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Optimum Business Trunking and the Panasonic KX-NCP500 IP PBX V2.0502 Configuration Guide

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Table of Contents

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1 Overview

The purpose of this configuration guide is to describe the steps needed to configure the Panasonic for proper operation Optimum Business Sip Trunking.

2 SIP Trunk Adaptor Set-up Instructions

These instructions describe the steps needed to configure the LAN side of the Optimum Business SIP Trunk Adaptor.

Step 1:

Log on to the Optimum Business SIP Trunk Adaptor

1. Connect a PC to port 4 of the Optimum Business SIP Trunk Adaptor, the silver device labeled Edgewater Networks, 4550 series.

2. Open a Web browser and go to IP Address http://10.10.200.1. A login box will appear.

3. Enter login and password and click 'OK'.
   Login: pbxinstall
   Password: s1ptrunk

Step 2:

Click on the LAN Settings Link

1. Assign an IP Address to the LAN interface of the SIP Trunk Adaptor. The IP address must be on the same subnet as the IP PBX. This changes the address on port 1 of the Optimum Business SIP Trunk Adaptor.

   Note: This will become your local SIP proxy IP address. No other IP addresses will be provided by Cablevision.

2. Optional: Specify a VLAN for your voice traffic. Click the 'Enable Voice VLAN Tagging' check box. The default VLAN ID is 100.

   Note: VLAN 200 should not be used. It is dedicated to port 4 for management.

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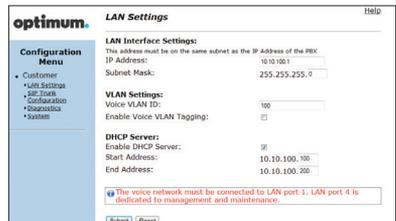
3. Optional: Enable the DHCP server. This will allow the SIP Trunk Adaptor to act as a DHCP server, which will provide IP addresses to the voice network, and create a dedicated voice LAN, as per diagram 2.

4. Click 'Submit'.

Diagram 1 SIP Trunk Adaptor for IP-PBXs
Example: Single LAN Configuration
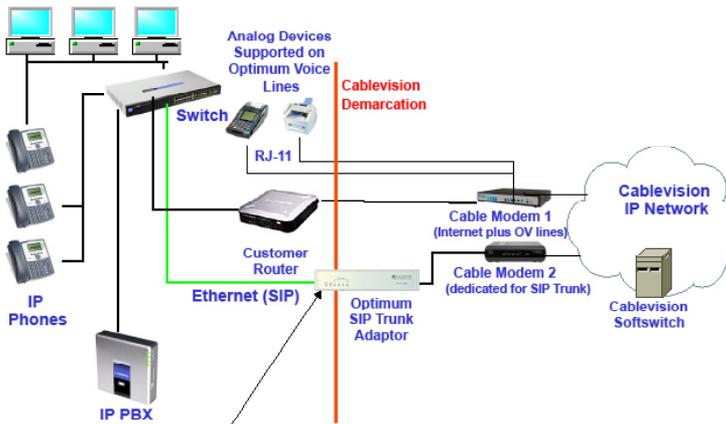
Using a connection from the customer's LAN, the SIP Trunk Adaptor's address can be a statically assigned private IP address. It may not be assigned a Public IP address.

Diagram 2 SIP Trunk Adaptor for IP-PBXs
Example: Separate Voice and Data Networks Configuration
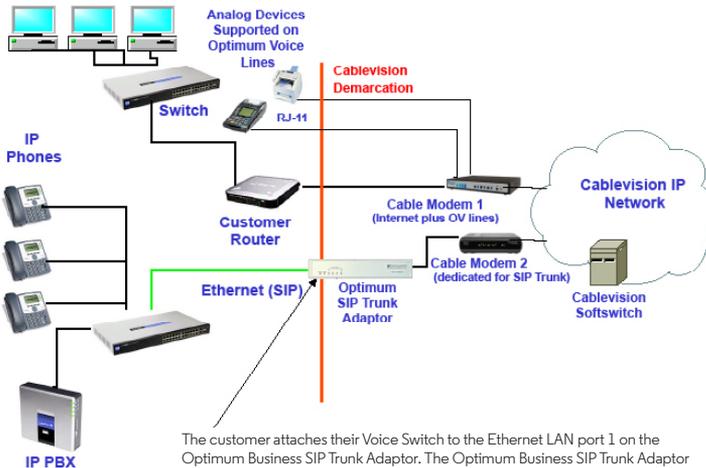
The customer attaches their Voice Switch to the Ethernet LAN port 1 on the Optimum Business SIP Trunk Adaptor. The Optimum Business SIP Trunk Adaptor can be enabled as a DHCP server to provide routing for the separate voice network.

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Step 3:

Click on the SIP Trunk Configuration Link

1. Select your IP PBX make and model from the drop-down menu.

2. Specify how the IP PBX will register to the Optimum Business SIP Trunk Adaptor.

3. The Cablevision network only supports Inband DTMF. Click on the check box next to "Convert Inband DTMF" if you cannot configure your IP PBX to send out Inband DTMF. The DTMF tone duration generated by the phones and/or PBX may need to be increased from their default setting. Some phones and/or PBX have a default setting between 180ms to 200ms. This setting is too low. The recommended setting is 600ms.

4. Click 'Submit'.

Step 4:

Diagnostics Link

You can make a test call directly from your phone or use the test call application under the Diagnostics link.

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Step 4 continued

Field	Description
Outbound Call Test TelephoneNumber	Specifies an outside phone number to which an outbound call will be initiated. The pilot telephone number of the SIP Trunk will be prepopulated.
Pilot Number	Displays the provisioned pilot number, which is used for outbound and inbound call tests.
Call	Initiates a call outbound to a telephone number entered or inbound to the pilot number displayed.
Inbound Call Test (radio button)	Indicates whether inbound test call will be enabled or disabled. If inbound test calls are enabled, calls made to the pilot number will be redirected to the test UA for fifteen minutes. When the pilot number is dialed, you will hear a test message play.
Submit	Enables or disables the inbound call test.
IP Address to Ping	Verifies basic connectivity to a networking device. Successful ping test results indicate that both physical and virtual path connections exist between the system and the test IP address.
Ping Button	Sends a ping to the IP address specified in the field "IP Address to Ping".
IP Address to Trace	Tracks the progress of a packet through the network. The packet can be tracked through the WAN or LAN interfaces of the adaptor.
Interface (radio button)	Indicates whether a packet will be tracked through the LAN or the WAN.
Traceroute Button	Initiates a traceroute to the specified IP address on either the LAN or the WAN.
Reset	Clears all fields and selections and allows you to enter new information. Reset applies to outbound call test, ping and traceroute.

3 Additional Set-up Information

Systems

Field	Description
Pbxinstall Link	Select to change the default password for the pbxinstall login ID. Only the password can be changed. The login ID cannot be changed.

Password

Field	Description
Username	Specifies the username for which the password can be changed.
Current Password	Specifies the current password.
New Password	Specifies the new password.
Confirm Password	Confirms the new password.
Submit	Applies the settings configured on this page.
Reset	Clears all fields and selections and allows you to enter new information.

4 International Calling

Optimum Voice Business Trunking offers an optional International Calling Service for direct-dialed calls made from the Customer's business or from any phone via the Optimum Voice International Calling remote access number to destinations outside of the United States, Puerto Rico, Canada and the U.S. Virgin Islands at per minute rates. The Customer must login to the Optimum Business Account Center and activate the service on the Optimum Business Trunk Pilot telephone number to activate the service and manage the monthly International spending limit for the account.

Activating International calling on the Pilot TN will enable International calling for all Direct Inward Dial (DIDs) telephone numbers as well. Blocking International calling for one or more DIDs is managed by the customer directly from the PBX phone system configuration. To minimum the exposure to fraudulent calling, It is recommended to limit International calling capability to those DID's that require it and set up an account spending limit that reflects what is necessary to run the business.

It is the Customer (and/or the Customer Agent's) responsibility to properly secure the customer's PBX to prevent the PBX from being compromised and fraudulent calls from being made by unauthorized (internal or external) users. If fraudulent calls are detected, Cablevision reserves the right to disable International Calling until the PBX is properly secured by the customer.

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5 PBX Configuration

The steps on the next page describe the minimum configuration
required to enable the PBX to use Optimum Business SIP Trunking for
inbound and outbound calling. Please refer to the Panasonic KX-NCP500
product documentation for more information on advanced PBX features.

