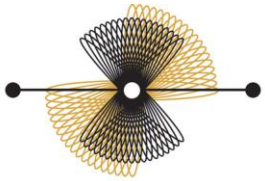


INTERACTIVE INTELLIGENCE®

Deliberately Innovative

# 3rd Party Certified Equipment Supplemental Information

Certification Completed On:
March 27, 2011

# 4.7.2v85 – Network Equipment Technologies VX Series

## 1 Important Notes

- Check the *SIP 3rd Party Validation Website* for current validation status. The *SIP 3rd Part Validation Website* can be viewed at:

- http://testlab.inin.com

## 2 Vendor Documentation

https://support.net.com/display/VXDOC/Home

## 3 Validated Firmware Version

4.7.2v85

## 4 Install

Download the VX1200 files from the Interactive Intelligence Testlab website:
http://testlab.inin.com

## 5 Configuration

**Methods:**

- There are 2 steps for configuring the VX gateway:
  - Command Line Interface (CLI) step will be used to complete the initial configuration that includes network and user information completed with a serial RS-232 connection
  - A Graphical User Interface called VXbuilder will be used to complete the configuration that includes PSTN and VoIP level configurations

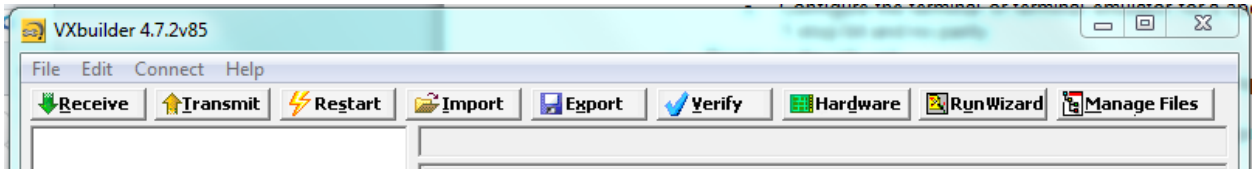
**Initial Configuration:**

- Before performing the initial configuration of the VX unit, gather the following information:
  - License - Software key provided from NET
  - User Name - Choose an administrative user name for the VX unit
  - User Password - Choose an administrative user level 0 password for the VX unit
  - Enabled Password - Level 15 provides full administrative access
  - IP Address - IP address for the VX unit
  - Subnet Address - Subnet mask for the VX unit
  - IP Default Route - IP address that identifies the device that will route IP network packets to and from the IP network the VX is configured on
  - Node Name - Text name for the VX unit
  - FTP User Name (Optional) - Choose a user name for FTP access to the VX unit.
  - FTP User Password (Optional) - Choose a user password for FTP access to the VX unit

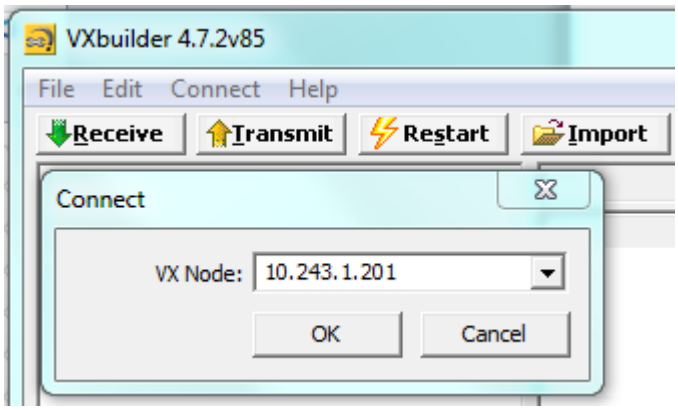
- Attach VT100 Terminal (DTE) to VX serial port (DTE) using a serial Null Modem Cable
    - VX uses VT100 terminal communication to perform the CLI initial configuration which requires a 9-pin serial DTE port on the VX and a VT100 terminal or PC equipped with a serial port and a terminal emulator application
    - Connect a 9-pin serial cable to the VX unit. For help in locating the serial connector on the VX chassis, see the VX Chassis Types page.
    - Connect the other end of the serial cable to a VT100 terminal or PC running a terminal emulator such as Microsoft HyperTerminal or PuTTY
    - Configure the terminal or terminal emulator for a speed of 9600 baud, 8 data bits, 1 stop bit and no parity
- Power on the VX unit.
- A copyright screen should appear in the VT100 terminal display
- When prompted, press Ctrl-D to start the setup script
- Follow the on-screen prompts to complete the initial configuration of the VX unit supplying the information collected above
- When prompted answer yes to exit configuration and yes to reboot to apply configuration

**VXbuilder Configuration:**

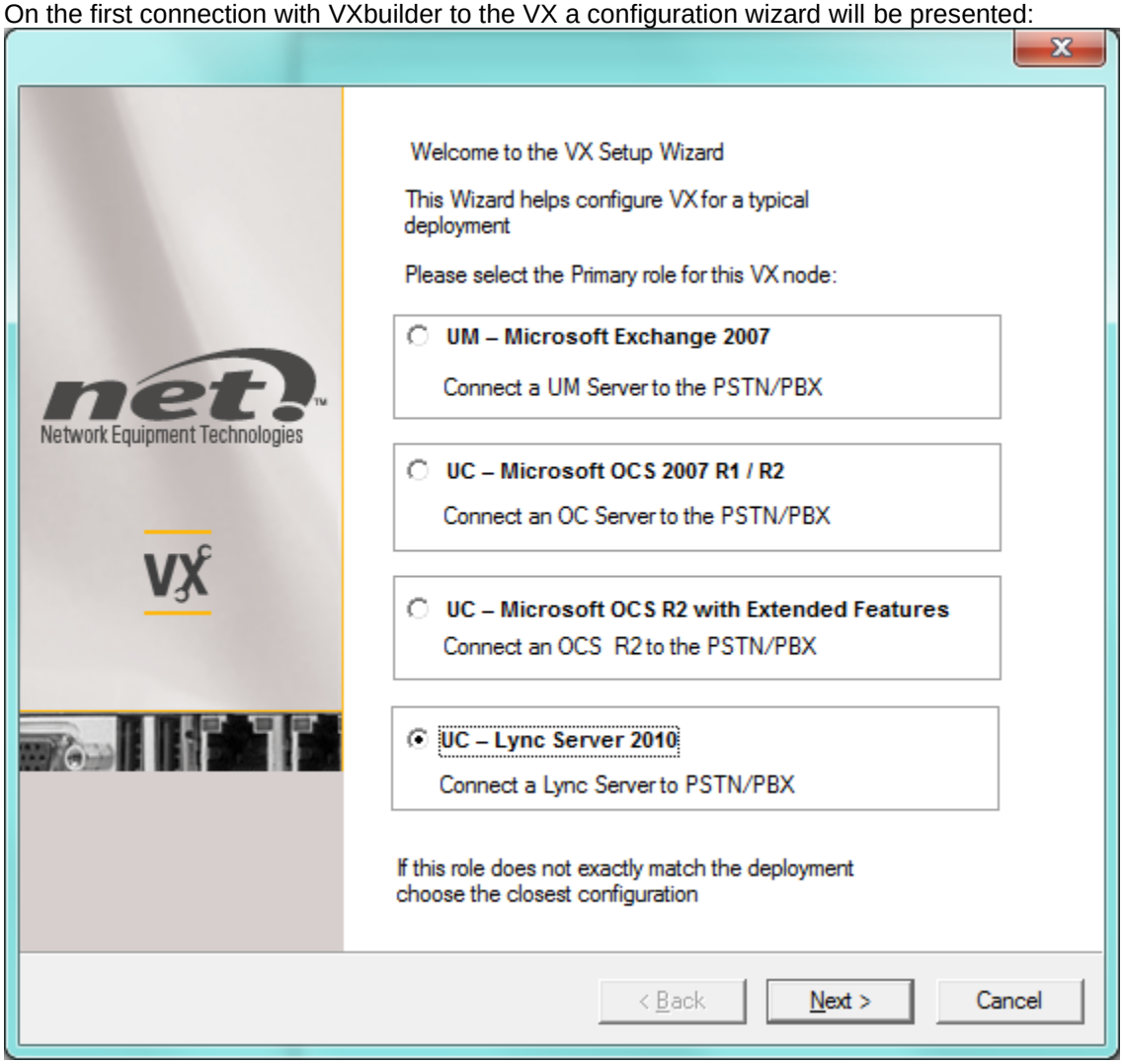
- Install the VXbuilder application that came with your VX unit
- Use the VXbuilder client application to connect to the VX unit (Node) by clicking on the 'Receive' tool bar button:




- Provide the IP address to the node in order to download the basic config completed in the 'Initial Configuration' section of this guide:

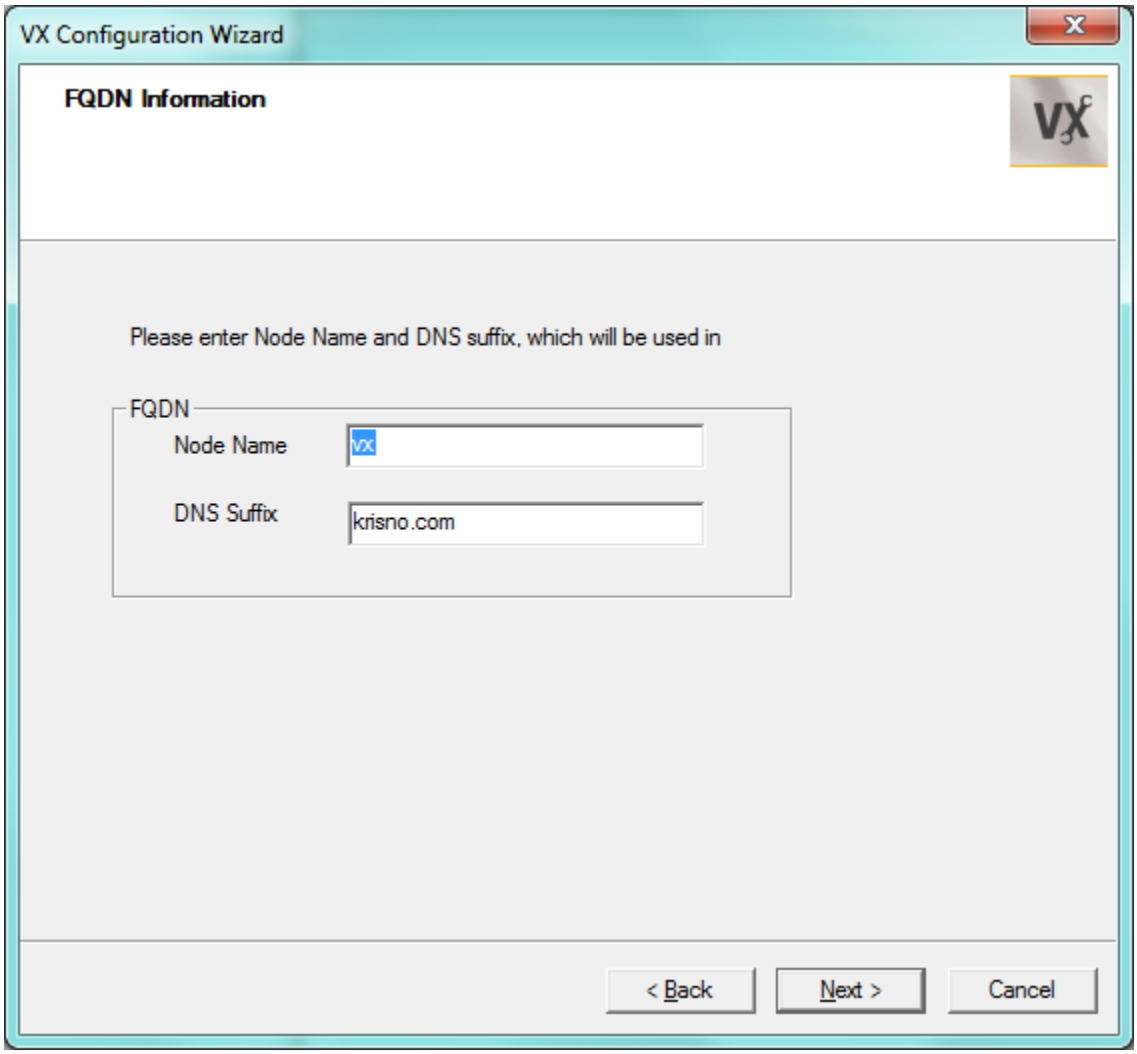


- On the first connection with VXbuilder to the VX a configuration wizard will be presented:

