

Using Patton Telco gateways with Telos VX

13 September 2011

Introduction

The Telos VX communicates with PSTN telco lines via gateways, which translate both call control and audio from the Telco's format to IP messages and streams. Because the VX uses standard SIP protocol for call control messages, and the *de facto* RTP standard for VoIP audio, you can use off-the-shelf gateway devices. While many will work, we recommend and support those made by Patton. This document describes how to use a Patton gateway with the VX.

Note that no gateway is needed when your telco service is SIP trunking over IP.

Supported Models

Patton calls their VoIP Gateways "SmartNodes, and these are available from Telos via our distributor network.

Here are the specific Patton gateways we have tested for various types of Telco services:

- SN4112/JO/EUI (2-port analog FXO)
http://patton.com/products/product_detail.asp?id=51
- SN4940/1E24V/EUI (1-port T1/E1/PRI)
http://patton.com/products/product_detail.asp?id=437
- SN4634/3BIS/EUI (3-port ISDN BRI)
http://patton.com/products/product_detail.asp?id=329
- SN4912/JO/RUI (12 FXS VoIP IAD)
http://patton.com/products/product_detail.asp?id=364

The models above are the specific units recommended by Telos. Other models in these ranges may be compatible, but are not specifically supported by us at this time.

Configuration

The following instructions/example applies to Patton model SN4112, firmware, version # R5.2 2009-01-14. Other Patton models will be essentially the same.

Gateway settings which will need to be configured:

- The gateway device IP address.
- For analog gateways, the tones, timing, etc. for the Telco lines you are using. Usually, choosing your country will fill in these details.
- For ISDN gateways, the protocol.

- The number or text name for each line appearance. This is passed in the SIP message to the VX, which uses it to identify calls and assign them to buttons, as configured in the VX Show page.

Patton gateways can be configured using a few methods:

- Manually, with a text-based command-line interface (CLI), using the gateway instruction manual as a guide. Not recommended due to its complexity and the opportunity for errors.
- Manually, with a web interface.
- By using an online tool made by our partner Broadcast Bionics. You enter your particulars via web and get a file via email, which you then upload to the gateway.
- By getting an uploadable file from Telos or Patton. You would provide your particulars as to line numbers/names, etc and we'll send you back a file to be uploaded to the gateway.
- By making your own uploadable file starting from a template provided by Telos or Patton. More on this option later.

You can also order your gateway pre-configured. Both Telos and Patton offer this service. The gateway will arrive ready-to-go.

For reference purposes, here are links to Patton's manuals:

- Manual: http://www.patton.com/manuals/SCG_r57.pdf
- Quick Start: <http://www.patton.com/manuals/SN4520-SN4110-QS.pdf>

Step 1: Setting the IP address

The first step is to get an IP address into the gateway. This can be done using either the gateway's text or web interface over the network. As with all IP devices, there is a Catch-22: you need to already have given the device an IP assignment in order to access it to give it an IP assignment. (That's why Telos equipment usually has a simple LCD/knob front panel interface) With the Patton gateways, we'll need to use a different procedure. Fortunately, it only has to be done once.

Setting IP Using DHCP

By default, the gateway accepts DHCP automatic IP configuration. If you have a DHCP server, connect the SmartNode to the network and power it up.

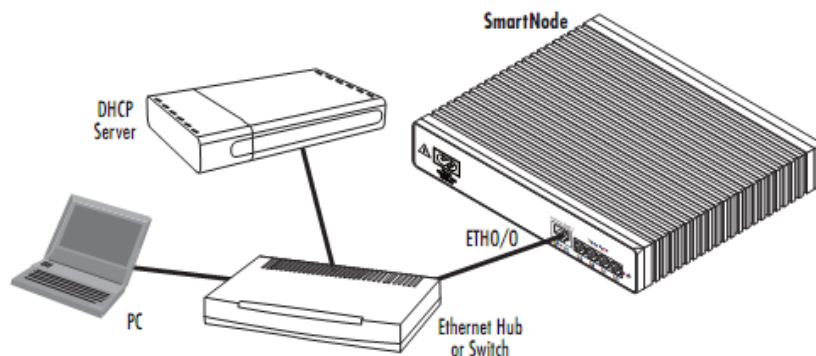
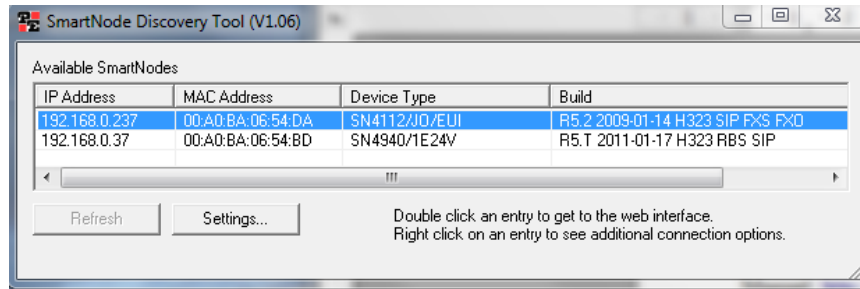


