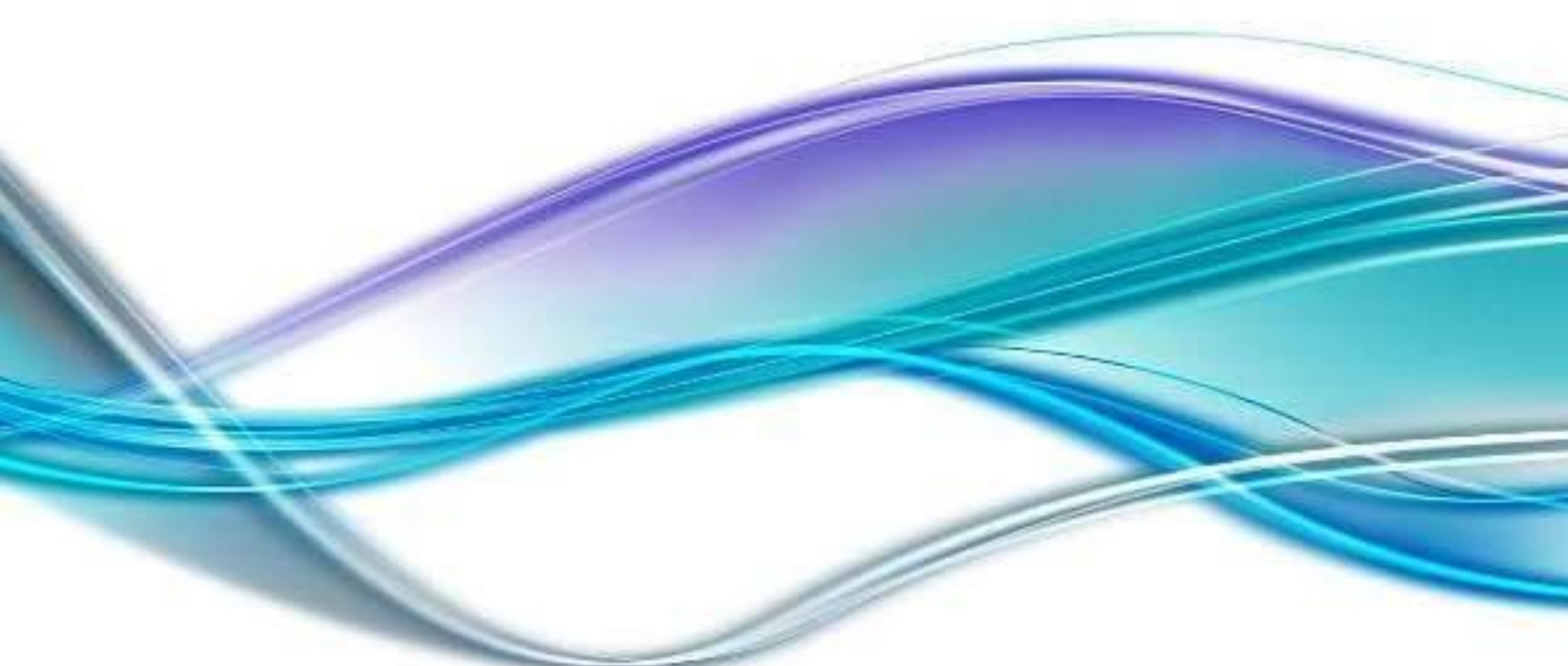


Setup Reference guide for KX-NS1000
(Tested with NS1000 Ver6.01)
“British Telecom H-SIPT” trunk service
with Built-in Router



Panasonic

Version 1.3 (PSCEU) 25th March 2018

◆ SUMMARY

This document is a reference for configuring “**BT H-SIPT**” SIP trunks onto KX-NS1000 systems and includes the settings required for Incoming Call DDI routing and Outgoing Call CLI presentation. SIP trunk specific account details are provided to you by **British Telecom**.

◆ Attention:

This document was created based on the results of test environment accounts.

Panasonic cannot guarantee SIP Trunk operation in all environments, however as a result of completing this Inter-Operability Test Panasonic will provide technical support for any issues experienced and assist as far as possible in providing a resolution.

Please obtain relevant information from Service provider before configuration of SIP trunks.

Panasonic will not be held liable for any information provided in this guidance document.

Information used in this document is for interoperability testing.

Information and Specifications in this document are subject to change without notice.

◆ Note

NS Series v6.01 Firmware is essential for correct operation of BT H-SIPT Trunks. Special Bit programming is also required – see section (3).

Sales Company Login mode required for Special Bit programming

P-Asserted-Identity (PAI) Header is required

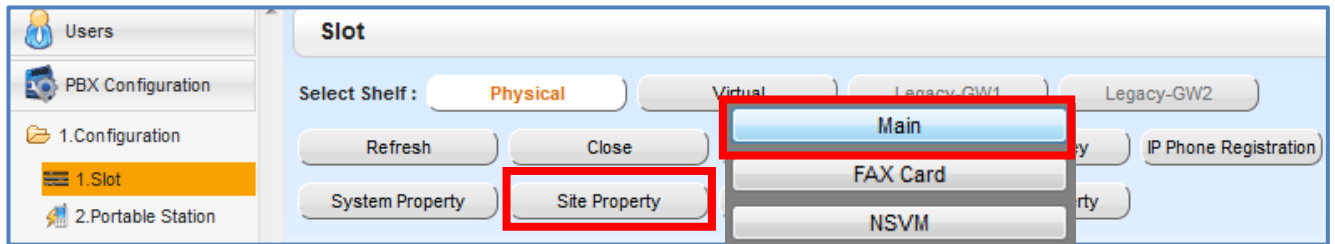
Configure the PAI to enable – see section (4)

