NAPT

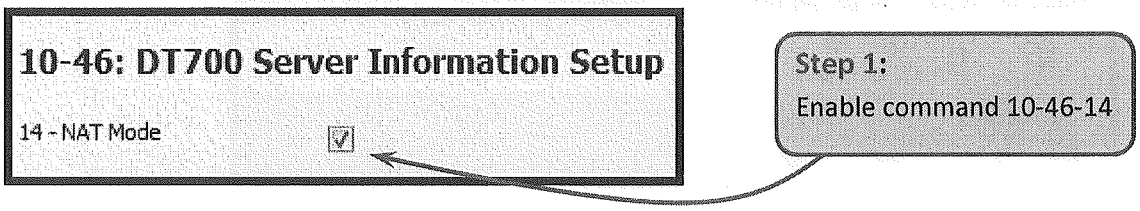
(SV8100 version 3.0 or higher)

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. In the case of IP phones with the SV8100 it allows their connection to a public (internet) IP address which is then converted back to the private (non-internet) IP address on the customers network. The translation is available at the SV8100 end as well as at the remote IP Phone end of the connection if required. The feature is ***NOT*** available for IP-CCIS and Netlink connections.

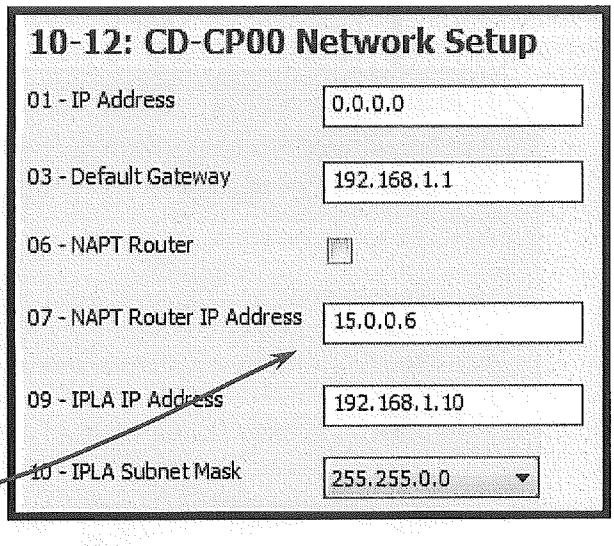
Note: The new NAPT (Network Address Port Translation) requires a license pre-loaded to the CP00. License code 0031 must have a quantity of 1 and can be confirmed with CM 10-50-01 or via Pc-Pro or Web–Pro.

Note: This Cheat Sheet consists of 2 main parts **"CPU Setup"** and **"IP Terminal Setup".** Both parts **MUST** be completed for the NAPT to function correctly.

CPU Setup

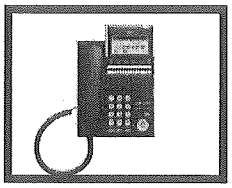


Step 2:
Command **10-12-07** assign the routers WAN IP (Public) address the SV8100 resides behind.
Note: CM **10-12-06** is not required for NAPT to IP stations. This should only be selected when utilizing NAPT for SIP trunks to a provider.
The public IP address ***MUST*** be static and should not change.



216.189.128.38
10.1.0.100

IP Terminal Setup



Note: Terminals must be version 3.0.0.0 or higher to support the NAPT feature

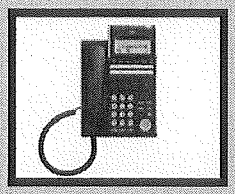
The below settings are assigned via the configuration mode of the IP Terminal. They can also be set up via a GUI by browsing to the IP address of the terminal.

To enter this mode hold down the ***MENU*** key. The login is ***ADMIN*** and password ~~6633222~~ 8876035

Step 1:

(2) **SIP Settings**

(8) **NAT Traversal**



(1) **NAT Traversal Mode**

(1) **Disable:** *This disables the NAPT feature in the terminal*

(2) **Dynamic:**

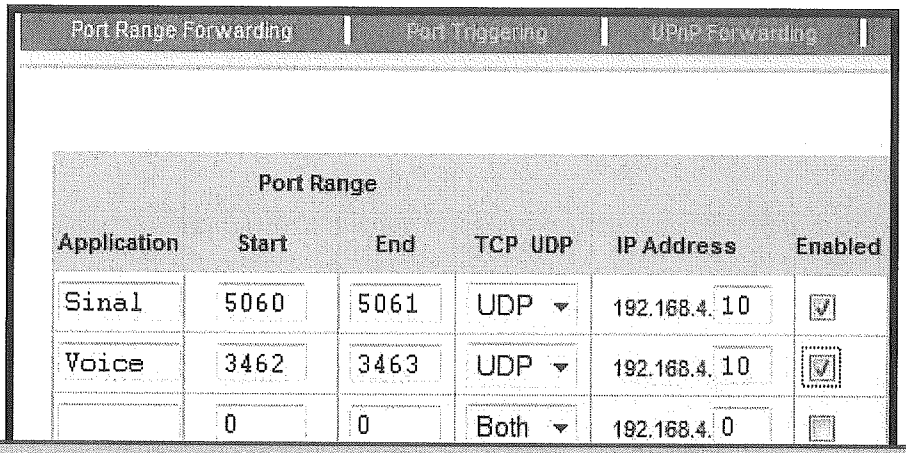
This setting is used to automatically acquire the WAN IP address of the router that the IP terminal resides behind. Port forwarding may or may not be required in this local router.

(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 routers WAN IP Address here.

Note: *It is recommended to try using Dynamic NAT first and to leave this command unassigned. The reason for trying 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 it happens. With static NAT selected any change in the Public IP address would require the user to update the phone each time a change is detected.*

Step 1 continued:
It is recommended to try **Dynamic** NAT first.

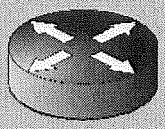


Step 4:

Apply a static IP address to the IP terminal if it is currently assigned as DHCP. DHCP can cause a possible change in IP Address for the IP station which will render the static port routing void if the address in the terminal changes.

Ports **5060 & 5061** must be forwarded to the IP address of the IP terminal.

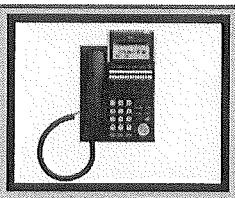
Ports **3462 & 3463** must be forwarded to the IP address of the IP terminal.



Save all settings and allow the terminal to reset and come online to test.

If the terminal still does **NOT** operate correctly **continue on to Step 5**.

Step 5:



(2) **SIP Settings**

(8) **NAT Traversal**

(1) **NAT Traversal Mode**

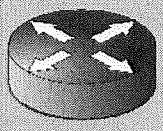
(3) **Static**: *Change the IP phone to Static NAT*

Port Range Forwarding | Port Triggering | UPnP Forwarding

Application	Port Range Start	Port Range End	TCP UDP	IP Address	Enabled
signal	5060	5061	UDP	192.168.4. 10	☑
voice	3462	3463	UDP	192.168.4. 10	☑
signal	5062	5063	UDP	192.168.4. 11	☑
voice	3464	3465	UDP	192.168.4. 11	☑
	0	0		192.168.4. 0	☐
	0	0		192.168.4. 0	☐

Optional Step 1a:

Apply a static IP address to the IP terminal if it is currently assigned as DHCP. DHCP can cause a possible change in IP Address for the IP station which will render the static port routing void if the address in the terminal changes.



Ports ***5060 & 5061*** must be forwarded to the IP address of the 1st IP terminal.

Ports ***3462 & 3463*** must be forwarded to the IP address of the 1st IP terminal.

Ports ***5062 & 5063*** must be forwarded to the IP address of the 2nd IP terminal.

Ports ***3464 & 3465*** must be forwarded to the IP address of the 2nd IP terminal.

Additional IP terminals would continue on following the port pattern shown above.
After completing the forwarding assignments in the router reset the IP phones.

