SL2100
NAPT
Help Guide

NDA-31876
Issue 1.01

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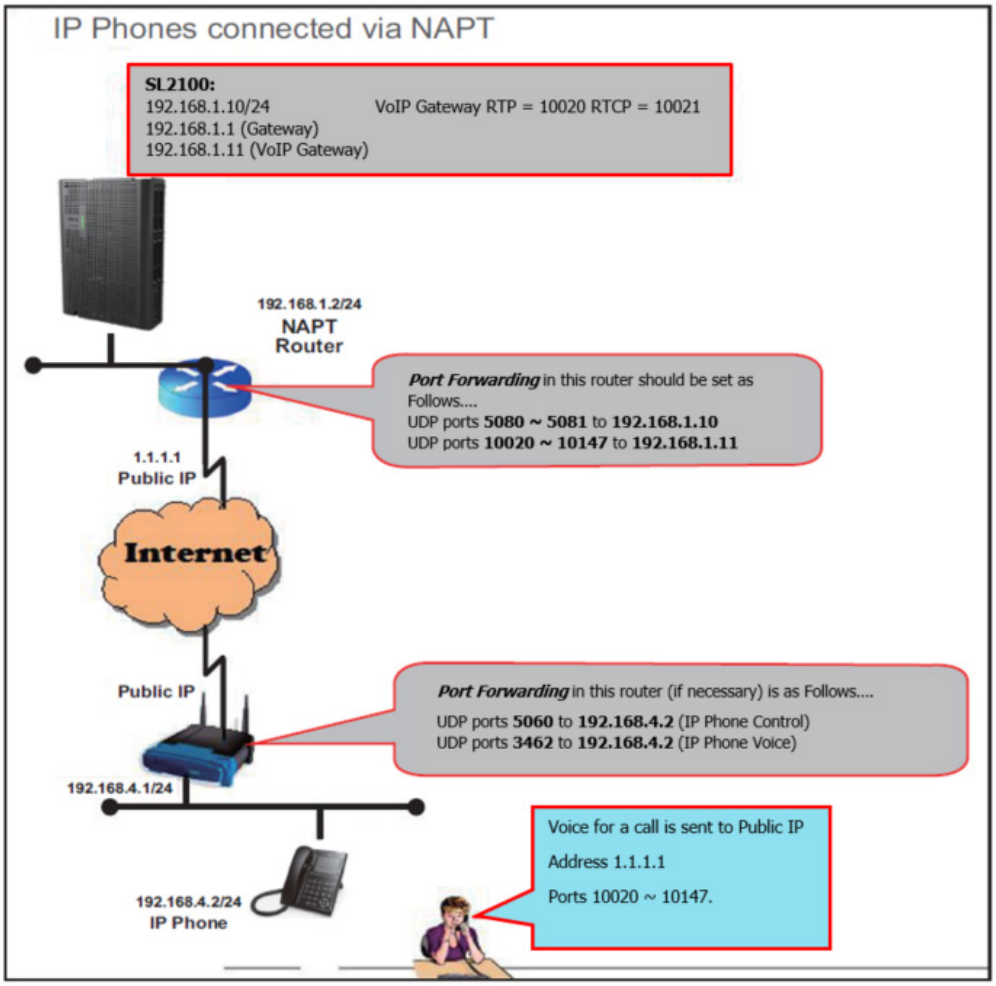
Document Description

NAPT, or Network Address Port Translation is a method by which a private address (or addresses) and their TCP/UDP ports are translated into a single public address and its TCP/UDP ports. When using IP phones with the SL2100, it allows their connection to a public (Internet) IP address, which is then converted back to the Private (non-Internet) IP address on the customer's network. The translation is available at the SL2100 end as well as at the remote IP Phone end of the connection, if required.

This Help Guide demonstrates how to set up remote SL2100 IP phones connected via NAPT.

