BroadSoft Partner Configuration Guide

Patton SmartNode Trinity SBC

December 2015

Document Version 1.4

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BroadWorks® Guide

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Document Revision History

Version	Reason for Change
1.1	Introduced document for Patton SmartNode Trinity version Trinity 3.x M5T SIP Stack/4.2.8.10 validation with BroadWorks Release 20.sp1.
1.2	Edited and published document. Verified *Table of Figures*.
1.3	Updated document for Patton SmartNode Trinity version Trinity 3.x DM validation with BroadWorks Release 20.sp1.
1.4	Edited changes and published document.

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1 Overview

This guide describes the configuration procedures required for the Patton SmartNode Trinity SBC for interoperability with BroadWorks.

This includes the following Patton SmartNode Trinity SBC device models:

- SN5300
- SN5480
- SN5490
- SN5530
- SN5570

The SmartNode Trinity devices are a CPE based Session Border Controller that has been validated with BroadWorks.

This guide describes the specific configuration items that are important for use with BroadWorks. It does not describe the purpose and use of all configuration items on the SmartNode Trinity. For those details, see the *Trinity Administrator's Guide* [1] supplied by Patton.

2 Interoperability Status

This section provides the known interoperability status of the Patton SmartNode Trinity SBC with BroadWorks. This includes the version(s) tested, the capabilities supported, and known issues.

Interoperability testing validates that the device interfaces properly with BroadWorks via the Session Initiation Protocol (SIP) interface. Qualitative aspects of the device or device capabilities not affecting the SIP interface, such as performance, are not covered by interoperability testing. Requests for information and/or issues regarding these aspects should be directed to Patton.

2.1 Verified Versions

The following table identifies the verified Patton SmartNode Trinity SBC and BroadWorks versions and the month/year the testing occurred. If the device has undergone more than one test cycle, versions for each test cycle are listed, with the most recent listed first.

Compatible Versions in the following table identify specific SmartNode Trinity versions that the partner has identified as compatible so should interface properly with BroadWorks. Generally, maintenance releases of the validated version are considered compatible and are not specifically listed here. For any questions concerning maintenance and compatible releases, contact Patton.

NOTE: Interoperability testing is usually performed with the latest generally available (GA) device firmware/software and the latest GA BroadWorks release and service pack at the time the testing occurs. If there is a need to use a non-verified mix of BroadWorks and device software versions, customers can mitigate their risk by self-testing the combination themselves using the *BroadWorks Session Border Controller Interoperability Test Plan* [5].

Verified Versions

Date (mm/yyyy)	BroadWorks Release	SmartNode Trinity Verified Version	SmartNode Trinity Compatible Versions
03/2015	Release 20.sp1	Trinity 3.x	Any maintenance revisions of the validated release.

2.2 Interface Capabilities Supported

The Patton SmartNode Trinity SBC has completed interoperability testing with BroadWorks using the *BroadWorks Session Border Controller Interoperability Test Plan* [5]. The results are summarized in the following table.

The BroadWorks test plan is composed of packages, each covering distinct interoperability areas, such as "Basic" call scenarios and "Redundancy" scenarios. Each package is composed of one or more test items, which in turn, are composed of one or more test cases. The test plan exercises the SIP interface between the device and BroadWorks with the intent to ensure interoperability sufficient to support the BroadWorks feature set.

The *Supported* column in the following table identifies the Patton SmartNode Trinity SBC's support for each of the items covered in the test plan packages, with the following designations:

- Yes Test item is supported
- No Test item is not supported
- NA Test item is not applicable to the device type
- NT Test item was not tested

Caveats and clarifications are identified in the *Comments* column.

NOTE: *DUT* in the following table refers to the *Device Under Test*, which in this case is the Patton SmartNode Trinity SBC.

BroadWorks Session Controller Interoperability Test Plan Support Table

Test Plan Package	Test Plan Package Items	Supported	Comments
Basic	Call Origination	Yes	
	Call Termination	Yes	
	Session Audit	Yes	
	Session Timer	Yes	
	Ringback	Yes	
	Forked Dialog	Yes	
	Early UPDATE	No	
	Early-Session	No	
	181 Call Being Forwarded	Yes	
	DTMF – Inband	Yes	
	DTMF – RFC 2833	Yes	
	DTMF – DTMF Relay	Yes	
BroadWorks Services	Third-Party Call Control – Basic	Yes	
	Third-Party Call Control – Advanced	Yes	Only Click-to-Dial.
	Message Waiting Indicator – Unsolicited	Yes	

BroadWorks Session Controller Interoperability Test Plan Support Table			
Test Plan Package	**Test Plan Package Items**	**Supported**	**Comments**
	Message Waiting Indicator – Solicited	Yes	
	Voice Portal Outcall	Yes	
	Advanced Alerting	Yes	
	Calling Line ID – Non-Trusted Endpoint	Yes	
	Calling Line ID with Unicode Characters – Non-Trusted Endpoint	Yes	
	Calling Line ID – Trusted Endpoint	Yes	
	Calling Line ID with Unicode Characters – Trusted Endpoint	Yes	
	Diversion Header	Yes	
	History-Info Header	Yes	
	Deny Calls from Unregistered Users	Yes	
	Enterprise Trunking – Originating Trunk Group (OTG)	No	
	Enterprise Trunking – Destination Trunk Group (DTG)	No	
	Enterprise Trunking – Trunk Group (TGRP)	No	
Access Device Services – Call Control Services	Call Waiting	Yes	
	Call Hold	Yes	
	Call Transfer	Yes	Except Blind Transfer.
	Local Conference	Yes	
	Network Conference	No	
	Call Forwarding	Yes	
Access Device Services – Registration and Authentication	Registration – Register Authentication	Yes	
	Registration – Maximum Registration	Yes	
	Registration – Minimum Registration	Yes	
	Authentication – Invite Authentication	Yes	
	Authentication – Re-Invite or Update Authentication	Yes	
	Authentication – Refer Authentication	Yes	
	Authentication – Access Device Authenticating BroadWorks	Yes	
	SIP Trunk GIN Registration – GIN Register	No	

BroadWorks Session Controller Interoperability Test Plan Support Table			
Test Plan Package	**Test Plan Package Items**	**Supported**	**Comments**
	SIP Trunk GIN Registration – Call to PBX User	No	
	SIP Trunk GIN Registration – Call from PBX User	No	
	SIP Trunk Pilot Registration – Pilot Register	NT	
	SIP Trunk Pilot Registration – Call to PBX User	NT	
	SIP Trunk Pilot Registration – Call from PBX User	NT	
	Surrogate Registration – Pilot Register	NT	
	Surrogate Registration – Call to PBX User	NT	
	Surrogate Registration – Call from PBX User	NT	
Access Device Services – Fax	G711 Fax Passthrough	Yes	
	G711 Fax Fallback	Yes	
	T38 Fax Messaging	Yes	
Advanced Phone Services – Busy Lamp Field	Busy Lamp Field	No	
	Maximum Monitored Users	No	
Advanced Phone Services – Feature Key Synchronization	Do Not Disturb	No	
	Call Forwarding	No	
	Call Center Agent Logon/Logoff	No	
	Call Recording	No	
	Security Classification	No	
Advanced Phone Services – Shared Call Appearance	Line-Seize Events	No	
	Call-Info Events	No	
	Multiple Call Arrangement	No	
	Bridging	No	
Advanced Phone Services – Call Recording	Call Recording Controls	No	
	Call Recording Video	No	
Advanced Phone Services – Security Classification	Security Classification	No	
Redundancy	DNS SRV Lookup	Yes	Premise based.
	Register Failover/Failback	Yes	Premise based.
	Invite Failover/Failback	Yes	Premise based.
	Bye Failover	Yes	Premise based.

