

Subject: KX-NS1000/700 SIP Trunk Configuration Guide for Time Warner Cable

Bulletin Type: Product Marketing Service

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Product: Unified Communications

Platform Tested**	Version
KX-NS1000	V004.10060

** Configuration steps apply to both Panasonic KX-NS1000 and KX-NS700 platforms

Overview

This document outlines the configuration settings required for the KX-NS1000 and KX-NS700 to make full use of the capabilities of Time Warner Cable SIP Trunk Services.

The SIP Trunk Services of the KX-NS1000/700 PBX are provided through virtual CO line cards (VSIPGW16) which are designed to be easily integrated with SIP Trunk Service provided by a SIP Trunk Service Provider.

This guide describes the specific configuration items for the Virtual SIP Gateway Card in addition to the basic PBX configuration related to SIP trunk functionality. It also describes basic Network configuration to familiarize dealers with the network setup. It does not describe the purpose and use of all programming options on the Virtual SIP Gateway Card. For those details, see the KX-NS1000/700 Manuals for Virtual SIP CO Line Card available on the Panasonic reseller website.

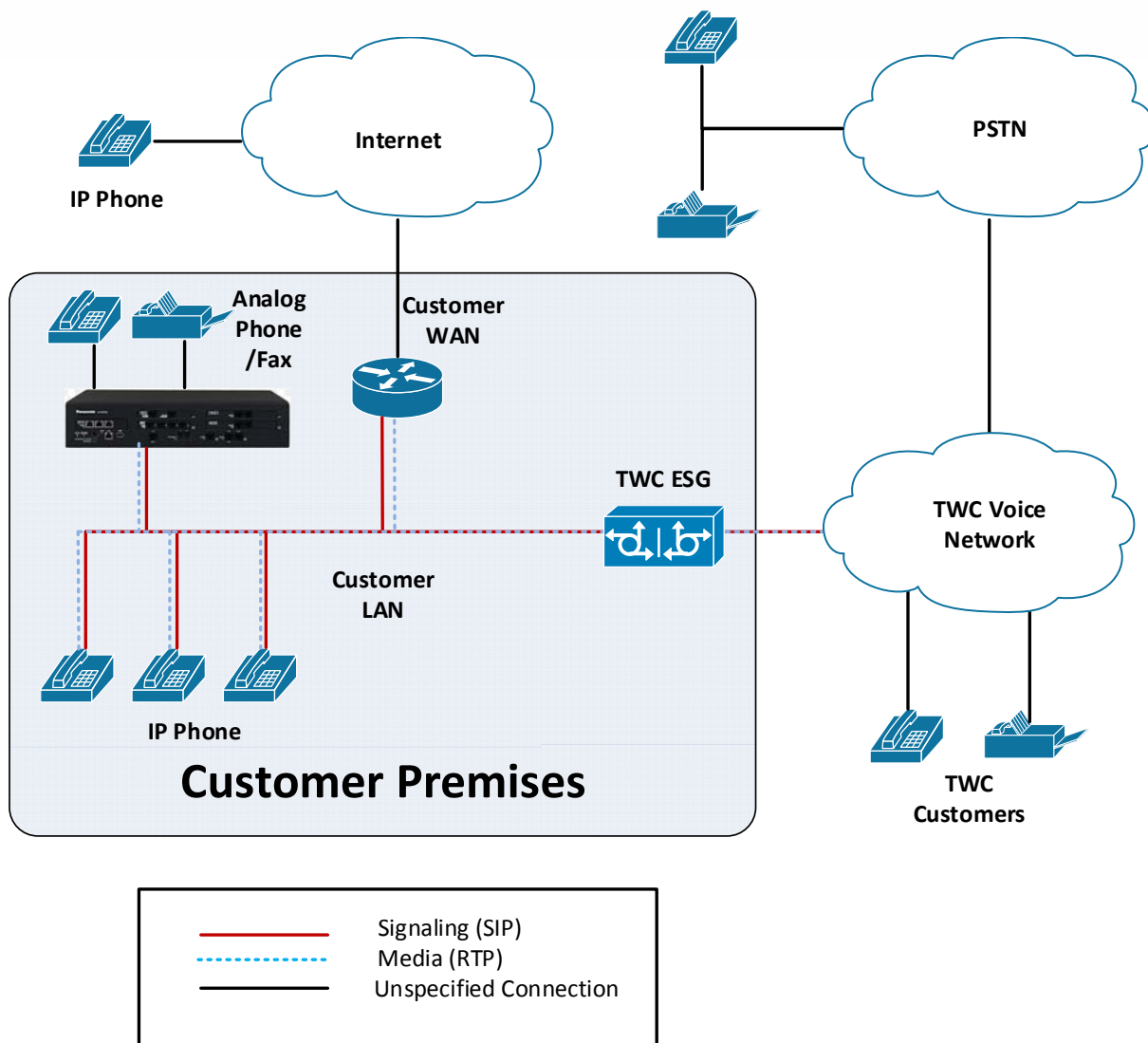
DSP Card and Activation Keys

