Time Warner Cable Configuration Guide

Patton SmartNode 1k

April 2015
Document Version 1.0

1. Overview:

This guide describes the configuration procedures required for the Patton SmartNode 1k for interoperability with Time Warner Cable. The SmartNode 1k is a CPE based VoIP Gateway that has been validated with Time Warner Cable.

This guide describes the specific configuration items that are important for use with Time Warner Cable. For more details, see the SmartWare Software Config Guide supplied by Patton.

2. Interoperability Status:

Interoperability testing validates that the device interfaces properly with Time Warner Cable via the Session Initiation Protocol (SIP) interface.

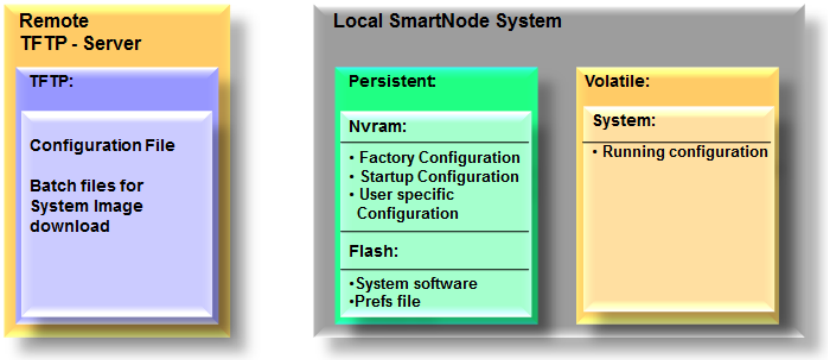
Verified Versions

Date (mm/yyyy)	SmartNode 1k Verified Version	SmartNode 1k Compatible Versions
04/2015	R6.x	Any maintenance revisions of the validated release.

3. SmartNode 1k Configuration:

This section describes the configuration settings required for the SmartNode 1k integration with Time Warner Cable. The SmartNode 1k configuration settings identified in this section have been derived and verified through interoperability testing with Time Warner Cable. For configuration details not covered in this section, see the SmartWare Software Config Guide for SmartNode 1k.

3.1. SmartNode System Overview:



- Files (Files can be loaded via HTTP, TFTP)

- Image files

- System files

- Batch files

- Configuration Files

- File handling

- copy: <the main file handling command on the SmartNode>

- erase: <the command to delete files on the SmartNode>

Configuration Files:

Contain commands that are used to define the functionality of Trinity. During system startup, the command parser reads the factory or startup configuration file command-by-command, organizes the arguments, and dispatches each command to the command shell for execution. If you use the CLI to enter a command during operation, you alter the running configuration accordingly. In other words, you are modifying a live, in-service system configuration.

Configuration files may be copied into the local memory in order to switch between different configurations. Remember the different local memory regions in Trinity as shown in the figure below.

System Image Files:

System image handling management is a complex and feature rich system allowing a user to perform various upgrades on the devices. It allows a user to perform full upgrades and partial upgrades. It allows you to upgrade system configurations seamlessly.

3.2. SmartNode Configuration Overview:

KEY:

System Level Configuration

Call Level Configuration

Registration/Subscription Configuration

```
#-----------------------------------------------------------------#
#                                                                 #
# Patton Electronics Company                                      #
# SmartNode 1k                                                    #
# Release: SmartWare R6.x                                           #
# Generated configuration file                                    #
#                                                                 #
#-----------------------------------------------------------------#

cli version 3.20
administrator administrator password admin
operator test password test
```

administrator - Administrators can run the enable command and access additional information within the SmartWare configuration modes. Therefore administrators can modify the system configuration, as well as view all relevant system information.

operator - Operators do not have the privileges to run the enable command and therefore cannot modify the system configuration. Operators can view partial system information.

```
dns-client server 8.8.8.8
```

DNS Server Settings

```
webserver port 80 language en
sntp-client
sntp-client server primary 0.patton.pool.ntp.org port 123 version 4
```