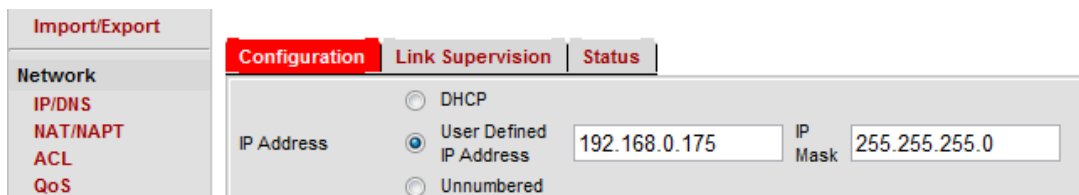
Figure 1. Connecting the SmartNode to your PC through a hub or switch

On the CD that comes with the gateway, you will find a utility called SNDiscovery.exe. Copy it to the hard drive on your PC and run it. (*Note:* under Windows 7, you must right-click it and choose “Run as Administrator”.)



A window showing available Patton SmartNodes in the network will appear. Right-click a unit’s IP address to launch your web browser and open the configuration page. Default login is **administrator**, with no password.

If you want, you can change the DHCP-assigned IP address to a static one by clicking **Network->IP/DNS->Interfaces->eth0**, entering your IP address and IP (subnet) mask, and clicking **Apply** at the end of the page.



Setting IP using a serial cable

If you don’t have DHCP server, you can manually configure an IP address. To do this, connect the serial port on a PC to the gateway using the cable supplied by Patton and then run a terminal application. Windows 7 does not come with this, but you can download the free application RealTerm from <http://realterm.sourceforge.net/>.

- Use baud rate 9600, Parity None, h/w flow control None.
- The default login is user **administrator** and no password.

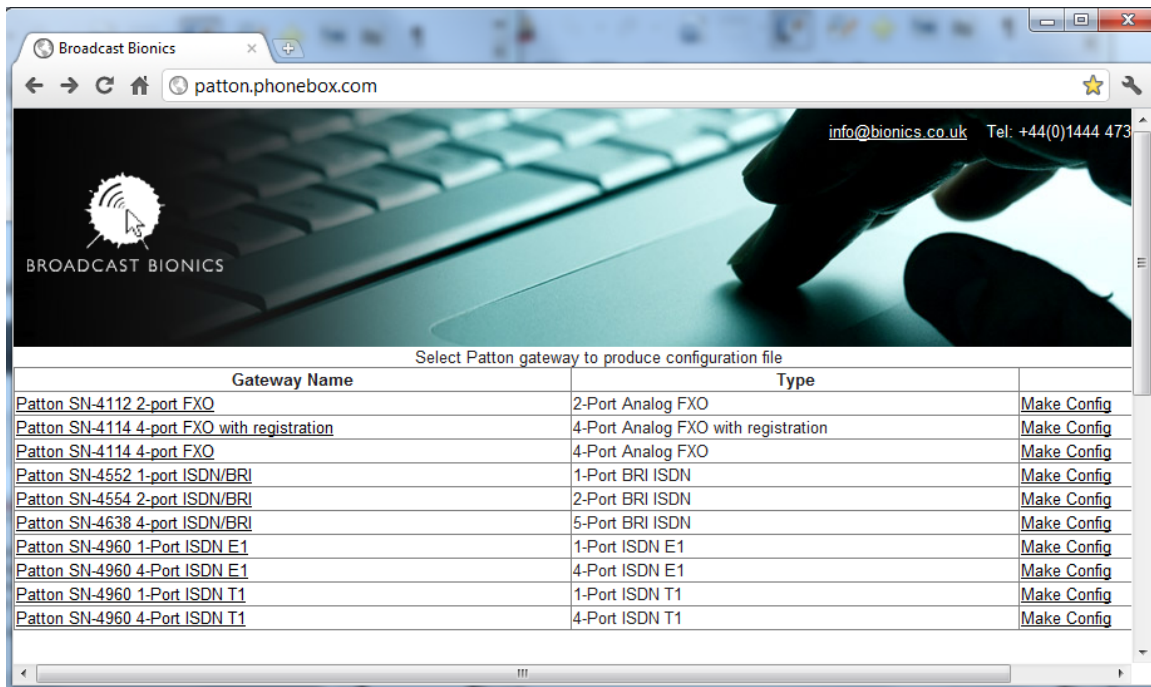
Enter the following commands at the prompt to set the IP address to 192.168.0.175 (for our example).

```
login: administrator
password:
SN4112/JO/EUI>enable
SN4112/JO/EUI#configure
SN4112/JO/EUI(cfg)#context ip router
SN4112/JO/EUI(ctx-ip)[router]#interface eth0
SN4112/JO/EUI(if-ip)[eth0]#ipaddress 192.168.0.175 255.255.255.0
SN4112/JO/EUI(if-ip)[eth0]#copy running-config startup-config
SN4112/JO/EUI(if-ip)[eth0]#
```

You are now ready to go on to further configuration using either the telnet text-based or web interfaces.