Push menu - when phone is booting

Password- 8376035

Setting Up an IP Phone

Log in Process

- Press the Menu key. (Note if the phone is first booting up you may have to wait 20 seconds before you can get into setup.) If the phone is already booted up you will have to press the Menu key and dial (0) on the key pad.
- User name: ADMIN
- Password: 6633222, change this to 8376035. (Security and Admin Password)
    - You can use the **Silver Scroll** pad to navigate from user name to password by pressing up or down. Also you can use this to navigate in the Configuration setup.
- Press OK soft key to get into configuration
- At this time press 1 to get into Network Settings
    - 1: DHCP Mode
        - Enable or Disable
    - 2: IP Address
        - IP address, if DHCP is disabled
    - 3: Default Gateway
        - Gateway, if DHCP is disabled
    - 4: Subnet Mask
        - Subnet, if DHCP is disabled
    - 5: DNS Address
        - DNS, if DHCP is disabled
    - 6: Advanced Setting (Advanced setting is used if VLANs are setup)
        - 1: LAN Port Settings (Enabled VLAN mode and enter in VLAN ID if used.)
        - 2: PC Port Settings (Not used)
        - 3: CDP Mode (Not used)
        - 5: Self Port Settings
            - 1: RTP Self Port (Set to 3642) **Default**
            - 2: SIP Self Port (Set to 5060) **Default**
- Press the Exit Soft key to navigate back to the Configuration Page.
- Press 2 to get into SIP Settings
    - 1: SIP User
        - 1: User ID (West Central enters in Extension Number)
        - 2: Password (West Central enters in 8376035)
        - 3: Extension Number (Put the Extension number in here.)
    - 2: Server Address & URI (IP Address of Phone System)
        - XXX.XXX.XXX.XXX Set this to the IP address in Memory Block 10-12-09 10.1.0.67
    - 3: Access Mode (Not used)
    - 4: SIP Server Port
        - 1st Server port (Change this to 5080)

CB 639-4967

- 8. NAT Traversal
  - 1: NAT Traversal Mode
    - 1: Disable
    - 2: Dynamic
    - 3: Static
  - 3: WAN Settings
    - 1: WAN Mate IP Address (IP Address of 10-12-07 or 10-12-09) If this is a VPN or on the same network you would use the ip in 10-12-09 if it is on a separate network, use the one specified in 10-12-07 209.81.120.242
    - 2: WAN SIP Mate Port (5080)

- Press Exit Soft key to navigate back to the Configuration Page and press the Save Soft key to have the phone reboot.

- West Central adds a layer of security by setting up a username and password. To set this up in the phone system go to the following memory block locations:

10-46-01	Set to Auto
84-22-01	Enter in Username (Extension Number) and Password (8376035)
	Make a note of which Personal ID Index this user is saved under
15-05-27	Enter in the above Personal ID Index for that user.
	Phone has to be re-boot to verify correct login.
15-05-45	Nat Plug and Play Enabled
10-58	(DT 700 intranet) put in ip of gateway and subnet mask (If using a VPN)

Phone Manager-(used to upgrade IP Phones)

-Remote Desktop to 10.22.64.2
-Log in with wctatech and teamwork
-Start up IP Phone Manager
-Perform a Search for any phone on the local network, if it is remote use the Direct button and enter in the IP address
-Once the phone is found, select the phone and hit Connect. Should give an indication that the phone has been connected and is now ready to get upgraded.
-To upgrade change the Command to Download and then select Execute
-Verify that the TFTP server is 10.22.64.2 and the Download File Type is "Boot& Program", select Download.
-Before the actual upgrade open up the TFTPd32 program and make sure the Current Directory is pointed to where the software is located (Can use the Show Dir button to verify) Also make sure the Server Interface is set to the right IP address.
-Phone will download software, Save and then should give a prompt saying that the upgrade is complete (This takes a long time 5-10 minutes)
-Can verify upgrade by connecting using the IP Phone Manger or by browsing to the IP Address of the IP Phone.

84-26 In the IPL DSP first field VOIP gateway must have a ip address in the same network as IPL card in order for audio to work.

NAPT

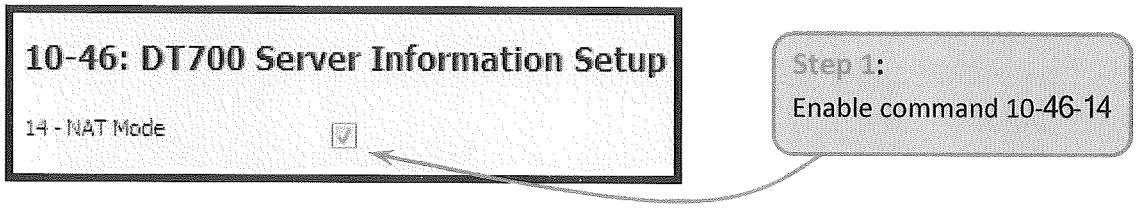
(SV8100 version 6.0 or higher)

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. In the case of IP phones with the SV8100 it allows their connection to a public (internet) IP address which is then converted back to the private (non-internet) IP address on the customers network. The translation is available at the SV8100 end as well as at the remote IP Phone end of the connection if required. The feature is ***NOT*** available for IP-CCIS and Netlink connections.