SNTP Time Server Settings

system

```
  ic voice 0
    low-bitrate-codec g729

profile napt NAPT

profile ppp default

profile call-progress-tone US_Dialtone
  play 1 1000 350 -13 440 -13
```

```
profile call-progress-tone US_Alertingtone
  play 1 1000 440 -19 480 -19
  pause 2 3000

profile call-progress-tone US_Busytone
  play 1 500 480 -24 620 -24
  pause 2 500

profile call-progress-tone US_Releasetone
  play 1 250 480 -24 620 -24
  pause 2 250

profile tone-set default
profile tone-set US
  map call-progress-tone dial-tone US_Dialtone
  map call-progress-tone ringback-tone US_Alertingtone
  map call-progress-tone busy-tone US_Busytone
  map call-progress-tone release-tone US_Releasetone
  map call-progress-tone congestion-tone US_Busytone
```

Tone-set Profile for delivering and detecting PSTN tones.

```
profile voip default
  codec 1 g711ulaw64k rx-length 20 tx-length 20
  codec 2 g711alaw64k rx-length 20 tx-length 20
  dtmf-relay rtp
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 10 tx-length 10
```

The VoIP Profile builds the SDP parameters within the SIP messages

```
profile pstn default

profile ringing-cadence default
  play 1 1000
  pause 2 4000

profile sip default
  no autonomous-transitioning

profile dhcp-server DHCP
  network 192.168.1.0 255.255.255.0
  include 1 192.168.1.10 192.168.1.99
  lease 2 hours
  default-router 1 192.168.1.1
  domain-name-server 1 192.168.1.1
```

DHCP Server Settings

```
profile aaa default
  method 1 local
  method 2 none

context ip router

  interface eth0
    ipaddress dhcp
    use profile napt NAPT
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu
```
WAN IP Address Settings (Public facing side)

```
  interface eth1
    ipaddress 192.168.1.1 255.255.255.0
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu
```
LAN IP Address Settings (Private facing side)

```
context ip router
  dhcp-server use profile DHCP
  route 0.0.0.0 0.0.0.0 192.168.1.2 0
```
WAN Default Gateway Address

```
context cs switch

  routing-table called-e164 RT_FROM_FXS
    route .T dest-interface IF_SIP_TWC

  routing-table called-e164 RT_FROM_SIP
    route 9802651177 dest-interface IF_FXS_00
    route 9802651178 dest-interface IF_FXS_01
    route 123456789 dest-interface IF_FXS_00
    route 987654321 dest-interface IF_FXS_01
    route 19802651181 dest-service SVC_SIP_LOC
```
This is where the call routing is performed.

```
  interface sip IF_SIP_TWC
    bind context sip-gateway GW_SIP_TWC
    route call dest-table RT_FROM_SIP
    remote 107.14.112.5
    trust remote
```
This is where you set the parameters that are used to generate SIP INVITE's on the WAN side. The "remote" parameter builds the host part of the To-Header-URI and the Request-URI.

```
  interface sip IF_SIP_LAN
    bind context sip-gateway GW_SIP_LAN
    route call dest-interface IF_SIP_TWC

  service sip-location-service SVC_SIP_LOC
    bind location-service LOC_SVC_LAN
```
This service is the main consumer of the address bindings (mapping of the users identity to a contact address) deposited in the location service data base.

```
  interface fxs IF_FXS_00
    route call dest-table RT_FROM_FXS
    subscriber-number 123456789
    use profile tone-set US

  interface fxs IF_FXS_01
    route call dest-table RT_FROM_FXS
    subscriber-number 987654321
    use profile tone-set US
```
This configures the telephony interfaces such as FXO/FXS/ISDN

```
context cs switch
  no shutdown

authentication-service AUTH_SVC_TWC
  realm 1 Time Warner Cable
  username 123456 password xxxxxx
```
This is a Database for Username/Passwords on the WAN side (encrypted on view) towards TWC.

```
authentication-service AUTH_SVC_LAN
  username 123456 password xxxxxx
```
This is a Database for Username/Passwords on the LAN side (encrypted on view) towards the local LAN.

```
location-service LOC_SVC_TWC
  domain 1 107.14.112.5
  match-any-domain

  identity-group default

    authentication outbound
      authenticate 1 authentication-service AUTH username 123456

    registration outbound
```

```
      register auto
```
Identity-group default is where you can set settings that apply globally to all usernames for the WAN side towards TWC.

```
  identity 123456 inherits default
```
This is a Database for Registration info for the WAN side towards TWC.

```
location-service LOC_SVC_LAN
  domain 1 192.168.1.1
  match-any-domain

  identity 123456

    authentication inbound
      authenticate 2 authentication-service AUTH username 123456

    registration inbound
```
This is for the user specific settings the LAN side towards the local LAN.

```
context sip-gateway GW_SIP_TWC

  interface IF_GW_SIP_TWC
    bind interface eth0 context router port 5060

context sip-gateway GW_SIP_TWC
  bind location-service LOC_SVC_TWC
  no shutdown
```
This is where the forwarding and reception of SIP packets is done.

```
context sip-gateway GW_SIP_LAN

  interface IF_GW_LAN
    bind interface eth1 context router port 5060

context sip-gateway GW_SIP_LAN
  bind location-service LOC_SVC_LAN
  no shutdown

port ethernet 0 0
  medium auto
  encapsulation ip
  bind interface eth0 router
  no shutdown
```
This is where the physical setup of Ethernet Port is done.

```
port ethernet 0 1
```

```
  medium auto
  encapsulation ip
  bind interface eth1 router
  no shutdown

port fxs 0 0
  use profile fxs us
  encapsulation cc-fxs
  bind interface IF_FXS_00 switch
  no shutdown

port fxs 0 1
  use profile fxs us
  encapsulation cc-fxs
  bind interface IF_FXS_01 switch
  no shutdown
This configures the telephony ports such as FXO/FXS/ISDN
```

