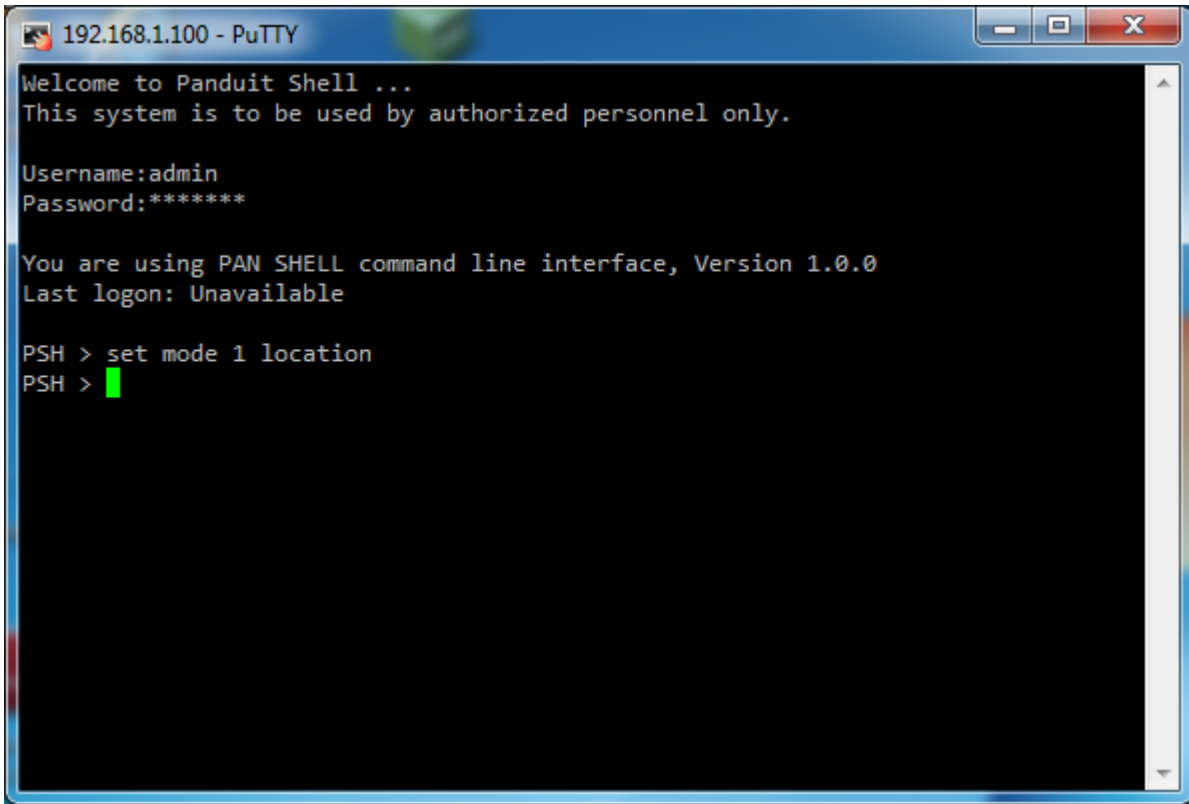
Appendix I -- Wiring Diagram
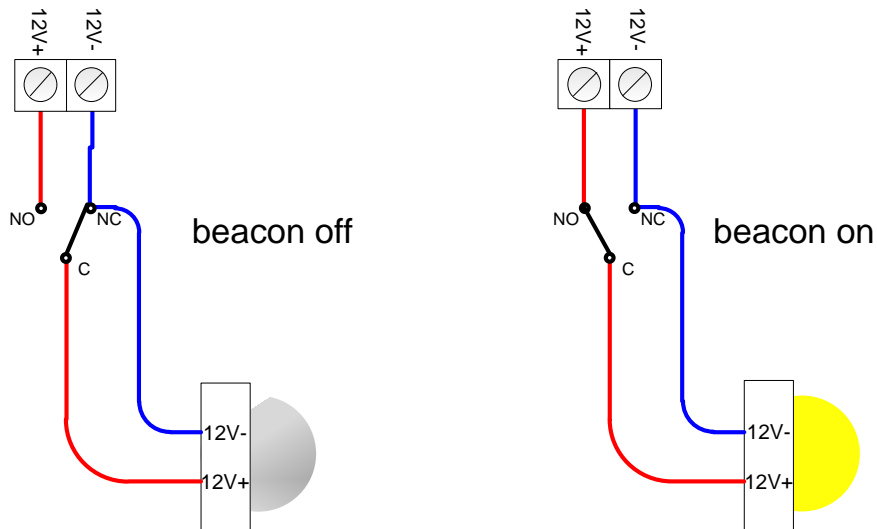
GENERIC CIRCUIT
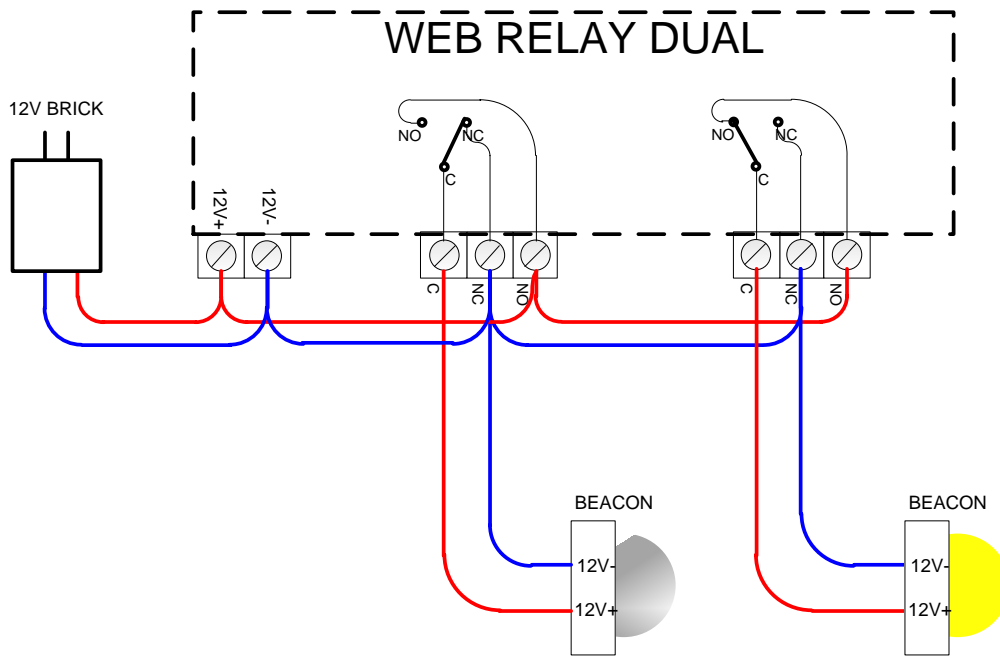
WIRING METHOD