BroadWorks Session Controller Interoperability Test Plan Support Table			
Test Plan Package	**Test Plan Package Items**	**Supported**	**Comments**
Video – Basic Video Calls	Call Origination	No	
	Call Termination	No	
	Call Hold	No	
	Call Transfer	No	
Video – BroadWorks Video Services	Auto Attendant	No	
	Auto Attendant – HD	No	
	Voice Messaging	No	
Video – BroadWorks Video Conference	Network Conference	No	
	Network Conference – HD	No	
	Collaborate – Video	No	
	Collaborate – Video – HD	No	
Remote Survivability	Register	No	
	Local Calls – Without Subscriber Data	No	
	PSTN Calls – Without Subscriber Data	No	
	SCA Call – Without Subscriber Data	No	
	Register for Subscriber Data	No	
	Local Calls – With Subscriber Data	No	
	PSTN Calls – With Subscriber Data	No	
	SCA Call – With Subscriber Data	No	
IPV6	Call Origination	No	
	Call Termination	No	
	Ringback	No	
	Call Control	No	
	Registration with Authentication	No	
	T38 Fax Messaging	No	
	Busy Lamp Field	No	
	Redundancy	No	
	Video	No	
	Dual Stack with Alternate Connectivity	No	

2.3 Known Issues

This section lists the known interoperability issues between BroadWorks and specific partner release(s). Issues identified during interoperability testing and known issues identified in the field are listed.

The following table provides a description of each issue and, where possible, identifies a workaround. The verified partner device versions are listed with an "X" indicating that the issue occurs in the specific release. The issues identified are device deficiencies or bugs, so typically not BroadWorks release dependent.

The *Issue Number* is a tracking number for the issue. If it is a Patton issue, the issue number is from Patton's tracking system. If it is a BroadWorks issue, the issue number is from BroadSoft's tracking system.

For more information on any issues related to the particular partner device release, see the partner release notes.

Issue Number	Issue Description	Partner Version			
		Trinity 3.x			
Reference trac# 4977	**REFER message for Blind transfer not correct.** In case of Blind transfer, DUT should send REFER without Replaces in the REFER-TO header. However DUT adds the Replaces field causing the REFER to be declined. Workaround: None.	X			

3 BroadWorks Configuration

This section identifies the required BroadWorks device profile for the Patton SmartNode Trinity SBC devices as well as any other unique BroadWorks configuration required for interoperability with the SmartNode Trinity SBC.

3.1 BroadWorks Device Profile Type Configuration

This section identifies the device profile type settings to use when deploying the Patton SmartNode Trinity SBC with BroadWorks.

Create a device profile type for the Patton SmartNode Trinity SBC with settings as shown in the following example. A separate device profile type should be created for each Patton SmartNode Trinity SBC model. The settings shown are recommended for use when deploying the Patton SmartNode Trinity SBC SN5490 with BroadWorks. For an explanation of the profile parameters, see the *BroadWorks Device Management Configuration Guide* [6].

The following device profile type shown provides the *Number of Ports* (number of SIP lines) setting for Patton SmartNode Trinity SBC SN5490. For other Trinity SBC models, create a new device profile type and set the *Number of Ports* to match the available number of SIP lines per model according to the following table.

Model	Number of Lines
SN5300	**4** 10/100 Eth Ports, WAN Port
SN5480	**2** 10/100/1000 Eth Ports
SN5490	**2** 10/100/1000 Eth Ports, WAN Port
SN5530	**2** 10/100/1000 Eth Ports
SN5570	**2** 10/100/1000 Eth Ports

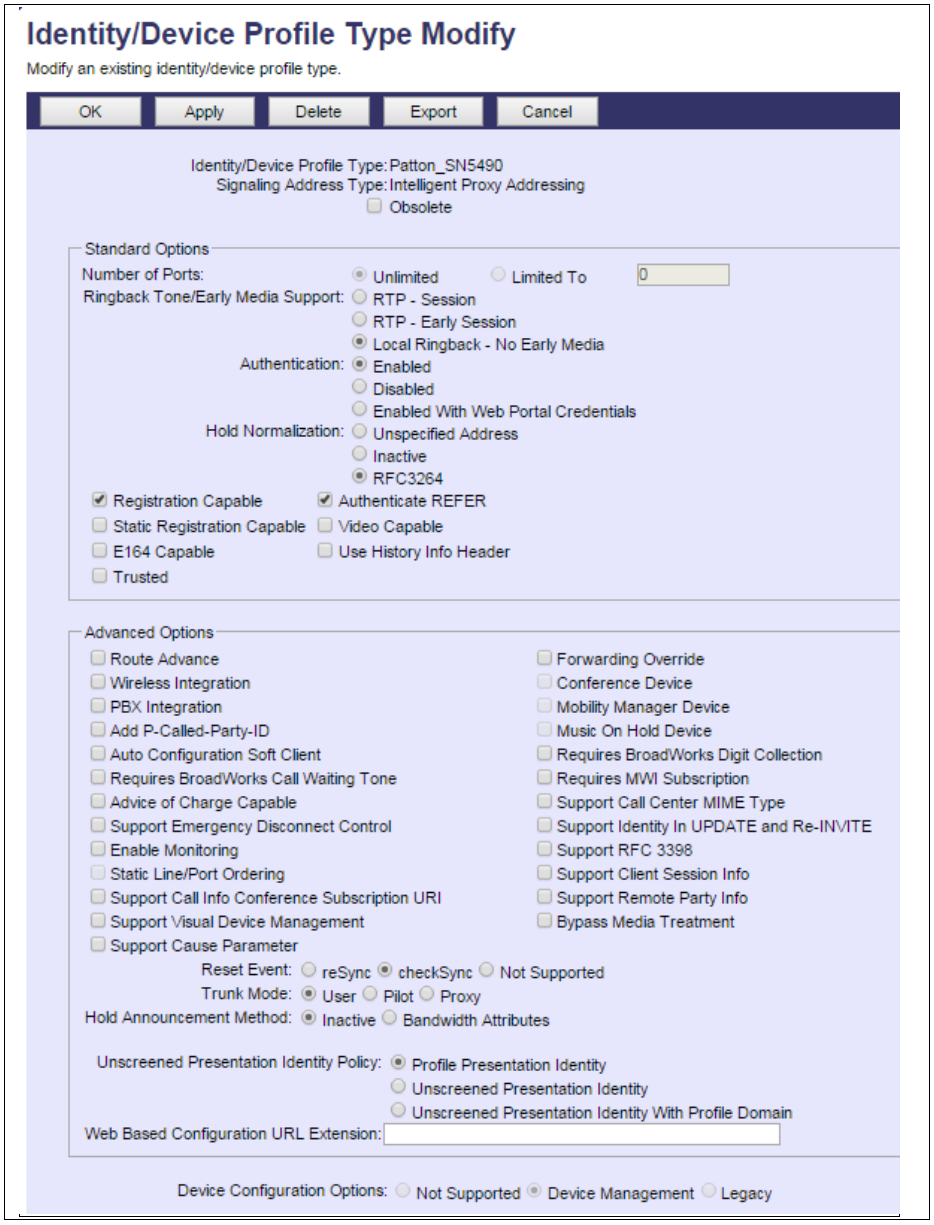

Figure 1 Device Identity/Profile Type

3.2 BroadWorks Configuration Steps

No other steps are required on BroadWorks to configure the device.

4 SmartNode Trinity Configuration

This section describes the configuration settings required for the SmartNode Trinity integration with BroadWorks, primarily focusing on the SIP interface configuration. The SmartNode Trinity configuration settings identified in this section have been derived and verified through interoperability testing with BroadWorks. For configuration details not covered in this section, see the *Trinity Administrator's Guide* [1] from SmartNode Trinity SBC.

4.1 Configuration Method

The following figure shows the SmartNode System Overview.

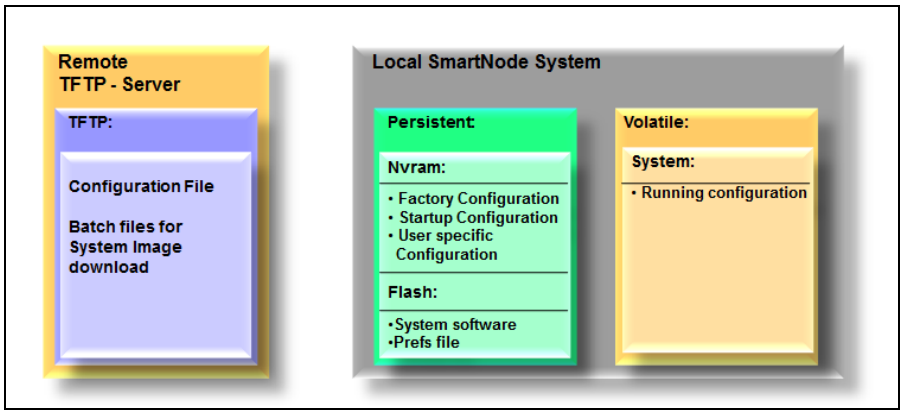

Figure 2 SmartNode System Overview

- Files (Files can be loaded via HTTP or 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, 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 to switch between different configurations. Remember the different local memory regions in Trinity as shown in the following figure.