- ✓ The PBX must be equipped with a DSP card in order to provide communication between the TDM side of the PBX and the SIP trunks
- ✓ Activation keys for SIP Trunks must be installed in the PBX to provide SIP trunk functionality

To check the number of activation keys installed in the PBX and add new licenses, please refer to **Page 13** in this configuration guide.



Architecture Overview



The above diagram illustrates simple VoIP networks connecting the NS1000/700 PBX. Time Warner Cable will provide its services to the Customer's premise.

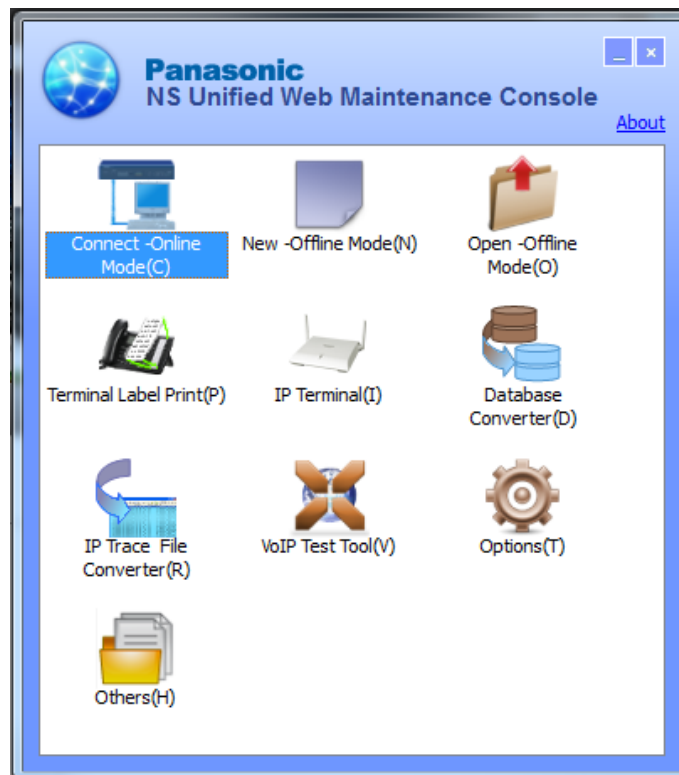
Port Forwarding Rules on the End Router

- Forward Port (UDP) **5060** to the PBX IP address
- Forward Port Range (UDP) **<12000 - 12511>** to the VOIP-DSP#1-1 IP address
- Forward Port Range (UDP) **<12512 - 13023>** to the VOIP-DSP#1-2 IP address
- Forward Port Range (UDP) **<13024 - 13535>** to the VOIP-DSP#2-1 IP address
- Forward Port Range (UDP) **<13536 - 14047>** to the VOIP-DSP#2-2 IP address

Basic V-SIPGW16 Settings for Time Warner Cable SIP Trunks

1. **Install the NS Unified Web Maintenance Console on your PC**
 - a. The maintenance console is available for certified dealers. Dealers can get the latest version of the UPCM from www.panasonicpartnerportal.com (UPCM version 5.10.1 or higher)