◆ Table of Contents

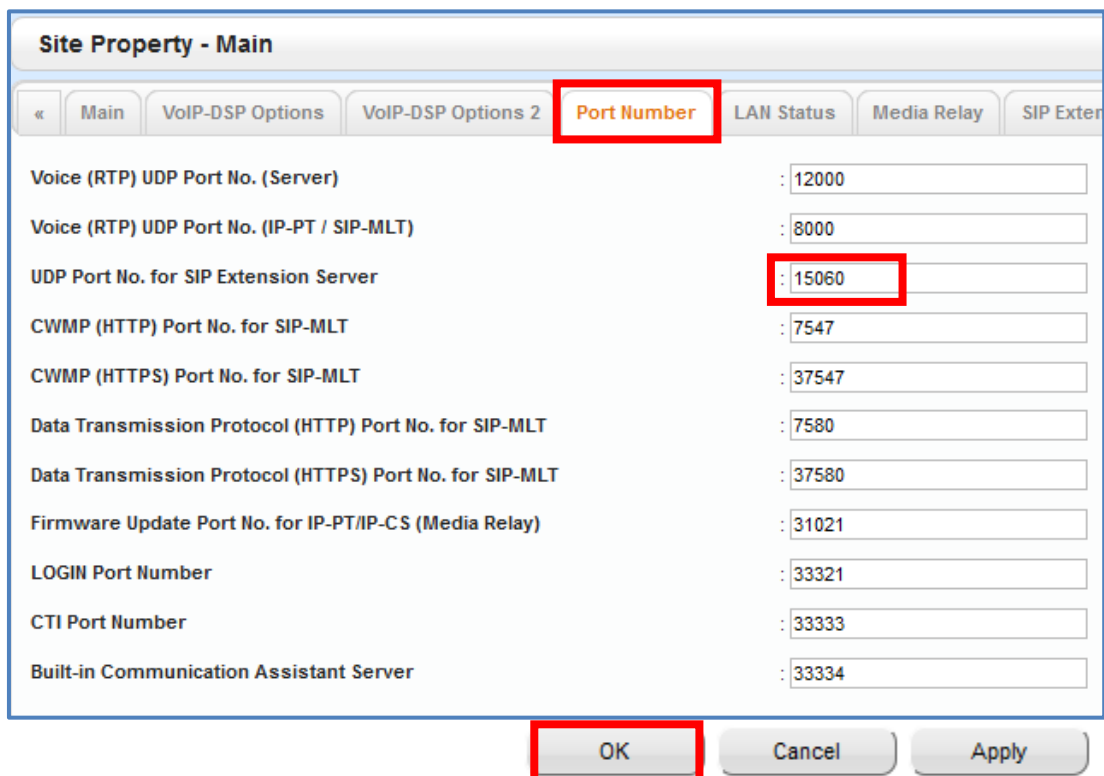
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(1) SIP Trunk and Extension Port Number Configuration


Go to **[1.Configuration - 1.Slot]** hover over **[Site Property]** and select **[Main]**.



Click **[Port Number]** tab and change **[UDP Port No. for SIP Extension Server]** (Default: 5060) to a different value (e.g. 15060) and click **[OK]**.



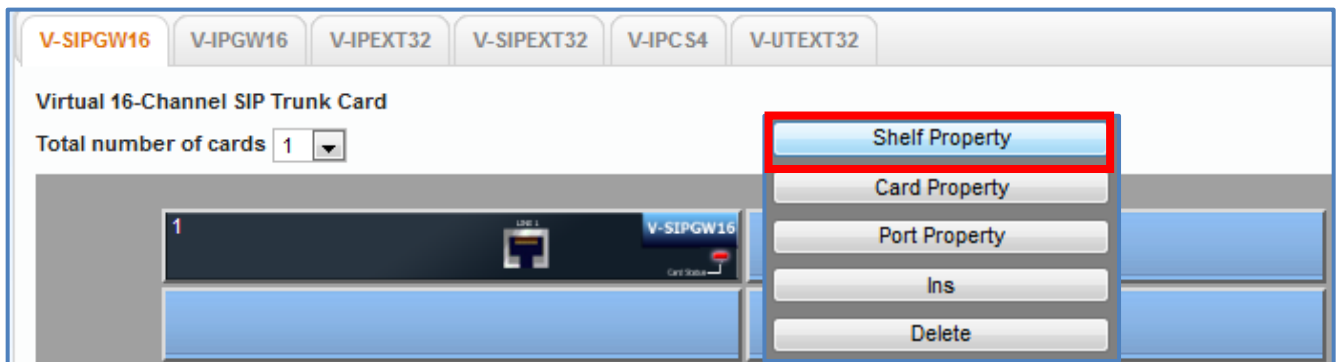
Go to **[1.Configuration - 1.Slot]** Select **[Virtual]**



The 'Slot' configuration window has a 'Select Shelf' section with four buttons: 'Physical', 'Virtual' (highlighted with a red box), 'Legacy-GW1', and 'Legacy-GW2'.