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.

Configuration File Overview:

```
                                        KEY:
 System Level Configuration
 Call Level Configuration
 Registration/Subscription Configuration
```

```
#-----------------------------------------------------------------#
#                                                                 #
# Patton Electronics Company                                      #
# SmartNode Trinity                                               #
# Release: Trinity 3.x                                            #
# Generated configuration file                                    #
#                                                                 #
#-----------------------------------------------------------------#

cli version 4.00

superuser admin1 password admin1
administrator admin2 password admin2
 superuser - Can modify the system  configuration, as well as view all
 relevant system information. Superusers can also create new users.
 administrator - Can modify the system  configuration, as well as view all
 relevant system information. Administrators cannot create new users.

actions

  rule PROV_STARTUP
    condition ip address:WAN.DHCP LINKUP initial
    action 1 "provisioning execute PF_PROVISIONING_CONFIG"
 Auto Provisioning Actions scripts. (To activate provisioning)

ntp
  server time.nist.gov
  no shutdown
 NTP Server Settings

dns-server
  host 8.8.8.8 DNS
  relay dns-client
  no shutdown

dns-client
  name-server 8.8.8.8
 DNS Server Settings

profile dhcp-server DHCPS_LAN
  lease 2 hours
  default-router 10.10.10.1
  domain-name-server 10.10.10.1
  include 10.10.10.100 10.10.10.200
 DHCP Server Settings

profile voip DEFAULT
  codec 1 g711alaw64k rx-length 20 tx-length 20
  codec 2 g711ulaw64k rx-length 20 tx-length 20
```

```
  codec 3 g729 rx-length 20 tx-length 20
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 20 tx-length 20
```
The VoIP Profile builds the SDP parameters within the SIP messages

```
context ip ROUTER

  interface IF_WAN
    ipaddress IF_WAN 1.1.1.2/28
    use profile napt DEFAULT IF_WAN
```
WAN IP Address Settings (Public facing side)

```
  interface IF_LAN
    ipaddress IF_LAN 10.10.10.1/24
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu
```
LAN IP Address Settings (Private facing side)

```
  routing-table DEFAULT
    route 0.0.0.0/0 gateway 1.1.1.1 metric 0
```
WAN Default Gateway Address

```
  interface sip IF_SIP_BROADSOFT
    bind context sip-gateway GW_SIP_WAN
    route call dest-service SIP_LOCATION_SERVICE
    remote as.iop1.broadworks.net
    trust remote
```
This is where you set the parameters that are used to generate SIP INVITE's. 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_BROADSOFT
    local 10.10.10.1 5060
```
This is where you set the parameters that are used to generate SIP INVITE's. The "local" parameter builds the host part of the From-Header-URI.

```
  service sip-location-service SIP_LOCATION_SERVICE
    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.

```
authentication-service AUTH_SVC_BROADSOFT
  realm 1 as.iop1.broadworks.net
  username 2404985261 password xxxxxx
  username 2404985262 password xxxxxx
```
This is a Database for Username/Passwords on the WAN side (encrypted on view) towards Broadsoft.

```
authentication-service AUTH_SVC_LAN
  username 2404985261 password xxxxxx
  username 2404985262 password xxxxxx
```
This is a Database for Username/Passwords on the LAN side (encrypted on view) towards the local LAN.

```
location-service LOC_SVC_BROADSOFT
  domain 1 as.iop1.broadworks.net
  match-any-domain
```

This is a Database for Registration info for the WAN side towards Broadsoft.

```
  identity-group DEFAULT

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT

    registration outbound
      register auto

    message inbound
      message-server as.iop1.broadworks.net
      lifetime 180
      subscribe explicit
```

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

```
  identity 2404985261 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username
2404985261

  identity 2404985262 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username
2404985262
```

This is for the user specific settings for the WAN side towards Broadsoft.

```
location-service LOC_SVC_LAN
  domain 1 10.10.10.1
  match-any-domain

  identity 2404985261

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985261

    registration inbound

  identity 2404985262

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985262

    registration inbound
```

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

```
context sip-gateway GW_SIP_LAN
  bind location-service LOC_SVC_LAN
```

```
  interface IF_GW_SIP_LAN
    transport-protocol udp+tcp 5060
    no transport-protocol tls
    bind ipaddress ROUTER IF_LAN IF_LAN

context sip-gateway GW_SIP_LAN
  no shutdown

context sip-gateway GW_SIP_WAN
  bind location-service LOC_SVC_BROADSOFT

  interface IF_GW_SIP_WAN
    transport-protocol udp+tcp 5060
    no transport-protocol tls
    bind ipaddress ROUTER IF_WAN IF_WAN

context sip-gateway GW_SIP_WAN
  notify check-sync accept
  no shutdown
This is where the forwarding and reception of SIP packets is done.

port ethernet 0 0
  bind interface ROUTER IF_WAN
  no shutdown

port ethernet 0 1
  bind bridge-group BG
  no shutdown

port ethernet 0 2
  bind bridge-group BG
  no shutdown

port ethernet 0 3
  bind bridge-group BG
  no shutdown
This is where the physical setup of Ethernet Ports is done.
```

Configuration Files

SmartNode Trinity Configuration Files	Description
Trinitytable entry can you provide ch y 3.x.x.tar	Contains the device firmware load.
SmartNode Trinity_SBC	Contains configurable parameters for the session controller device.

4.2 System Configuration

This section describes system configuration items required for the SmartNode Trinity.

4.2.1 Configure Network Interfaces

This section describes how to configure the SmartNode Trinity network interfaces.

Step	Command	Description
Step 1	`context ip <cr>`	Enters the Context IP section of config.
Step 2	`interface <interface name>` For example, interface IF_WAN.	Enters the IP interface.
Step 3	`ipaddress <SmartNode Trinity IP address> <netmask>` For example, ipaddress IF_WAN 1.1.1.2/28	Enter IP Address of the SmartNode Trinity (LAN or WAN side).

4.2.1.1 Configure IPV6 Settings

SmartNode Trinity does not support IPv6.

4.2.2 Configure Redundancy

This section describes how to configure the SmartNode Trinity for server redundancy.

Step	Command	Description
Step 1	`context cs <cr>`	Enters the Context CS section of config.
Step 2	`service hunt-group <HG name>` For example, service hunt-group HG_REDUNDANCY.	Enters the hunt-group service.
Step 3	`route call dest-interface <Broadsoft SIP interface name>` For example, route call 1 dest-interface IF_SIP_BROADSOFT.	Specifies a primary route to BroadSoft servers.
Step 4	`route call dest-service <HG service name>` For example, route call 2 dest-service SIP_LOCATION_SERVICE.	Specifies the redundant route to take in case of WAN outage.

4.3 SIP Configuration

This section identifies the SmartNode Trinity configuration to enable SIP on the access and core side of the SBC.

4.3.1 Configure SIP Core Side

4.3.1.1 Configure SIP Parameters

This section describes how to configure SIP parameters such as timers and headers.

Step	Command	Description
Step 1	`context cs <cr>`	Enters the context CS section.

Step	Command	Description
Step 2	`interface sip <Broadsoft SIP interface name>` For example, interface sip IF_SIP_BROADSOFT.	Enters the SIP interface for communication with BroadSoft. SIP header and timer values are set here.

4.3.1.2 Configure BroadWorks SIP Peers

This section describes how to configure the SmartNode Trinity with BroadWorks Application Server and Network Server peer(s).

Step	Command	Description
Step 1	`context cs <cr>`	Enters the context CS section.
Step 2	`Interface sip <Broadsoft SIP interface name>` For example, interface sip IF_SIP_BROADSOFT.	Enters the SIP interface for BroadSoft.
Step 3	`remote <Broadworks server FQDN>` For example, remote as.iop1.broadworks.net.	Builds the host part of the To-Header-URI and the Request-URI.

