



## SIP Trunk Compatibility Report

NEC is pleased to verify that:

### **BT Wholesale – WSIPT & One Voice Services SV8100**

NEC Enterprise Solutions has performed Interoperability Testing with the Switch(es) and Provider/Service listed above on the date specified.

Please always refer to the appropriate SIP Trunk Compatibility Report Index and the latest edition of a specific Compatibility Report on BusinessNet before considering connection.

If a Provider is no longer mentioned in the Index then the Compatibility Report has been withdrawn and connection will no longer be supported by NEC Enterprise Solutions.

<b>Test Completion Date:</b>	04/03/2015
<b>Test Location:</b>	<b>NEC UK</b>
<b>Name of Provider:</b>	BT Wholesale
<b>Website:</b>	<a href="http://www.btwholesale.com">www.btwholesale.com</a>
<b>System Tested:</b>	SV8100
<b>Software Version:</b>	C9.50
<b>SIP Connection Mode:</b>	Networking Mode
<b>Test Plan Version:</b>	BT CPE Test Plan
<b>Version:</b>	5.2

Please refer to the following page(s) for further  
Information and Configuration Notes.

## SIP Configuration Notes – BT Wholesale - WSIPT & One Voice Services

Use the specific configuration guide below as an example to configure an SV8100 or SL11100/SL1000 PBX for connection to the service described above via SIP trunks.

### Supported Minimum Software Versions

SV8100:

CCPU V9.50



### System Programming

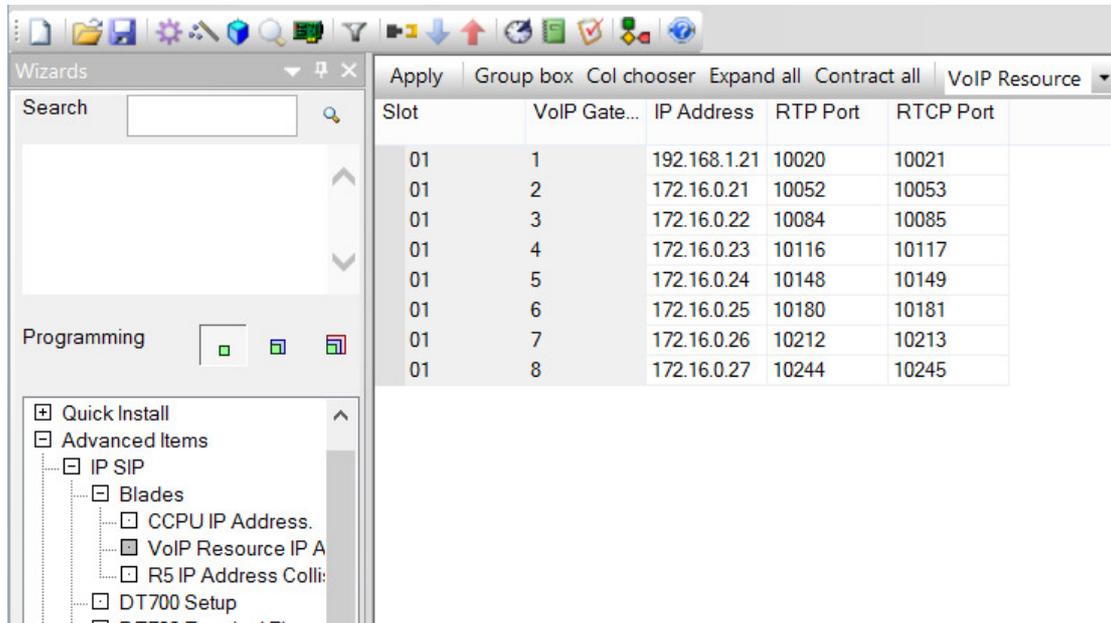
The following items should be changed – all other items are considered irrelevant and as such left as default. Screenshots are for example purposes only and will have been taken from the PBX under test but will apply to the other PBXs listed on the cover of the Compatibility Report.