First, place the **V-SIPGW16** Card into **[OUS]** condition.

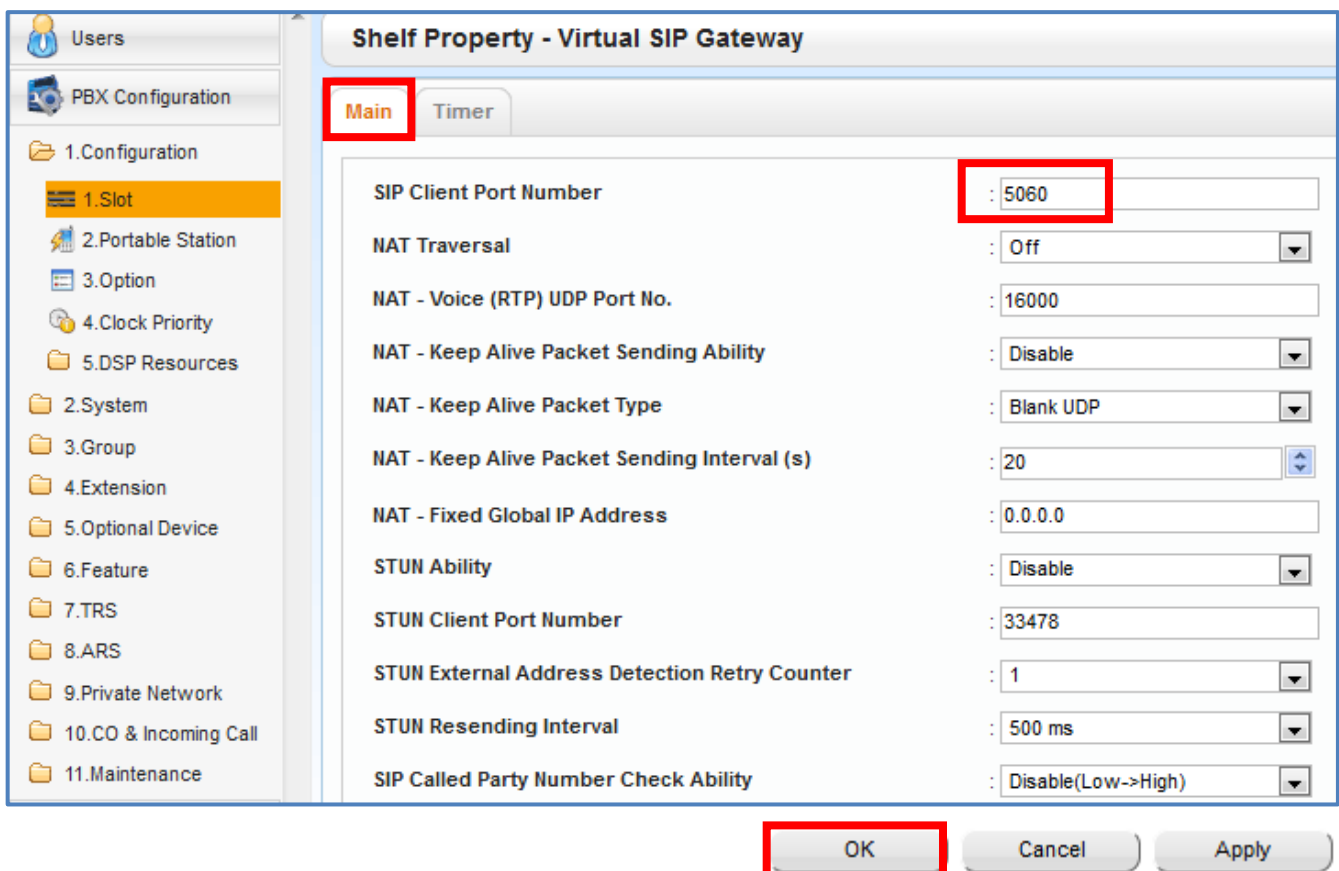
Hover over **[V-SIPGW16]** and click **[Shelf Property]**.



The 'V-SIPGW16' card is shown in a rack. A context menu is open over it, with 'Shelf Property' (highlighted with a red box) as the first option. Other options include 'Card Property', 'Port Property', 'Ins', and 'Delete'.

Select **[Main]** tab and change the one item.

[SIP Client Port Number] (Default: 35060) to **5060**



The 'Shelf Property - Virtual SIP Gateway' window is shown with the 'Main' tab selected (highlighted with a red box). The 'SIP Client Port Number' field is set to '5060' (highlighted with a red box). Other fields 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), and SIP Called Party Number Check Ability (Disable(Low->High)). At the bottom, the 'OK' button is highlighted with a red box.

Click **[OK]** to apply the changes.