***Note**: The NAPT feature is NOT available for SL Net connections.*

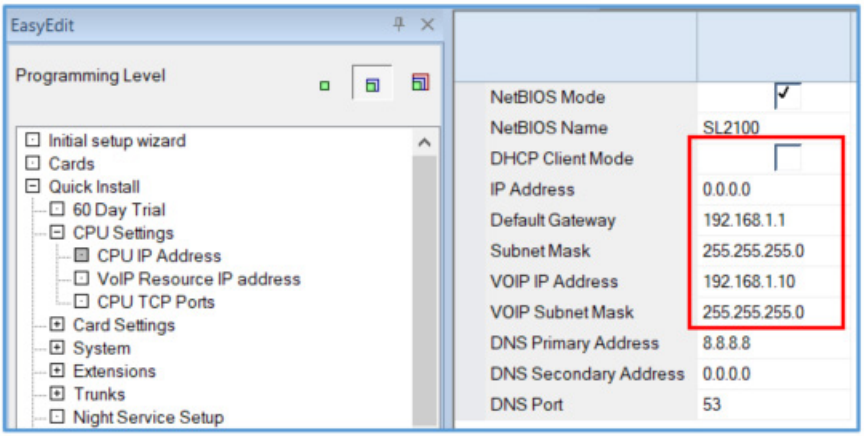
Network Diagram



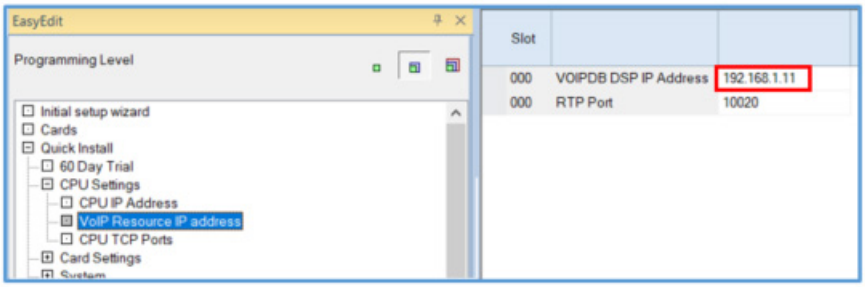
Data Assignment of SL2100:

PC Pro Easy Edit View Programing Example:

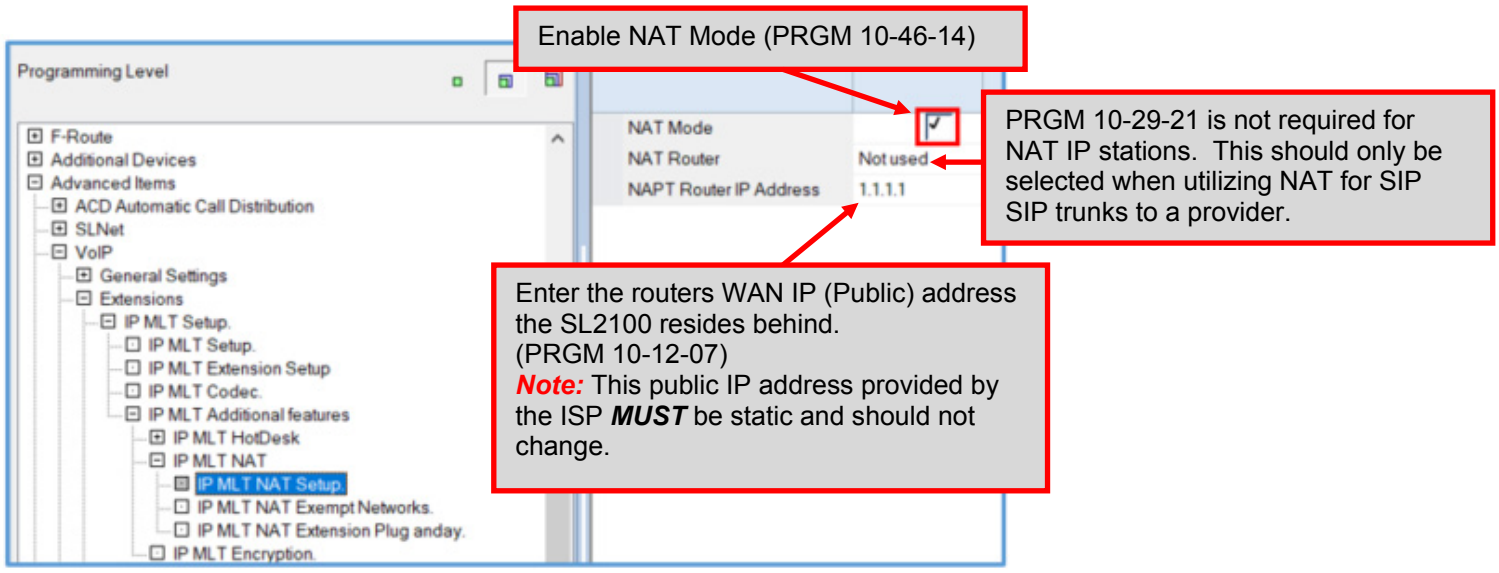
The example below is using Easy Edit View, Program Level 2 under: Quick Install > CPU Settings > CPU IP Address. This screen shot shows the DHCP Client is disabled (PRGM 10-63), CPU IP Address set to 0.0.0.0 (PRGM 10-12-01), Default Gateway Address set to 192.168.1.1 (PRGM 10-12-03), VoIP IP Address set to 192.168.1.10 (PRGM 10-12-09) with a Subnet Mask of 255.255.255.0 (PRGM 10-12-10)