Any differences in programming will be documented where necessary.

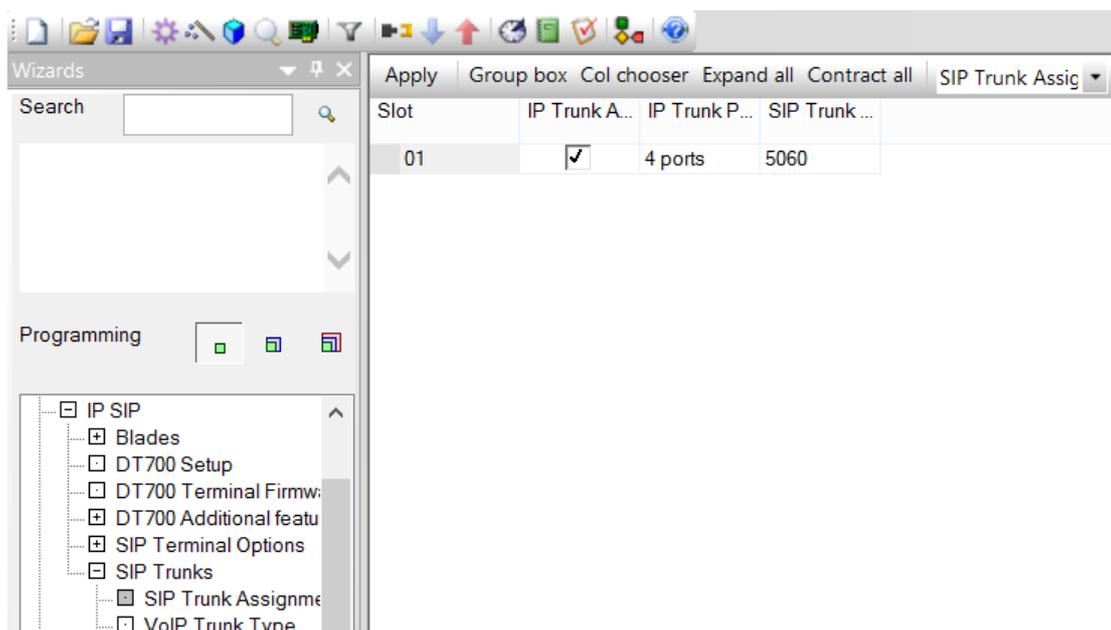
Easy Edit	PRG	Item	Setting
Advanced Items > IP/SIP > Blades > CCPU IP Address	10-12-09	IPLA/VOIPDB IP Address	Set according to customers network requirements
	10-12-10	IPLA/VOIPDB Subnet Mask	Set according to customers network requirements
	10-12-03	Default Gateway	Set according to customers network requirements
	10-12-02	Default Gateway Subnet Mask	Set according to customers network requirements
	10-12-01	IP Address	Must be in a different network range to IPLA IP Address (10-12-09)

Item	Setting
IP Address	1.2.3.4
Subnet Mask	255.0.0.0
Default Gateway	192.168.1.1
IPL IP Address	192.168.1.10
IPL Subnet Mask	255.255.255.0
DNS Primary Address	0.0.0.0
DNS Secondary Address	0.0.0.0
DNS Port	53

Easy Edit	PRG	Item	Setting
Advanced Items > IP/SIP > Blades > VoIP Resource IP Address	84-26-01	VoIP Gateway IP Address	Set according to customers network requirements and IPLA channel capacity 32 Channel = 2 x VoIP Gateway IP addresses 64 Channel = 4 x VoIP Gateway IP addresses 128 Channel = 8 x VoIP Gateway IP addresses Note: IPLB Card only requires 1 VoIP Gateway IP Address that applies to IPLB32/64/128.