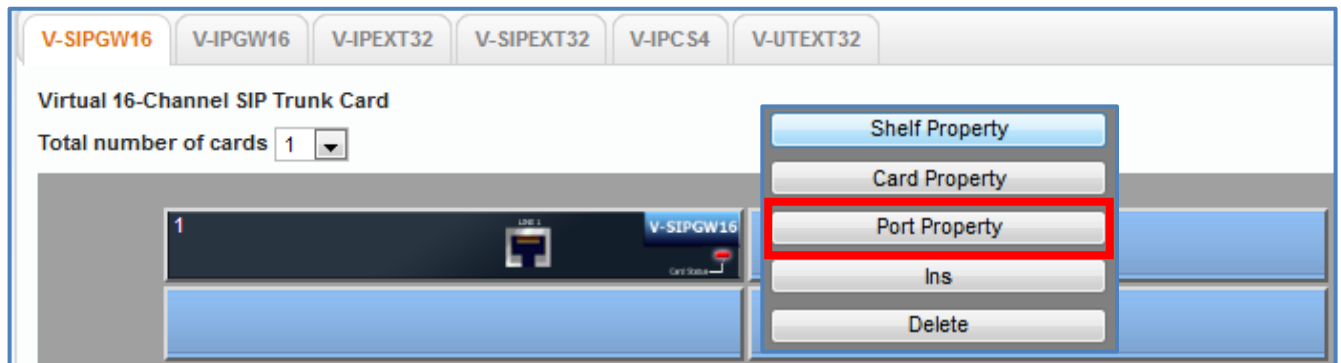
***Note: Need to Save the System data and Restart the PBX after making these port changes.**

(2) Provisioning the SIP Trunk

V-SIPGW – Port Property

Go to **[1.Configuration - 1.Slot]** Select **[Virtual]**

Hover over **[V-SIPGW16]** and select **[Port Property]**



[Main] Tab

- | | |
|--|---|
| 1. Channel Attribute: | <i>Basic Channel</i> |
| 2. Provider Name: | <i>Enter a name – reference only</i> |
| 3. SIP Server Location - Name: | <i>ipcomms-btw-sipt-dynamic-metrocore2.bt.com</i> |
| 4. SIP Server IP Address: | <i>Not required</i> |
| 5. SIP Server IP Address for Failover: | <i>Not required</i> |
| 6. SIP Server port Number: | <i>Leave at 5060</i> |
| 7. SIP Service Domain: | <i>siptpanasonic.com</i> |
| 8. Subscriber Number: | <i>Not required</i> |

Port Property - Virtual SIP Gateway											
Select Provider Add Provider											
« Main Account Register NAT Option Calling Party Called Party Voice/FAX RTP/RTCP T.38 T.38 Option »											
No.	She	Slot	Port	Channel Attribute	Provider Name (20 characters)	SIP Server Name (100 characters)	SIP Server IP Address	SIP Server IP Address for Failover	SIP Server Port Number	SIP Service Domain (100 characters)	
				ALL							
1	Virtual	1		Basic channel	BT	ipcomms-btw-sipt-dynamic-metrocore2.bt.com			5060	siptpanasonic.com	
2	Virtual	1	2	Not Used					5060		

SIP Trunk – Port Property continued

[Account] Tab

1. User name:

Enter the *Pilot number as supplied by BT.*

(Note this is pilot number without @ siptpanasonic.com)

For example: Pilot number = 445612345000

Enter: 445612345000

2. Authentication ID:

Enter the *Authentication username as supplied by BT.*

(Note this is username without @ siptpanasonic.com)

For example: Authentication username = panasonicns1000

Enter: panasonicns1000

3. Authentication Password:

Enter the *password as supplied by BT.*

For example: password = passABCD

Enter: passABCD

No.	She	Slot	Port	Connection	User Name (64 characters)	Authentication ID (64 characters)	Authentication Password (32 characters)
1	Virtua1	1	1	OUS	445612345000	panasonicns1000	passABCD
2	Virtua1	2	2	OUS			

[Register] Tab

1. Register Ability:

Leave enabled

2. Register Interval:

180

3. Un-Register Ability:

Leave enabled

4. Registrar Server - Name:

Not required

5. Registrar Server IP Address:

Not required

6. Registrar Server IP Address for Failover:

Not required

7. Registrar Server port number:

Leave at 5060

8. Registrar Resending Interval(s):

5

No.	She	Slot	Port	Connection	Register Ability	Register Sending Interval (s)	Un-Register Ability when port INS	Registrar Server Name (100 characters)	Registrar Server IP Address	Registrar Server IP Address for Failover	Registrar Server Port Number	Register Resending Interval (s)
1	Virtua1	1	1	OUS	Enable	180	Enable				5060	5
2	Virtua1	2	2	OUS	Enable	3600	Enable				5060	300

Click **[Apply]** to apply the changes.

[Options] Tab

1. Session Timer Ability: *Enable(Active)*
2. Sessions Expire Timer: *900*
3. Failover Timer (INVITE): *Leave at 0 (IMPORTANT)*
4. Failover Timer (REGISTER): *Leave at 0 (IMPORTANT)*

« Main Account Register NAT Option Calling Party Called Party Voice/FAX RTP/RTCP T.38 T.38 Option DSP »													
No.	Shelf	Slot	Port	Conn	Session Timer Ability	Session Expire Timer (s)	Session Refresh Method	Session Incoming Refresh Request	SIP 200 Response Timer (*100 ms)	SIP 18x Response Timer (s)	Proxy- Require Option (100 characters)	Failover Timer(INVITE)	Failover Timer(REGISTER)
1	Virtua	1	INS	ALL	Enable(Active)	900	re-INVITE	UAC	0	110		0 s	0 s
2	Virtua	1	INS	ALL	Enable(Passive)	180	re-INVITE	UAC	0	110		0 s	0 s
3	Virtua	1	INS	ALL	Enable(Passive)	180	re-INVITE	UAC	0	110		0 s	0 s

Click **[Apply]** to apply the changes.

