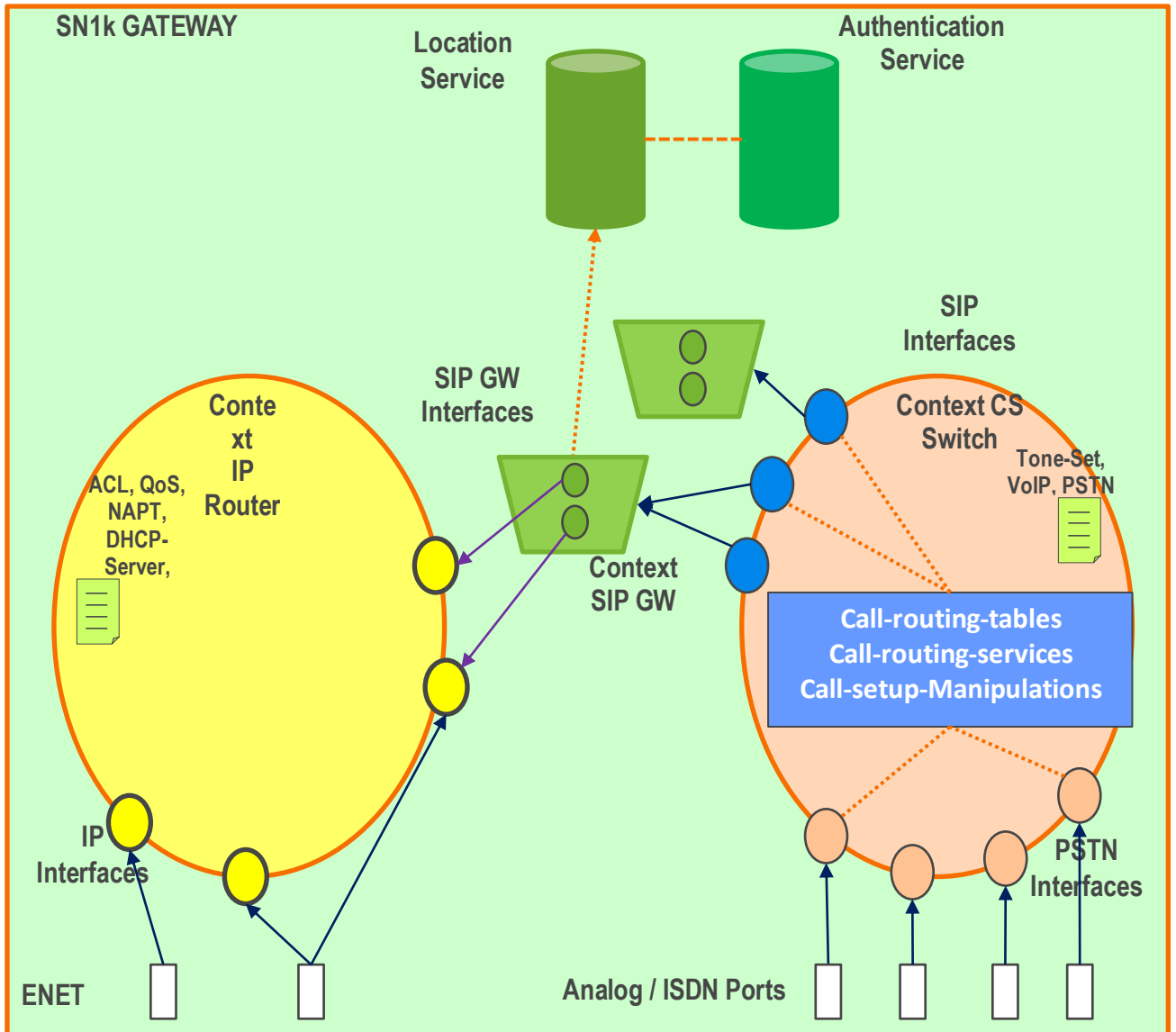


# Intermedia SIP Trunk Configuration Guide for SmartNode4970

## Configuration of SN4970 Gateway – GUI Management Pages

This is the reference diagram for configuration of the SmartNode. Here are the key points in understanding the building blocks and the relationship between them.