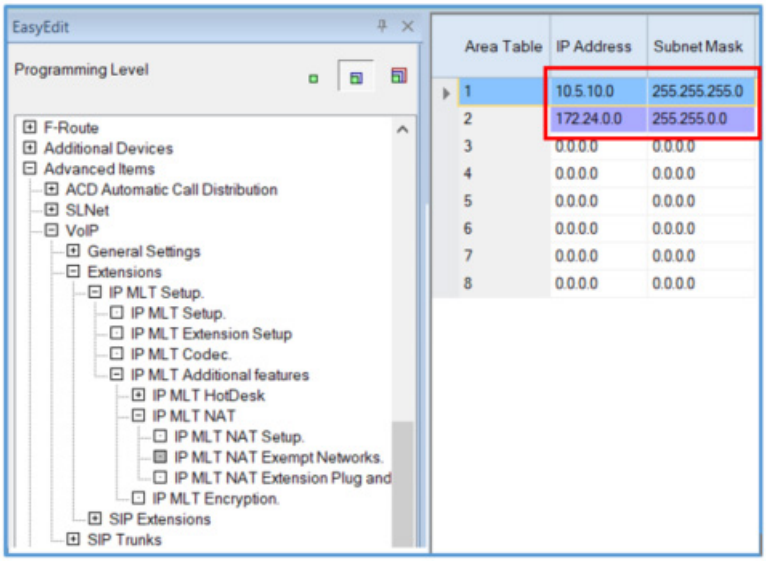
Next under: Quick Install > CPU Settings > VoIP Resource IP Address, assign a VoIP DSP IP Address within the same Subnet Mask (PRGM 84-26), 192.168.1.11is used in the example below:



Once the SL2100 Ethernet settings listed above are complete, use Easy Edit program level 2 or 3 go to:
Advanced Items > VoIP > Extensions > IP MLT Setup > IP MLT Additional features > IP MLT NAT > IP MLT Setup and enable NAT Mode (PRGM 10-46-14) as shown below.