NOTE: do not change the Card Property > Common Settings DNS SRV Record Resolve Ability

Card Property - Virtual SIP Gateway

Shelf : Virtual Slot : 1

Common Settings

DNS SRV Record Resolve Ability : Enable

OK Cancel

Common Settings

DNS SRV Record Resolve Ability Enable

*) Perform System Reset for changes to take effect.

OK Cancel Apply

(3) Special Bit Programming

When using BT H-SIPT trunk service, the PBX needs to be configured with a specific Special Option Bit to modify the behavior of the Session Refresh mechanism.

Login to the PBX in Sales Company Mode: *Sales001* (for details contact Technical Support).

2. System > 9. System Options > Reserved (bits)

Scroll down to row 1C and click the box in column 5 to **[Enable]** the Special Bit.

The screenshot shows the 'System Options' window with the 'Reserved (bits)' tab selected. A table with 8 columns (0-7) and 6 rows (1A-1F) is displayed. Row 1C and column 5 are highlighted with a red rectangle, and the cell contains a blue square indicating it is enabled. A legend shows a blue square for 'Enable' and a white square for 'Disable'.

No.	0	1	2	3	4	5	6	7
1A								
1B								
1C						Enable		
1D								
1E								
1F								

Click **[OK]** to apply the changes.

(4) Outgoing Call CLI

Select **[Calling Party]** Tab

From Header - User Part:

PBX-CLIP

P-Asserted-Identity header:

Enable

NAT	Option	Calling Party	Called Party	Voice/FAX	RTP/RTCP	T.38	T.38 O	T.38 Option	»
Header Type	From Header - User Part	From Header - SIP-URI (100 characters)	P-Preferred-Identity Header - User Part	P-Preferred-Identity Header - SIP-URI (100 characters)	Number Format	P-Asserted-Identity header			
ALL	ALL		ALL		ALL	ALL			
From Header	PBX-CLIP		User Name		National	Enable			

Click **[OK]**.

Select **[INS]** on the **[V-SIPGW16]** card to bring the SIP trunk ports into service.



Go to **[4.Extension] - [1.Wired Extension] - [1.Extension Settings]** and select **[CLIP]** tab

Enter a valid CLI number for each required extension in the **CLIP ID** field.

1. Extension Name:

Enter: Sales

2. CLIP ID:

Enter: **05612345001**

Users

PBX Configuration

1. Configuration
2. System
3. Group
4. Extension
1. Wired Extension
1. Extension Settings
2. FWD/DND
3. Speed Dial
4. Flexible Button
5. PF Button
6. NDSS Link Data - Send
7. CLIP ID Table
8. Simplified Voice Message

Extension Settings

Copy to CLIP Generate

« Main Intercept Destination Intercept No Answer Time **CLIP** UM Option 1

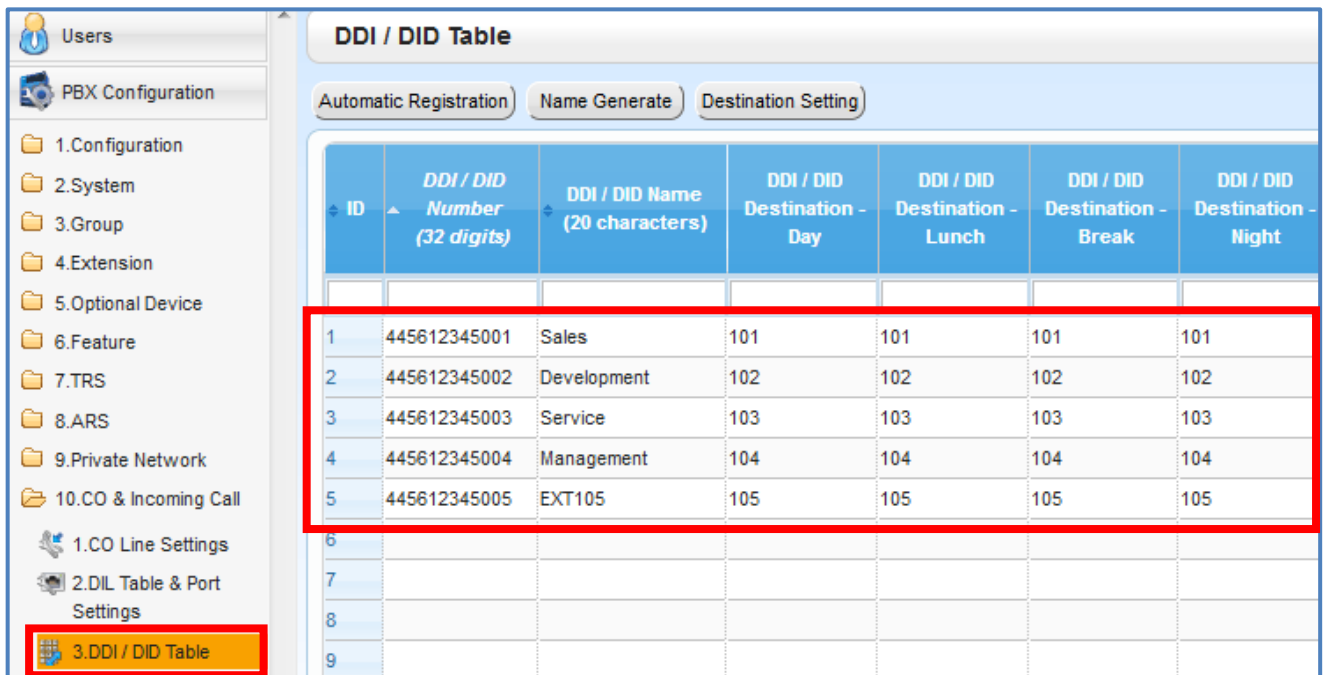
No.	Extension Number	Extension Name (20 characters)	CLIP ID	CLIP on Extension/CO	CLIR	COLR
				ALL	ALL	ALL
1				Extension	Disable	Disable
2	101	Sales	05612345001	Extension	Disable	Disable
3	102	Development	05612345002	Extension	Disable	Disable
4	103	Service	05612345003	Extension	Disable	Disable
5	104	Management	05612345004	Extension	Disable	Disable
6	105	EXT105	05612345005	Extension	Disable	Disable
7	106	EXT106	05612345006	Extension	Disable	Disable
8	107	FAX	05612345007	Extension	Disable	Disable
9	108	EXT108	05612345008	Extension	Disable	Disable