Note 1: The NAPT (Network Address Port Translation) requires a license pre-loaded to the CP00. License code 0031 must have a quantity of 1 and can be confirmed with CM 10-50-01 or via PCPro or WebPro.

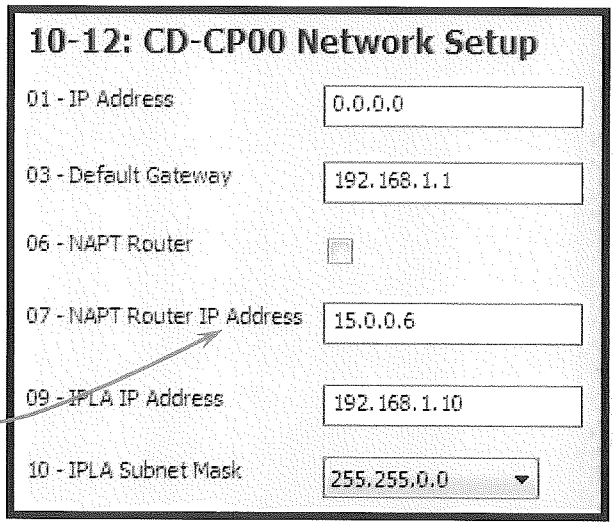
Note 2: The new NAPT feature is only available when using an IPLB card. If an IPLA card is inserted the old NAPT method must be used.

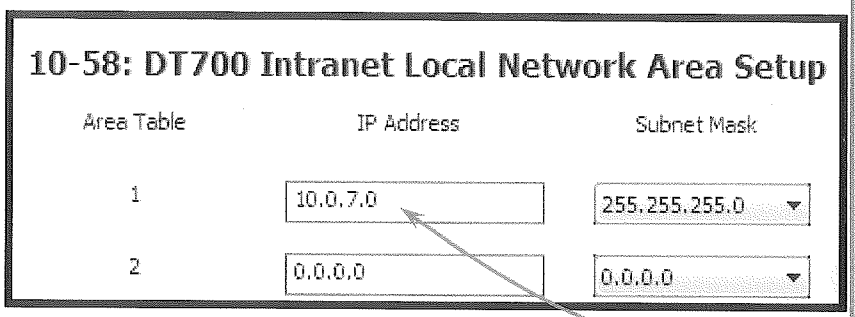
CPU Setup



Step 1:
Enable command 10-46-14

Step 2:
Command **10-12-07** assign the routers WAN IP (Public) address the SV8100 resides behind.
Note: CM **10-12-06** is not required for NAPT to IP stations. This should only be selected when utilizing NAPT for SIP trunks to a provider. This public IP address provided by the ISP ***MUST*** be static and should not change.





Optional Step 2a:

If there are other networks connected to this system that are not to be routed through the NAT translations then these networks must be identified in command 10-58.

*An **example** of this would be if you had Remote IP Phones setup in a distant network that connected to the MAIN site through VPN. In this scenario you do not want the traffic for the VPN to run through the NAT translations so the destination address would be assigned.*

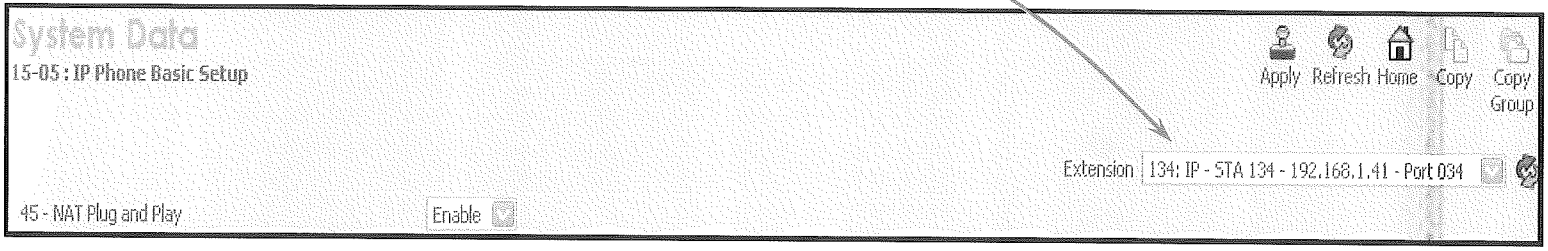
Step 3:

Command **15-05-45,** per IP phone using this feature, must be set to **ENABLE**.