4. CLI System Configuration:

This section describes system configuration items required for the SmartNode 1k.

4.1. Configure Network Interfaces:

This section describes how to configure the SmartNode 1k network interfaces.

Step	Command	Description
Step 1	`context ip` <cr>	Enters the Context IP section of config
Step 2	interface <interface name> **ex. interface eth0**	Enters the IP interface
Step 3	`ipaddress <SmartNode 1k IP address> <netmask>` **`ex. ipaddress 192.168.1.1 255.255.255.0`**	Enter IP Address of the SmartNode 1k (LAN or WAN side)

4.2. SIP Interface Configuration:

This section identifies the SmartNode 1k configuration to enable SIP communications.

Step	Command	Description
Step 1	context cs <cr>	Enters the Context CS section
Step 2	Interface sip `<TWC SIP interface name>` **`ex. interface sip IF_SIP_TWC`**	Enters the SIP interface for TWC
Step 3	remote <Time Warner Cable server	Builds the host part of the To-Header-

Step	Command	Description
	FQDN>**ex. remote 107.14.112.5**	URI and the Request-URI.

4.3. Authentication and Registration:

This section describes how to configure the SmartNode 1k registration and authentication settings with Time Warner.

Step	Command	Description
Step 1	`authentication-service <WAN Auth svc name>` **ex. authentication-service AUTH_SVC_TWC**	Enters into the Authentication Service to set username and passwords
Step 2	realm <realm address> **ex. realm Time Warner Cable**	Enters a Realm for authentication. If left blank, the credentials are used for any realm.
Step 3	username <Time Warner Cable username> password <Time Warner Cable password> **ex. username 123456 password xxxxxx**	Creates username and password used for Authentication and Registration.
Step 4	`location-service <Location svc name>` **`ex. location-service LOC_SVC_TWC`**	Enters into the Location Service to setup users.
Step 5	domain <domain IP Address or FQDN> **ex. domain 1 107.14.112.5**	Specifies the domains that this location service is responsible for.
Step 6	`identity <Time Warner Cable username>` **`ex. identity 123456`**	An identity represents one of multiple possible addresses over which a user is reachable
Step 7	authentication outbound <cr>	Enters the outbound Authentication section
Step 8	authenticate authentication-service <Auth svc name> username <Time Warner Cable username> **ex. authenticate 1 authentication-service AUTH_SVC_TWC username 123456**	Specifies which credentials to use for Authentication
Step 9	registration outbound <cr>	Enters the outbound Registration section
Step 10	register auto <cr>	Enables registration request to be sent

4.4. SBC Configuration:

This section describes how to configure the SmartNode 1k to act as a SBC between the WAN and LAN.