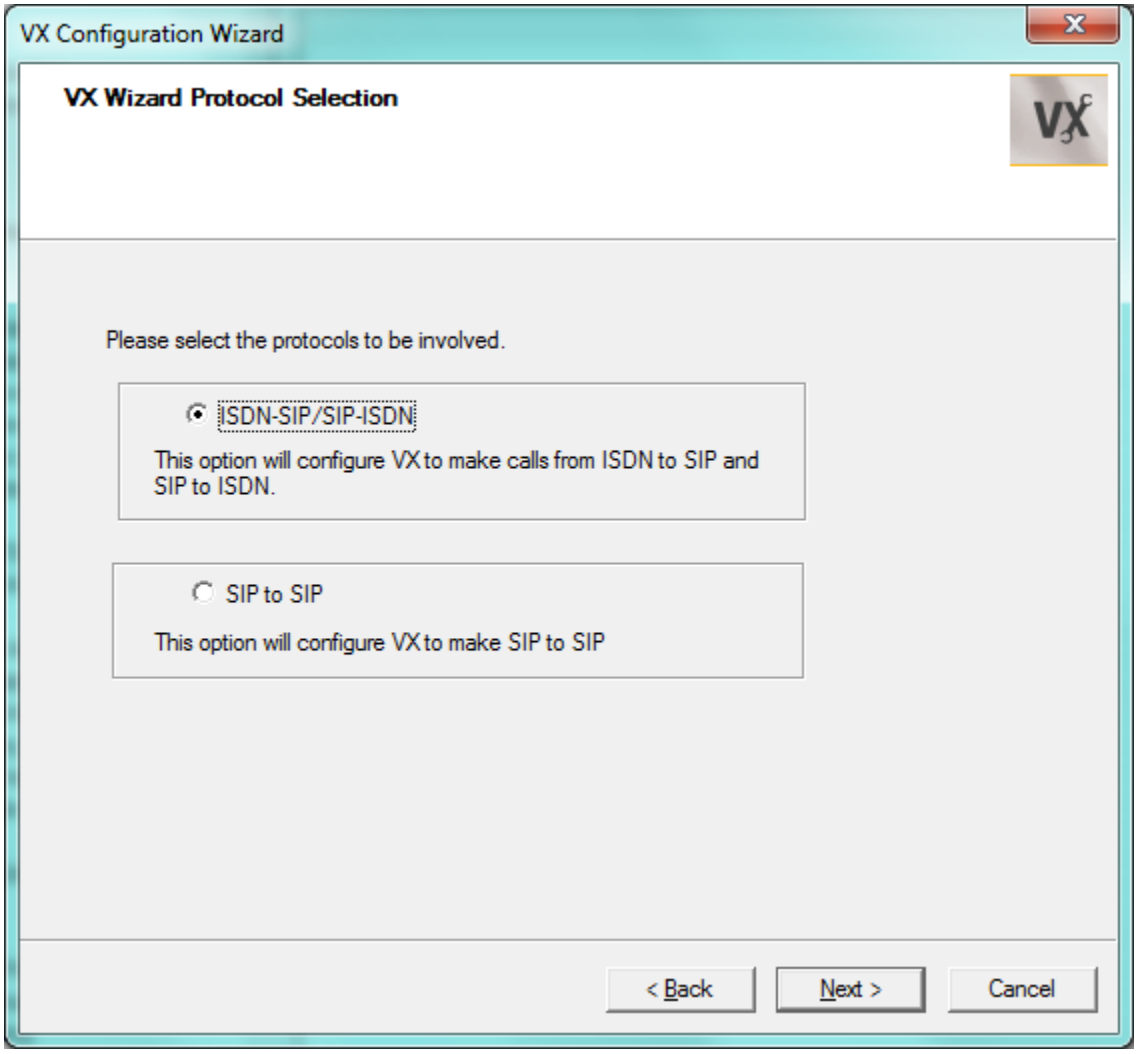



- If not selected, click the ‘UX – Lync Server 2010’ radio button. This option will create a configuration during the wizard steps that provides the necessary items to interoperate with IC server(s). Click ‘Next’

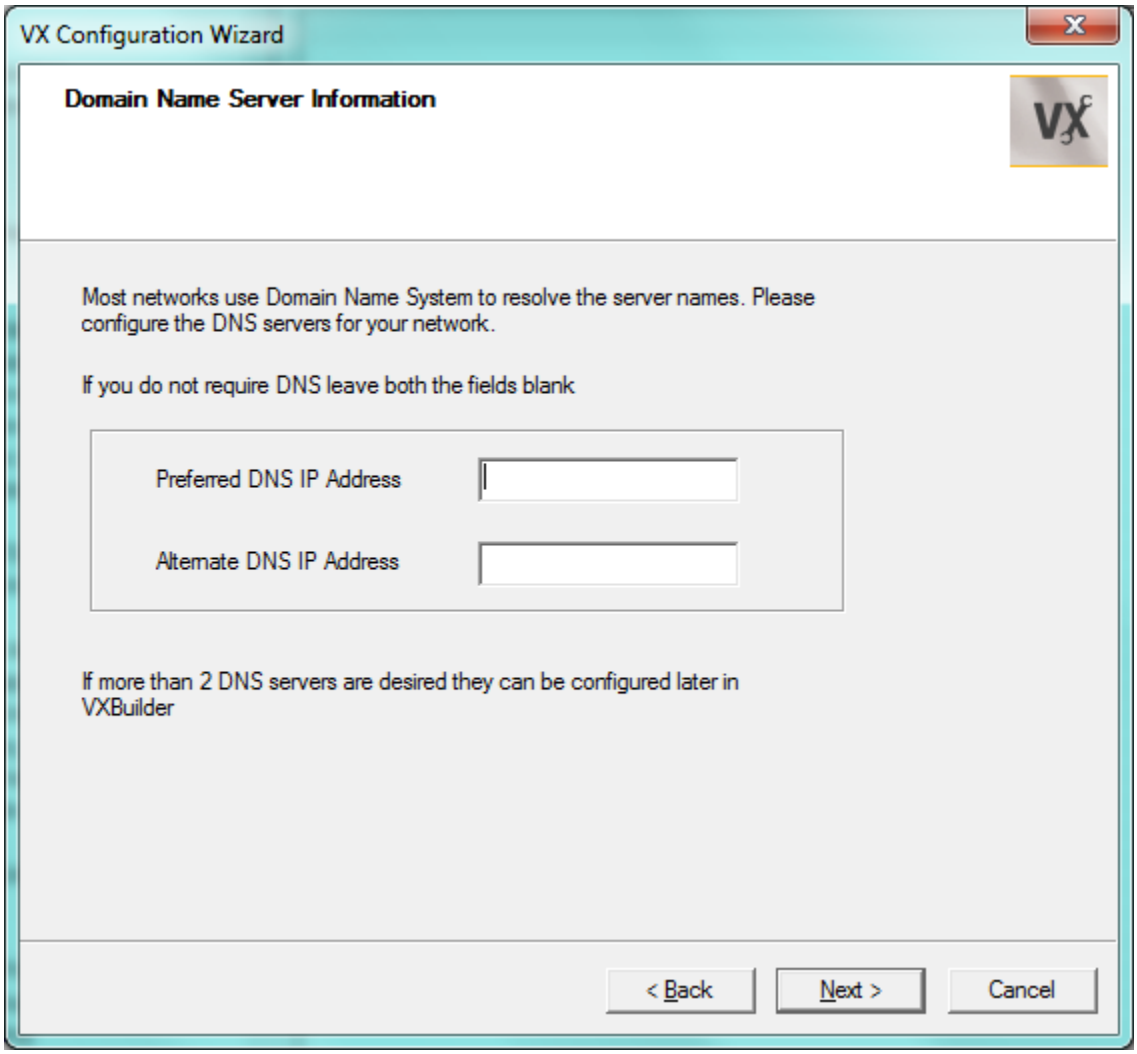
- At the ‘FQDN Information’ screen supply the DNS host name and the DNS domain of the VX. Click ‘Next’:



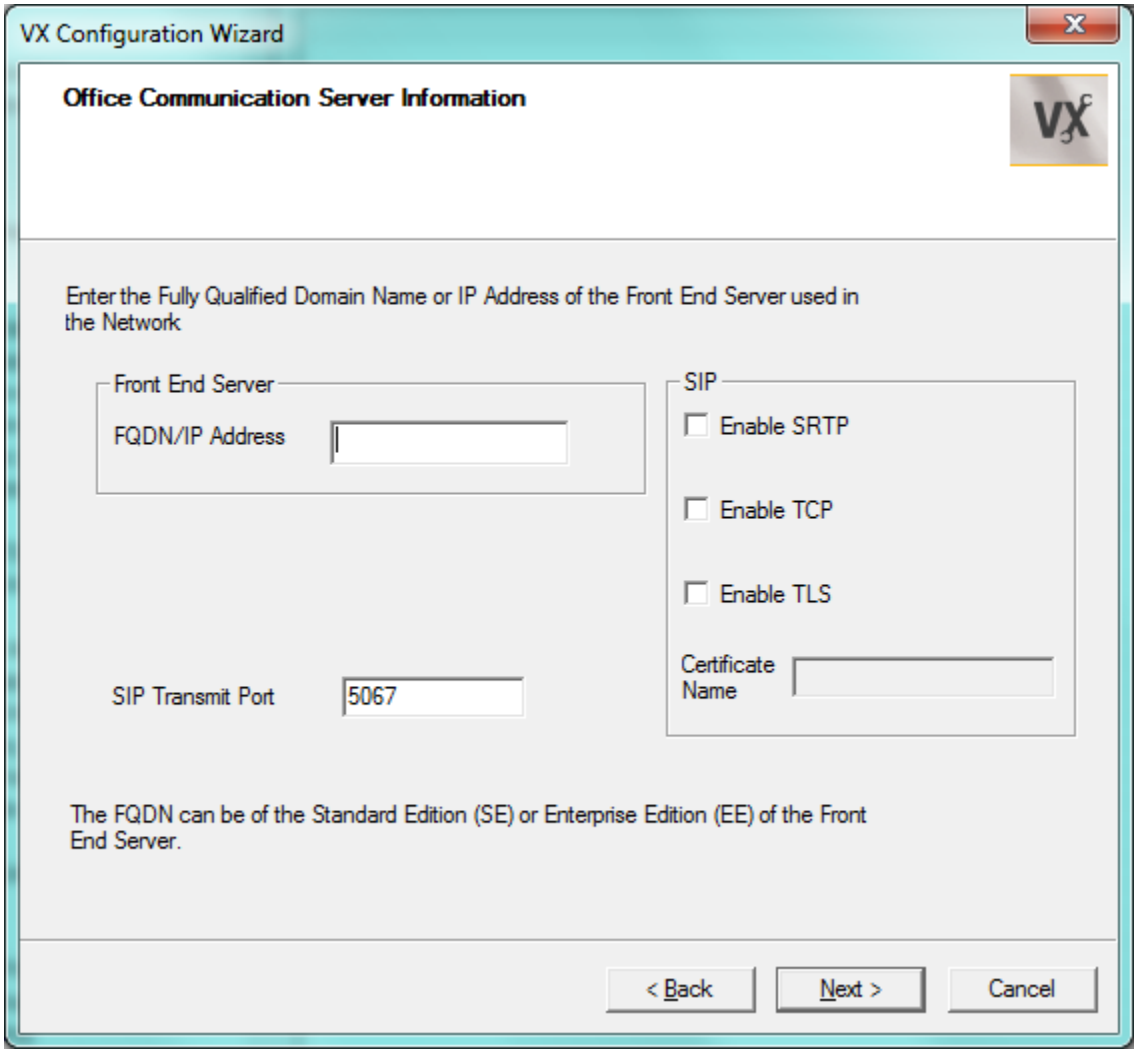
- On the ‘VX Wizard Protocol Selection’ screen select the ‘ISDN-SIP/SIP-ISDN’ Radio butten and click ‘Next’:



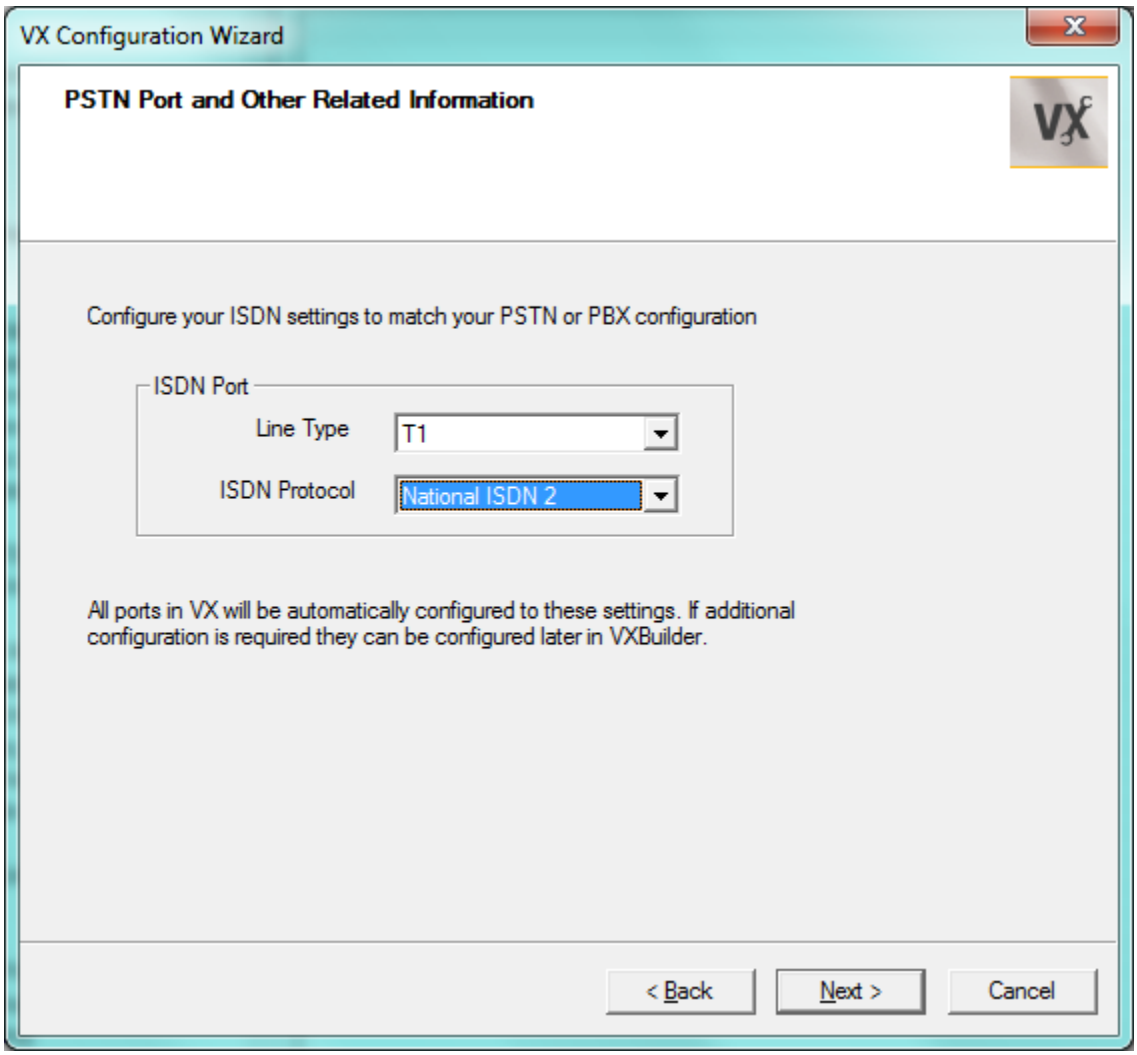
- On the ‘Domain Name Server Information’ screen enter the IP address of the DNS server and the alternate if one is available and click ‘Next’:



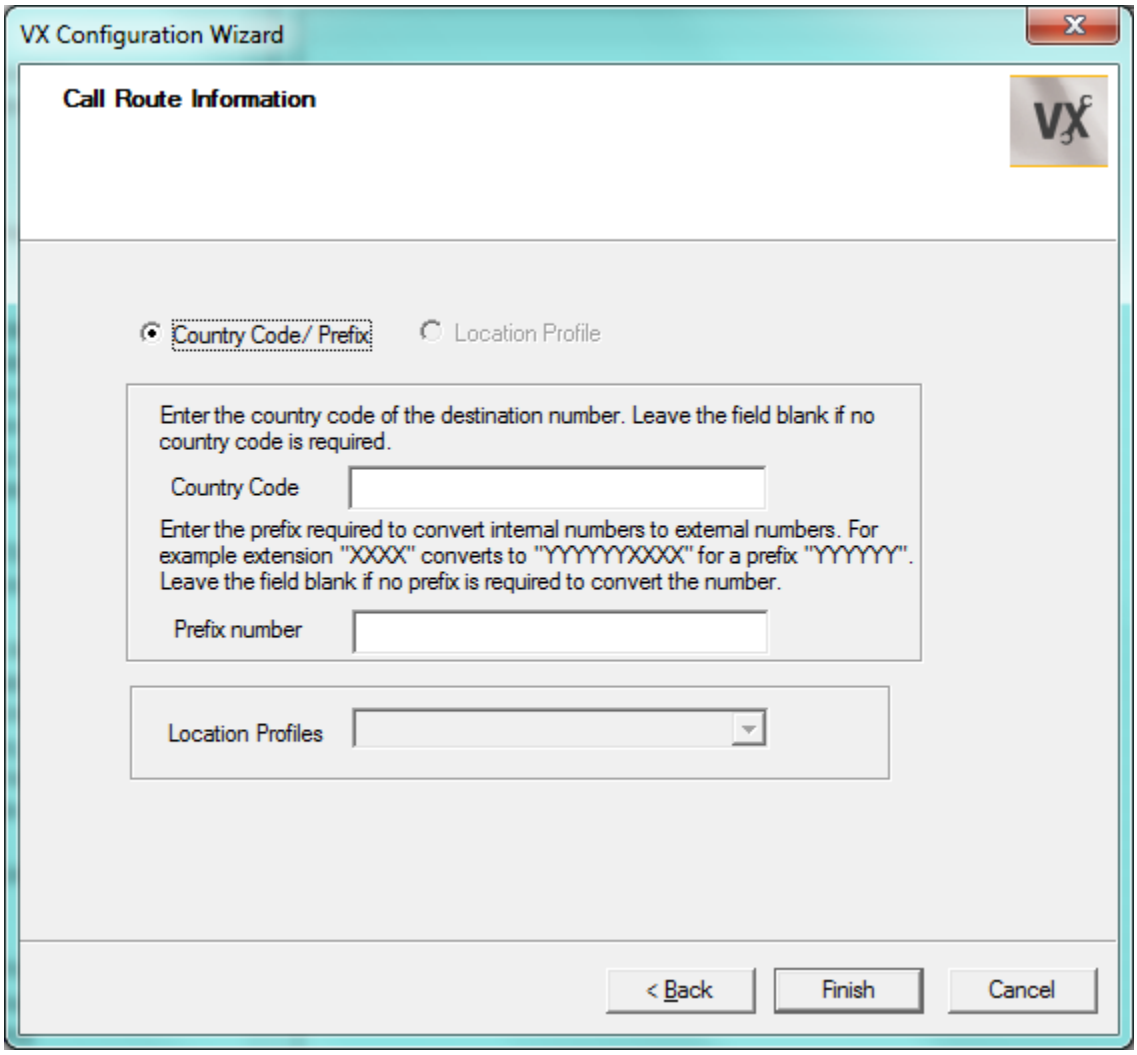
- On the ‘Office Communications Server Information’ screen, enter the IP address or FQDN of the IC server that the VX will communicate with along with the port the VX will send to on the IC server. Select the proper protocol for the SIP transport and RTP type and then click ‘Next’:



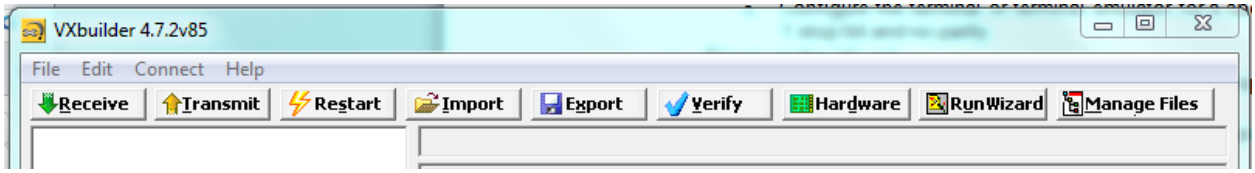
- On the ‘PSTN Port and Other Related Information’ screen select from the drops downs the applicable Line Type and ISDN Protocol to use for the PSTN connection. If the installation calls for CAS, select the default and modify the settings after the wizard is applied, click ‘Next’:



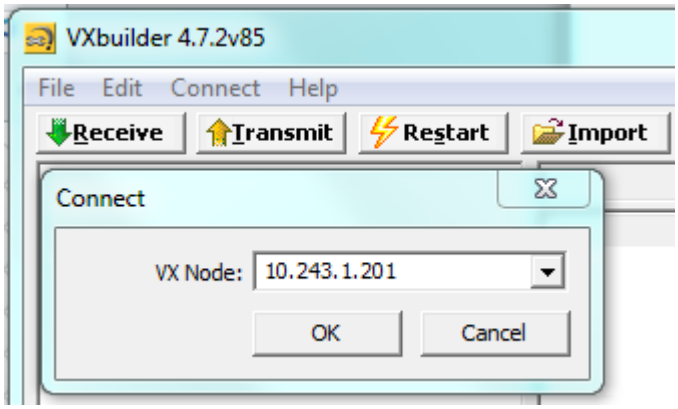
- On the ‘Call Route Information’ screen leave the default selection and the boxes empty and click ‘Finish’:



- When the wizard finishes it is waiting for the configuration to be sent back to the VX to complete the process. Click on the 'Transmit' button to initiate the transfer:

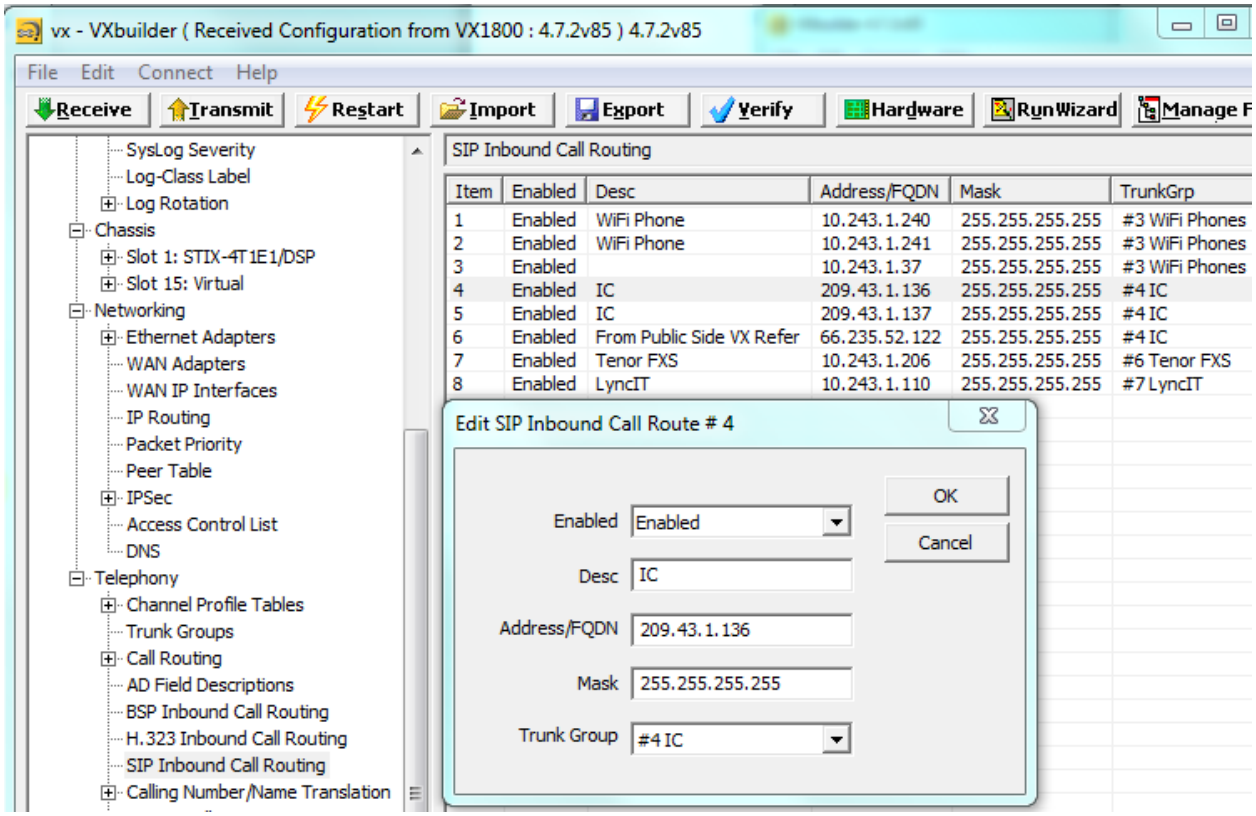



- Provide or select from the dropdown the IP address of the VX node in order to transmit the config completed in the wizard process:

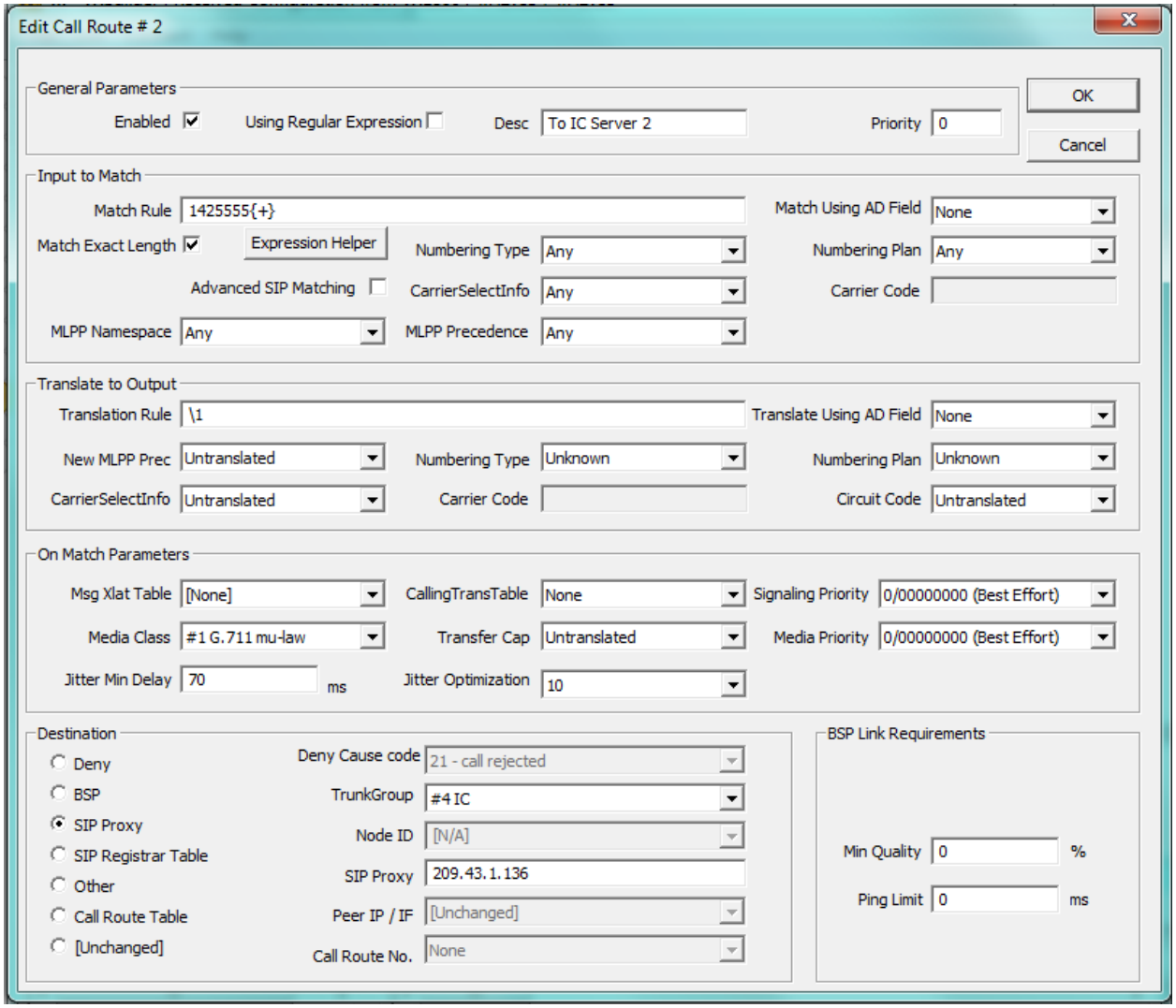


**Routing Configuration:**

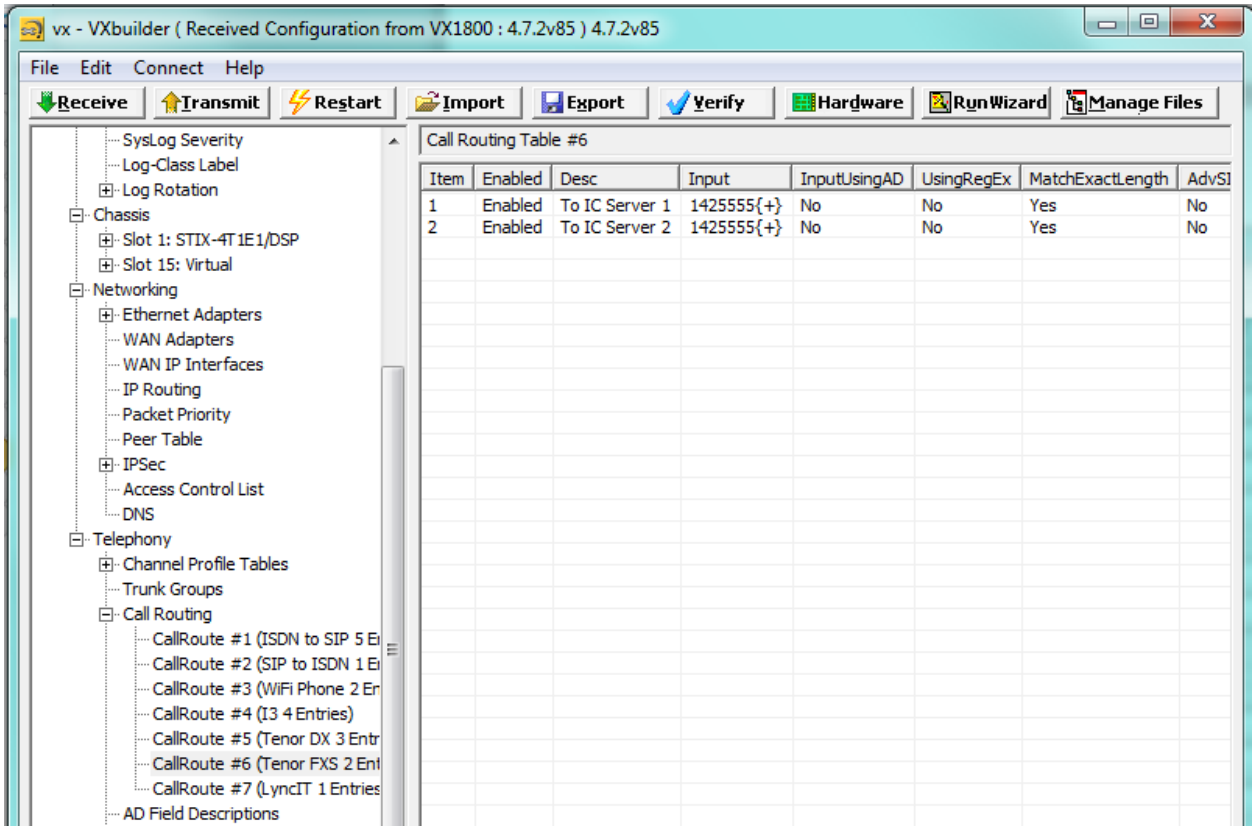
- To route SIP traffic from an IC server or cluster (using IP addresses or an FQDN) the SIP Inbound Routing Table has to be configured with the proper IP address(s) or FQDN of the IC server(s) pointing to the applicable Trunk Group:



- To route SIP traffic to the IC server or cluster the applicable Route table must be configured with the destination address of the IC server or FQDN. If using a cluster then populate the Route table with the IP addresses of the multiple servers as shown below:



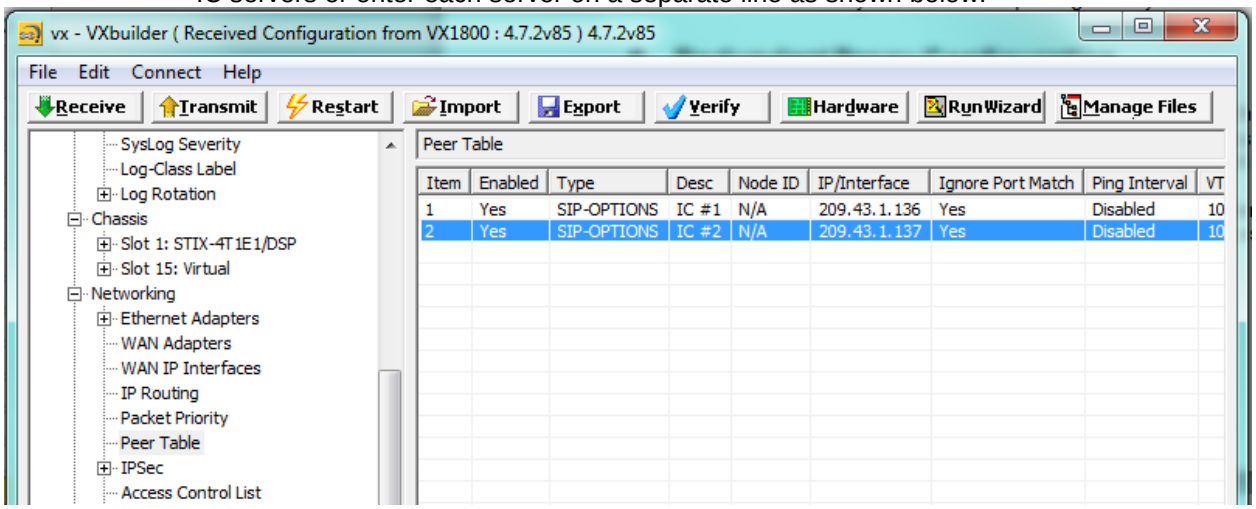
- To Route traffic to more than one IC server based on IC server redundancy, place 2 identical routes in the Route table with one identifying the first server and the second route identifying the second server:




- In Interaction Administrator, the line that is configured for the gateway should have ‘Terminate Analysis on Connect’ checked.

**Redundant Proxy Configuration:**

- The VX node can use SIP Option messages to determine the status of IC servers in order to route properly to the online IC server. These can use either FQDN A record DNS resolutions of 1 or more IP addresses that are returned in the DNS A record lookup or it can use multiple IP addresses:
    - Using VX builder, populate the Peer table with either the FQDN of the cluster of IC servers or enter each server on a separate line as shown below:




# 6 Applying Firmware Upgrades

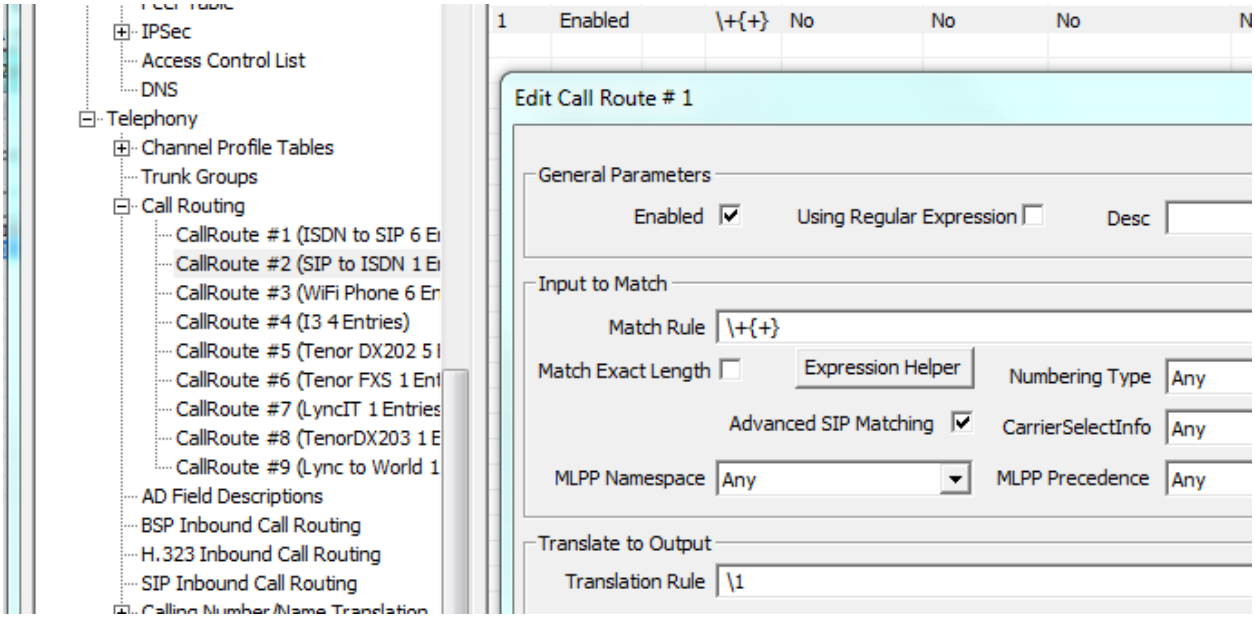
- Using VXbuilders ‘ManageFiles’ feature, connect to the VX Node and transfer the latest VX Firmware to the ‘Upgrade’ directory of the VX Node
- Establish a CLI connection to the VX Node using either the Serial port as shown above or by using a Telnet session:
    1. Elevate session to an enabled status
    2. Type ‘install package titpftst’ at the enabled prompt
    3. Answer ‘yes’ to install the package and ‘yes’ to reboot when prompted

# 7 Route Table Usage and Troubleshooting

## Route Table Usage

The VX Route table has the ability to do simple or advanced SIP URI analysis in completing the route selection process. Normally advanced SIP matching is not needed for a simple SIP to PSTN routing. Using advanced SIP matching provides the ability to match on the SIP domain parameters along with the called number.

- To enable Advanced SIP Matching, click on the 'Advanced SIP Matching' as shown below in the routing table




With Advanced SIP Matching enabled the VX will including all of the SIP To Header in the matching process. If there is a collect all in the Input Match Rule section '{+}' then the Output will include all of the To header including the '@sipdomain' portion of the Called Number. This will cause issues with sending calls to the PSTN since the PSTN can not route the '@sipdomain' porting of the Called Number and the call will fail. To prevent this from happening in a simple routing of the dialed digits to the PSTN ensure the 'Advanced SIP Matching' is not checked.

**Debugging**

The VX series has a very robust debugging system and provides the ability to perform network traces from the Ethernet interface(s).

**Debugging for telephony (SIP and PSTN) and Call Routing:**

- From an enabled CLI session type the following at the start of a debugging session:
    - 'trace sip level info 0' – this turns on SIP debugging so that the SIP messaging is printed to the CLI session
    - 'trace ISDN level info 0' – this turns on ISDN debugging so that the ISDN messages are printed to the CLI session
    - 'trace tel level info 0' – this turns on the telephony events pertaining to route selection and number formatting to the CIL session

- At the end of the debugging session type 'trace none' to disable the debugging output to the CLI session

The combination of the above commands should provide a good indication if the calls are in fact making it to the VX and what routes the call is egressing to the next hop route.

**Ethernet Sniffing:**

- From and enabled CLI session type 'set sniff enable' to start an Ethernet trace
- Perform the test call(s) that should be captured with the sniffing
- After test call(s) type 'set sniff disable' to stop the sniffing
- To retrieve the sniffing file from the VX hard drive use VXbuilder's 'Manage Files' tool to connect to the VX and select the sniff from the 'Sniff' directory for download to the VXbuilder's computer. The sniff files are stored in the 'Sniff' directory with the newest files at the bottom of the directory listing.