2. **Connect to the PBX**
 - a. Start the UPCM



- b. Click Connect and enter the IP Address to connect to your PBX for interactive configuration

KX-NS700

NS Unified Web Maintenance Console

Connect

Profile File(P) ▾

Profile Name : default

Connection Property

PBX Model : KX-NS700

LAN USB LAN Modem ISDN Remote

LAN USB LAN Modem ISDN Remote

IP Address : 192.168.0.101

Port :

URL : http://

Connect(O) Cancel(C)

KX-NS1000

NS Unified Web Maintenance Console

Connect

Profile File(P) ▾

Profile Name : default

Connection Property

PBX Model : KX-NS1000

LAN USB LAN Modem ISDN Remote

LAN


IP Address : 192.168.0.101

Port :

URL : http://

Connect(O) Cancel(C)

- c. Enter the username and password to log into the PBX
- Default Username: **INSTALLER**
 - Default Password: **1234**

 Web Maintenance Console

Username

INSTALLER

Password

••••

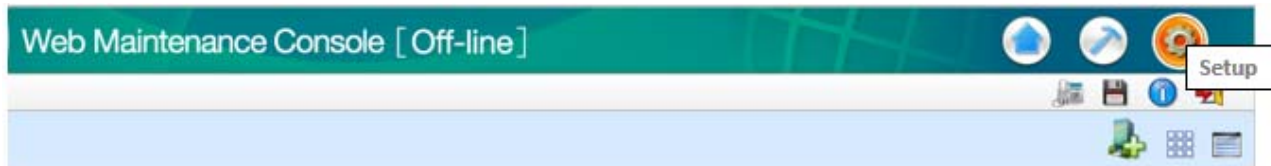
Login

- d. Complete the Easy Setup Wizard configuration (if starting at factory default)



3. Configure the LAN Settings of the PBX

- a. Click on Setup



- b. Go to Network Service > 1.IP Address/Ports > Basic Settings tab

The image shows a screenshot of the 'IP Address/Ports' configuration page. On the left is a navigation menu with items like 'Users', 'PBX Configuration', 'UM Configuration', 'Router Configuration', 'Network Service', and '1. IP Address/Ports' (which is highlighted). The main content area has three tabs: 'Basic Settings', 'Advanced Settings', and 'Reference'. The 'Basic Settings' tab is active. It contains three sections: 'LAN Setting', 'DNS Setting', and 'DSP IP Setting'. Each section has radio buttons for 'Obtain... automatically' and 'Use the following... address'. The 'LAN Setting' section includes fields for DHCP Port Number (68), IP Address (192.168.0.101), MAC Address (00:00:00:00:00:00), Subnet Mask (255.255.255.0), and Default Gateway. The 'DNS Setting' section includes a Port Number (53) and fields for Preferred and Alternative DNS IP Addresses. The 'DSP IP Setting' section includes fields for IP and MAC addresses for three DSP cards: DSP Card #1 - 1 (IP: 192.168.0.102), DSP Card #1 - 2 (IP: 192.168.0.103), and DSP Card #2 - 1 (IP: 192.168.0.104). At the bottom right are 'OK', 'Cancel', and 'Apply' buttons.

c. Based on your Local LAN, assign static IP addresses to the PBX. The default gateway should be the end router's network IP address.

- IP Address: *<provided by LAN administrator>*
- Subnet Mask: *<provided by LAN administrator>*
- Default Gateway: *<provided by LAN administrator>*
- Preferred DNS IP Address: *<provided by LAN administrator>*
- Alternative DNS IP Address: *<provided by LAN administrator>*
- DSP Card #1 – 1: *<provided by LAN administrator>*
- DSP Card #1 – 2: *<provided by LAN administrator>*

(NS1000 Only)