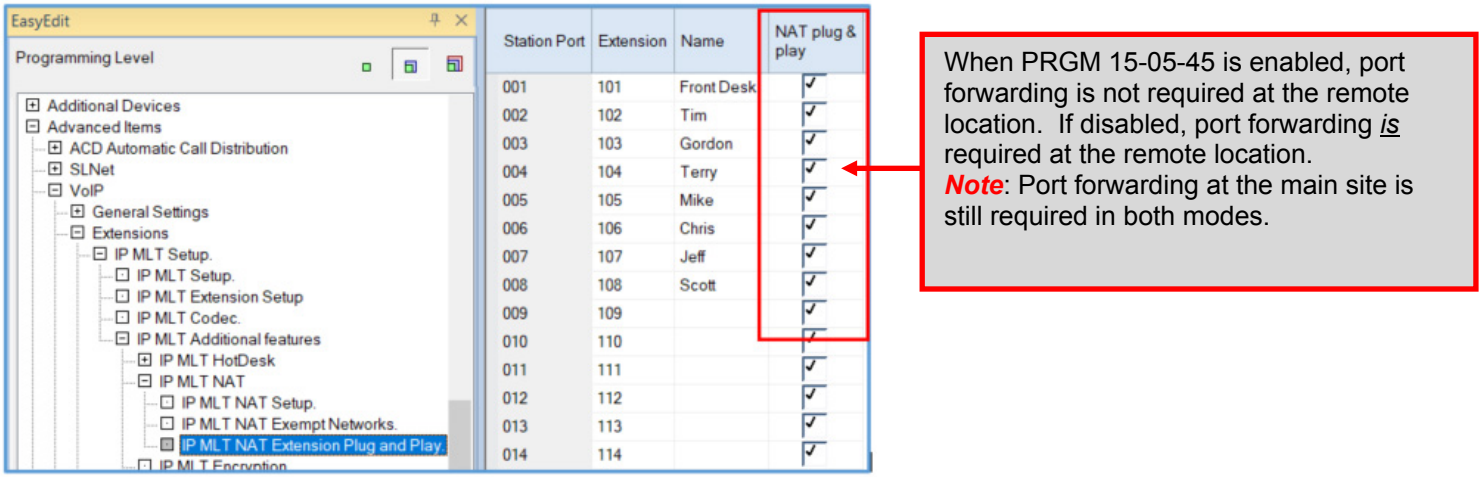


If there are other networks connected to the system that should not be routed through the NAT translations, such as sites connected via VPN or MPLS, these networks must be identified in PRGM 10-58. For example, when remote phones are connected across a VPN to the Main site and other remote phones are connected via NAT from other locations. The example below from Easy Edit program level 2 under: Advanced Items > Extensions > IP MLT Setup > IP MLT Additional Functions > IP MLT NAT > IP MLT NAT Exempt Networks, shows an example of specifying the remote Network IP Ranges that NAT translations should not be used:

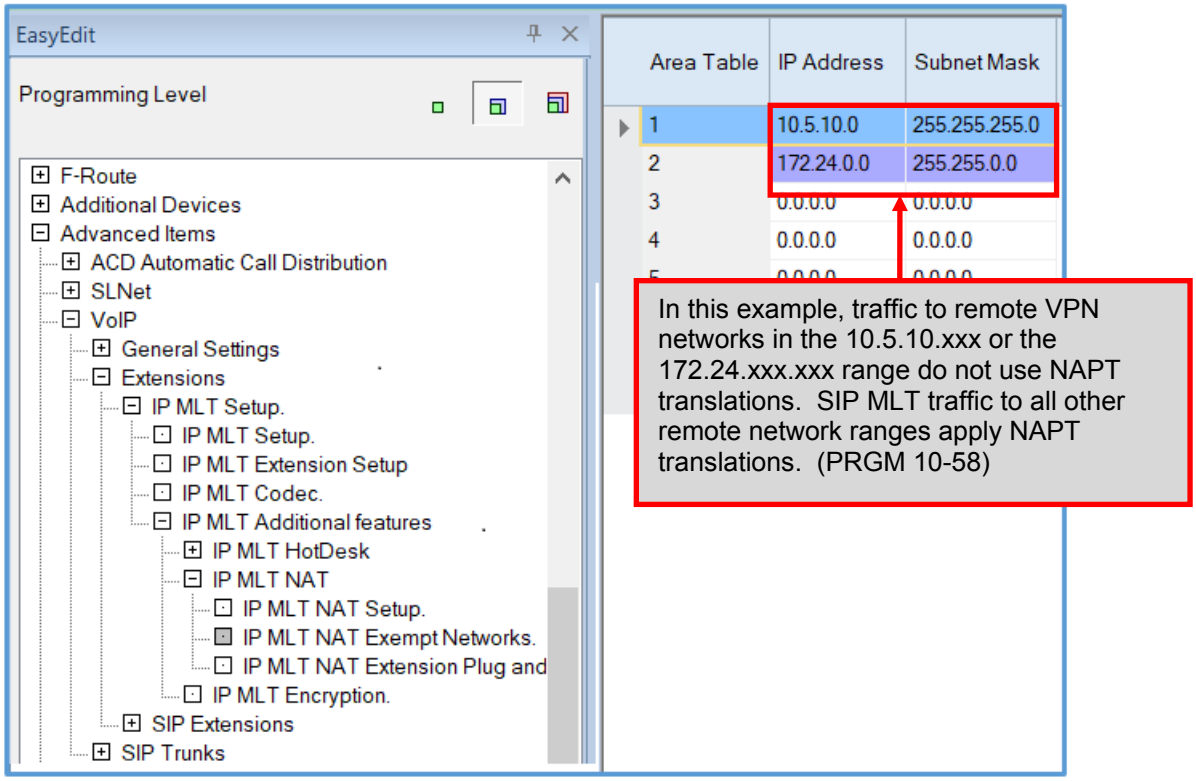


In this example, traffic to remote VPN networks in the 10.5.10.xxx or the 172.24.xxx.xxx range do not use NAPT translations. SIP MLT traffic to all other remote network ranges apply NAPT translations. (PRGM 10-58)

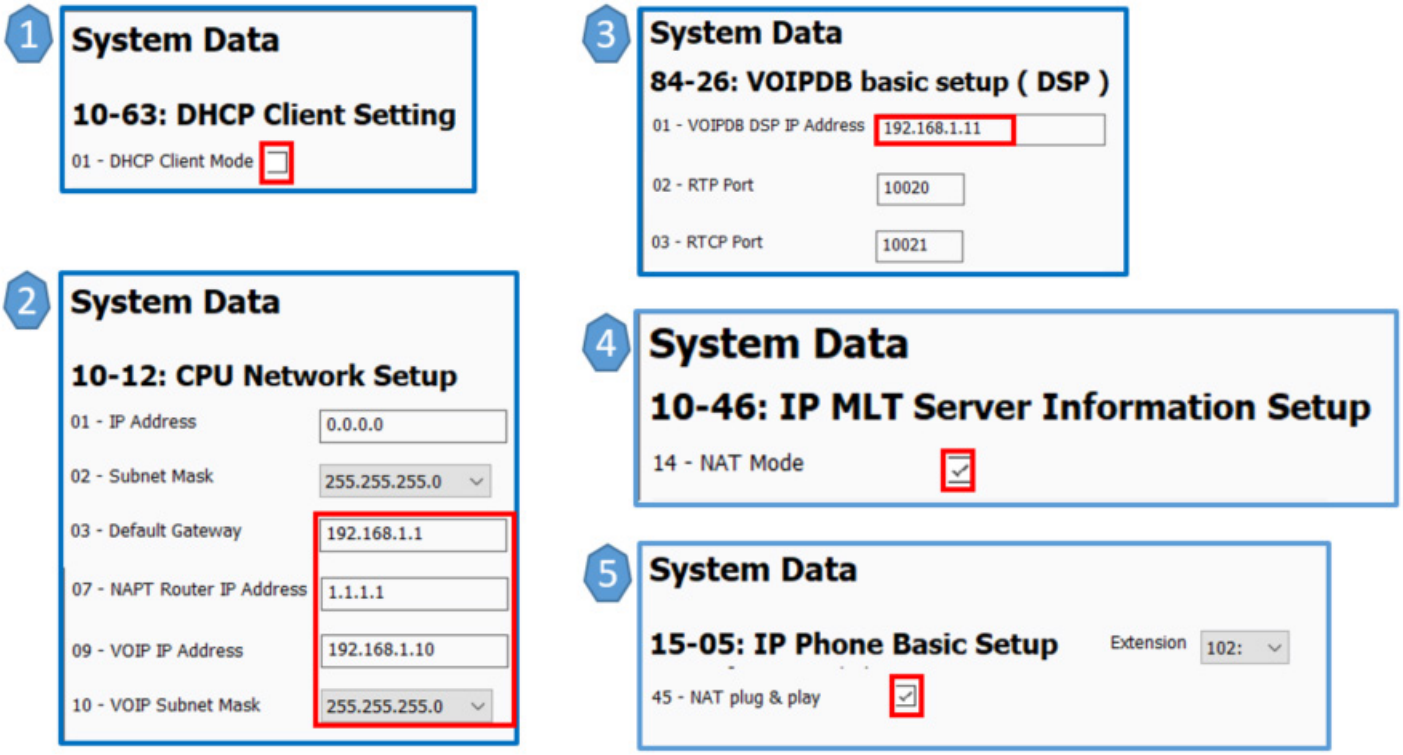
Next, enable NAT Plug & Play for each remote NAT extension under Easy Edit program level 2 > Advanced Items > VoIP > Extensions > IP MLT Setup > IP MLT Additional features > IP MLT NAT > IP MLT NAT Extension Plug and Play:



If there are other networks connected to this system that are not routed through the NAT translations, these networks must be identified in PRGM 10-58 as shown in the example below:



PC Pro System Data view Programming Example:

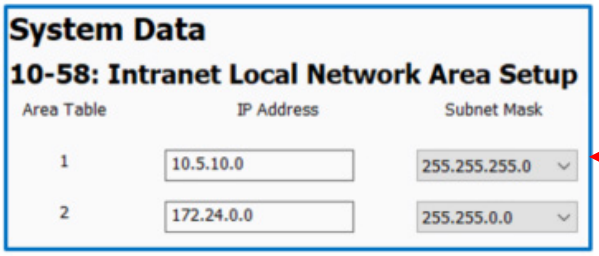


1) Disable DHCP Client to manually modify the VoIP Address in PRGM 10-12-09.
2) Specify the IP Address the SL2100 uses in PRGM 10-12-09, the Subnet Mask in PRGM 10-12-10, Default Gateway address in PRGM 10-12-03 and specify this sites router's public IP Address in PRGM 10-12-07.
3) Assign a 2nd IP Address to the system for VoIP DSP resources in PRGM 84-26.
4) Enable NAT Mode in PRGM 10-46-14.
5) For each extension connecting to the system remotely via NAT, enable NAT plug & play in PRGM 15-05-45.

Note1: *You must set program **10-63-01** (DHCP Client) to 0 (Uncheck) before manually assigning an IP address to the system in program 10-12. Once 10-63 & 10-12 are changed , you must exit programming before the changes are used.*

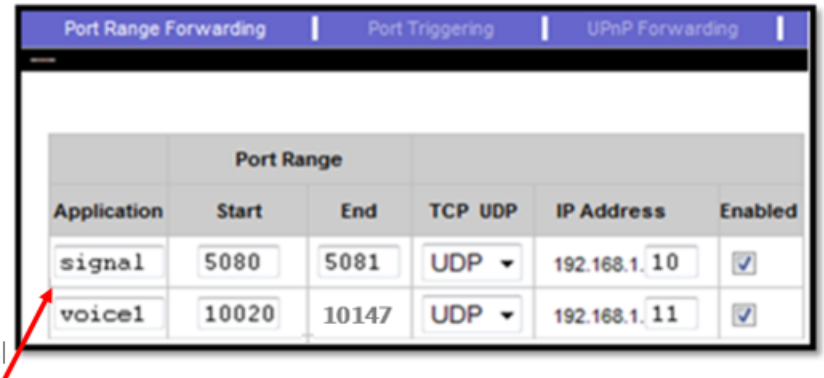
Note2: *A 2nd IP address, within the same Subnet range of the IP address assigned in program 10-12-09, needs to be added to program **84-26** for the system's VOIP DSP resources. If this is not set, you have no audio on any type of IP call.*