1. There are three contexts: Context IP Router, Context CS Switch, and Context SIP Gateway.
  - a. Creating connections require ports and interfaces.
  - b. Circles are interfaces and are a logical representation.
  - c. The white rectangles at the diagram's bottom are ports. Ports are the actual physical construct.
  - d. To make a functioning port/interface group, bind ports to interfaces. (Represented by lines with a single direction arrow.)
2. Context IP Router
  - a. Primarily provides the IP Networking connection that includes IP addresses, MAC addresses, and IP routing tables.
  - b. There is more, but it is the basic function.
  - c. It also is the connection to SIP trunks, etc.
3. The Context SIP Gateway
  - a. has interfaces inside that are bound to the IP Interfaces,
  - b. points to the Location Service which is associated with the Authentication Service.
4. Context CS Switch
  - a. This context provides the telephony basis and connects to FXS/FXO/ISDN ports and to the Context SIP Gateway.
  - b. It also provides the call routing capabilities, such as routing tables, mapping tables, and functions. Very powerful tool.



The steps for the basic configuration are as follows:

NOTE: The path is given by the label of the system -> label of subsystem, etc, beginning with the left-hand panel showing all systems.

- IP address & subnet: Network -> IP/DNS -> Interfaces -> eth0

Configuration	Link Supervision	Status
IP Address	<input type="radio"/> DHCP <input checked="" type="radio"/> User Defined IP Address	50.198.153.70 IP Mask 255.255.255.240 <input type="radio"/> Unnumbered
Point-to-Point	<input type="checkbox"/>	
NAPT-Outside	<input checked="" type="checkbox"/> Profile NAPT	

- Default Route: Network -> IP/DNS -> Routes

Static Routes						
Destination IP	Destination Mask	Traffic Class	Gateway	Interface	Metric	
0.0.0.0	0.0.0.0	(none)	50.198.153.78	-	0	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

- DNS Resolver: Network -> IP/DNS -> DNS Resolver

DNS Servers	
DNS Server IP Address	
8.8.8.8	
8.8.4.4	
<input type="text"/>	
DNS Relay	
DNS Relay: <input checked="" type="checkbox"/>	
Apply	

- T1/E1 Interface: Ports -> E1/T1 -> Name (e1t1 0/0)
  - This will later be associated with a routing table

Configuration	Status
Port Type: e1	Apply
Port Type: short-haul	Apply
Clock: master	
Linecode: hdb3	
Framing: crc4	
Encapsulation: <input checked="" type="checkbox"/> q921	
Port State: Enabled	
Apply	

Q.921 (ISDN Layer 2)	
Permanent Activity	Enabled ▾
Endpoint Type	auto ▾
Protocol	pp ▾
Encapsulation	<input checked="" type="checkbox"/> q931 ▾
Apply ✓	
Q.931 (ISDN Layer 3)	
Signaling Protocol	dss1 ▾
Endpoint Type	user ▾
B-Channel Allocation	ascending ▾
B-Channel Range	0 to 31
Maximum Calls	30
Bind	<input checked="" type="checkbox"/> IF_T1E1_00 ▾ +
Apply ✓	

Note: the Routing Tables will be created later.

### **AUTHENTICATION & LOCATION SERVICES**

- Authentication Services: Telephony -> SIP -> Authentication Services
  - Create Name of Authentication Service (AUTH)
  - Under Authentication Users, add
    - Username (dgwsidxxxxx) and
    - Password (\*\*\*\*\*)

Configuration		
Realm		
Position	Name	
<input type="text"/>	<input type="text"/>	
Protocol		
Encapsulation	http	
Authentication Users		
User Name	Password	
dgwsid160787	*****	
<input type="text"/>	<input type="text"/>	

After configuration of Authentication Services:

Gateways	Interfaces	Location Services	Authentication Services	Profiles	General
Name					
AUTH					

- Location Service: Telephony -> SIP -> Location Services
  - Create Name (LOC\_SVC)
  - Enter Domain and Port ( This information can found in the welcome email from Intermedia)
  - Add Identities (the Identity Name is in the Authentication Service)
    - Name = dgwsidxxxxx

**Configuration**

Domain			
Position	Name	Port	
1	64.28.122.44	6060	
<input type="text"/>	<input type="text"/>	<input type="text"/>	

**Default Domain**

Default Domain  Match any domain

**Imperative**

Imperative

**Identity Groups**

Name	Inheritance			
	Inherits	Set	Remove	
default	<input type="checkbox"/>	default		
<input type="text"/>	<input type="checkbox"/>	default		

**Identities**

Name	Inheritance			
	Inherits	Set	Remove	
dgwsid160787	default	default		
<input type="text"/>	<input type="checkbox"/>	default		

After configuration of Location Services:

Gateways	Interfaces	Location Services	Authentication Services	Profiles	General
Name					
LOC_SVC					

**CONTEXT SIP GATEWAY** (Green Trapezoid)

- SIP Gateway: Telephony -> SIP -> Gateways
  - Create Gateway Name: (GW\_SIP)
- -> GW\_SIP to create the Context SIP Gateway interface (green circles in SIP Gateway)
  - Create SIP Interface: (IF\_GW\_SIP)

- Bind SIP Gateway’s SIP Interface to IP Interface (in Context IP Router) (ETH0)
- Assign port (5060) to SIP Gateway’s Interface
- Bind SIP Gateway to Location Service.