The configuration described here assumes that the PBX is
already configured and operational with station side phones
using assigned extensions or DIDs. This configuration is based
on KX-NCP500 V2.0502.

1. The PBX, the phones and the Optimum Business SIP Trunk Adaptor should be on the same LAN segment. The PBX is shipped with 2 default IP addresses for the LAN port, one for the IPCMPR card (192.168.0.101/24) and the other the VoIP DSP card (192.168.0.102/24). The IPCMPR card is used to communicate with the SIP Trunk Adaptor using SIP protocol and to communicate with the phones. The phones in this test setup communicate with the PBX using MGCP protocol. The VoIP DSP card is used to send and receive media traffic between the phones and the PBX. The PBX should have its gateway set to the Optimum Business SIP Trunk Adaptor's port 1 LAN IP address (i.e.: 192.168.0.1/24).

2. To configure the PBX, a configuration GUI, PBX Unified Maintenance Console, is needed. From the CD that shipped with the PBX, install the configuration GUI by running the "**UPCMCv5.1.2.3_US_R1.exe**" program.

3. Invoke the PBX Unified Maintenance Console program from the PC and you should see a screen with a different level of Programmer Code and Password. Always use the Installer level of Programmer Code and Password when configuring the PBX. Click the "**OK**" button to continue.
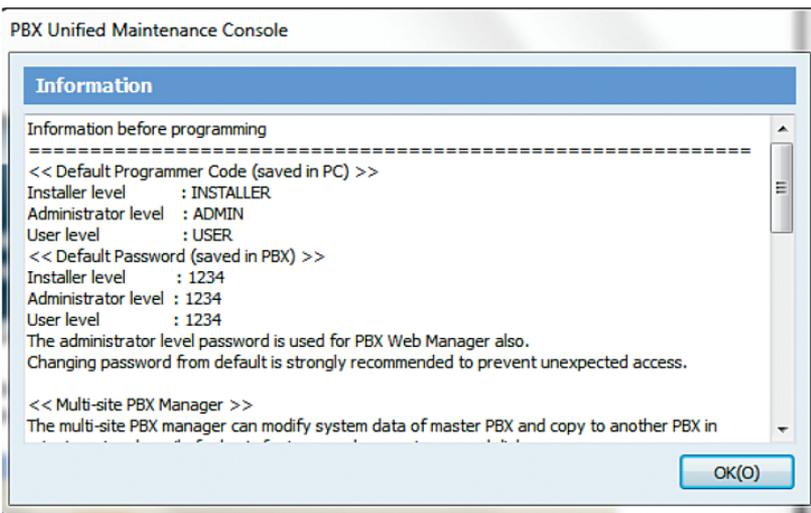