4.4.1. Configure Local LAN SIP Peers (IPPBX, SIP Phones etc…):

Step	Command	Description
Step 1	context cs <cr>	Enters the Context CS section
Step 2	Interface sip `<TWC SIP interface name>` **ex. interface sip IF_SIP_LAN**	Enters the SIP interface for Local LAN
Step 3	remote <IPPBX IP Address> **ex. remote 10.10.10.1**	Builds the host part of the To-Header-URI and the Request-URI.

4.4.2. Authentication and Registration:

Step	Command	Description
Step 1	`authentication-service <LAN Auth svc name>` **ex. authentication-service AUTH_SVC_LAN**	Enters into the Authentication Service to set username and passwords
Step 2	realm <realm address> (if applicable)	Enters a Realm for authentication. If left blank, the credentials are used for any realm.
Step 3	username <Local username> password <Local password> **ex. username 123456 password xxxxxx**	Creates username and password used for Authentication and Registration.
Step 4	`location-service <Location svc name>` **ex. location-service LOC_SVC_LAN**	Enters into the Location Service to setup users.
Step 5	domain <domain IP Address or FQDN> **ex. domain 1 10.10.10.1**	Specifies the domains that this location service is responsible for.
Step 6	`identity <Local BWDN>` **ex. identity 123456**	An identity represents one of multiple possible addresses over which a user is reachable
Step 7	authentication inbound <cr>	Enters the inbound Authentication section
Step 8	authenticate authentication-service <Auth svc name> username <Local username> **ex. authenticate 1 authentication-service AUTH_SVC_LAN username 123456**	Specifies which credentials to use for Authentication
Step 9	registration inbound <cr>	Enters the inbound Registration section

4.5. Telephony Configuration:

This section describes how to configure the SmartNode 1k's telephony interfaces to connect to a PBX/PSTN/Analog Phone etc…

4.5.1. FXO Interface and Port:

Step	Command	Description
Step 1	context cs <cr>	Enters the Context CS section
Step 2	interface fxo <FXO interface name> **ex. interface fxo IF_FXO_00**	Enters the FXO interface
Step 3	route call dest-interface <TWC SIP interface> **ex. route call dest-interface IF_SIP_TWC**	Specifies the route for incoming traffic from the FXO port/interface.
Step 4	mute-dialing <cr>	Mutes the receive path during dialtone detection and dialing.
Step 5	port fxo <FXO Port number> **ex. port fxo 0 0**	Enters into the physical FXO port configuration section
Step 6	use profile fxo <Local country profile> **ex. use profile fxo us**	Selects the local FXO profile used for your country
Step 7	encapsulation cc-fxo <cr>	Add the encapsulation for FXO
Step 8	bind interface <FXO interface name> **ex. bind interface IF_FXO_00**	Binds a FXO interface to be use for that FXO port
Step 9	no shutdown <cr>	Enables the port

4.5.2. FXS Interface and Port:

Step	Command	Description
Step 1	context cs <cr>	Enters the Context CS section
Step 2	interface fxs <FXS interface name> **ex. interface fxs IF_FXS_00**	Enters the FXS interface
Step 3	route call dest-table <Called-e164 table> **ex. route call dest-table RT_FROM_FXS**	Specifies the route for incoming traffic from the FXS port/interface. This is also used for digit collection to provide local dialtone.
Step 4	subscriber-number <Local Number> **ex. subscriber-number 123456**	This is the local number of extension number. Populates the SIP FROM Header.
Step 5	use profile tone-set <Tone Profile name> **ex. use profile tone-set US**	Sets the Tone profile for delivery and reception of tones.
Step 6	port fxs <FXS Port number> **ex. port fxs 0 0**	Enters into the physical FXS port configuration section
Step 7	use profile fxs <Local country profile>	Selects the local FXS profile used for