Easy Edit	PRG	Item	Setting
Advanced Items > IP/SIP > SIP Trunks > SIP Trunk Assignment	10-40-01	IP Trunk Availability	Set to <b>Enabled</b>
	10-40-02	IP trunk Port Count	Set to number of SIP trunks required. Associated IP Trunk Licenses must be installed on PBX.



Easy Edit	PRG	Item	Setting
Advanced Items > IP/SIP > SIP Trunks > VoIP Trunk Type	10-03-02	Trunk Type	Set VOIPU card trunk ports to SIP

The screenshot displays a software configuration window with a menu bar (File, View, Programming, Communications, Tools, Help) and a toolbar. A 'Wizards' pane on the left contains a search field and a tree view. The tree view is expanded to 'Advanced Items > IP/SIP > SIP Trunks > VoIP Trunk Type'. The main area shows a table with the following data:

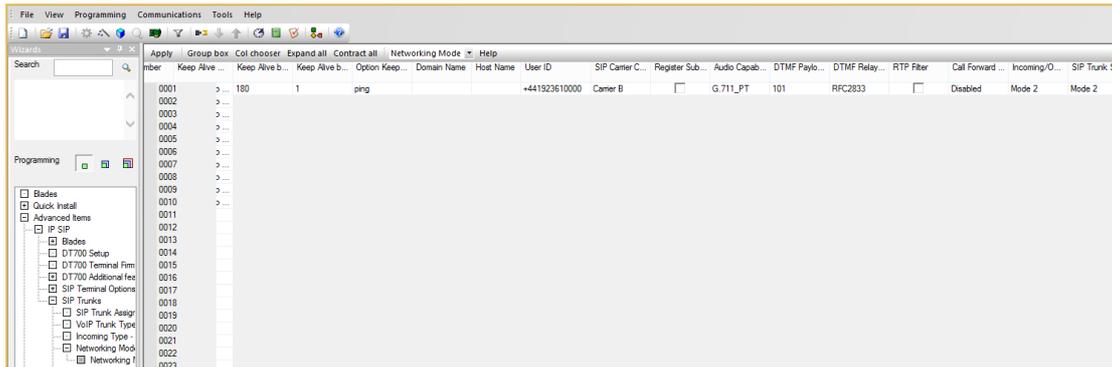
Slot	Physical Port	Trunk Logical	Trunk Type
01	001	65	SIP
01	002	66	SIP
01	003	67	SIP
01	004	68	SIP
01	005	0	H.323
01	006	0	H.323
01	007	0	H.323
01	008	0	H.323
01	009	0	H.323
01	010	0	H.323
01	011	0	H.323
01	012	0	H.323
01	013	0	H.323
01	014	0	H.323
01	015	0	H.323
01	016	0	H.323
01	017	0	H.323
01	018	0	H.323
01	019	0	H.323
01	020	0	H.323
01	021	0	H.323
01	022	0	H.323
01	023	0	H.323
01	024	0	H.323
01	025	0	H.323

Easy Edit	PRG	Item	Setting
Advanced Items > IP/SIP > Blades > Networking Mode > Networking Mode	10-23-01	System Interconnection	Set to <b>Enabled</b>
	10-23-02	IP Address	Set to SIP server IP Address supplied by <b>BT</b>
	10-23-04	Dial Number	The first digit(s) that will be dialed
	10-23-05	Keep Alive Mode for SIP	Enable for Proxy Fall Back if the Primary SIP Server IP Address Fails. This is not supported on the SV8100.
	10-28-01	Domain Name	Set according to customers network requirements or leave blank if not required
	10-28-02	Host Name	Set according to customers network requirements or leave blank if not required
	10-28-04	User ID	Enter the account number supplied by BT
	10-29-14	Carrier Choice	Carrier Choice set as <b>Carrier B</b>
	10-29-16	Register Sub Mode	Set to Disabled
	84-13-28	Audio Capability	Set codec according to customer requirements G711 or G729
	84-13-31	DTMF Payload	101
	84-13-07	Session Timer Value	Set to 900 seconds as required by BT
	84-13-08	Minimum Session Timer Value	Set to 600 seconds as required by BT
	84-13-32	DTMF Relay Mode	Set to <b>RFC2833</b>
	84-14-13	Incoming/Outgoing SIP Trunk for E.164	Set to Mode 2 to support e.164 number format
84-14-16	SIP Trunk SIP-URI E.164 Incoming Mode	Set to Mode 2 to support e.164 number format	