4. Enter the installer-level Programmer Code (i.e.: "INSTALLER") in the "**Enter Programmer Code**" field and click the "**OK**" button.
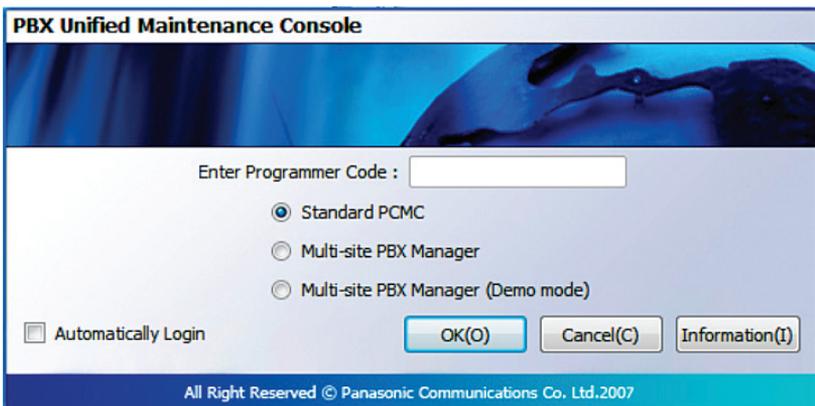
5. Click the **"Connect"** button to set up a connection with the PBX.
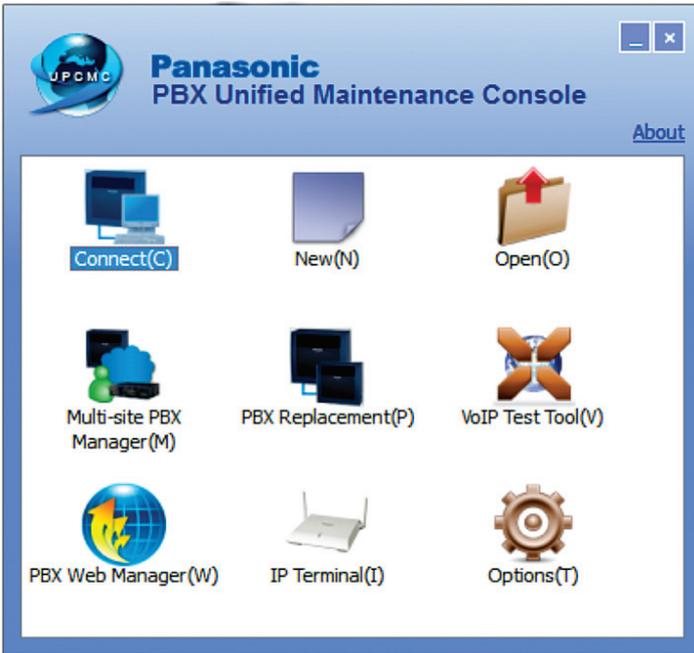
6. Select the **"LAN"** radio button, enter the **"IP address of the IPCMPR card"** in the **"IP Address"** field, enter the **"installer-level password"** in the **"Enter Password"** field and hit the **"Connect"** button.
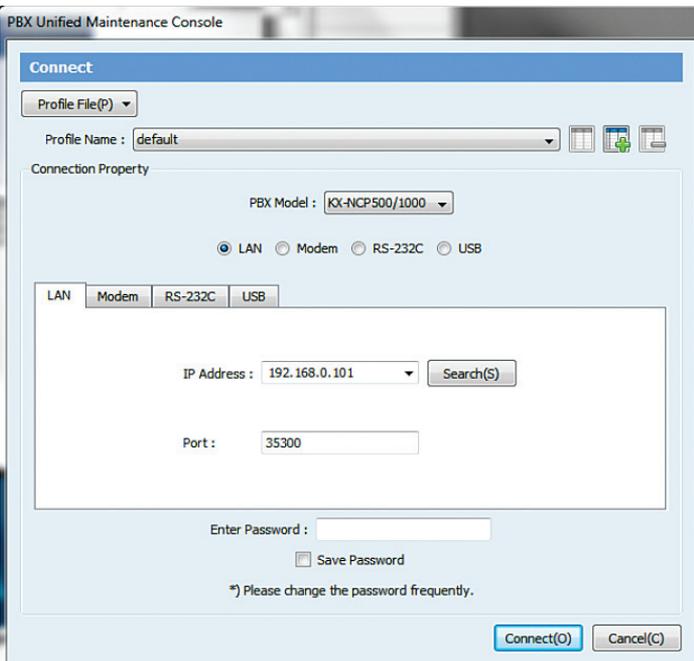
7. To start configuration of the PBX for SIP Trunk Service from the initial configuration screen, select **"1.Configuration"** and click on **"1.Slot"**.
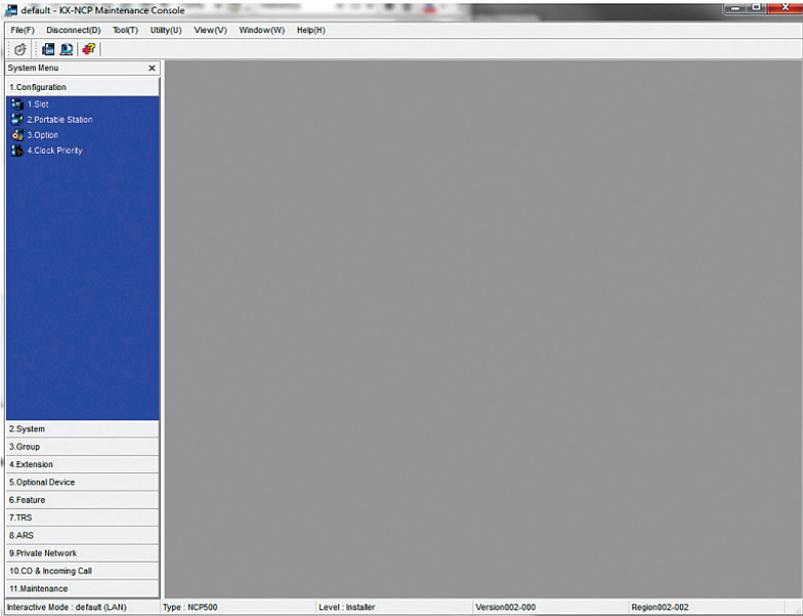
8. Move the mouse over the **"IPCMPR card"** and select **"card property"** to verify/configure the LAN Setting.
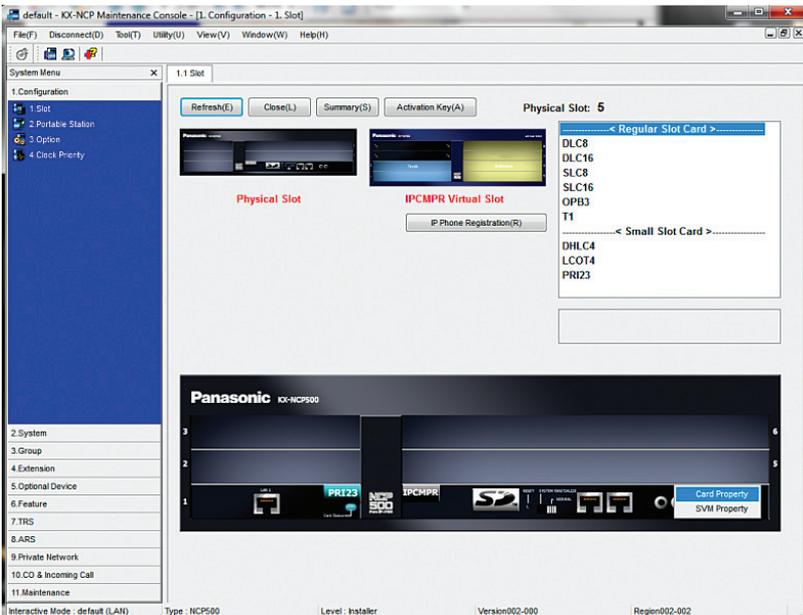
9. Enter the Optimum Business SIP Trunk Adaptor's IP address assigned to port t 1 in the **"Default Gateway"** field and hit the **"OK"** button. This is step 2 in the Optimum Business SIP Trunk Set-up Guide.
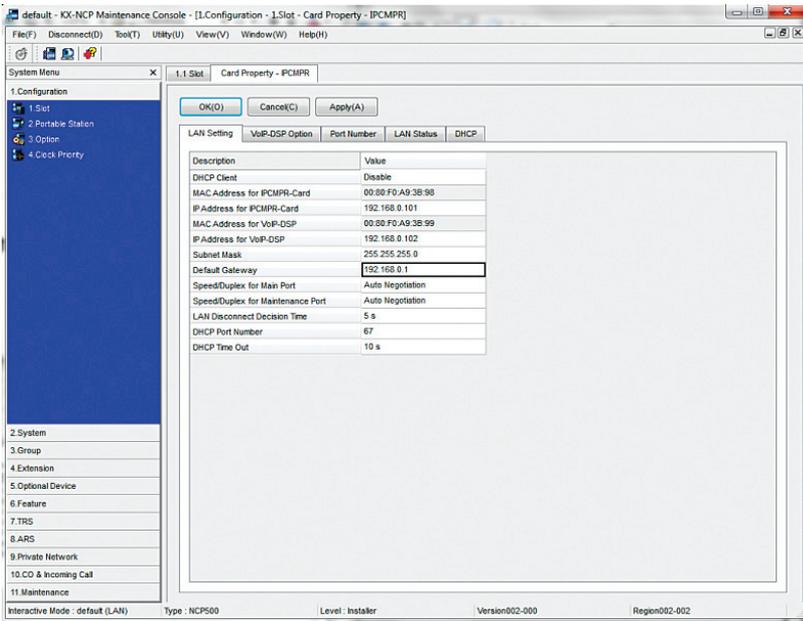
10. Move the mouse over the **"IPCMPR Virtual Slot"** and select **"Select Shelf"**.
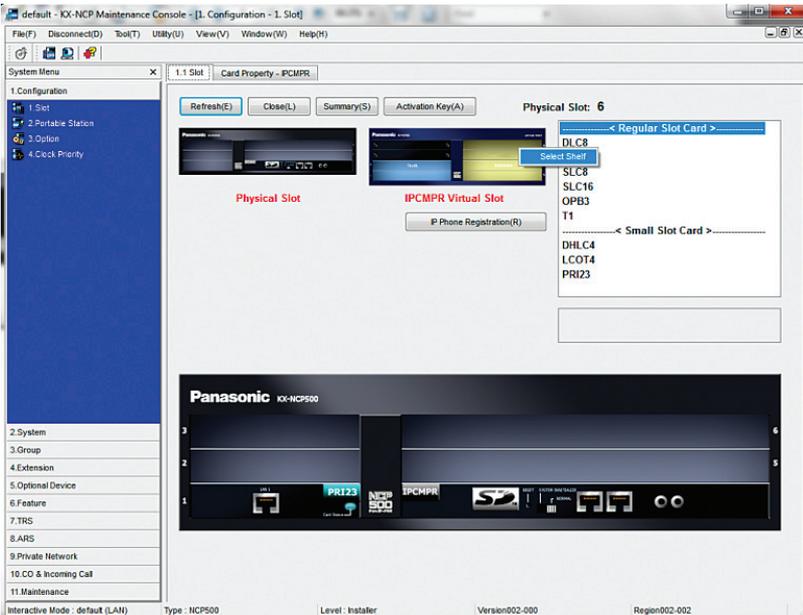
11. Move the mouse over the **"V-SIPGW16"** card and select **"OUS"** as we need to take the V-SIPGW16 card out of service before making changes to the parameters.