Click **[OK]**

(5) Incoming Call Routing

Go to **[10.CO & Incoming call]** and select **[3.DDI /DID Table]**

1. **DDI/DID Number:** Enter the DDI number in the format (as below)
Example: 05612345001
Enter: **445612345001**
2. **DDI/DID Name:** Determined by the installer (optional setting)
3. **DDI/DID Destination:** Determined by the installer (extension number, group etc)



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 Destination - Night
1	445612345001	Sales	101	101	101	101
2	445612345002	Development	102	102	102	102
3	445612345003	Service	103	103	103	103
4	445612345004	Management	104	104	104	104
5	445612345005	EXT105	105	105	105	105
6						
7						
8						
9						

Click **[OK]**

(6) CLIR Outgoing Call (Withholding Number)

Go to [4.Extension] - [1.Wired Extension] - [1.Extension Settings] and select [CLIP] tab
Under **CLIR**: select *Enable* and Click [OK].

«	Main	Intercept Destination	Intercept No Answer Time	CLIP	UM	Option 1	Option 2	0
---	------	-----------------------	--------------------------	-------------	----	----------	----------	---

▲ No.	↕ Extension Number	↕ Extension Name (20 characters)	↕ CLIP ID	CLIP on Extension/CO	CLIR	COLR
				ALL ▼	ALL ▼	ALL ▼
1				Extension	Disable	Disable
2	101	Sales	05612345001	Extension	Enable	Disable
3	102	Development	05612345002	Extension	Disable	Disable

(7) Built-in Router and WAN Settings

NS1000 has a Built-in Router and filtering functions (*Ver3.2 or later*) so advanced routing configuration can be managed by the NS1000 and the internet router/modem simply providing internet access.

Go to [\[Router Configuration\]](#) - [\[1.Setup\]](#) - [\[2.WAN\]](#) - [\[1.Connection Settings\]](#)

NS1000 Web Maintenance Console 004.50104

Login as INSTALLER

Users

PBX Configuration

UM Configuration

Router Configuration

1.Setup

1.Router Information

2.WAN

1.Connection Settings

2.Network Monitor

3.Protocol Bridge

Connection Settings

Connection Mode

Static IP

Static IP

WAN IP Address : 10.0.0.1

Subnet Mask : 255.255.255.248

Gateway : 10.0.0.6

Preferred DNS IP Address : 8.8.8.8

Alternative DNS IP Address : 8.8.4.4

OK Cancel Apply

Connection Mode: *Select the appropriate the Connection Type.
In this example, we use the Static IP address option.*

WAN IP Address: *Enter your actual IP address.*

Subnet Mask: *Enter the appropriate subnet mask.*

Gateway: *Enter the actual Gateway IP address.*

Preferred DNS IP Address: *Enter the actual DNS IP address.*

Alternative DNS IP Address: *Enter the actual Alternative DNS IP address.*

Click [\[OK\]](#).

LAN Setting.

Go to [\[Network Service\]](#) - [\[1.IP Address/Ports\]](#)

The screenshot displays the 'IP Address/Ports' configuration interface. On the left, a sidebar contains a tree view with the following items: 'Users', 'PBX Configuration', 'UM Configuration', 'Router Configuration', 'Network Service', '1.IP Address/Ports' (selected), '2.Server Feature', '3.Client Feature', and '4.Other'. The main panel is titled 'IP Address/Ports' and has three tabs: 'Basic Settings' (active), 'Advanced Settings', and 'Reference'. Under the 'LAN Setting' section, the 'DHCP Port Number' is set to 68. Two radio buttons are present: 'Obtain an IP address automatically' (unselected) and 'Use the following IP address' (selected). Below these, four text input fields are shown: 'IP Address' (192.168.0.101), 'MAC Address' (00:80:F0:C6:0C:82), 'Subnet Mask' (255.255.255.0), and 'Default Gateway' (blank). The 'Default Gateway' field is enclosed in a red rectangular box. Further down, the 'Local Domain' field is also blank. The 'DNS Setting' section follows, with 'Port Number' set to 53. Two more radio buttons are shown: 'Obtain DNS server address automatically' (unselected) and 'Use the following DNS server address' (selected). Below these, two text input fields are shown: 'Preferred DNS IP Address' and 'Alternative DNS IP Address', both of which are blank and enclosed in red rectangular boxes.