The screenshot shows the PCPro software interface for BT SV8100. The main window displays a table with columns: Sys No., System Interconnection, IP Address, Call Control Port, Dial Number, and Keep Alive mode for SIP. The table lists configurations for 15 SIP trunks (0001-0014). Trunks 0001-0009 have 'System Interconnection' checked and 'Keep Alive mode for SIP' set to 'Option Keep Alive Mode'. Trunks 0010-0014 have 'System Interconnection' unchecked and 'Keep Alive mode for SIP' set to 'Disable'. The IP Address for trunks 0001-0009 is 192.65.221.26, and for 0010-0014 it is 0.0.0.0. The Call Control Port for all is 1720. The Dial Number for 0001-0009 is 0-9, and for 0010-0014 it is 0. The interface also shows a 'Wizards' pane on the left with a search box and a 'Programming' pane with a tree view containing 'SIP Trunks', 'SIP Trunk Assignme', 'VoIP Trunk Type', 'Incoming Type - Vo', 'Networking Mode', and 'Networking Mod'.

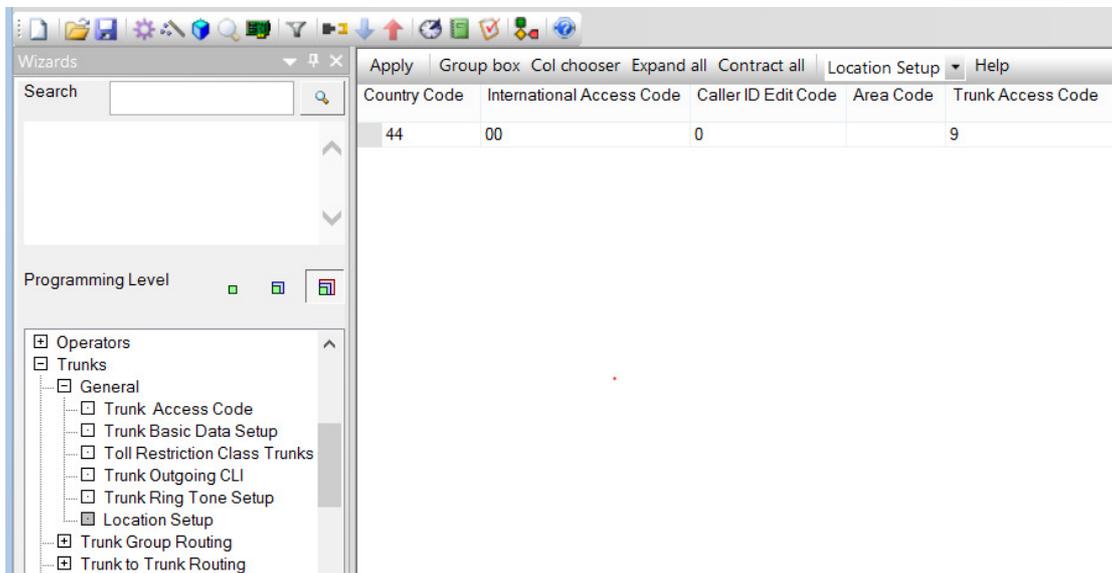
Sys No.	System Interconnection	IP Address	Call Control Port	Dial Number	Keep Alive mode for SIP
0001	<input checked="" type="checkbox"/>	192.65.221.26	1720	0	Option Keep Alive Mode
0002	<input checked="" type="checkbox"/>	192.65.221.26	1720	1	Option Keep Alive Mode
0003	<input checked="" type="checkbox"/>	192.65.221.26	1720	2	Option Keep Alive Mode
0004	<input checked="" type="checkbox"/>	192.65.221.26	1720	3	Option Keep Alive Mode
0005	<input checked="" type="checkbox"/>	192.65.221.26	1720	4	Option Keep Alive Mode
0006	<input checked="" type="checkbox"/>	192.65.221.26	1720	5	Option Keep Alive Mode
0007	<input checked="" type="checkbox"/>	192.65.221.26	1720	6	Option Keep Alive Mode
0008	<input checked="" type="checkbox"/>	192.65.221.26	1720	7	Option Keep Alive Mode
0009	<input checked="" type="checkbox"/>	192.65.221.26	1720	8	Option Keep Alive Mode
0010	<input checked="" type="checkbox"/>	192.65.221.26	1720	9	Option Keep Alive Mode
0011	<input type="checkbox"/>	0.0.0.0	1720		Disable
0012	<input type="checkbox"/>	0.0.0.0	1720		Disable
0013	<input type="checkbox"/>	0.0.0.0	1720		Disable
0014	<input type="checkbox"/>	0.0.0.0	1720		Disable