Appendix II – Bill of Materials

Bill of Material to equip 2 cabinets with signal beacons

| ITEM	DESCRIPTION	MFR	PART NUMBER	QTY	REMARKS
1	Power Supply Regulated 12VDC 1.5 Amp, (PS12VW1.5-B)	Xytronix	PS12VW1.5-B	1	http://www.controlbyweb.com/x301/
2	Series III WebRelay-Dual 9-28V Power Supply Input; 11-28V Opto-Input (X-301-24I)	Xytronix	X-301-24I	1	

3	Power Supply Connector Prongs UK (PSB-UK)	Xytronix	PSB-UK	1	
4	Cable, unshielded twisted pair, Belden 88442, 22 AWG, (0.0326mm^2)	Belden	88442	-	Quantity as required not to exceed 100ft (30m) per beacon (loop resistance < 3.2Ω) strip and tin ends recommended see wiring diagram
5	Beacon, PV Rack Indicator	Panduit	PVMRIY	2	use QTY 1 for single cabinet

Appendix III – Mounting

Appendix IV – Testing

To test the wiring and operation, open the web interface and go to the Control Page tab.

Click the **Pulse** button for Relay 1. The beacon for Relay 1 should flash. Repeat for Relay 2. Beacon 2 should flash.
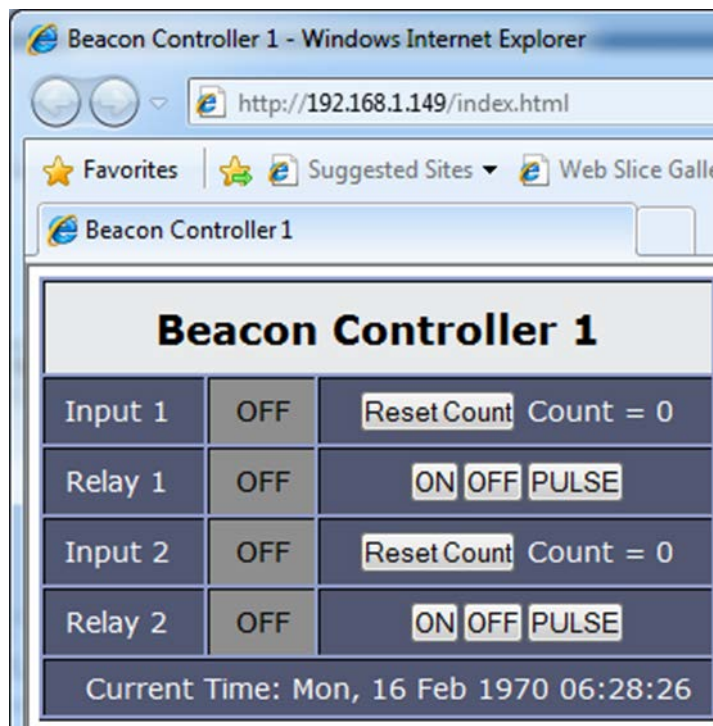
End State

The beacon setup and operation is complete.