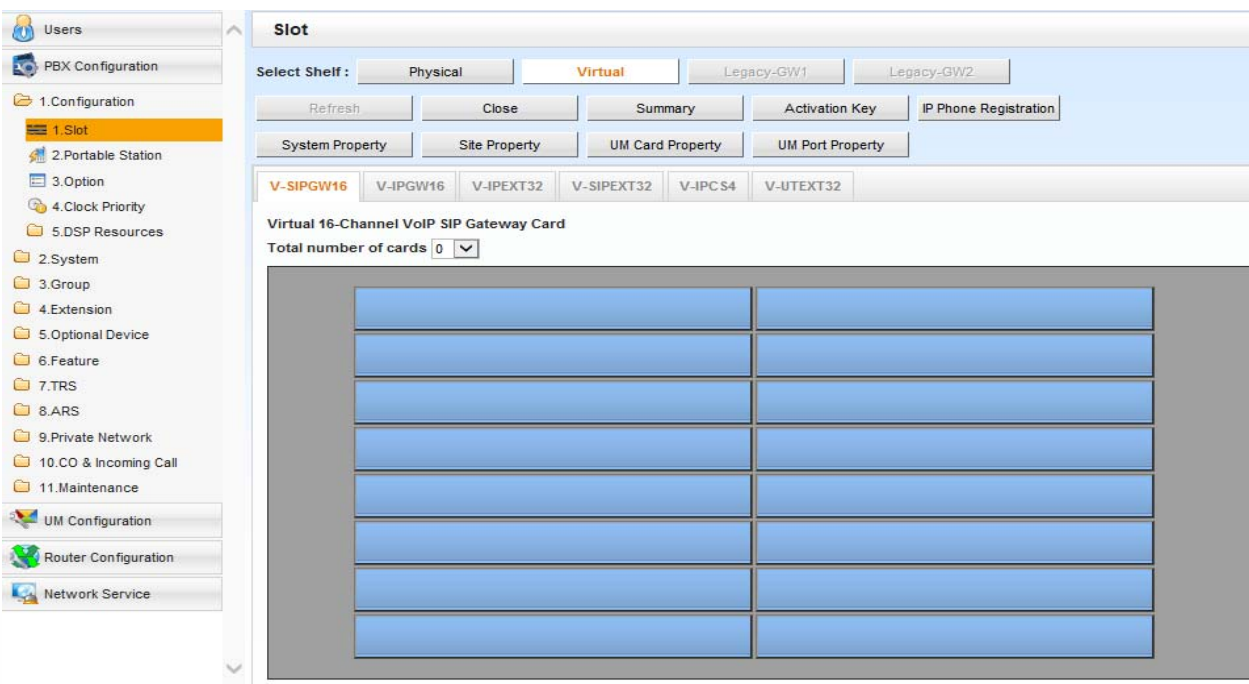
- DSP Card #2 – 1: *<provided by LAN administrator>*
- DSP Card #2 – 2: *<provided by LAN administrator>*