Configuration		Status							
SIP Gateway	Enabled ▼								
Notify check-sync accept	<input type="checkbox"/>								
Answer Untrusted Hosts	<input checked="" type="checkbox"/> Enable "503 Service Unavailable" response to untrusted hosts								
Apply ✓									
Sip Interface									
Name	Binding			Settings		Apply	Remove		
	Bind	IP Interface	Port	Apply	Priority			Spoofed address	
IF_GW_SIP	<input checked="" type="checkbox"/>	eth0 ▼	5060	<input checked="" type="checkbox"/>	0	<input type="checkbox"/> NAT address <input type="checkbox"/> SIP contact header <input type="checkbox"/> SIP via header	<input type="radio"/> Detect NAT address <input type="radio"/> User defined static IP address <input type="radio"/> Detect NAT address <input type="radio"/> User defined static Host name <input type="radio"/> Detect NAT address <input type="radio"/> User defined static Host name	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Location Services bound									
LOC_SVC							<input checked="" type="checkbox"/>	<input type="checkbox"/>	
LOC_SVC ▼							<input type="checkbox"/>	<input type="checkbox"/>	

After configuration of SIP Gateway:

Gateways	Interfaces	Location Services	Authentication Services	Profiles	General
Name	State				
GW_SIP	Enabled				<input checked="" type="checkbox"/>

**CONTEXT CS (Orange Circle)**

- SIP Interfaces (dark blue circles on Context CS Switch’s periphery): Telephony -> SIP -> Interfaces
  - Create Name (IF\_SIP)
  - Bind to SIP Gateway (GW\_SIP)
  - Call-Routing Destination -> (will be created later)
    - calls are incoming from SIP and will be routed to the T1/E1 interface.
  - Remote User Agent / Port: 64.28.xxx.xx:6060. ( Please use the Sip Server IP address provided by Intermedia ).



Configuration	Incoming Call Address Translation	Outgoing Call Address Translation
SIP Gateway	<input checked="" type="checkbox"/>	GW_SIP
Call-Routing Destination	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> Interface IF_T1E1_00 <input type="radio"/> Table (none) <input type="radio"/> Service (none)
Remote User Agent Host Name / Port	<input checked="" type="checkbox"/>	64.28.122.44 / 6060
Local User Agent Host Name / Port	<input type="checkbox"/>	

After configuration of the SIP Interface:

Gateways	Interfaces	Location Services	Authentication Services	Profiles	General
Name	Remote	Routing Destination			
IF_SIP	64.28.122.44 /6060	IF_T1E1_00 (ISDN Interface)			✗
					📺

- Call-Router: Telephony -> Call-Router -> Configuration
  - Enable Call-Router
  - Although you will probably leave the other parameters at their default settings, note that the timeout for digit-collection can be changed.