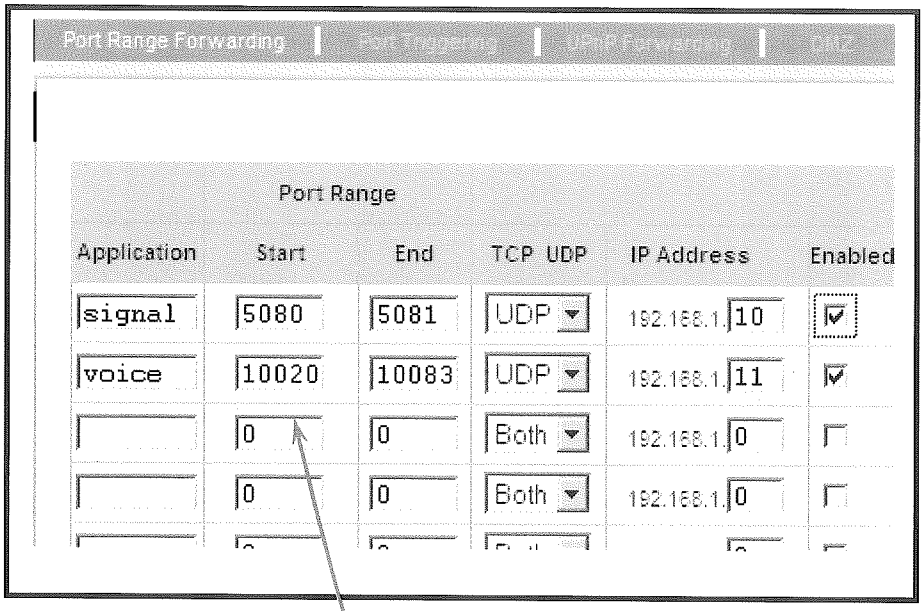
If this program is set to **DISABLE** then port forwarding at the Remote location **will** be required.

If this program is set to **ENABLE** then port forwarding at the Remote location **IS NOT** required.

*Note – Port forwarding at the MAIN site **is still required** in both modes.*



Router Setup – SV8100 Site



Step 1:

Port Forwarding must be done in the router that the SV8100 resides behind. The above screen shot is an example of a typical GUI setup available with most routers that can perform the NAPT function.

Ports **5080 & 5081** must be forwarded to the IP address in command **10-12-09**.

Ports **10020 – 10051** must be forwarded to the first IP address in command **84-26**.

Ports **10052 – 10083** must ***also*** be assigned to the first IP address in command **84-26**.

The above example is for a 32IPLB. A 64IPLB or 128 IPLB would required the assignment of additional port numbers as defined in command 84-26.

IP Terminal Setup

Note: Terminals must be version 3.0.0.0 or higher to support the NAPT feature

The below 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 this mode hold down the ***MENU*** key. 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 that the IP terminal resides behind.

(3) **Static**:

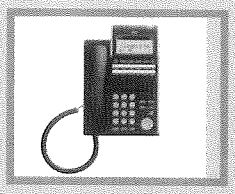
This setting would be used when the IP terminal could not acquire the WAN IP address of the router that it resides behind. Some routers do not support Dynamic NAT and these routers would require you to statically assign the routers WAN IP Address here.

***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 it happens. With static NAT selected any change in the Public IP address would require the user to update the 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 command 10-12-07.*

Note: *This is the WAN Address of the router the SV8100 resides behind.*

(2) **WAN SIP Mate Port**:

Change this to **5080**

Note: *This is the port number assigned in command 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 IP Phone resides behind.*

Note: *If the phone is set to Dynamic NAT, leave this set to 0.0.0.0*

Step 3:

Save all the settings and allow the phone to reset and test.

The IP terminal should then come online and have speech path in both directions on a call in progress.

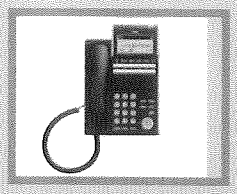
Multiple IP Phones behind the same NAT

Step 1:

(1) **Network Settings**

(6) **Advanced Settings**

(5) **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 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 can 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 IP 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, containing only 1 phone at each site, then the ports do not have to be re-assigned.