d. Click Apply, then click OK

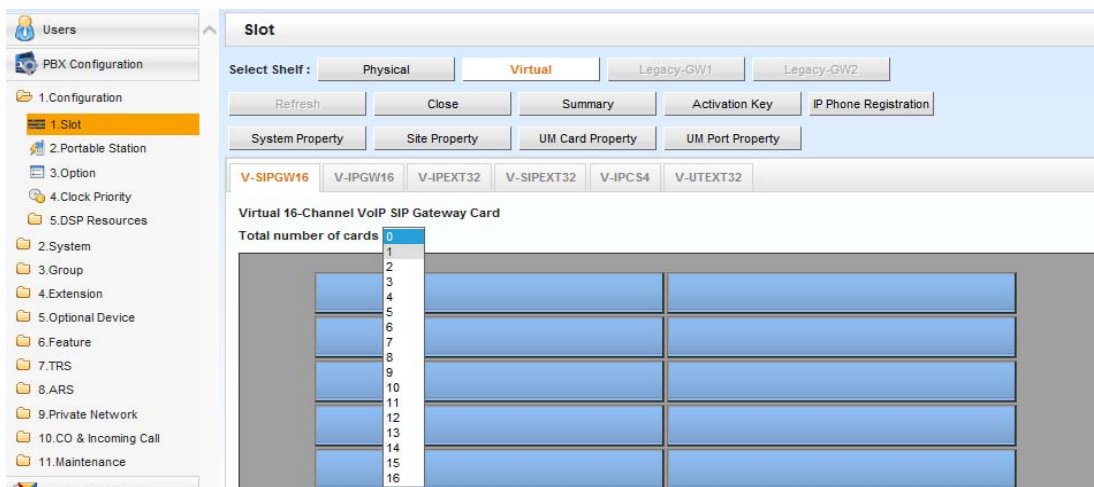
4. Installing V-SIPGW16 Cards

KX-NS1000

a. Go to PBX Configuration > 1.Configuration > 1.Slot > Virtual Shelf > V-SIPGW16 tab



- b. Click the drop down menu and select the number of V-SIPGW16 Cards to add for your installation



KX-NS700

- a. Go to PBX Configuration > 1.Configuration > 1.Slot > Select the Virtual Shelf
- b. Drag and Drop V-SIPGW16 Cards to the virtual Trunk slots (1 - 4) as needed
- c. Click OK



5. Configuring the V-SIPGW16 Card

- a. Move the mouse over the V-SIPGW16 Card and click OUS to take the card out of service
- b. **Shelf Property Settings**
Move the mouse over the V-SIPGW16 Card and choose Shelf Property

The screenshot displays the 'Slot' configuration page in a web-based interface. On the left is a navigation tree with 'Users' and 'PBX Configuration' expanded, and '1. Slot' selected. The main area is titled 'Slot' and includes tabs for 'Physical', 'Virtual', 'Legacy-GW1', and 'Legacy-GW2', with 'Virtual' selected. Below the tabs are buttons for 'Refresh', 'Close', 'Summary', 'Activation Key', and 'IP Phone Registration'. A row of property buttons includes 'System Property', 'Site Property', 'UM Card Property', and 'UM Port Property'. A card selection bar shows 'V-SIPGW16' as the active card, with other options like 'V-IPGW16', 'V-IPEXT32', 'V-SIPEXT32', 'V-IPCS4', and 'V-UTEXT32'. Below this, it says 'Virtual 16-Channel VoIP SIP Gateway Card' and 'Total number of cards 1'. A table lists the card with a context menu open over it, showing options: 'Shelf Property', 'Card Property', 'Port Property', and 'Delete'.



- c. Change the following parameters from their default value

Main Tab

- SIP Client Port Number: **5060**

NOTE: by default, 5060 is already assigned as the "UDP Port No. for SIP Extension Server" and must be changed to another port number in order to assign the SIP Client Port Number as 5060