Optionally, if there are remote phones on networks connected to the main site that should not have NAT translations, such as networks connected via VPN or MPLS, specify the remote network ranges that do not have NAT Translations as shown below:



In this example, traffic to remote VPN networks in the 10.5.10.xxx or the 172.24.xxx.xxx range does not use NAPT translations. SIP MLT traffic to all other remote network ranges apply NAPT translations. (PRGM 10-58).

Router Setup on the SL2100 System Side:



Port Forwarding must be done in the router the SL2100 resides behind. The above Screen shot is an example of a typical GUI Setup available with most routers that can Perform the NAPT Function.

UDP Ports **5080 & 5081** must be forwarded to the IP address in PRGM 10-12-09
UDP Ports **10020 – 10147** must be forwarded to the IP address in command 84-26

SL2100 IP Terminal (8IPLD) Setup:

- *The following settings are assigned via the configuration mode of the IP Terminal. They can also be set up via a GUI by browsing to the IP address of the terminal.*

- To enter, press Hold, Transfer *, #. The login is ***ADMIN*** and password ***6633222***

Step 1:

[2] SIP Settings

[8] NAT Traversal

[1] NAT Traversal Mode

[1] Disable: *This disables the NAPT feature in the terminal.*

[2] Dynamic:

This setting is used to automatically acquire the WAN IP address of the router the IP Terminal resides behind.

[3] Static:

This setting would be used when the IP terminal could not acquire the WAN IP address of the router that it resides behind. Some routers do not support Dynamic NAT and these routers would require you to statically assign the router's WAN IP address here.

Note: It is recommended to use Dynamic NAT and to leave this command unassigned. The reason for using Dynamic NAT is the local router may not have a static IP address assigned and periodically receives a different public IP Address. With Dynamic NAT set the phones will update the change in address when this happens. With Static NAT selected any change to the public IP Address would require the user to update each phone each time a change is detected.

Step 1 Continued:

It is recommended to use **Dynamic** NAT.

Step 2:

[2] SIP Settings

[8] NAT Traversal

[3] WAN Settings

[1] Wan Mate IP Address:

Assign the WAN IP address that is assigned in PRGM 10-12-07

Note: This is the WAN address of the router the SL2100 resides behind.

[2] WAN SIP Mate Port:

This should be 5080 by default.

Note: This is the port number assigned in PRGM 10-46-06

[3] WAN Self IP Address:

If the phone is set to Static NAT, then assign the WAN IP Address of the router that the phone resides behind.

Note: of the phone is set to Dynamic NAT, leave the set to 0.0.0.0

Multiple Phones behind the Same NAT router:

Step 1:

[1] Network Settings

[6] Advanced Settings

[4] Self Port Settings

[1] RTP Self Port:

At default this is assigned to port **3462**. The first IP phone on this local LAN can use this port. The second IP phone would need to be changed to port **3464**, the third IP phone would need to be changed to **3466**, the fourth IP phone would be changed to **3468**, etc., etc.

[2] SIP Self Port:

At default this is assigned to port **5060**. The first IP phone on this local LAN may use this port. The second IP phone would need to be changed to port **5062**, the third IP phone would be changed to **5064**, the fourth IP phone would be changed to **5066**, etc., etc.

Save these settings and reset the IP phone. If the first phone came online using Dynamic NAT then the other phones should follow also using Dynamic NAT.

Note: The above settings are only required when multiple NAPT phones are setup on the same remote location. If there are NAPT phones at multiple remote locations that contain only 1 phone at each site, the ports do not have to be reassigned.