4.3.1.3 Configure Registration

This section describes how to configure the SmartNode Trinity core-side registration settings.

Step	Command	Description
Step 1	`authentication-service <WAN Auth svc name>` For example, authentication-service AUTH_SVC_BROADSOFT.	Enters into the authentication service to set the username and passwords.
Step 2	`realm <realm address>` For example, realm as.iop1.broadworks.net.	Enters a Realm for authentication. If left blank, the credentials are used for any realm.
Step 3	`username <Broadworks username> password <Broadworks password>` For example, username 2404985261 password user_password.	Creates the username and password used for authentication and registration.
Step 4	`location-service <Location svc name>` For example, location-service LOC_SVC_BROADSOFT.	Enters into the location service to set up users.
Step 5	`domain <domain IP Address or FQDN>` For example, domain 1 as.iop1.broadsoft.net.	Specifies the domains that this location service is responsible for.
Step 6	`identity <Broadworks BWDN>` For example, identity 2404985261.	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	Command	Description
Step 8	`authenticate authentication-service <Auth svc name> username <Broadworks username>` For example, authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985261.	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.

4.3.1.4 Configure Failover/Failback for BroadWorks Redundancy

This section describes how to configure the SmartNode Trinity failover and failback mechanism to support BroadWorks redundant Application Servers and Network Servers.

Step	Command	Description
Step 1	`context cs <cr>`	Enters the context CS section of config.
Step 2	`Interface sip <interface name>` For example, interface sip IF_SIP_BROADSOFT.	Enters the SIP interface.
Step 3	`penalty-box sip-option-trigger interval 20 timeout 20 <cr>`	A failed destination is put into the penalty box. Any destination that is not in the penalty box has a higher priority for use as destinations listed in the penalty box.

4.3.1 Configure SIP Access Side

4.3.1.1 Configuration for Registering Devices

This section describes how to configure the SmartNode Trinity for registering access device peers such as SIP phones.

Step	Command	Description
Step 1	`authentication-service <LAN Auth svc name>` For example, authentication-service AUTH_SVC_LAN.	Enters into the authentication service to set the 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>` For example, username 2404985261 password user_password.	Creates username and password used for authentication and registration.
Step 4	`location-service <Location svc name>` For example, location-service LOC_SVC_LAN.	Enters into the location service to set up users.
Step 5	`domain <domain IP Address or FQDN>` For example, domain 1 10.10.10.1.	Specifies the domains that this location service is responsible for.

Step	Command	Description
Step 6	`identity <Local BWDN>` For example, identity 2404985261.	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>` For example, authenticate 1 authentication-service AUTH_SVC_LAN username 2404985261.	Specifies which credentials to use for authentication.
Step 9	`registration outbound <cr>`	Enters the outbound registration section.

4.3.1.2 Configuration for Non-registering Devices

Call routing accomplishes this, which can be done many ways. Contact support@patton.com for questions concerning non-registering devices.

4.3.1.3 Configuration for GIN Registering Devices

SmartNode Trinity does not support GIN registration.

4.3.1.4 Configuration for Pilot Registering Devices

SmartNode Trinity does not support pilot or surrogate registration.

4.4 Remote Survivability Configuration

SmartNode Trinity does not support Remote Survivability.

5 Device Management

The BroadWorks Device Management feature provides the capability to automate generation of device configuration files to support mass deployment of devices. This section identifies the Device Management capabilities supported by the Patton SmartNode Trinity SBC devices and the configuration steps required. For Device Management configuration details not covered here, see the *BroadWorks Device Management Configuration Guide* [6] and the *BroadWorks CPE Kit Usage Guide* [8].

5.1 Device Management Capabilities Supported

The Patton SmartNode Trinity SBC has completed Device Management interoperability testing with BroadWorks using the *BroadWorks Device Management Interoperability Test Plan* [7]. The results are summarized in the following table.

The BroadWorks test plan is composed of packages, each covering distinct interoperability areas. Each package is composed of one or more test items, which in turn, are composed of one or more test cases. The test plan exercises the Device Management interface between the device and BroadWorks with the intent to ensure interoperability.

The *Supported* column in the following table identifies the Patton SmartNode Trinity SBC's support for each of the items covered in the test plan packages, with the following designations:

- Yes Test item is supported
- No Test item is not supported
- NA Test item is not applicable
- NT Test item was not tested

Caveats and clarifications are identified in the *Comments* column.

NOTE: *DUT* in the following table refers to the *Device Under Test*, which in this case is the Patton SmartNode Trinity SBC.

BroadWorks Device Management Interoperability Test Plan Support Table			
Test Plan Package	**Test Plan Package Items**	**Supported**	**Comments**
HTTP File Download	HTTP Download Using Xtended Services Platform (Xsp) IP Address	Yes	
	HTTP Download Using Xtended Services Platform FQDN	Yes	
	HTTP Download Using Xtended Services Platform Cluster FQDN	Yes	
	HTTP Download With Double Slash	Yes	
HTTPS File Download	HTTPS Download Using Xtended Services Platform IP Address	Yes	
	HTTPS Download Using Xtended Services Platform FQDN	Yes	
	HTTPS Download Using Xtended Services Platform Cluster FQDN	Yes	

BroadWorks Device Management Interoperability Test Plan Support Table			
Test Plan Package	**Test Plan Package Items**	**Supported**	**Comments**
File Inspection	Inspect System Config File	Yes	
	Inspect Device-Specific Config File	Yes	
	Inspect Other Config Files	NA	
	Inspect Static Files	Yes	
Device Inspection	Inspect SIP Settings	Yes	
	Inspect Line Settings	Yes	
	Inspect Service Settings	Yes	
HTTP File Upload	HTTP Upload Using Xtended Services Platform IP Address	No	
	HTTP Upload Using Xtended Services Platform FQDN	No	
	HTTP Upload Using Xtended Services Platform Cluster FQDN	No	
Call Processing Sanity Tests	Register with Authentication	Yes	
	Call Origination	Yes	
	Call Termination	Yes	
	Remote Restart	Yes	
	Shared Line Origination	No	
	Shared Line Termination	No	
	Shared Line Status	No	
	Busy Lamp Field	No	
	Network-Based Conference	No	
Flexible Seating	Association via Voice Portal	No	
	Association via Phone	No	

5.2 Device Management Configuration

This section identifies the steps required to enable the Patton SmartNode Trinity SBC for device management. For Device Management configuration details not covered here, see the *BroadWorks Device Management Configuration Guide* [6] and the *BroadWorks CPE Kit Usage Guide* [8].

5.2.1 Configure BroadWorks Tags

The template files in Device Management use tags to represent the data stored on BroadWorks. When a configuration changes for a user, Device Management parses the template files and replaces the Device Management tags with the associated data stored on BroadWorks. There are default tags defined in the Device Management software and there are custom tags that the service provider can create and define via the web portal for use by Device Management. There are two types of custom tags that can be defined: system-default tags that are common to all devices on the system and device type-specific tags that are common to Patton SmartNode Trinity SBC device models only.

The Patton SmartNode Trinity SBC makes use of custom tags which can be configured by a BroadWorks administrator as either system default or device type-specific tags. This section identifies the required tags.

5.2.1.1 Create System Default Tags

Browse to *System* → *Resources* → *Device Management Tag Sets* and select the *System Default* tag set. The Patton SmartNode Trinity SBC configuration templates make use of the tags in the following table. Add the tags if they do not already exist.

Tag Name	Valid Settings	Description
%SNTP_SERVER%	IP address/FQDN	Network Time Protocol (NTP) server address.
%DNS_SERVER%	IP address	DNS server address.
%SBC_ADDRESS%	IP address/FQDN	SBC SIP address.
%SBC_PORT%	Port	SBC SIP port. The port should be set if the defined session border controller (SBC) address is an IP address. If the SBC address is an FQDN, then the SBC port should not be set.