KX-NS700: 1.Configuration – 1.Slot – System Property – Site – Port Number tab

KX-NS1000: 1.Configuration – 1.Slot – Site Property – Main – Port Number tab

Timer Tab

- <leave at factory default setting>

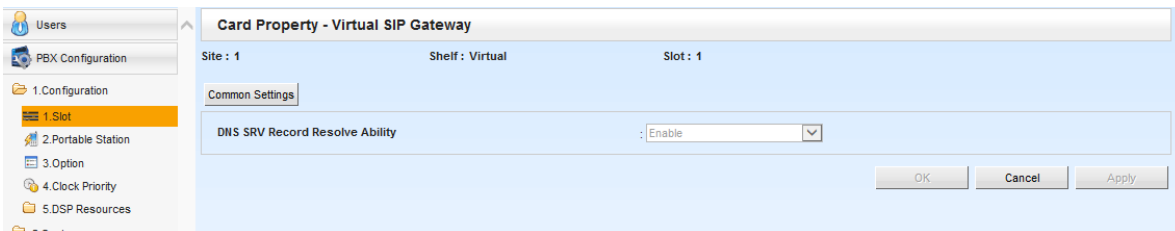
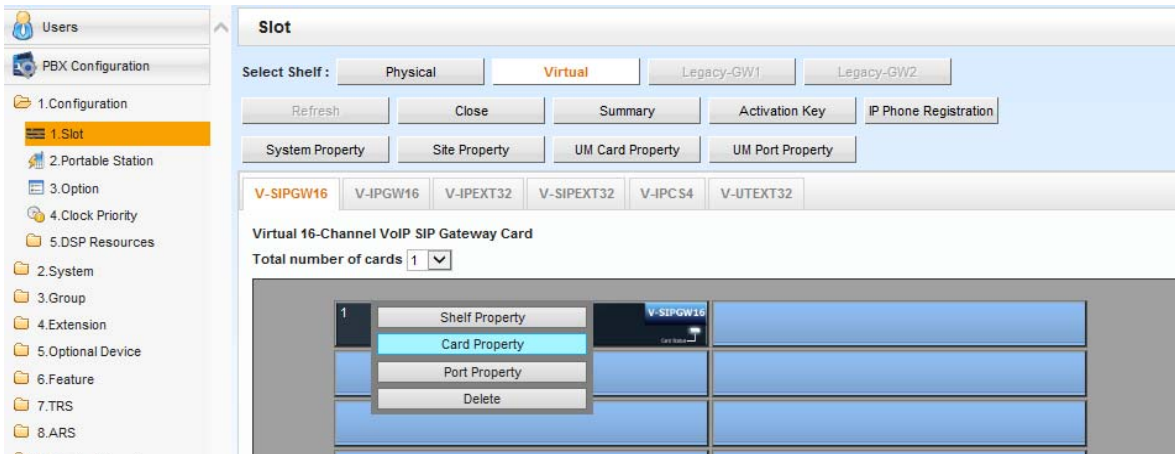
- d. Click Apply and then OK to exit the Shelf Property settings screen

The screenshot shows the 'Shelf Property - Virtual SIP Gateway' configuration window. The 'Main' tab is selected, and the 'SIP Client Port Number' is set to 5060. Other settings include NAT Traversal (Off), NAT - Voice (RTP) UDP Port No. (16000), NAT - Keep Alive Packet Sending Ability (Disable), NAT - Keep Alive Packet Type (Blank UDP), NAT - Keep Alive Packet Sending Interval (s) (20), NAT - Fixed Global IP Address (0.0.0.0), STUN Ability (Disable), STUN Client Port Number (33478), STUN External Address Detection Retry Counter (1), STUN Resending Interval (500 ms), SIP Called Party Number Check Ability (Disable(High->Low)), SIP Called Party Number Search Mode (Mode1), Symmetric Response Routing Ability (Enable), 100rel Ability (Enable(Passive)), and Ringback Tone to Outside Caller (Disable). The window has a navigation pane on the left and OK, Cancel, and Apply buttons at the bottom right.