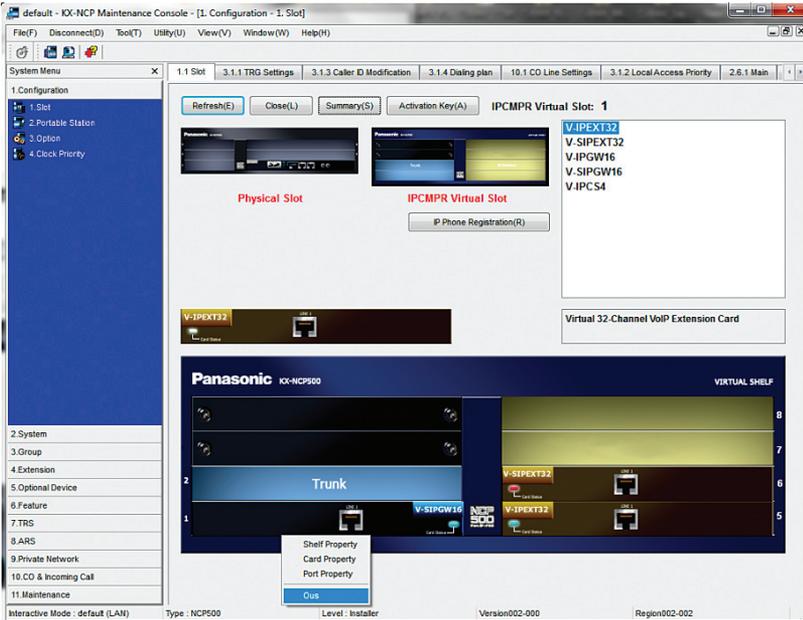
12. Move the mouse over the **"V-SIPGW16"** card and select **"shelf property"** to access the parameters on the SIP gateway.
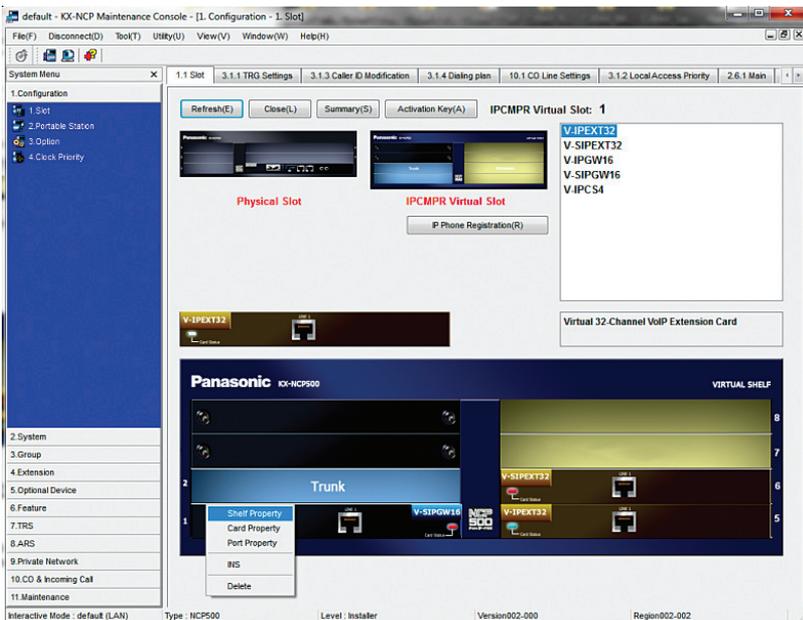
13. Note the warning messages about taking the V-SIPGW cards out of service before changing the parameters would appear if you had not taken the card out of service. Click **"OK"** to continue.
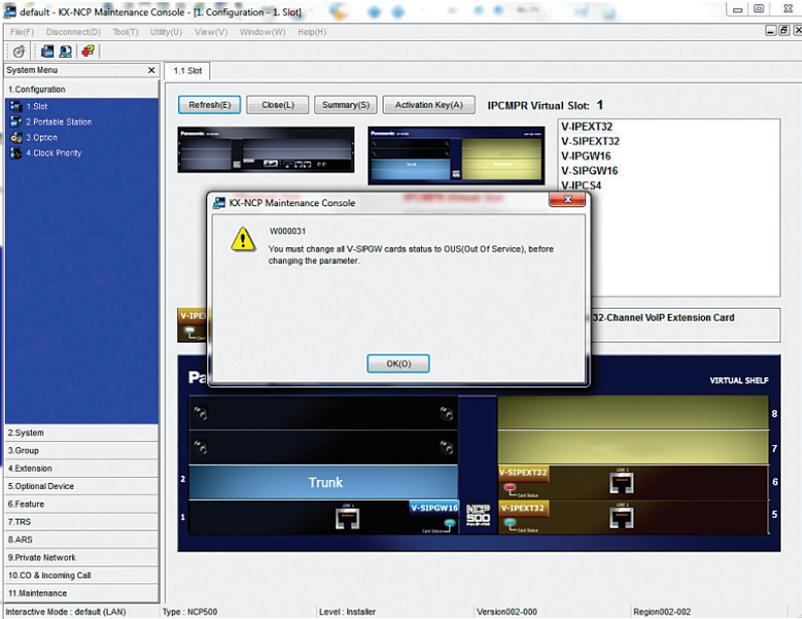
14. Enter **"5060"** in the **"SIP Client Port Number"** field. Make sure the **"NAT Traversal"** field is set to **"Off"** and the **"STUN Ability"** field is set to **"Disable"**. Hit the **"OK"** button.
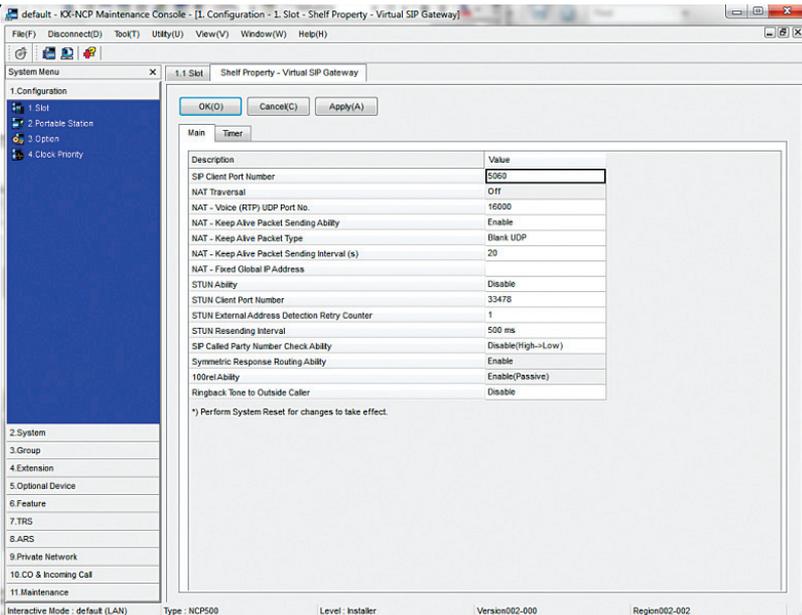
15. Select **"1.Configuration"**, select **"1.Slot"** and select **"Card Property"** to manually set the DNS server addresses.
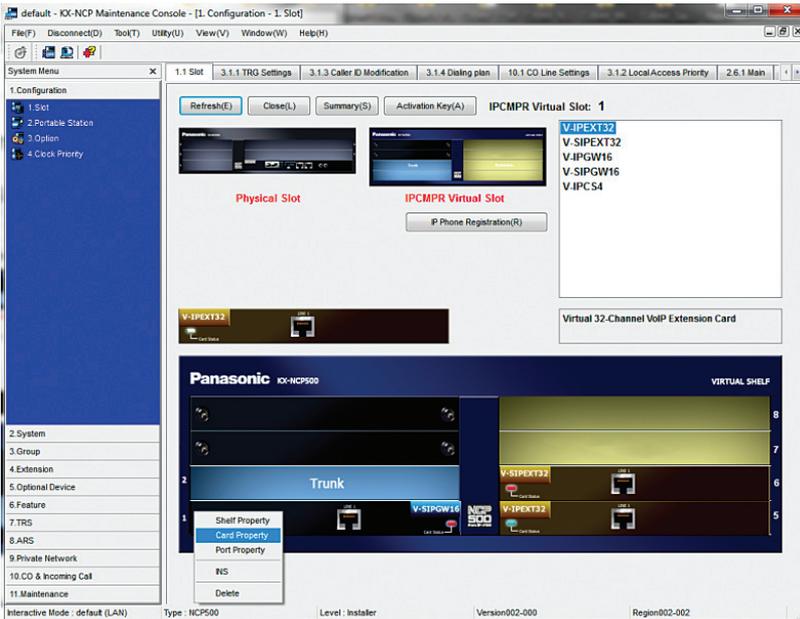
16. Click the **"Common Settings"** button. The **"DNS Server IP Address Method"** field should be set to **"Manual"**. Enter the DNS IP addresses in the **"Manual Preferred DNS Server IP Address"** field and the **"Manual Preferred DNS Server IP Address"** field and hit the **"OK"** button.
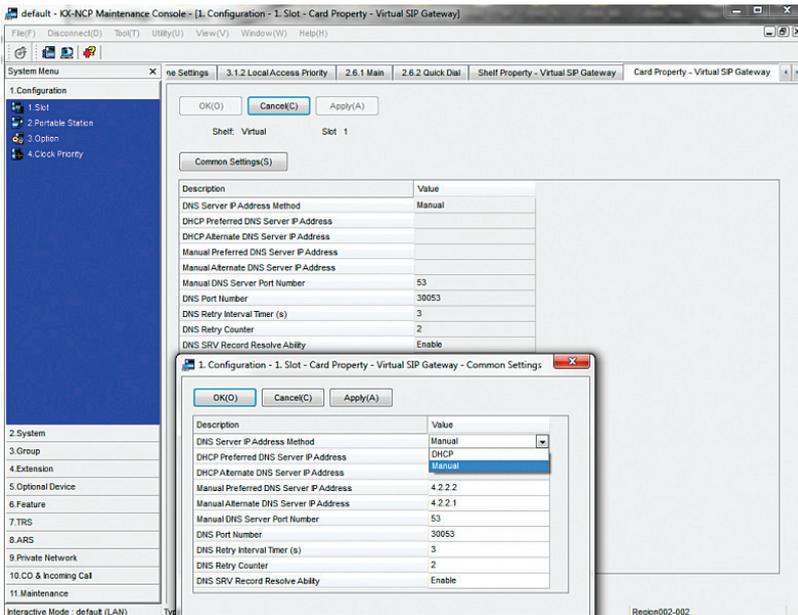
17. Select **"1.Configuration"**, select **"1.Slot"** and select **"Port Property"** to access SIP trunk configuration parameters.
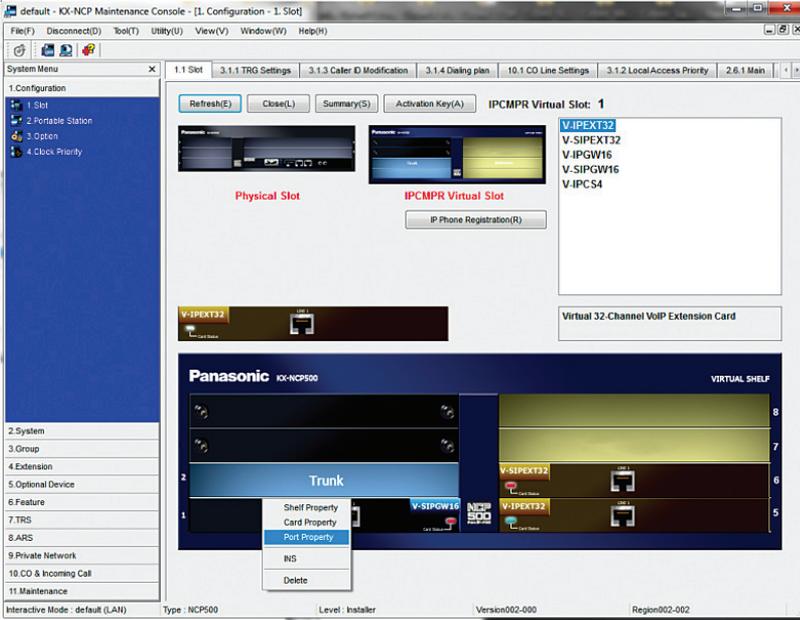
18. Select the **"Main"** tab to start configuring the SIP trunk parameters.