Example System Default Tag Settings

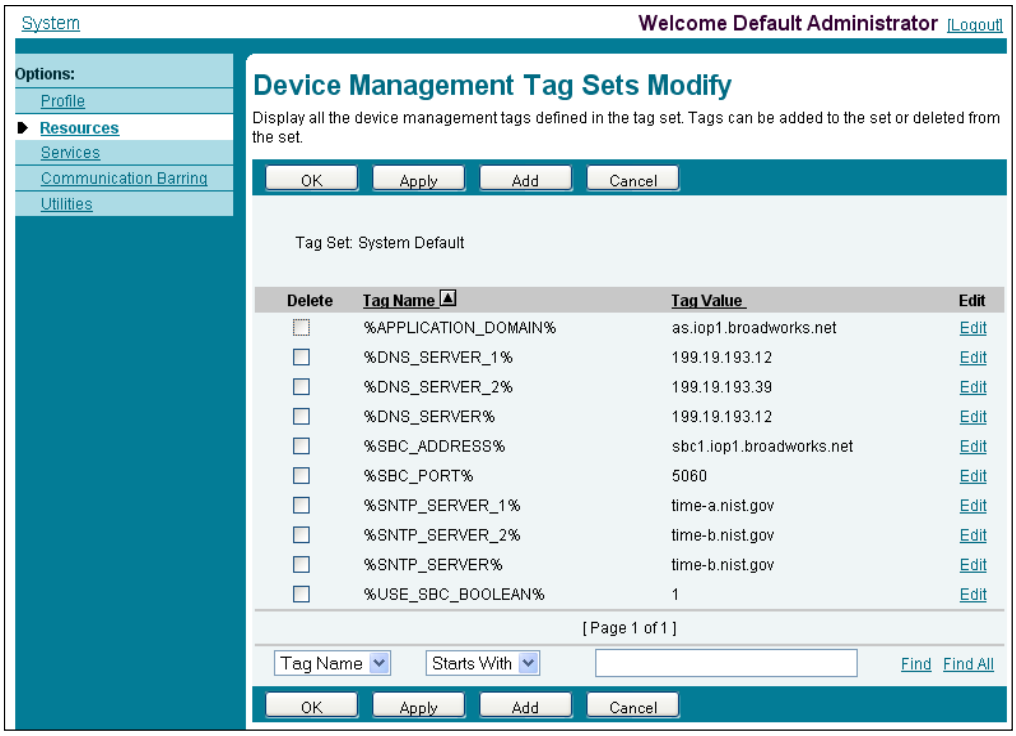

Figure 3 System Default Tag Settings

5.2.1.2 Create Device Type-specific Tags

Browse to *System* → *Resources* → *Device Management Tag Sets* and then click **Add** to add a new tag set. Configure the tag set name using the device name appended by *Tags*: Patton SmartNode Trinity SBC *Tags*. Add the device type specific tags in the following table to the device tag set. If the tag set already exists, make sure the following tags are defined.

Tag Name	Valid Settings	Description
%ADMIN_NAME%		Username for Administrator Account. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%ADMIN_PASSWORD%		Password for Administrator Account. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%DEF_GW%	IP address	Default IP Gateway of the IP Network. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%WAN_IP%	IP address or "DHCP"	IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%WAN_NETMASK%	Valid IPv4 Netmask	Netmask of the SmartNode's WAN interface. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%LAN_IP%	IP address or "DHCP"	IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)

Tag Name	Valid Settings	Description
%LAN_NETMASK%	Valid IPv4 Netmask	Netmask of the SmartNode's LAN interface. (This is a space holder. The actual value for each device should be entered at the device profile level per the instructions in section *5.2.3 Create Device Profile Instance*.)
%LAN_IP_START_RANGE%	Valid IPv4 Address	Starting IP Address for LAN devices using SBC as DHCP Server.
%LAN_IP_STOP_RANGE%	Valid IPv4 Address	Ending IP Address for LAN devices using SBC as DHCP Server.
%SYSTEM_HOSTNAME%	Must start with a letter, end with a letter or digit, and have as interior characters only letters, digits, and hyphens. Names must be 63 characters or fewer.	The system hostname is used to uniquely identify the Patton device in your network.

Example Device Type-specific Tag Settings

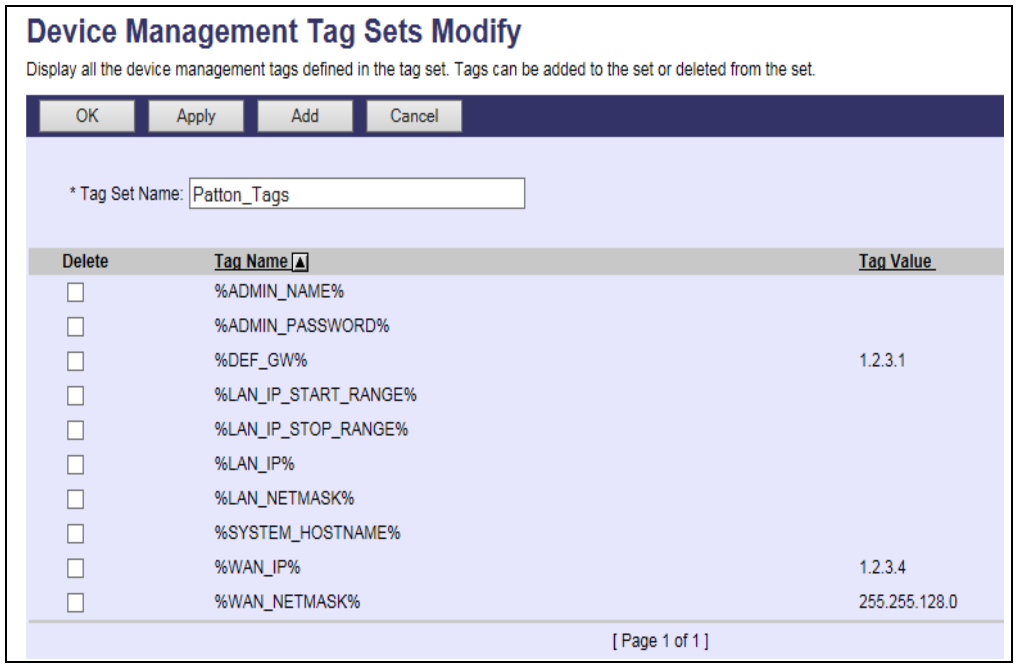

Figure 4 Device Type-specific Tag Settings

5.2.2 Configure BroadWorks Device Profile Type

The device profile type is a system-level structure that defines how the device interfaces with BroadWorks. It also identifies the default configuration files and other files, such as firmware, which are required for the device to operate correctly. The device profile type is created by the system administrator. Group administrators use the device profile type to create a device profile. The device profile is an instance of the device profile type that is associated with a physical device.

There are two BroadWorks device profile configuration methods described: import and manual. The import method takes a DTAF as input and builds the BroadWorks device profile type(s) automatically. The manual method takes the administrator through the steps to manually add and configure the device profile type(s).

The import method should be used if all of the following prerequisites are met:

The BroadWorks Release is 17.0 or later.

The device profile type(s) being imported do not already exist on the system. (If either a previous import or manual configuration was done, then the import fails.)

There is a DTAF file available for import with a BroadWorks release level that is the same as or prior to the release to which it is being imported. If the DTAF file is at a release level later than the release being imported to, then the import can fail.

Otherwise, use the manual method.

For more detailed instructions, see the *BroadWorks CPE Kit Usage Guide* [8] and the *BroadWorks Device Management Configuration Guide* [6].

5.2.2.1 Configuration Method 1: Import

This section identifies the steps necessary to make use of the Device Management import feature to configure BroadWorks to add the Patton SmartNode Trinity SBC as a Device Management-enabled device type. Also, see the *BroadWorks CPE Kit Usage Guide* [8].

Download the Patton SmartNode Trinity SBC CPE kit from BroadSoft Xchange at xchange.broadsoft.com. Extract the DTAF file(s) from the CPE kit. These are the import files. Repeat the following steps for each model you wish to import.

1) Log in to BroadWorks as an administrator.
2) Browse to System → Resources → Identity/Device Profile Types and then click **Import**.
3) Select **Browse** to find the extracted DTAF file for the model and then click **OK** to start the import.
4) After the import finishes, complete the following post-import configuration steps:
   - Browse to *System* → *Resources* → *Identity/Device Profile Types*.
   - Perform a search to find the imported Patton device profile type, “Patton_SN5490”.
   - Browse to the *Profile* page and change the Device Management Device Access FQDN to your Xtended Services Platform (Xsp) or Xtended Services Platform cluster address.