Step 2: Generating a config file using the Bionics online tool

Here we will use our partner company, Broadcast Bionics, web utility to generate a configuration file for our gateway. Go to the web address: <http://patton.phonebox.com/>.



You will see the list of gateways for which configuration can be generated. Choose your model or one that is close, differing only by number of ports, and press *Make Config* next to it. For this example, we will use the first line of the SN4112 2-port FXO.

Patton SN-4112 2-port FXO configuration

Gateway IP address:

Gateway Mask:

Call Server IP Address:

Call Server Port:

Line 1 ID:

Line 2 ID:

Tone Set Selection:

Incoming Caller ID:

Dial Delay:

Early Media for Pre-Call Announcements:

Digit Collection Timeout:

How to handle the Leading Zero in the CallerID Numbers:

email address to receive file:

www.phonebox.com

The configuration form will open. Provide the utility with the information it requests to enable it to generate the configuration:

- **Gateway IP address:** enter the IP you previously gave the gateway.
- **Call Server IP Address:** enter the IP address of your VX Engine.
- **Line 1 ID and Line 2 ID:** enter the extension numbers of the two lines that the gateway will pass to the VX Engine. You will use those numbers in the VX Engine Show Profile configuration to identify phone lines.
- **Tone Set Selection** Every country has its own length and frequencies for tones. Select

your country. Tones will be generated according to this selection. If your country is not listed, you can try a country nearby, look in the ITU standard, or visit <http://www.patton.com/voip/confignotes.asp>. Patton gateways can be configured with custom tone sets if the country selection is not working, or if you have a special requirement.

- **E-mail address:** enter the e-mail address you'd like the config file sent to.

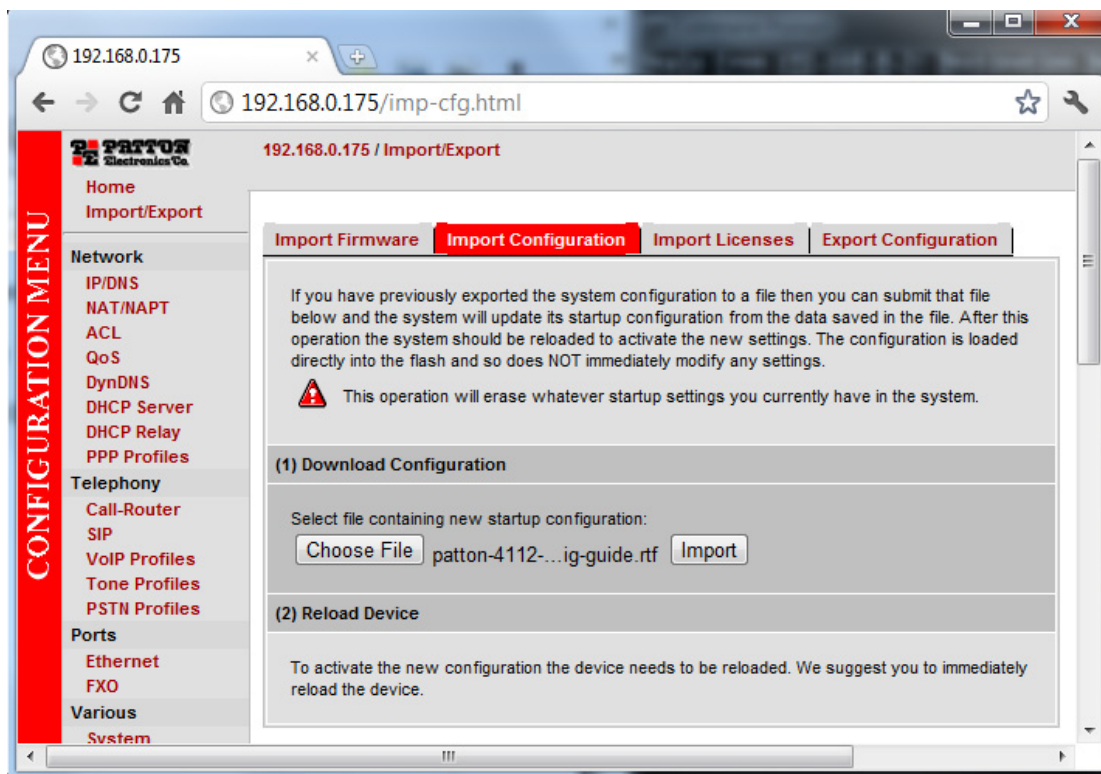
Press **Make Config File** and you will receive the file as an attachment in your e-mail. Save it to your hard drive. Now you can upload the configuration file to your gateway.