    a. From entry number 1 (Slot 1 – Port 1), select **"Basic channel"** in the **"Channel Attribute"** field, enter a descriptive name for the Optimum Business SIP Trunk Adaptor in the **"Provider Name"** field, enter the Optimum Business SIP Trunk Adaptor's IP address in both the **"IP Address"** field and the SIP Service Domain field, enter **"5060"** in the **"SIP Server Port Number"** field and enter the subscriber number in the **"Subscriber Number"** field. Note that the subscriber number we entered in this example is the same as the Pilot DID.

    b. From entry number 2 to 5 (Slot 1 – Port 2 to 5), select **"Additional channel for Ch1"** in the **"Channel Attribute"** field and enter **"5060"** in the **"SIP Server Port Number"** field. Note that the number of additional channels to add depends on the number of SIP trunks you are licensed to have. In this example, the number of licensed SIP trunks is 4.

    c. Hit the **"OK"** button.
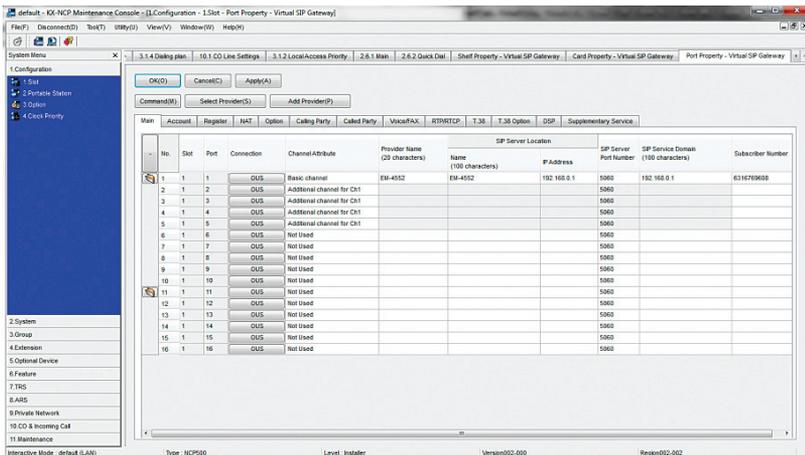
19. Select the **"Account"** tab to configure User Name, Authentication ID and Authentication Password for the SIP Trunk Service. From entry number 1 (Slot 1 – Port 1), enter username in the **"User Name"** field, enter password in the **"Authentication Password"** field and hit the **"OK"** button. This is step 3 of the Optimum SIP Trunk Set-up Guide. In this example, the pilot DID, 6316769608, is used for both the username and the password. Note that these configurations are used only when the Optimum Business SIP Trunk Adaptor is configured to expect SIP registration from the PBX.
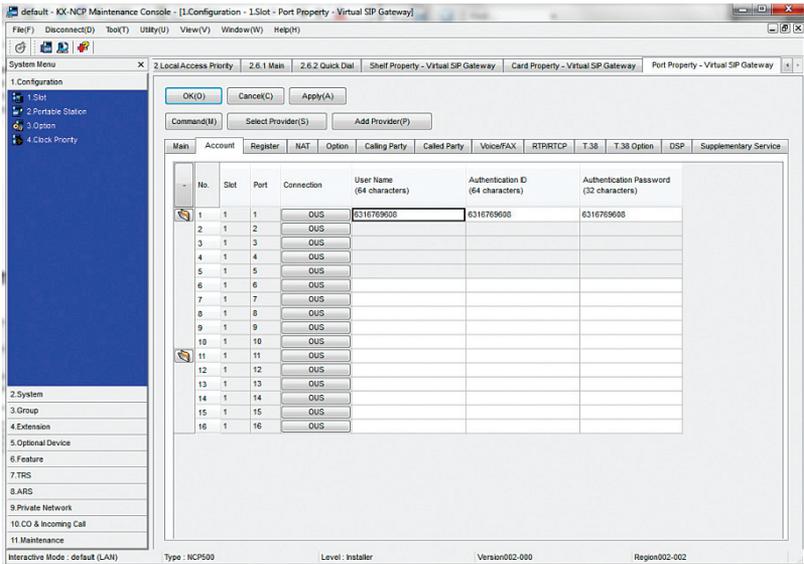
20. Select the **"Register"** tab to configure the PBX for SIP registration mode or static IP address mode. From entry number 1 (Slot 1 – Port 1), select **"Enable"** in both the **"Register Ability"** field and the **"Un-Register Ability when port INS"** field if the Optimum Business SIP Trunk Adaptor is configured to receive SIP registration from the PBX; select **"Disable"** if the Optimum Business SIP Trunk Adaptor is configured to communicate with the PBX via the PBX's static IP address.