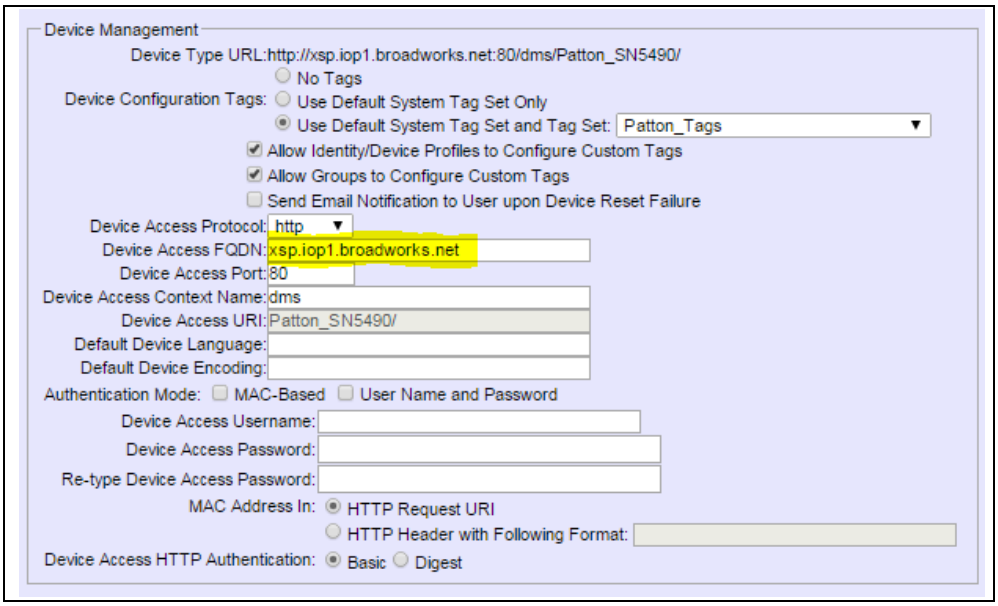

Figure 5 Device Access FQDN

5) Click the **Files and Authentication** link and then select the option to rebuild all the system files.

Firmware files must be obtained from Patton. These files are not included in the import. Complete the steps in section *5.2.2.2.2 Define Device Profile Type Files* to define the static firmware files and to upload the firmware.

NOTE: The non-firmware static files in section *5.2.2.2.2 Define Device Profile Type Files* are normally included in the import.

5.2.2.2 Configuration Method 2: Manual

This section identifies the basic steps necessary for an administrator to manually configure BroadWorks to add the Patton SmartNode Trinity SBC as a Device Management-enabled device type. This method should not be used except in special cases as described in the opening to section *5.2.2 Configure BroadWorks Device Profile Type*.

For more detailed instructions on manual configuration, see the *BroadWorks CPE Kit Usage Guide* [8] and the *BroadWorks Device Management Configuration Guide* [6].

The steps in this section can also be followed to update previously imported or configured device profile type(s) with new configuration files and firmware.

If there are DTAFs for more than one device model, these steps must be completed for each model.

5.2.2.2.1 Create or Modify Device Profile Type

This section identifies the BroadWorks device profile type settings relevant to Device Management for the Patton SmartNode Trinity SBC.

Browse to *System* → *Resources* → *Identity/Device Profile Types* and perform a search to find the Patton SmartNode Trinity SBC device profile type(s) created in section *3.1 BroadWorks Device Profile Type Configuration* or add the device profile type for each model using the settings from section *3.1 BroadWorks Device Profile Type Configuration* if they do not exist.

Configure the device profile type *Signaling Address Type*, *Standard* and *Advanced* options settings to match the settings in section *3.1 BroadWorks Device Profile Type Configuration*.

Configure the device profile type *Device Management* options as shown in section *5.2.2.1 Configuration Method 1: Import*.

The following subsections identify the required settings specific to Device Management.

5.2.2.2.2 Define Device Profile Type Files

This section describes the BroadWorks Device Management configuration necessary to identify the configuration files and other files that the Patton SmartNode Trinity SBC downloads.

Configuration templates, firmware, and other files the SmartNode Trinity SBC uses must be uploaded to BroadWorks. Download the Patton SmartNode Trinity SBC CPE kit from BroadSoft Xchange at xchange.broadsoft.com. Extract the configuration files from the *Configuration Files* folder of CPE kit. Obtain the firmware files directly from Patton.

The following table identifies the Patton configuration files distributed with the CPE kit.

File Name	CPE Kit Template File Name	File Type	Description
Examples			
Patton_SN5300_%BWMACADDRESS%.cfg	*Pattaon_SN5300_%BWMACADDRESS%.cfg.template*	Device-specific	This file contains all the configuration that the SN5300 device needs to load.
Patton_SN5480_%BWMACADDRESS%.cfg	*Pattaon_SN5480_%BWMACADDRESS%.cfg.template*	Device-specific	This file contains all the configuration that the SN5480 device needs to load.
Patton_SN5490_%BWMACADDRESS%.cfg	*Pattaon_SN5490_%BWMACADDRESS%.cfg.template*	Device-specific	This file contains all the configuration that the SN5490 device needs to load.
Patton_SN5530_%BWMACADDRESS%.cfg	*Pattaon_SN5530_%BWMACADDRESS%.cfg.template*	Device-specific	This file contains all the configuration that the SN5530 device needs to load.
Patton_SN5570_%BWMACADDRESS%.cfg	*Pattaon_SN5570_%BWMACADDRESS%.cfg.template*	Device-specific	This file contains all the configuration that the SN5570 device needs to load.

Browse to *System* → *Resources* → *Identity/Device Profile Types* → *Files and Authentication* to add the files as described in the following subsections.

5.2.2.2.2.1 Device-Specific Files

Add the MACAddress.cfg file to the device profile type with the settings shown in *Figure 6*.

After creating the device profile type file, upload MACAddress.cfg extracted from the CPE kit. Use the **Browse** button on the file definition screen. Be sure to click **Apply** after uploading the file.

Figure 6 MACAdress.cfg File Settings

5.2.3 Create Device Profile Instance

The previous sections defined the device profile type such that the system is ready to mass deploy device profiles. A device profile is an instance of the device profile type and defines the BroadWorks interface to an individual Patton Trinity SBC device.

Browse to the BroadWorks *<group>* → *Resources* → *Identity/Device Profiles* page and then select **Add** to add a new Patton SmartNode Trinity SBC device profile. Configure the device profile as shown in the example in *Figure 7 Device Profile Instance*.

Figure 7 Device Profile Instance

Provide device-specific tag values by browsing to the under *Custom Tags* tab, set the parameters as described in the following table.

Parameter	Value	Description
Common Custom Tags (Must be defined for all SmartNode devices)		
%ADMIN_NAME%	<Administrator Username> Example: administrator	Username for Administrator Account.
%ADMIN_PASSWORD%	<Administrator Password> Example: 123456	Password for Administrator Account.
%DEF_GW%	IP Address Example: 1.2.3.1	Default IP Gateway of the IP Network.
%WAN_IP%	IP Address Example: 1.2.3.4	IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server.
%WAN_NETMASK%	Netmask Example: 255.255.128.0	Netmask of the SmartNode's WAN interface.
%LAN_IP%	IP Address Example: 1.2.3.5	IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server.
%LAN_NETMASK%	Netmask Example: 255.255.128.0	Netmask of the SmartNode's LAN interface.

Parameter	Value	Description
Common Custom Tags (Must be defined for all SmartNode devices)		
%LAN_IP_START_RANGE%	Example: 10.10.10.100	Starting IP Address for LAN devices using SBC as DHCP Server.
%LAN_IP_STOP_RANGE%	Example: 10.10.10.200	Ending IP Address for LAN devices using SBC as DHCP Server.
%SYSTEM_HOSTNAME% *Replace "x" with numeric value of 1-4.	Example: TRINITY_SMARTNODE_SBC	

5.2.4 Configure BroadWorks User

Configure the user with the desired BroadWorks configuration and services. Any services that require a specific configuration on the device are managed via Device Management and are defined in the device configuration files, if the template files are created with the correct Device Management tags.