Step 3: Uploading a config file

With the gateway connected to the network, open a browser and point it to the IP address of the gateway; in our case, 192.168.0.175.

In the menu that appears, click **Import/Export**, then **Import Configuration**.

Choose the file you saved and press **Import**. Then press **Reload**, then press **Reload** again in the confirmation dialog to reboot your gateway and load the new configuration.





Configuration file example

Here is the file that was created in the above example. You can use it as a template should you wish to create your own, manually.

```
#####  
#  
# For SN-4112 2-port FXO  
# Supported firmware versions R5.x  
# Generated by PhoneBOX.com on Thu 01/09/2011 14:39  
#  
#####  
  
webserver port 80 language en  
  
system  
  
    ic voice 0  
        low-bitrate-codec g729  
  
profile ppp default  
  
profile call-progress-tone defaultDialtone  
flush-play-list  
play 1 1000 350 -13 440 -13  
  
profile call-progress-tone defaultAlertingtone  
flush-play-list  
play 1 1000 440 -19 480 -19  
pause 2 3000  
  
profile call-progress-tone defaultBusytone  
flush-play-list  
play 1 500 480 -24 620 -24  
pause 2 500  
  
profile call-progress-tone defaultReleasetone  
flush-play-list  
play 1 250 480 -24 620 -24  
pause 2 250  
  
profile call-progress-tone defaultCongestiontone  
flush-play-list  
play 1 250 480 -24 620 -24  
pause 2 250  
  
profile tone-set default  
  
profile voip default  
    codec 1 g711alaw64k rx-length 20 tx-length 20  
    codec 2 g711ulaw64k rx-length 20 tx-length 20  
    fax transmission 1 relay t38-udp  
  
profile pstn default  
  
profile sip default  
  
profile aaa default  
    method 1 local  
    method 2 none
```



```
context ip router

interface IF_IP_LAN
  ipaddress 192.168.0.175 255.255.255.0
  tcp adjust-mss rx mtu
  tcp adjust-mss tx mtu

context cs switch
  no digit-collection timeout

interface sip IF_SIP_0
  bind context sip-gateway GW_SIP_0
  early-connect
  early-disconnect
  route call dest-interface IF_FXO_0
    remote 192.168.0.7 5060
  address-translation outgoing-call request-uri user-part fix 40 host-part
to-header target-param none
  address-translation incoming-call called-e164 request-uri

interface sip IF_SIP_1
  bind context sip-gateway GW_SIP_1
  early-connect
  early-disconnect
  route call dest-interface IF_FXO_1
    remote 192.168.0.7 5060
  address-translation outgoing-call request-uri user-part fix 41 host-part
to-header target-param none
  address-translation incoming-call called-e164 request-uri

interface fxo IF_FXO_0
  route call dest-interface IF_SIP_0
  loop-break-duration min 60 max 1000
  ring-number on-caller-id
  mute-dialing
  disconnect-signal loop-break
  disconnect-signal busy-tone
  dial-after dial-tone

interface fxo IF_FXO_1
  route call dest-interface IF_SIP_1
  loop-break-duration min 60 max 1000
  ring-number on-caller-id
  mute-dialing
  disconnect-signal loop-break
  disconnect-signal busy-tone
  dial-after dial-tone

context cs switch
  no shutdown

context sip-gateway GW_SIP_0

interface LAN
  bind interface IF_IP_LAN context router port 5060

context sip-gateway GW_SIP_0
  bind location-service LS_40
  no shutdown

context sip-gateway GW_SIP_1
```

```
interface LAN
  bind interface IF_IP_LAN context router port 5062

context sip-gateway GW_SIP_1
  bind location-service LS_41
  no shutdown

port ethernet 0 0
  encapsulation ip
  bind interface IF_IP_LAN router
  no shutdown

port fxo 0 0
  use profile fxo us
  encapsulation cc-fxo
  bind interface IF_FXO_0 switch
  no shutdown

port fxo 0 1
  use profile fxo us
  encapsulation cc-fxo
  bind interface IF_FXO_1 switch
  no shutdown
```

After uploading the config file, your gateway will be configured and ready to use with your Telos VX.

For more information...

Have questions or need further help? Contact Telos Support at www.TelosAlliance.com/contact/, or by telephone at +1 (216) 241-7225.