Note: When using registration mode, all CLIP ID's **must** match the Pilot DID. In non-registration mode, the CLIP ID's can be any DID on the SIP Trunk.
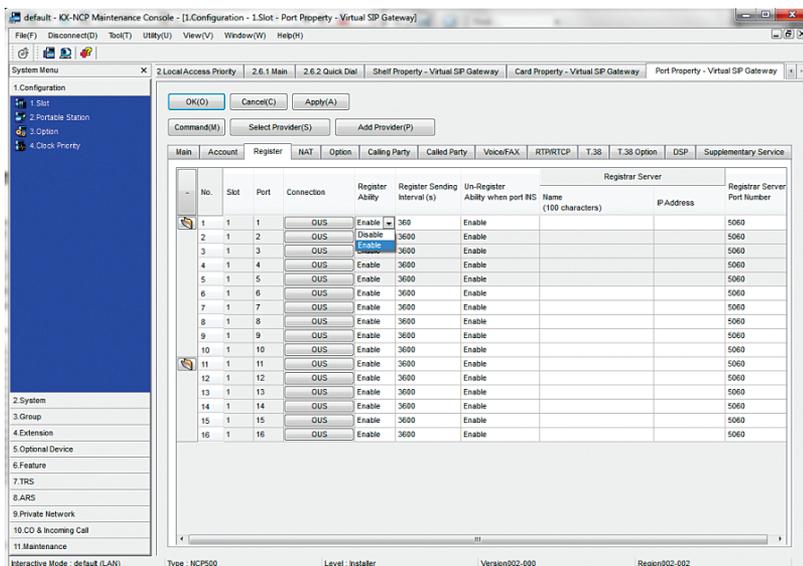
21. Select the **"Voice/FAX"** tab to configure codec priority. For each entry, G.711A and G.711Mu should be used for IP Codec Priority's **"1st"** and **"2nd"** fields. Hit the **"OK"** button if you make any changes.
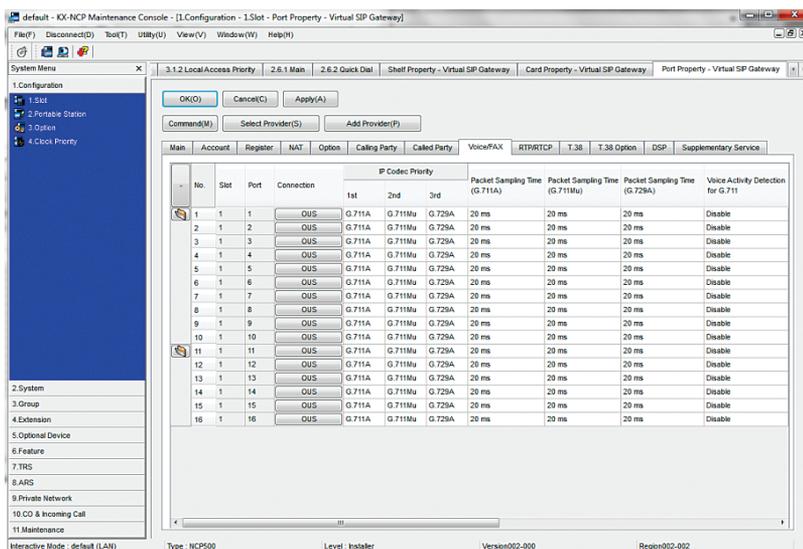
22. Select the **"Calling Party"** tab to configure CLIP (Calling Line Identification Presentation) for the outbound calls. In entry number 1, select **"PBX-CLIP"** for the From Header's **"User Part"** field and hit the **"OK"** button. This configuration tells the PBX to use the extension's **"CLIP ID"** as the outbound call's caller ID.
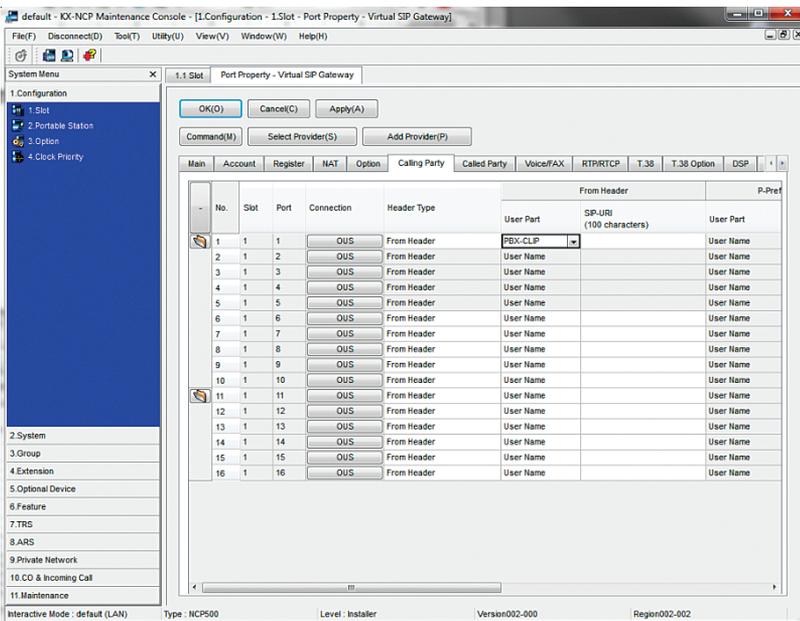
23. Select **"1.Configuration"**, select **"1.Slot"** and click on the **"IP Phone Registration"** button to see the extensions that are used by the registered phones.
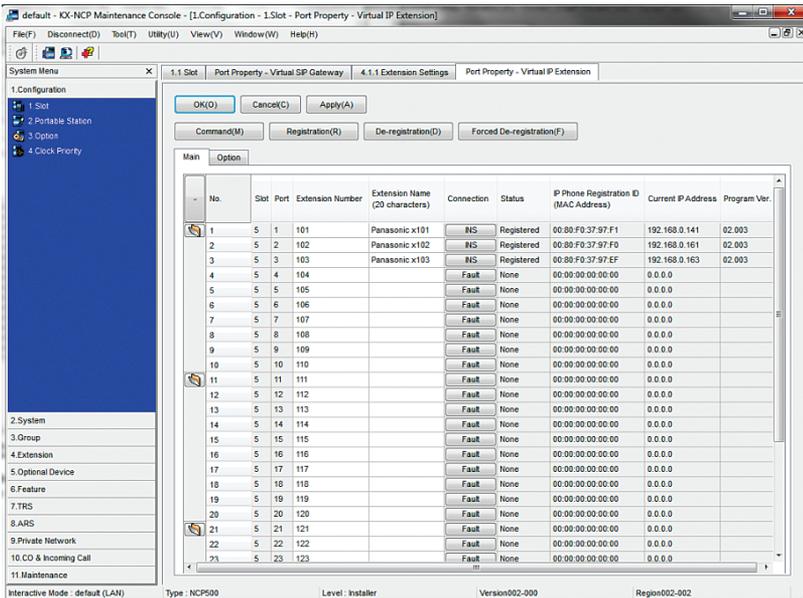
24. Select **"10.CO Line & Incoming Call"**, select "DID Table" to assign DID for each extension in use. For each extension in use, enter the assigned DID number in the **"DID Number"** field, enter a DID name in the **"DID Name"** field, enter the same extension number in the **"Day/Lunch/Break/Night"** fields. Hit the **"OK"** button after you finish assigning DIDs for all the extensions.
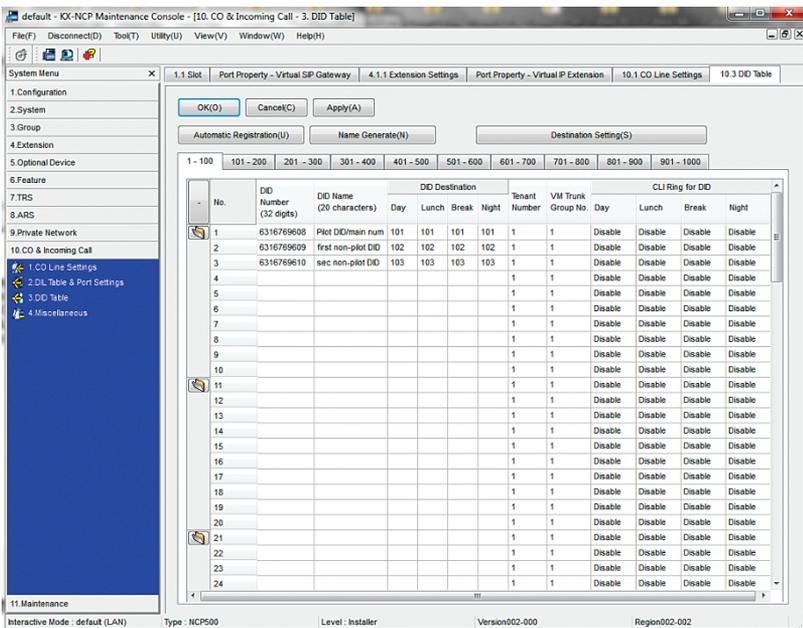
25. Select "**4.Extension**", select "**1.Extension Settings**" and select "**ISDN CLIP**" to assign CLIP ID (Caller ID) for each extension. For each extension in use, enter the extension name in the "**Extension Name**" field and enter a DID number in the "**CLID ID**" field. Hit the "**OK**" button after you finish assigning CLIP ID for all the extensions.