The device profile created in the previous section must be assigned to the BroadWorks user. Assigning the device profile to the user automatically causes the Device Management feature to generate the device configuration files for this user's device.

To assign the device profile to the user, browse to the BroadWorks *<user>* → *Addresses.*

5.2.5 Configure Patton SmartNode Trinity SBC

This section describes the steps necessary to configure the Patton SmartNode for integrating with BroadWorks Device Management.

1) Connect to the SmartNode. You can access the SmartNode through Telnet/SSH using options A or B, depending on the model of your SmartNode.
   – Ethernet port 0/0 acts as a DHCP Client to take a DHCP address from your networks DHCP Server. You can then use the SmartNode Discovery tool to find the IP address assigned to the unit.

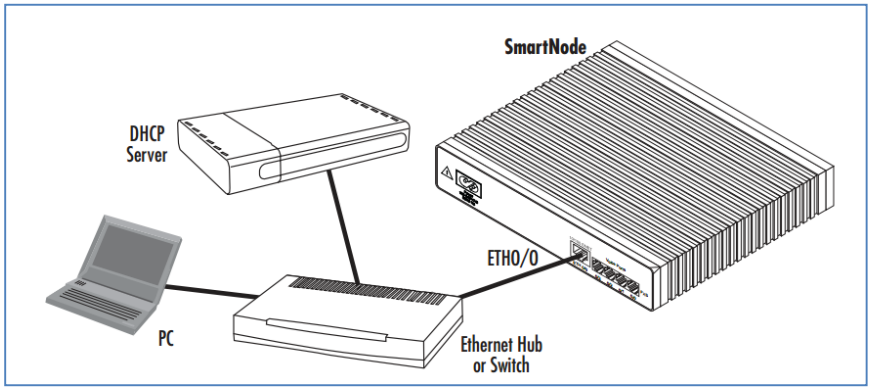

Figure 8 SmartNode as DHCP Client

   – Ethernet port 0/1 acts as a DHCP Server. You can connect this directly to your computer and it can receive a DHCP address from the SmartNode.

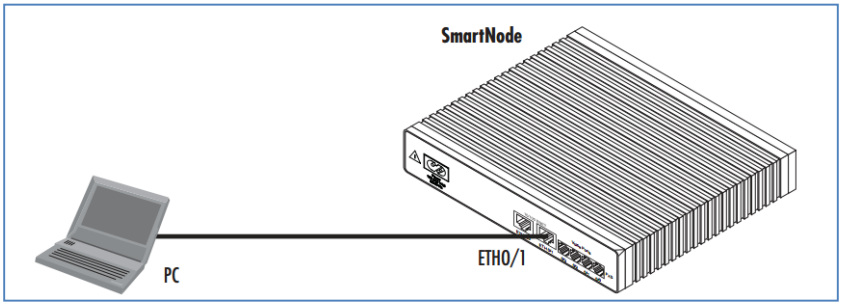

Figure 9 SmartNode as DHCP Server

2) Once connected, a login screen appears. The factory default username is "administrator" and the password is left blank.

Example:

```
login: administrator

password:

10.10.50.106> enable

10.10.50.106> configure
```

3) Once logged in, you need to configure the following to enable the auto provisioning.

Example (update the server address and device access URI per deployment environment):

SN5300:

```
profile provisioning PF_PRO_BROADSOFT

destination configuration

location 1
http://xsp.iop1.broadworks.net/dms/Patton_SN5300/Patton_SN5300_$(s
ystem.mac).cfg

location 2
http://xsp.iop1.broadworks.net/dms//Patton_SN5300/Patton_SN5300_$(
system.mac).cfg

location 3
http://199.19.193.16/dms//Patton_SN5300/Patton_SN5300_$(system.mac
).cfg

activation reload immediate
```

SN5480:

```
profile provisioning PF_PRO_BROADSOFT
destination configuration
location 1
http://xsp.iop1.broadworks.net/dms/Patton_SN5480/Patton_SN5480_$(s
ystem.mac).cfg
location 2
http://xsp.iop1.broadworks.net/dms//Patton_SN5480/Patton_SN5480_$(
system.mac).cfg
location 3
http://199.19.193.16/dms//Patton_SN5480/Patton_SN5480_$(system.mac
).cfg
activation reload immediate
```

SN5490:

```
profile provisioning PF_PRO_BROADSOFT
destination configuration
location
http://xsp.iop1.broadworks.net/dms/Patton_SN5490/Patton_SN5490_$(s
ystem.mac).cfg
location 2
http://xsp.iop1.broadworks.net/dms//Patton_SN5490/Patton_SN5490_$(
system.mac).cfg
location 3
http://199.19.193.16/dms//Patton_SN5490/Patton_SN5490_$(system.mac
).cfg
activation reload immediate
```

SN5530:

```
profile provisioning PF_PRO_BROADSOFT
destination configuration
location 1
http://xsp.iop1.broadworks.net/dms/Patton_SN5530/Patton_SN5530_$(s
ystem.mac).cfg
location 2
http://xsp.iop1.broadworks.net/dms//Patton_SN5530/Patton_SN5530_$(
system.mac).cfg
location 3
http://199.19.193.16/dms//Patton_SN5530/Patton_SN5530_$(system.mac
).cfg
activation reload immediate
```

SN5570:

```
profile provisioning PF_PRO_BROADSOFT
destination configuration
location 1
http://xsp.iop1.broadworks.net/dms/Patton_SN5570/Patton_SN5570_$(s
ystem.mac).cfg
location 2
http://xsp.iop1.broadworks.net/dms//Patton_SN5570/Patton_SN5570_$(
system.mac).cfg
location 3
http://199.19.193.16/dms//Patton_SN5570/Patton_SN5570_$(system.mac
).cfg
activation reload immediate
```

4) Once step 3 is configured, the Patton SmartNode executes the provisioning request to the BroadWorks server, GET the config stored and then reload itself.

Your Patton SmartNode Trinity SBC is now configured and ready for service.

For further references:

Patton Support website: http://www.patton.com/support/

E-mail Patton Technical Support: support@patton.com

Call Patton Technical Support: 301.975.1007

Patton Support Online Knowledge Base: http://www.patton.com/support/kb.asp

5.3 Upgrade from Previous CPE Kits

The previous configuration sections are primarily structured around importing or manually configuring the SmartNode Trinity device profile types for the first time. Many of the steps are unnecessary when upgrading to a new firmware release or CPE kit version.

For general instructions on upgrading, see the *BroadWorks CPE Kit Usage Guide* [8].

Appendix A: Reference SmartNode Trinity Configuration

The following is a reference configuration for the SmartNode Trinity configured for use with BroadWorks.