e. **Card Property Settings**

Move the mouse over the V-SIPGW16 card and choose Card Property



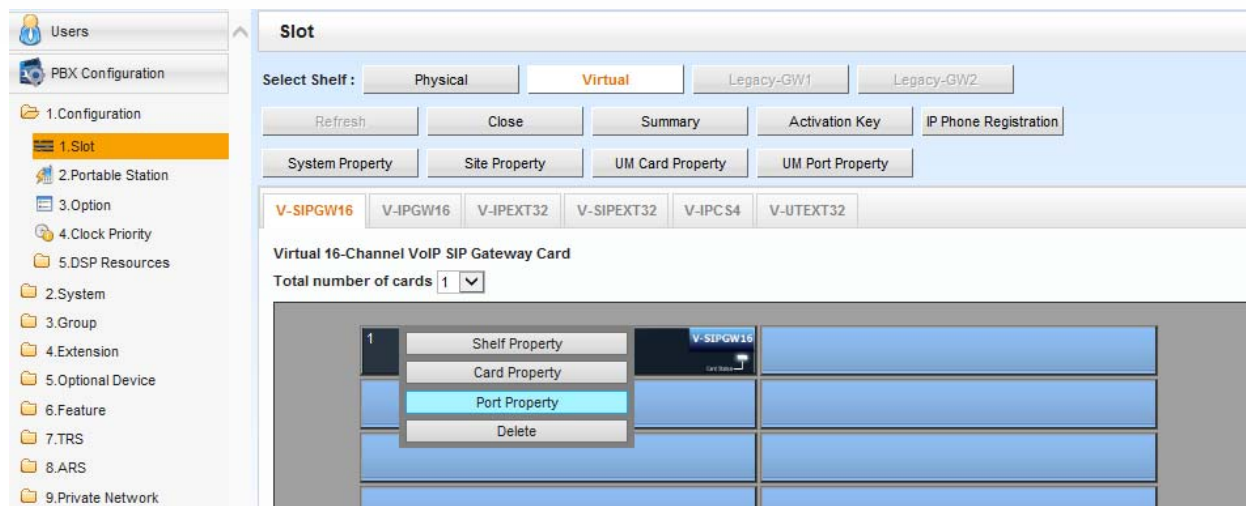
- <leave at factory default setting>

f. Click Apply and then OK to exit the Card Property settings screen

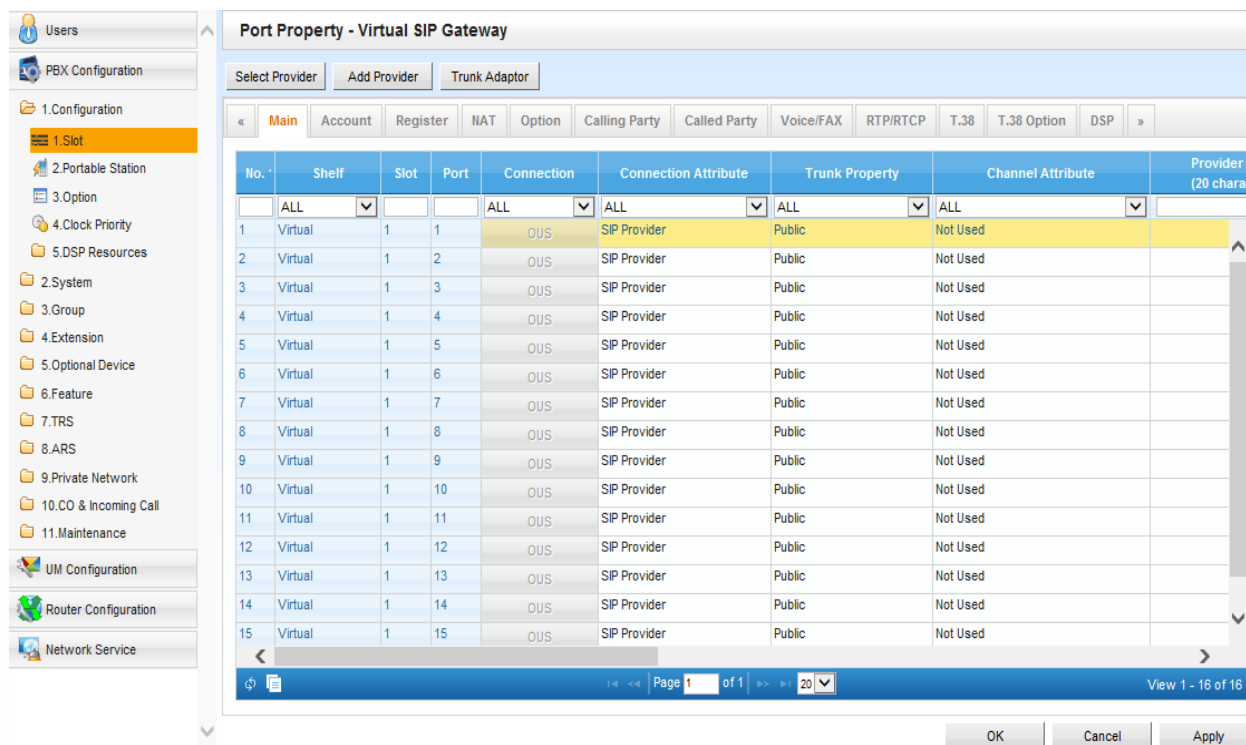


g. **Port Property Settings**

Move the mouse over the V-SIPGW16 card and choose Port Property



h. Change the following parameters from their default value



Main Tab

- Connection Attribute: **Basic Channel + Additional Channels**
- Provider Name: **TWCBC**
- SIP Server IP address: **<Provided by Time Warner Cable>**