When using registration mode, all CLIP ID's must match the Pilot DID. In non-registration mode, the CLIP OD's may match any DID on the SIP Trunk.
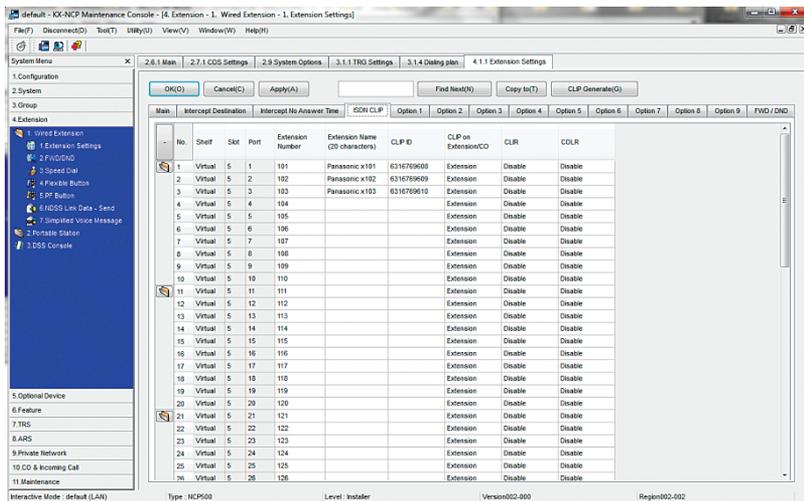
26. Select "**10.CO Line & Incoming Call**", select "**1.CO Line Settings**" to prepare for dialing "**9**" to access the SIP trunks. For each SIP trunk in use (i.e.: the "Shelf" field set to "Virtual"), enter "**SIP trunk**" or some descriptive name in the "**CO Name**" field and enter "**1**" or some other number in the "**Trunk Group Number**" field. Hit the "**OK**" button after you finish assigning a same trunk group number for each SIP trunk. Note that the trunk group number must be the same for all the SIP trunks.
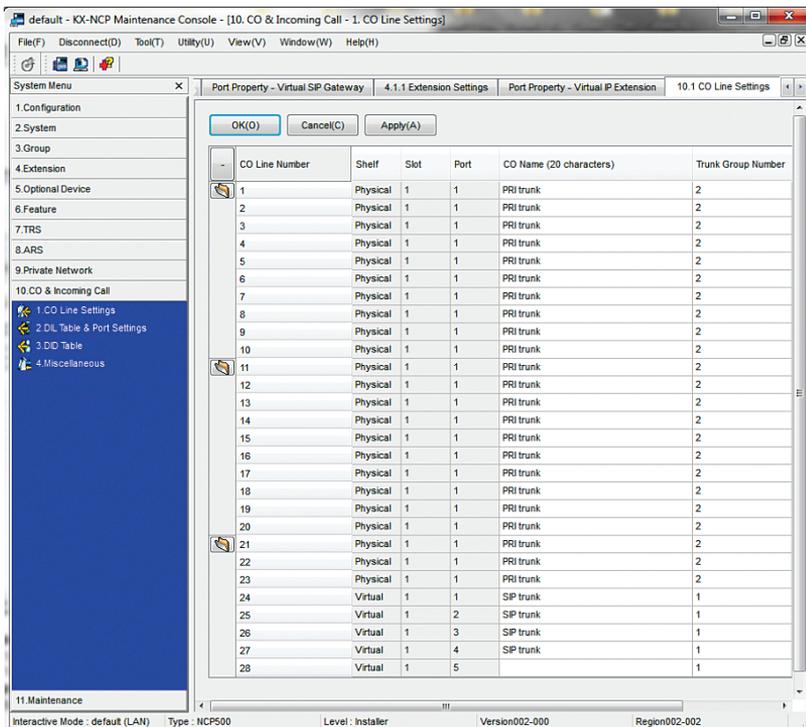
27. Select **"3.Group"**, select **"1.Trunk Group"** and select **"Local Access Priority"** to configure dialing **"9"** to access the SIP trunks only. Select the **"trunk group number and SIP trunk"** in the **"Trunk Group No. & Name"** field for the Priority 1 entry, select blank in the **"Trunk Group No. & Name"** field for the Priority 2 entry and hit the **"OK"** button.
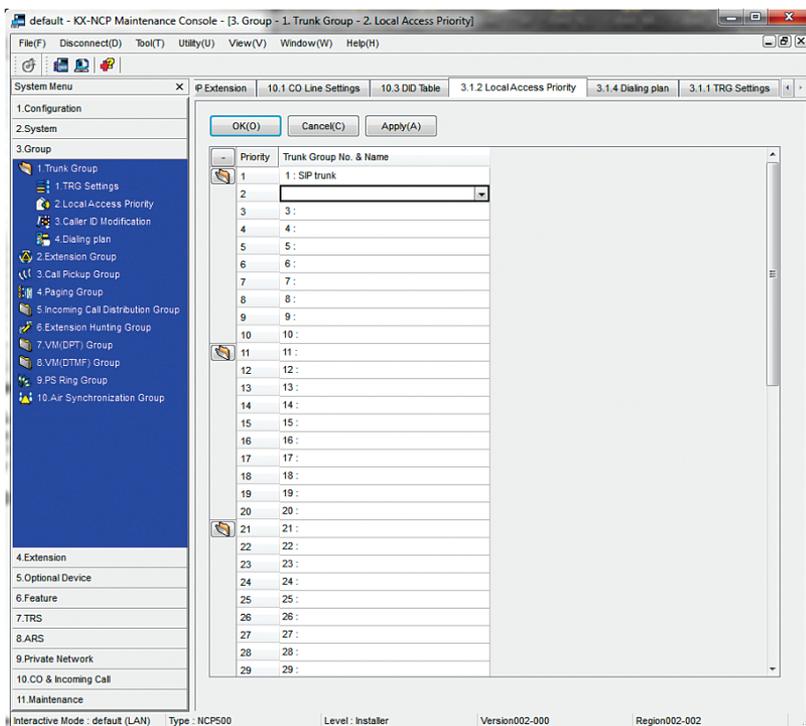
28. Select "**3.Group**", select "**1.Trunk Group**" and select "**Dialing Plan**" to add more dialing plans if the default dialing plans are not enough.
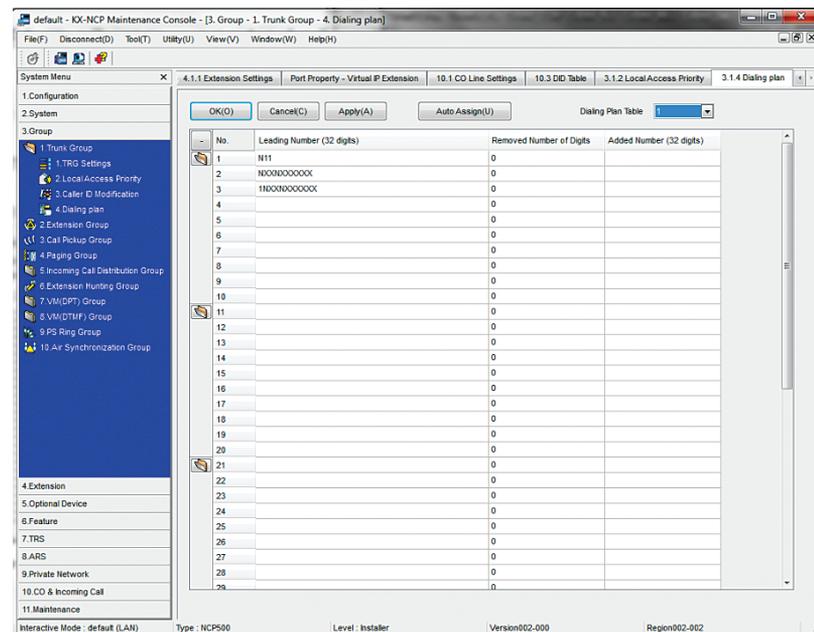
29. Select **"1.Configuration"**, select **"1.Slot",** move the mouse over the **"V-SIPGW16"** card and select **"INS"** to put the V-SIPGW16 card in service since we have finished making changes to the parameters.
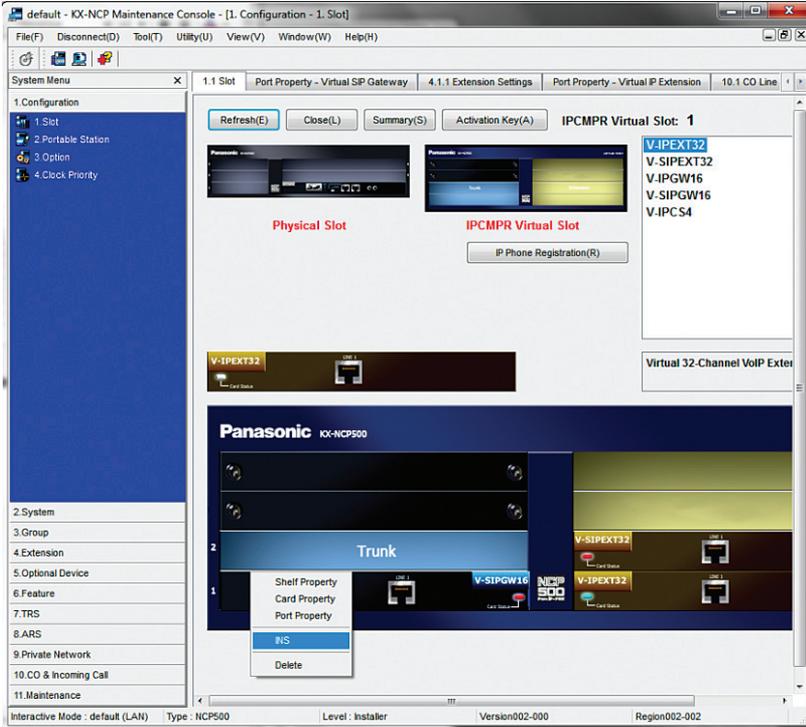
30. Select **"1.Configuration"**, select **"1.Slot"** and select **"Port Property"** and the SIP trunk configurations should reflect the INS (in service) status. Note that you may need to reboot the PBX as some changes may require a reset to take effect.
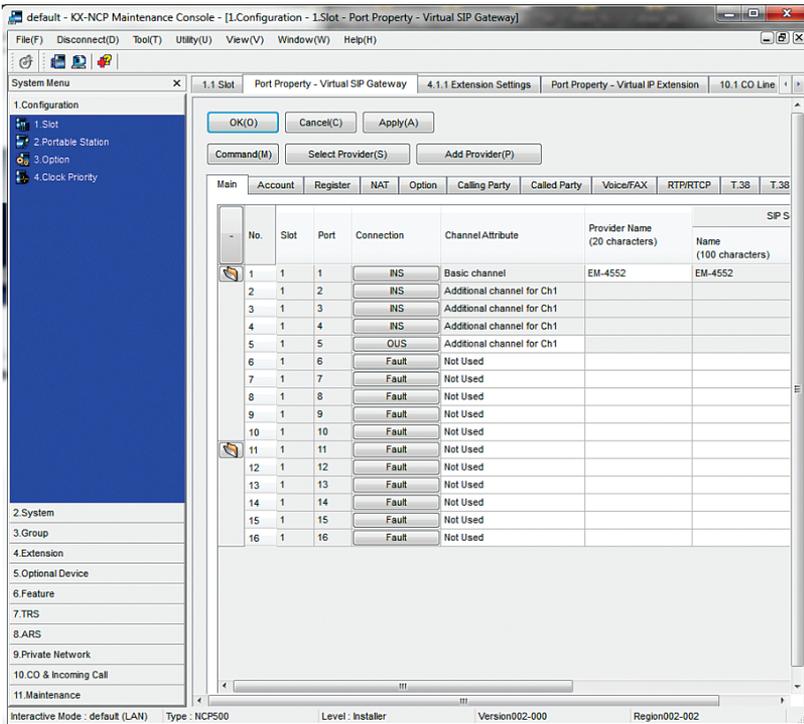
31. To enable the auto attendant, go to page 1.3 and assign a DID to extension 501.
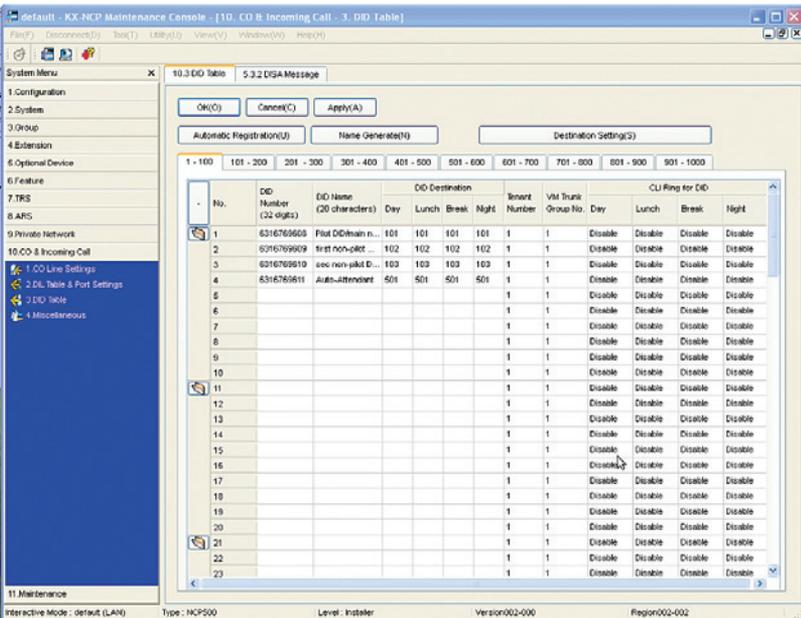
Then go to page 5.3.2 to assign button presses to extensions.
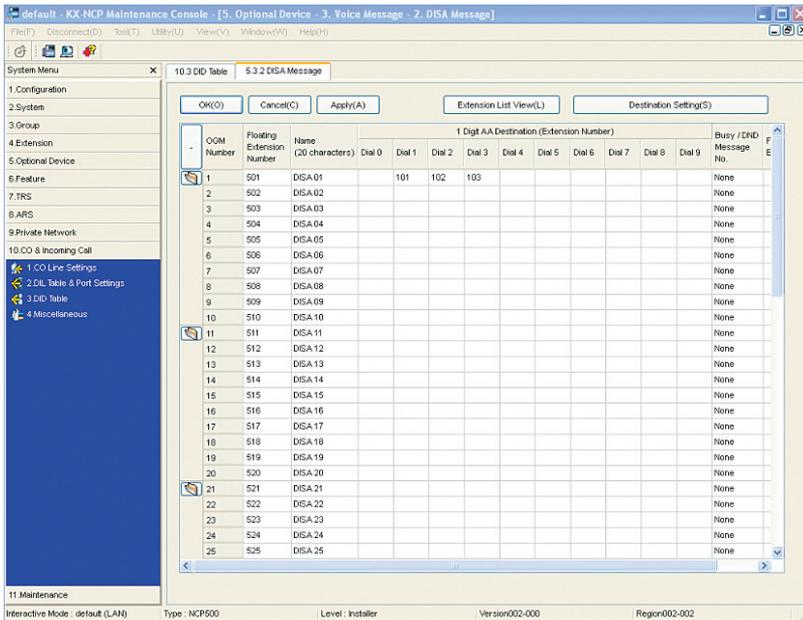
32. To enable Simple Voice Messaging (SVM), go to page 4.1.2 and do the following:

Select the extension that you want to modify, and then select which mode you want to modify and then enter **"591"** in the box to the right. Ensure that the checkbox marked **"For both external calls and internal calls"** is checked if you don't want to configure these separately.
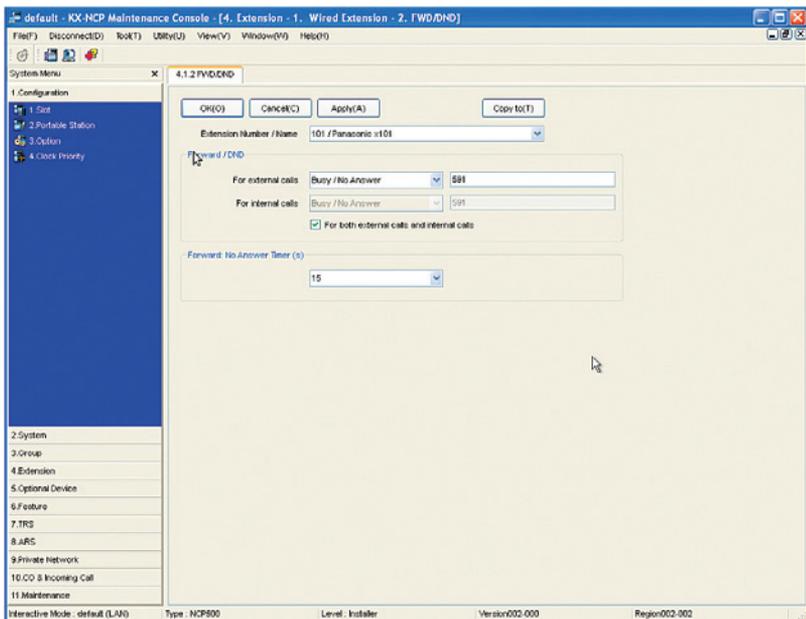
Note: The Auto Attendant and SVM are both capable of detecting in-band and out-of-band DTMF tones. No additional configuration changes are needed to enable this capability.

See the manufacturer's user guide for recording a greeting for the Auto Attendant, the SVM, and basic voicemail usage. This is not covered by this document.