Default Gateway: *Blank*

** Delete the "LAN Default Gateway IP address" if it's entered IP address.*

Note: NS1000 will work as the router, Not need the LAN Gateway.

DNS IP Address: *Blank*

** Delete the "Preferred DNS" and "Alternative DNS" if it's entered IP address.*

Note: To use DNS address entered [Router Configuration], this field must be blank. .

Click [\[OK\]](#).

**Note: Need to Save the System data and Restart the PBX after making these IP changes.*

(8) Packet Filtering Settings

Go to [\[Router Configuration\]](#) - [\[2.Firewall\]](#) - [\[2.Packet Filtering\]](#)

Click [\[Advanced Setting\]](#)

NS1000 Web Maintenance Console

Login as INSTALLER Site 1 : NS1000

Packet Filtering

[Advanced Setting](#)

LAN->WAN Basic Policy : Accept

WAN->LAN Basic Policy : Discard

No.	Filter	Protocol No.	Source IP Address Start - End	Source Port	Destination IP Address Start - End	Destination Port
1	Disable	ANY	ANY	ANY	ANY	ANY
2	Disable	ANY	ANY	ANY	ANY	ANY
3	Disable	ANY	ANY	ANY	ANY	ANY

LAN->WAN Basic Policy: *Leave Accept*

WAN -> LAN Basic Policy: *Leave Discard*

Entry No.: *Select [1]*

Filter: *Select [Enable]*

Packet Filtering - Advanced

LAN->WAN Basic Policy : Accept

WAN->LAN Basic Policy : Discard

Filter

Entry No. : 1

Filter : Enable

Configure Filter 1, this is the setting pass through packet from **British Telecom** server, port 5060.

Protocol Number: *[Protocol Name]* and choose *[UDP]*

TCP/UDP Source Port: /Port Number: *[Port Number] / [5060] - [5060]*

TCP/UDP Destination Port /Number: *[Port Number] / [5060] - [5060]*

Source: *[Subnet]*

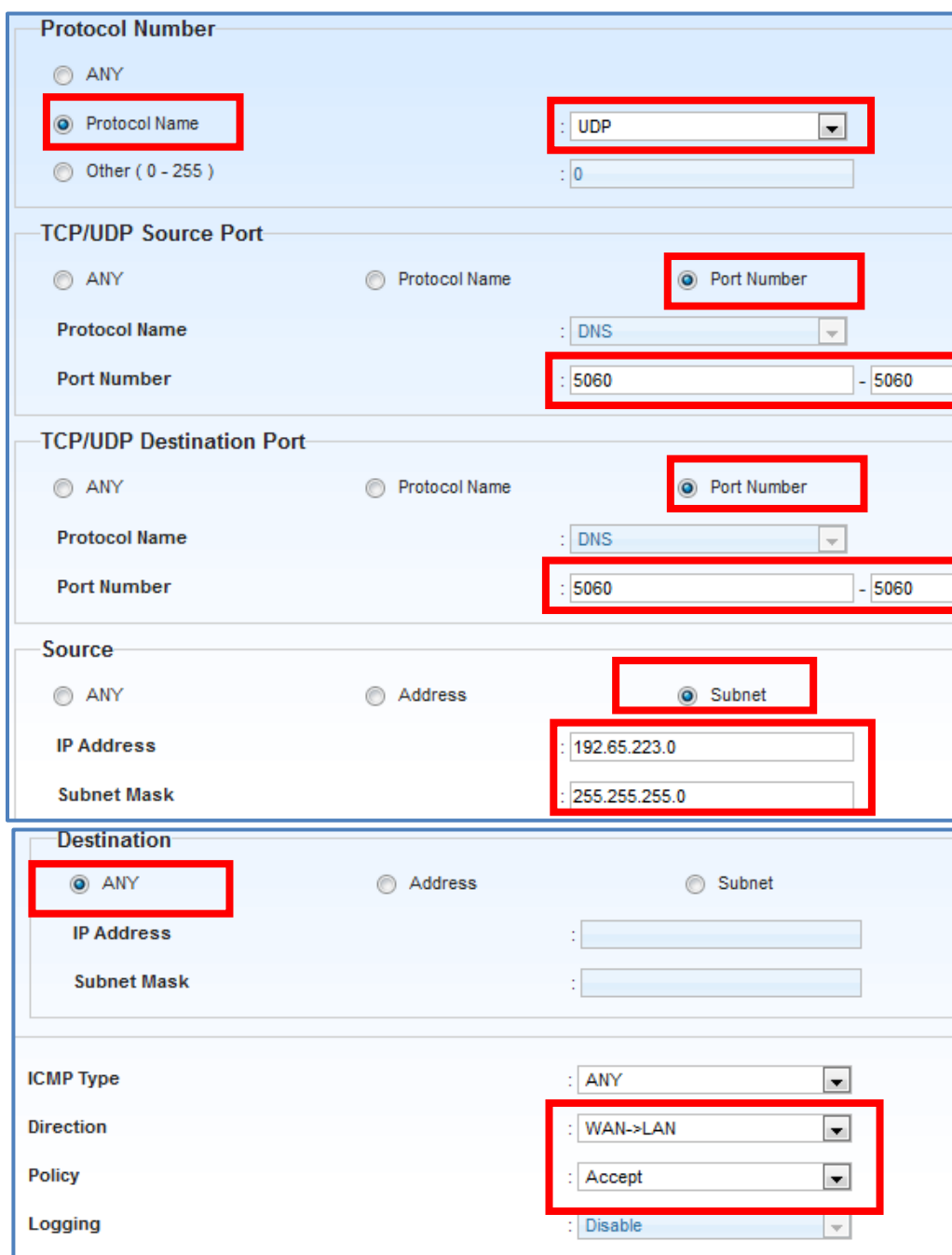
IP Address: *[192.65.223.0] -Enter assigned Server Network address*