Account Tab

- User Name: **<Provided by Time Warner Cable>**
- Authentication ID: **<Provided by Time Warner Cable>**
- Authentication Password: **<Provided by Time Warner Cable>**

Register Tab

- **<leave at factory default setting>**

NAT Tab

- **<leave at factory default setting>**

Option Tab

- **<leave at factory default setting>**

Calling Party Tab

- From Header-User part: **PBX-CLIP *assign CLIP numbers to each ext***

Called Party Tab

- **<leave at factory default setting>**

Voice/FAX Tab

- **<leave at factory default setting>**

RTP/RTCP Tab

- **<leave at factory default setting>**

T.38 Tab

- **<leave at factory default setting>**

T.38 Option Tab

- **<leave at factory default setting>**

DSP Tab

- **<leave at factory default setting>**

Supplementary Service Tab

- CNIP (Receive): **Yes**

Advanced

- **<leave at factory default setting>**

- Click Apply and then OK to exit the Port Property settings screen
- Move the mouse over the V-SIPGW16 Card and click INS to put the card back in service



6. Configuring Incoming DID Call Routing

- a. Go to PBX Configuration > 10.CO & Incoming Call > 3.DDI/DID Table

ID	DDI / DID Number (32 digits)	DDI / DID Name (20 characters)	DDI / DID Destination - Day	DDI / DID Destination - Lunch	DDI / DID Destination - Break	DDI / DID Destinat Night
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

- b. Enter the 10-digit DDI / DID Numbers
- c. Enter the Day/Lunch/Break/Night destination extension for each DDI / DID
- d. Click Apply and then OK to exit the DDI / DID Table settings screen

7. Backup and Reset

- a. Click on Maintenance > System Control > 4.System Reset
- b. Click Backup
- c. Click OK
- d. Click OK
- e. NS system will restart



SIP Trunk Activation Keys

- To obtain Activation Keys, you need to purchase the appropriate IP Trunk activation key models and access the Key Management System to register them to your PBX at <http://tde.panacare.com>.
 - **KX-NSM102:** 2-Channel IP Trunk Activation Key (2 IP Trunk)
 - **KX-NSM104:** 4-Channel IP Trunk Activation Key (4 IP Trunk)
 - **KX-NSM108:** 8-Channel IP Trunk Activation Key (8 IP Trunk)
 - **KX-NSM116:** 16-Channel IP Trunk Activation Key (16 IP Trunk)
- You will need the MPR ID from the PBX to register the Activation Key(s) on the Key Management System
- To check the Number of Activation Keys Installed in your system and the MPR ID:
PBX Configuration > 1.Configuration > 1.Slot > Activation Key

Activation Key Status

MPR-ID: Number of activated IP-GW: / 0

Number of activated IP-Softphone: / 0 Number of activated IPsec (VPN) for MultiSite: / 0

Activated feature	Pre-installed	Activation key	Features in total	System total
IP Phone Capacity (ch)				
IP Trunk (ch)				
IP Proprietary Telephone/IP Softphone (ch)				
IP Proprietary Telephone (ch)				
SIP Extension (ch)				
IP-CS channel expansion (CS unit)				
One-link Network				



Minimum System Software Requirements

NS Unified Web Maintenance Console	v5.10.1
KX-NS1000	v4.10060
KX-NS700	v4.10064

Useful Hints

1. Update your system software once an update is available through the Dealer website to make use of added features and improved functionality
2. Update your UPMC (Maintenance Tool) with the latest version available on the BTS website
3. Back up your PBX configuration file with the good known settings
4. Consult with your network administrator prior to installation to guarantee a smooth setup for your system over the existing network

Important Notes

Fax and Modem Communication

Time Warner Cable VOIP services are provided "On Net" which allows for effective Fax / Modem communications. Time Warner Cable supports G.711 (PCMU) codec for Fax / Modem transactions.

E911

Please ensure that the E911 service is configured properly and validated before leaving premises