See wizard page continuation on page 6



BT Wholesale require that the caller ID presentation to be converted as e.164 format +44 for example. Please configure as below to meet the requirements as addition to the settings above for commands 84-14-13 & 84-14-16.

Advanced Edit	PRG	Item	Setting
Trunks>Location Set Up	10-02-01	Country Code	BT Wholesale uses international CID format so you need to enter the country code as 44 for UK
	10-02-02	International Access Code	Enter as 00
	10-02-03	Caller ID Edit Mode	Enter 0 if required
	10-02-05	CID Edit TAC	Enter the digit used for Trunk Access – Normally 9 or 0



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Also configure LCR to convert the dialed digits to add 0044 in front of the number so the customer can still dial using the national format when dialing. LCR also converts numbers dialed from the Speed Dial tables & Caller History from key sets. Please set LCR as per the table below and enable Trunks required.

Advanced Edit	PRG	Item	Setting
Advanced Items > LCR>LCR Dial Data	14-01-23	Least Cost Routing	Enable each required Trunk (SIP Trunk only)
	26-02-01	Dial Data	Enter digits to be modified. See table below and add further digits as required.
	26-02-06	Carrier Table	Enter the required Carrier Table for the modification for each dialed digit.
	26-05-01	LCR Delete Digits	Enter the amount of digits required for deletion per carrier table. See table below
	26-05-02	Access Code	Use this table to add digits per carrier table. See table below.

See screen shot on next page

Trunk	Trunk Name	Least Cost Routing	Dial Data	Carrier Table Entry	Delete digits	Access Code (add digits)	Authorization Code Table Entry	Cost Centre Code
001	BRI 1	Off	00	1	0		0	
002	BRI 2	Off	01	2	1	0044	0	
003	BRI 3	Off	02	2	0	0044115	0	
004	BRI 4	Off	03	2	0		0	
005	BRI 5	Off	04	2	0		0	
006	BRI 6	Off	05	2	0		0	
007	BRI 7	Off	06	2	0		0	
008	BRI 8	Off	07	2	0		0	
009	SIP 1	On	08	2	0		0	
010	SIP 2	On	09	2	0		0	
011	SIP 3	On	112	1	0		0	
012	SIP 4	On	1	3	0		0	
013	Line 013	Off	2	3	0		0	
014	Line 014	Off	3	3	0		0	
015	Line 015	Off	4	3	0		0	
016	Line 016	Off	5	3	0		0	
017	Line 017	Off	6	3	0		0	
018	Line 018	Off	7	3	0		0	
019	Line 019	Off	8	3	0		0	
020	Line 020	Off	999	1	0		0	
021	Line 021	Off	90	3	0		0	
022	Line 022	Off	91	3	0		0	
023	Line 023	Off	92	3	0		0	
024	Line 024	Off	93	3	0		0	
025	Line 025	Off	94	3	0		0	
026	Line 026	Off	95	3	0		0	