Subnet Mask: *[255.255.255.0] -Enter assigned Server Subnet Mask*

Destination: *[Any]*

Direction: *[WAN->LAN]*

Policy: *Leave Accept*



Protocol Number

☐ ANY

☒ Protocol Name : UDP

☐ Other (0 - 255) : 0

TCP/UDP Source Port

☐ ANY ☐ Protocol Name ☒ Port Number

Protocol Name : DNS

Port Number : 5060 - 5060

TCP/UDP Destination Port

☐ ANY ☐ Protocol Name ☒ Port Number

Protocol Name : DNS

Port Number : 5060 - 5060

Source

☐ ANY ☐ Address ☒ Subnet

IP Address : 192.65.223.0

Subnet Mask : 255.255.255.0

Destination

☒ ANY ☐ Address ☐ Subnet

IP Address :

Subnet Mask :

ICMP Type : ANY

Direction : WAN->LAN

Policy : Accept

Logging : Disable

Click *[OK]*

Set Filter 2, this is the setting block packet from except **British Telecom** server port 5060.

Packet Filtering [Advanced Setting](#)

LAN->WAN Basic Policy : Accept

WAN->LAN Basic Policy : Discard

No.	Filter	Protocol	Source IP Address Start - End	Source Port	Destination IP Address Start - End	Destination Port	ICMP Type	Direction	Policy	Logging
1	Enable	UDP	192.65.223.0-192.65.223.255	5060-5060	ANY	5060-5060	ANY	WAN->LAN	Accept	Disable
2	Disable	UDP	ANY	ANY	ANY	ANY	ANY	WAN->LAN	Discard	Disable

Click [\[Advanced Setting\]](#)

LAN->WAN Basic Policy: *Leave Accept*

WAN -> LAN Basic Policy: *Leave Discard*

Entry No.: *Select [2]*

Filter: *Select [Enable]*

Packet Filtering - Advanced

LAN->WAN Basic Policy : Accept

WAN->LAN Basic Policy : Discard

Filter

Entry No. : 2

Filter : Enable

Protocol Number: *[Protocol Name] and choose [UDP]*
TCP/UDP Source Port: *[Any]*
TCP/UDP Destination Port /Number: *[Port Number] / [5060] - [5060]*
Source: *[Any]*
Destination: *[Any]*
Direction: *[WAN->LAN]*
Policy: *[Discard]*

Protocol Number	
<input type="radio"/> ANY	
<input checked="" type="radio"/> Protocol Name	: UDP
<input type="radio"/> Other (0 - 255)	: 0
TCP/UDP Source Port	
<input checked="" type="radio"/> ANY	<input type="radio"/> Protocol Name <input type="radio"/> Port Number
Protocol Name	: DNS
Port Number	: 0 - 0
TCP/UDP Destination Port	
<input type="radio"/> ANY	<input type="radio"/> Protocol Name <input checked="" type="radio"/> Port Number
Protocol Name	: DNS
Port Number	: 5060 - 5060
Source	
<input checked="" type="radio"/> ANY	<input type="radio"/> Address <input type="radio"/> Subnet
IP Address	:
Subnet Mask	:
Destination	
<input checked="" type="radio"/> ANY	<input type="radio"/> Address <input type="radio"/> Subnet
IP Address	:
Subnet Mask	:
ICMP Type	
	: ANY
Direction	: WAN->LAN
Policy	: Discard
Logging	: Disable

Click **[OK]** Go to following page.

Confirm the Packet Filtering Settings

Packet Filtering[Advanced Setting](#)

LAN->WAN Basic Policy :

WAN->LAN Basic Policy :

<input type="checkbox"/>	No.	Filter	Protocol No.	Source IP Address Start - End	Source Port	Destination IP Address Start - End	Destination Port	ICMP Type	Direction	Policy	Logging
<input type="checkbox"/>	1	Enable	UDP	192.65.223.0-192.65.223.255	5060-5060	ANY	5060-5060	ANY	WAN->LAN	Accept	Disable
<input type="checkbox"/>	2	Enable	UDP	ANY	ANY	ANY	5060-5060	ANY	WAN->LAN	Discard	Disable
<input type="checkbox"/>	3	Disable	ANY	ANY	ANY	ANY	ANY	ANY	LAN->WAN	Accept	Disable

Click **[OK]**

IMPORTANT!

To secure the PBX from illegal attacks, please restrict the above port forwarding ports to only be accessible from the [British Telecom](#) source Network / IP addresses.

END OF DOCUMENT