Interfaces	Routing Tables	Functions	Services	Configuration	Active Calls	Status
<b>State</b>						
Call-Router	Enabled		When the Call-Router is disabled all calls routed to a table (route call dest-table table) are dropped			
Apply ✓						
<b>Digit-Collection Timeout</b>						
The digit-collection timeout starts running when a called-party number matches a called-e164 routing-table entry that ends with a 7. The Call-Router then collects overlap-dialed digits sent within the timeout. The timeout restarts whenever another digit arrives. When the timeout elapses the call is placed to the destination configured with the T-entry. In this section the timeout duration can be configured. Additionally you can configure the actions that shall be performed when the timeout elapses, for example, appending the terminating character to the called-party number or setting the address-complete indication.						
Enabled	<input checked="" type="checkbox"/>	Enables digit collection on T-entries.				
Default Timeout	5	seconds	Default digit-collection timeout. <b>Note:</b> This timeout can be overridden on a per-rule basis adding the timeout in seconds after the 7, for example 073, to use a timeout of 3 seconds for this entry.			
Append Terminating Character	<input type="checkbox"/>	When the timeout elapses, appends a terminating character to the called-party number as configured below.				
Set Address-Complete Indication	<input type="checkbox"/>	When the timeout elapses, sets the address-complete indication, for example generating an ISDN Sending-Complete IE.				
Apply ✓						
<b>Digit-Collection Terminating Character</b>						
The digit-collection terminating character immediately terminates the digit-collection timeout and is an indication that the called-party number is complete. The Call-Router normally removes the terminating character from the called-party number. In this section the terminating character can be configured. Additionally you can configure the actions that shall be performed when the terminating character is detected, for example, re-appending the terminating character to the called-party number or setting the address-complete indication.						
Enabled	<input checked="" type="checkbox"/>	Enables the immediate termination of the digit-collection timeout by reception of the terminating character.				
Default Character	#	Default Digit-Collection Terminating Character.				
Append Terminating Character	<input type="checkbox"/>	When the terminating character is detected, re-appends the terminating character to the called-party number as configured above.				
Set Address-Complete Indication	<input type="checkbox"/>	When the terminating character is detected, sets the address-complete indication, for example generating an ISDN Sending-Complete IE.				
Apply ✓						
<b>Digit-Collection Full Match</b>						
A full match happens when a called-party number matches a called-e164 entry that ends with a \$. In this section you can configure the actions that shall be performed when a full match is detected, for example, appending the terminating character to the called-party number or setting the address-complete indication.						
Append Terminating Character	<input type="checkbox"/>	When a full match is detected, appends the terminating character to the called-party number as configured above.				
Set Address-Complete Indication	<input type="checkbox"/>	When a full match is detected, sets the address-complete indication, for example generating an ISDN Sending-Complete IE.				
Apply ✓						
<b>Address-Completion</b>						
The address-completion timeout starts running when a called-party number is incomplete to match one of the called-e164 routing-table entries. The Call-Router then collects overlap-dialed digits sent within the timeout. The timeout restarts whenever another digit arrives. When the timeout elapses, the call is dropped.						
Timeout	<input checked="" type="checkbox"/>	12	seconds	Address-Completion timeout		

- Function: Telephony -> Call-Router -> Functions

- Create Name: in this instance, it is '911\_DIALBACK\_TABLE'.
- In this instance, we create a Mapping Table for the express purpose of providing a single callback number regardless of which FXS extension makes a call to '911'. The basic idea is that it looks at the 'called-e164' number, which if it matches '911', the calling-e164 number is changed to the desired callback number.
- The Function (Mapping Table) will be called in the Routing Tables.

Configuration		
Looks Up For called-e164 Of	Modifies calling-e164 To	
911	12066864899	✘

After configuration of Mapping Table (Function):

Interfaces	Routing Tables	Functions	Services	Configuration	Active Calls	Status
Mapping Tables						
Name	Looks up for	Modifies				
911_DIALBACK_TABLE	called-e164	calling-e164	✘			

- Call 'Routing Tables': Telephony -> Call-Router -> Routing Tables
  - Create Name of the first table (RT\_FROM\_T1E1): this table routes calls from FXS interfaces to the SIP interface for outgoing calls.
    - Destination: IF\_SIP (a SIP Interface)
    - Execute Function: 911\_CALLBACK\_TABLE
      - This function is executed before being sent to the destination.

Configuration			
Looks Up For called-e164 Of	Destination	Execute Function (Optional)	
	IF_SIP (SIP Interface)	911_DIALBACK_TABLE (Mapping Table)	✘

- Create Name of the second table (RT\_FROM\_SIP): this table routes incoming SIP calls to the T1E1 interface.
  - The Destination is based on the best match in the column 'Looks Up For called-e164 Of'.

- Since we are listing specific *'called-e164'* numbers, any other number will not be routed.

Configuration			
Looks Up For <i>called-e164</i> Of	Destination	Execute Function (Optional)	
2066864899	IF_T1E1_00 (ISDN Interface)		✗
12066864899	IF_T1E1_00 (ISDN Interface)		✗
2066864903	IF_T1E1_00 (ISDN Interface)		✗
12066864903	IF_T1E1_00 (ISDN Interface)		✗

After configuration of routing tables:

Interfaces	Routing Tables	Functions	Services	Configuration	Active Calls	Status
Routing Tables						
Name		Looks up for				
RT_FROM_T1E1		called-e164				✗
RT_FROM_SIP		called-e164				✗

### SAVE Configuration