Step	Command	Description
	ex. use profile fxs us	your country
Step 8	encapsulation cc-fxs <cr>	Add the encapsulation for FXS
Step 9	bind interface <FXS interface name> **ex. bind interface IF_FXS_00**	Binds a FXS interface to be use for that FXS port
Step 10	no shutdown <cr>	Enables the port

4.5.3. ISDN (T1/E1) Interface and Port:

Step	Command	Description
Step 1	context cs <cr>	Enters the Context CS section
Step 2	interface isdn <ISDN interface name> **ex. interface isdn IF_ISDN_00**	Enters the ISDN interface
Step 3	route call dest-interface <TWC SIP interface> **ex. route call dest-interface IF_SIP_TWC**	Specifies the route for incoming traffic from the ISDN port/interface.
Step 4	port e1t1 <ISDN Port number> **ex. port e1t1 0 0**	Enters into the physical ISDN port configuration section
Step 5	**ISDN Layer 1 config:** port e1t1 0 0 port-type <Type of ISDN port> clock <Master/Slave> linecode <ISDN Line code type> framing <Frame Type> encapsulation q921 <cr> no shutdown <cr> **ex. port e1t1 0 0** **port-type t1** **clock master** **linecode b8zs** **framing esf** **encapsulation q921** **no shutdown**	Sets the type of ISDN port, E1 or T1 Sets the ISDN clocking mode Selects the line coding on the ISDN termination Selects the framing on the ISDN termination Enables the Q.921 ISDN layer
Step 6	**ISDN Layer 2 config:** q921 <cr> uni-side <L2 UNI Signaling Protocol> encapsulation q931 <cr> **ex. q921** **uni-side auto** **encapsulation q931**	Enters into the q921 layer config Selects the User Network Interface signaling protocol Enables the Q.931 ISDN layer
Step 7	**ISDN Layer 3 config:** q931 protocol <ISDN L3 protocol> uni-side <L3 UNI Signaling Protocol>	Enters into the q931 layer config Specify the ISDN layer 3 protocol

Step	Command	Description
	encapsulation cc-isdn <cr> bind interface <ISDN Interface name> **ex. q931** **protocol ni2** **uni-side net** **encapsulation cc-isdn** **bind interface IF_ISDN_00 switch**	

Appendix A: Reference SmartNode 1k Configuration:

FXS Sample Config (With SBC):

```
#------------------------------------------------------------------#
#                                                                  #
# Patton Electronics Company                                       #
# SmartNode 1k                                                     #
# Release: SmartWare R6.x                                          #
# Generated configuration file                                     #
#                                                                  #
#------------------------------------------------------------------#

cli version 3.20
administrator admin password xxxxxx

system

  ic voice 0
    low-bitrate-codec g729

profile napt NAPT

profile ppp default

profile call-progress-tone US_Dialtone
  play 1 1000 350 -13 440 -13

profile call-progress-tone US_Alertingtone
  play 1 1000 440 -19 480 -19
  pause 2 3000

profile call-progress-tone US_Busytone
  play 1 500 480 -24 620 -24
  pause 2 500

profile call-progress-tone US_Releasetone
  play 1 250 480 -24 620 -24
  pause 2 250

profile tone-set default
profile tone-set US
  map call-progress-tone dial-tone US_Dialtone
```

```
  map call-progress-tone ringback-tone US_Alertingtone
  map call-progress-tone busy-tone US_Busytone
  map call-progress-tone release-tone US_Releasetone
  map call-progress-tone congestion-tone US_Busytone

profile voip default
  codec 1 g711ulaw64k rx-length 20 tx-length 20
  dtmf-relay rtp
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 10 tx-length 10

profile pstn default

profile ringing-cadence default
  play 1 1000
  pause 2 4000

profile sip default
  no autonomous-transitioning

profile dhcp-server DHCP
  network 192.168.1.0 255.255.255.0
  include 1 192.168.1.10 192.168.1.99
  lease 2 hours
  default-router 1 192.168.1.1
  domain-name-server 1 192.168.1.1

profile aaa default
  method 1 local
  method 2 none

context ip router

  interface eth0
    ipaddress xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy
    use profile napt NAPT
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

  interface eth1
    ipaddress 192.168.1.1 255.255.255.0
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

context ip router
  dhcp-server use profile DHCP
  route 0.0.0.0 0.0.0.0 xxx.xxx.xxx.xxx 0

context cs switch

  routing-table called-e164 RT_FROM_FXS
    route .T dest-interface IF_SIP

  routing-table called-e164 RT_FROM_SIP
    route 19802651179 dest-interface IF_FXS_00
    route 19802651180 dest-interface IF_FXS_01
    route 19802651181 dest-service SVC_SIP_LOC
```

```
  interface sip IF_SIP_TWC
    bind context sip-gateway GW_SIP
    route call dest-table RT_FROM_SIP
    remote 107.14.112.5
    trust remote

  interface sip IF_SIP_LAN
    bind context sip-gateway GW_SIP_LAN
    route call dest-interface IF_SIP_TWC

  service sip-location-service SVC_SIP_LOC
    bind location-service LOC_LOCAL

  interface fxs IF_FXS_00
    route call dest-table RT_FROM_FXS
    subscriber-number 19802651179
    use profile tone-set US

  interface fxs IF_FXS_01
    route call dest-table RT_FROM_FXS
    subscriber-number 19802651180
    use profile tone-set US

context cs switch
  no shutdown

authentication-service AUTH
  username 19802651176 password xxxxxx

location-service LOC_SVC
  domain 1 107.14.112.5
  match-any-domain

  identity-group default

    authentication outbound
      authenticate 1 authentication-service AUTH username 19802651176

    registration outbound
      register auto

  identity 19802651176 inherits default

location-service LOC_LOCAL
  domain 1 192.168.1.1
  match-any-domain

  identity 19802651176

    authentication inbound
      authenticate 2 authentication-service AUTH username 19802651176

    registration inbound

context sip-gateway GW_SIP

  interface IF_GW_SIP
    bind interface eth0 context router port 5060
```

```
context sip-gateway GW_SIP
  bind location-service LOC_SVC
  no shutdown

context sip-gateway GW_SIP_LAN

  interface IF_GW_LAN
    bind interface eth1 context router port 5060

context sip-gateway GW_SIP_LAN
  bind location-service LOC_LOCAL
  no shutdown

port ethernet 0 0
  medium auto
  encapsulation ip
  bind interface eth0 router
  no shutdown

port ethernet 0 1
  medium auto
  encapsulation ip
  bind interface eth1 router
  no shutdown

port fxs 0 0
  use profile fxs us
  encapsulation cc-fxs
  bind interface IF_FXS_00 switch
  no shutdown

port fxs 0 1
  use profile fxs us
  encapsulation cc-fxs
  bind interface IF_FXS_01 switch
  no shutdown
```