- DDIs can be configured if required, using the same procedure as for ISDN trunks but we don't need to match the digits received so carrier could send full number and we look at the last 6 digits as command 22-09-01.
- SIP calls are sent "en bloc". This means that the External Call Inter digit timer (PRG21-01-03) must expire before the call is set up. This can be reduced, but will have an impact on ISDN trunks also. The user can dial # to indicate "end of dialling" instead if required.

### Network Configuration

If Public IP addresses are assigned to the SV8100 IPLA/IPLB and VoIP Gateways, then there should be no network configuration required.

If there is one public IP address assigned and NAT is used, it is necessary to configure Port Forwarding on the router:

- Port 5060 should be forwarded to the IPL IP address (10-12-09)
- Port 10020 – 10283 should be forwarded to the VoIP Gateway IP addresses (84-26-01)
- NATP should be enabled in PRG10-12-06 and the Public IP address of the local ISP should be entered into PRG10-12-07.

**Known Limitations/Comments**

- SIP calls are sent “en bloc”. This means that the External Call Interdigit timer (PRG21-01-03) must expire before the call is set up. This can be reduced, but will have an impact on ISDN trunks also. The user can dial # to indicate “end of dialling” instead if required.
- **BT SIP Accounts have a WEB portal where the SIP Settings can be amended as required. You will need to change the Caller ID presentation to use the From Header instead of the P-Asserted Identification field (default setting). This is required if the customer requires flexible CLIP using command 21-17 (Trunk Level) or 21-19 (Extension Level) to send an alternative CLI for outbound calls other than the base number. CLIP should be entered in international format 00441923610000 for example.**
- **SIP Carrier B format in 10-29-14 must be used for the BT WSIPT service as this format does not send the Privacy header that can override settings that can be applied using the BT web portal for example withheld CLIP at network level. Note comment above.**
- Command 20-25-02 to provide ring back tone for SIP to SIP calls.
- Fax over SIP Trunks has been tested using T.38 for both inbound and outbound. Please note that we cannot always guarantee fax over IP as this can fail due to the Fax Machines used or bandwidth / packet loss on the network. Command 15-03-03 must be set to special & 15-03-18 set to Fax for the SLT extensions used for Fax and Fax Relay Mode must be enabled in 84-13-50.
- Minimum and maximum session expiry timers need to be set as 600 for the minimum expiry timer (84-14-08) & 900 for the maximum (84-14-07) as required by BT Wholesale.
- Call Forward Moved Temporally with T302 return not supported with BT. If Call deflection via SIP is required then Trunk to Trunk external forwarding will need to be configured.
- BT Wholesale provides a secondary SIP Server IP Address that can be used for back-up if their primary connection fails also referred to as SIP Proxy Fallback. This feature is not currently supported as the delay for fall-back is too long. We are looking into supporting this at a later date when the fall-back timer is more flexible.

NEC Enterprise Solutions cannot be held responsible for any regulatory non-compliance resulting from the use of this service.

**Document History**

Version	Date	Description
5.0	17/04/2015	Certification tests were completed using BT Wholesales SIP Certification Plan. This report is now released for the SV8100.
5.1	28/04/2015	Added comment regarding SIP Proxy Fallback
5.2	06/01/2016	Updated certification regarding Carrier Format B to be used instead of E so that the privacy header is not sent in the invite for outgoing calls. Comments added that the BT SIP Account will need to be updated to use the From Header instead of the PAID header for outgoing CLIP requirements.

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