Sample Config:

```
#------------------------------------------------------------------#
#                                                                  #
# Patton Electronics Company                                       #
# SmartNode Trinity                                                #
# Release: Trinity 3.x                                             #
# Generated configuration file                                     #
#                                                                  #
#------------------------------------------------------------------#

cli version 4.00
superuser admin1 password admin1
administrator admin2 password admin2
system hostname TRINITY_SN
rtp-port-range 6000 9999
switch mode groups

actions

  rule PROV_STARTUP
    condition ip address:WAN.DHCP LINKUP initial
    action 1 "provisioning execute PF_PROVISIONING_CONFIG"

profile aaa DEFAULT
  method 1 local
  method 2 none

console
  use profile aaa DEFAULT

telnet-server
  use profile aaa DEFAULT
  no shutdown

ssh-server
  use profile aaa DEFAULT
  no shutdown

snmp-server
  shutdown

web-server http
  use profile aaa DEFAULT
  no shutdown

ntp
  server time-nist.gov
  no shutdown

profile napt DEFAULT

dns-server
  host 8.8.8.8 DNS
  relay dns-client
  no shutdown

profile dhcp-server DHCPS_LAN
  lease 2 hours
  default-router 10.10.10.1
  domain-name-server 10.10.10.1
  include 10.10.10.100 10.10.10.200
```

```
profile tls DEFAULT
  authentication incoming
  authentication outgoing
  private-key pki:private-key/DEFAULT
  own-certificate 1 pki:own-certificate/DEFAULT

profile voip DEFAULT
  codec 1 g711alaw64k rx-length 20 tx-length 20
  codec 2 g711ulaw64k rx-length 20 tx-length 20
  codec 3 g729 rx-length 20 tx-length 20
  fax transmission 1 relay t38-udp
  fax transmission 2 bypass g711ulaw64k rx-length 20 tx-length 20

profile sip DEFAULT

context ip ROUTER

  interface IF_WAN
    ipaddress IF_WAN 1.1.1.2/28
    use profile napt DEFAULT IF_WAN

  interface IF_LAN
    ipaddress IF_LAN 10.10.10.1/24
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

  routing-table DEFAULT
    route 0.0.0.0/0 gateway 1.1.1.1 metric 0

profile ppp DEFAULT

context bridge

  bridge-group BG
    no shutdown
    bind interface ROUTER IF_LAN

context switch-group DEFAULT
  shutdown

context cs SWITCH
  no shutdown

  interface sip IF_SIP_BROADSOFT
    bind context sip-gateway GW_SIP_WAN
    route call dest-service SIP_LOCATION_SERVICE
    remote as.iop1.broadsoft.net
    penalty-box sip-option-trigger interval 20 timeout 20
    trust remote

  interface sip IF_SIP_LAN
    bind context sip-gateway GW_SIP_LAN
    route call dest-service HG_REDUNDANCY
    local 10.10.10.1 5060

  service sip-location-service SIP_LOCATION_SERVICE
    bind location-service LOC_SVC_LAN

  service hunt-group HG_REDUNDANCY
    drop-cause normal-unspecified
    drop-cause no-circuit-channel-available
    drop-cause network-out-of-order
    drop-cause temporary-failure
    drop-cause switching-equipment-congestion
    drop-cause access-info-discarded
    drop-cause circuit-channel-not-available
    drop-cause resources-unavailable
    route call 1 dest-interface IF_SIP_BROADSOFT
    route call 2 dest-service SIP_LOCATION_SERVICE

  service bridge GROUP1
```

```
    no shutdown

authentication-service AUTH_SVC_BROADSOFT
  realm 1 as.iop1.broadsoft.net
  username 2404985261 password user_password
  username 2404985262 password user_password
  username 2404985263 password user_password
  username 2404985264 password user_password
  username 2404985265 password user_password
  username 2404985266 password user_password
  username 2404985267 password user_password
  username 2404985268 password user_password

authentication-service AUTH_SVC_LAN
  username 2404985261 password user_password
  username 2404985262 password user_password
  username 2404985263 password user_password
  username 2404985264 password user_password
  username 2404985265 password user_password
  username 2404985266 password user_password
  username 2404985267 password user_password
  username 2404985268 password user_password


location-service LOC_SVC_BROADSOFT
  domain 1 as.iop1.broadsoft.net
  match-any-domain

  identity-group default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT

    registration outbound
      register auto

    message inbound
      message-server as.iop1.broadsoft.net
      lifetime 180
      subscribe explicit

  identity 2404985261 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985261

  identity 2404985262 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985262

  identity 2404985263 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985263

  identity 2404985264 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985264

  identity 2404985265 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985265

  identity 2404985266 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985266
```

```
  identity 2404985267 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985267

  identity 2404985268 inherits default

    authentication outbound
      authenticate 1 authentication-service AUTH_SVC_BROADSOFT username 2404985268

location-service LOC_SVC_LAN
  domain 1 10.10.10.1
  match-any-domain

  identity 2404985261

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985261

    registration inbound

  identity 2404985262

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985262

    registration inbound

  identity 2404985263

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985263

    registration inbound

  identity 2404985264

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985264

    registration inbound

  identity 2404985265

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985265

    registration inbound

  identity 2404985266

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985266

    registration inbound

  identity 2404985267

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985267

    registration inbound

  identity 2404985268

    authentication inbound
      authenticate 1 authentication-service AUTH_SVC_LAN username 2404985268

    registration inbound

context sip-gateway GW_SIP_LAN
```

```
  bind location-service LOC_SVC_LAN

  interface IF_GW_SIP_LAN
    transport-protocol udp+tcp 5060
    no transport-protocol tls
    bind ipaddress ROUTER IF_LAN IF_LAN

context sip-gateway GW_SIP_LAN
  no shutdown

context sip-gateway GW_SIP_WAN
  bind location-service LOC_SVC_BROADSOFT

  interface IF_GW_SIP_WAN
    transport-protocol udp+tcp 5060
    no transport-protocol tls
    bind ipaddress ROUTER IF_WAN IF_WAN

context sip-gateway GW_SIP_WAN
  notify check-sync accept
  no shutdown

port ethernet 0 0
  bind interface ROUTER IF_WAN
  no shutdown

port ethernet 0 1
  bind bridge-group BG
  no shutdown

port ethernet 0 2
  bind bridge-group BG
  no shutdown

port ethernet 0 3
  bind bridge-group BG
  no shutdown
```

Factory Config:

```
#-----------------------------------------------------------------#
#                                                                 #
# Shipping Configuration                                          #
# SN5300/4B/EUI                                                   #
#                                                                 #
#-----------------------------------------------------------------#


cli version 4.00

snmp shutdown

rtp-port-range 6000 9999


actions


  rule PROV_STARTUP

    condition ip address:WAN.DHCP LINKUP initial

    action 1 "provisioning execute PF_PROVISIONING_CONFIG"


profile aaa DEFAULT
```

```
  method 1 local rule required
  method 2 none rule required

console
  use profile aaa DEFAULT

telnet-server
  use profile aaa DEFAULT
  no shutdown

ssh-server
  use profile aaa DEFAULT
  no shutdown

web-server http
  use profile aaa DEFAULT
  no shutdown

ntp
  server 0.patton.pool.ntp.org
  server 1.patton.pool.ntp.org
  server 2.patton.pool.ntp.org
  server 3.patton.pool.ntp.org
  no shutdown

profile napt NAPT_WAN

dns-server
  no shutdown

profile dhcp-server DHCPS_LAN
  network 192.168.1.0/24
  lease 24 hours
  default-router 192.168.1.1
  domain-name-server 192.168.1.1
  include 192.168.1.10 192.168.1.99

profile provisioning PF_PROVISIONING_CONFIG
  destination configuration
  activation reload immediate
```

```
  location 1
http://redirect.patton.com/$(system.mac);mac=$(system.mac);serial=$(system.serial);
hwMajor=$(system.hw.major);hwMinor=$(system.hw.minor);swMajor=$(system.sw.major);sw
Minor=$(system.sw.minor);swDate=$(system.sw.date);productName=$(system.product.name
);cliMajor=$(cli.major);cliMinor=$(cli.minor);osName=Trinity;subDirTrinity=/Trinity
;subDirTrinity=;dhcp66=$(dhcp.66);dhcp67=$(dhcp.67)
  location 2 $(dhcp.66)
  location 3 $(dhcp.66)/$(system.mac).cfg
  location 4 http://$(dhcp.66)/$(dhcp.67)
  location 5 http://$(dhcp.66)/$(system.mac).cfg
  location 6 tftp://$(dhcp.66)/$(dhcp.67)
  location 7 tftp://$(dhcp.66)/$(system.mac).cfg


profile voip DEFAULT
  codec 1 g711alaw64k rx-length 20 tx-length 20
  codec 2 g711ulaw64k rx-length 20 tx-length 20


profile sip DEFAULT


context ip ROUTER


  interface WAN
    ipaddress DHCP
    use profile napt NAPT_WAN DHCP


  interface LAN
    ipaddress LAN 192.168.1.1/24


  routing-table DEFAULT


context ip ROUTER
  use profile dhcp-server DHCPS_LAN


profile ppp DEFAULT


context switch-group DEFAULT
  bind interface ROUTER LAN
  no shutdown


  interface ETHERNET_0_1


  interface ETHERNET_0_2


  interface ETHERNET_0_3
```

```
port ethernet 0 0
  bind interface ROUTER WAN
  no shutdown

port ethernet 0 1
  bind switch-group DEFAULT ETHERNET_0_1
  no shutdown

port ethernet 0 2
  bind switch-group DEFAULT ETHERNET_0_2
  no shutdown

port ethernet 0 3
  bind switch-group DEFAULT ETHERNET_0_3
  no shutdown
```

References

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