FXO Sample Config (With SBC):

```
#------------------------------------------------------------------#
#                                                                  #
# Patton Electronics Company                                       #
# SmartNode 1k                                                     #
# Release: SmartWare R6.x                                          #
# Generated configuration file                                     #
#                                                                  #
#------------------------------------------------------------------#

cli version 3.20
administrator admin password xxxxxx

system

  ic voice 0
    low-bitrate-codec g729
```

```
profile napt NAPT

profile ppp default

profile call-progress-tone US_Dialtone
  play 1 1000 350 -13 440 -13

profile call-progress-tone US_Alertingtone
  play 1 1000 440 -19 480 -19
  pause 2 3000

profile call-progress-tone US_Busytone
  play 1 500 480 -24 620 -24
  pause 2 500

profile call-progress-tone US_Releasetone
  play 1 250 480 -24 620 -24
  pause 2 250

profile tone-set default
profile tone-set US
  map call-progress-tone dial-tone US_Dialtone
  map call-progress-tone ringback-tone US_Alertingtone
  map call-progress-tone busy-tone US_Busytone
  map call-progress-tone release-tone US_Releasetone
  map call-progress-tone congestion-tone US_Busytone

profile voip default
  codec 1 g711ulaw64k rx-length 20 tx-length 20
  dtmf-relay rtp
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 10 tx-length 10

profile pstn default

profile ringing-cadence default
  play 1 1000
  pause 2 4000

profile sip default
  no autonomous-transitioning

profile dhcp-server DHCP
  network 192.168.1.0 255.255.255.0
  include 1 192.168.1.10 192.168.1.99
  lease 2 hours
  default-router 1 192.168.1.1
  domain-name-server 1 192.168.1.1

profile aaa default
  method 1 local
  method 2 none

context ip router

  interface eth0
    ipaddress xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy
    use profile napt NAPT
```

```
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

  interface eth1
    ipaddress 192.168.1.1 255.255.255.0
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

context ip router
  dhcp-server use profile DHCP
  route 0.0.0.0 0.0.0.0 xxx.xxx.xxx.xxx 0

context cs switch

  routing-table called-e164 RT_FROM_FXS
    route .T dest-interface IF_SIP

  routing-table called-e164 RT_FROM_SIP
    route 19802651179 dest-interface IF_FXO_00
    route 19802651180 dest-interface IF_FXO_01
    route 19802651181 dest-service SVC_SIP_LOC


  interface sip IF_SIP_TWC
    bind context sip-gateway GW_SIP
    route call dest-table RT_FROM_SIP
    remote 107.14.112.5
    trust remote

  interface sip IF_SIP_LAN
    bind context sip-gateway GW_SIP_LAN
    route call dest-interface IF_SIP_TWC

  service sip-location-service SVC_SIP_LOC
    bind location-service LOC_LOCAL

  interface fxo IF_FXO_00
    route call dest-interface IF_SIP
      use profile tone-set US
      mute-dialing

  interface fxo IF_FXO_01
    route call dest-interface IF_SIP
      use profile tone-set US
      mute-dialing

context cs switch
  no shutdown

authentication-service AUTH
  username 19802651176 password xxxxxx

location-service LOC_SVC
  domain 1 107.14.112.5
  match-any-domain

  identity-group default
```

```
    authentication outbound
      authenticate 1 authentication-service AUTH username 19802651176

    registration outbound
      register auto

  identity 19802651176 inherits default

location-service LOC_LOCAL
  domain 1 192.168.1.1
  match-any-domain

  identity 19802651176

    authentication inbound
      authenticate 2 authentication-service AUTH username 19802651176

    registration inbound

context sip-gateway GW_SIP

  interface IF_GW_SIP
    bind interface eth0 context router port 5060

context sip-gateway GW_SIP
  bind location-service LOC_SVC
  no shutdown

context sip-gateway GW_SIP_LAN

  interface IF_GW_LAN
    bind interface eth1 context router port 5060

context sip-gateway GW_SIP_LAN
  bind location-service LOC_LOCAL
  no shutdown

port ethernet 0 0
  medium auto
  encapsulation ip
  bind interface eth0 router
  no shutdown

port ethernet 0 1
  medium auto
  encapsulation ip
  bind interface eth1 router
  no shutdown

port fxo 0 0
  use profile fxo us
  encapsulation cc-fxo
  bind interface IF_FXO_00 switch
  no shutdown

port fxo 0 1
  use profile fxo us
  encapsulation cc-fxo
```

```
  bind interface IF_FXO_01 switch
  no shutdown
```

ISDN Sample Config (With SBC):

```
#-----------------------------------------------------------------#
#                                                                 #
# Patton Electronics Company                                      #
# SmartNode 1k                                                    #
# Release: SmartWare R6.x                                         #
# Generated configuration file                                    #
#                                                                 #
#-----------------------------------------------------------------#

cli version 3.20
administrator admin password xxxxxx

system

  ic voice 0
    pcm law-select uLaw

profile napt NAPT

profile ppp default

profile call-progress-tone US_Dialtone
  play 1 1000 350 -13 440 -13

profile call-progress-tone US_Alertingtone
  play 1 1000 440 -19 480 -19
  pause 2 3000

profile call-progress-tone US_Busytone
  play 1 500 480 -24 620 -24
  pause 2 500

profile call-progress-tone US_Releasetone
  play 1 250 480 -24 620 -24
  pause 2 250

profile tone-set default
profile tone-set US
  map call-progress-tone dial-tone US_Dialtone
  map call-progress-tone ringback-tone US_Alertingtone
  map call-progress-tone busy-tone US_Busytone
  map call-progress-tone release-tone US_Releasetone
  map call-progress-tone congestion-tone US_Busytone

profile voip default
  codec 1 g711ulaw64k rx-length 20 tx-length 20
  dtmf-relay rtp
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 10 tx-length 10

profile pstn default
```

```
profile ringing-cadence default
  play 1 1000
  pause 2 4000

profile sip default
  no autonomous-transitioning

profile dhcp-server DHCP
  network 192.168.1.0 255.255.255.0
  include 1 192.168.1.10 192.168.1.99
  lease 2 hours
  default-router 1 192.168.1.1
  domain-name-server 1 192.168.1.1

profile aaa default
  method 1 local
  method 2 none

context ip router

  interface eth0
    ipaddress xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy
    use profile napt NAPT
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

  interface eth1
    ipaddress 192.168.1.1 255.255.255.0
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

context ip router
  dhcp-server use profile DHCP
  route 0.0.0.0 0.0.0.0 xxx.xxx.xxx.xxx 0

context cs switch

  routing-table called-e164 RT_FROM_SIP
    route 19802651179 dest-interface IF_ISDN_00
    route 19802651180 dest-interface IF_ISDN_00
    route 19802651181 dest-service SVC_SIP_LOC

  interface sip IF_SIP_TWC
    bind context sip-gateway GW_SIP
    route call dest-table RT_FROM_SIP
    remote 107.14.112.5
    trust remote

  interface sip IF_SIP_LAN
    bind context sip-gateway GW_SIP_LAN
    route call dest-interface IF_SIP_TWC

  service sip-location-service SVC_SIP_LOC
    bind location-service LOC_LOCAL

  interface isdn IF_ISDN_00
    route call dest-interface IF_SIP_TWC
    use profile tone-set US
```

```
context cs switch
  no shutdown

authentication-service AUTH
  username 19802651176 password xxxxxx

location-service LOC_SVC
  domain 1 107.14.112.5
  match-any-domain

  identity-group default

    authentication outbound
      authenticate 1 authentication-service AUTH username 19802651176

    registration outbound
      register auto

  identity 19802651176 inherits default

location-service LOC_LOCAL
  domain 1 192.168.1.1
  match-any-domain

  identity 19802651176

    authentication inbound
      authenticate 2 authentication-service AUTH username 19802651176

    registration inbound

context sip-gateway GW_SIP

  interface IF_GW_SIP
    bind interface eth0 context router port 5060

context sip-gateway GW_SIP
  bind location-service LOC_SVC
  no shutdown

context sip-gateway GW_SIP_LAN

  interface IF_GW_LAN
    bind interface eth1 context router port 5060

context sip-gateway GW_SIP_LAN
  bind location-service LOC_LOCAL
  no shutdown

port ethernet 0 0
  medium auto
  encapsulation ip
  bind interface eth0 router
  no shutdown

port ethernet 0 1
  medium auto
```

```
  encapsulation ip
  bind interface eth1 router
  no shutdown

port e1t1 0 0
  port-type t1
  clock master
  linecode b8zs
  framing esf
  encapsulation q921

  q921
    uni-side auto
    encapsulation q931

    q931
      protocol ni2
      uni-side net
      bchan-number-order ascending
      encapsulation cc-isdn
      bind interface IF_ISDN_00 switch

port e1t1 0 0
  no shutdown
```