



# BroadSoft Partner Configuration Guide

Patton SmartNode

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## **BroadWorks<sup>®</sup> Guide**

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## Document Revision History

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| Version | Reason for Change  |
|---------|--|
| 1.1     | Introduced document for Patton SmartNode R6.T validation with BroadWorks Release 18.sp1. |
| 1.2     | Edited and published document.   |
| 1.3     | Document updated with Device Management support.   |
| 1.4     | Edited changes and published document.   |

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## 1 Overview

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

This includes the following Patton SmartNode access device models:

- SN-DTA
- SN4110
- SN4300
- SN4400
- SN4520
- SN4550
- SN4630
- SN4660
- SN4670
- SN4850
- SN4900
- SN4940
- SN4950
- SN4960
- SN4970
- SN4980
- SN4990
- SN5200
- SN5221
- SN5280
- SN5400
- SN5480
- SN5490

The SmartNode is an access device that uses the Session Initiation Protocol (SIP) to communicate with BroadWorks for call control.

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. For more information, see the *SmartWare Configuration Guide* [\[1\]](#).

## 2 Interoperability Status

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

Interoperability testing validates that the device interfaces properly with BroadWorks via the SIP interface. Qualitative aspects of the device or device capabilities not affecting the SIP interface such as display features, performance, and audio qualities 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 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 versions which the partner has identified as compatible and 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 using the *BroadWorks SIP Access Device Interoperability Test Plan* [4].

#### Verified Versions

| Date (mm/yyyy) | BroadWorks Release | Patton SmartNode Verified Version | Patton SmartNode Compatible Versions             |
|----------------|--------------------|-----------------------------------|--|
| 03/2013        | Release 18.sp1     | R6.T                              | Any maintenance release of the verified version. |

## 2.2 Interface Capabilities Supported

The Patton SN4524 has completed interoperability testing with BroadWorks using the *BroadWorks SIP Access Device Interoperability Test Plan* [4]. 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 SN4524’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 SN4524.

| BroadWorks SIP Access Device 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       |                                      |
|   | Dial Plan                                    | Yes       |                                      |
|   | Dual-Tone Multi-Frequency (DTMF)<br>– Inband | Yes       |                                      |
|   | DTMF – RFC 2833                              | Yes       |                                      |
|   | DTMF – DTMF Relay                            | NT        |                                      |
|   | Codec Negotiation                            | Yes       | Except SDP Version Number Increment. |
|   | Codec Renegotiation                          | Yes       |                                      |



| BroadWorks SIP Access Device Interoperability Test Plan Support Table |   |           |  |
|---|---|-----------|--|
| Test Plan Package   | Test Plan Package Items                   | Supported | Comments   |
| <b>BroadWorks Services</b>  | Third-Party Call Control – Basic          | Yes       |  |
|   | Third-Party Call Control – Advanced       | NA        |  |
|   | Voice Message Deposit or Retrieval        | Yes       |  |
|   | Message Waiting Indicator                 | Yes       | Except Message Waiting Count and Saved/Urgent Information. |
|   | Voice Portal Outcall                      | Yes       |  |
|   | Advanced Alerting                         | No        |  |
|   | Calling Line ID                           | Yes       |  |
|   | Calling Line ID with Unicode Characters   | NT        |  |
|   | Connected Line ID                         | No        |  |
|   | Connected Line ID with Unicode Characters | NT        |  |
|   | Connected Line ID on UPDATE               | No        |  |
|   | Connected Line ID on Re-INVITE            | No        |  |
|   | Diversion Header                          | Yes       |  |
|   | History-Info Header                       | Yes       |  |
|   | Advice of Charge                          | No        |  |
|   | Meet-Me Conferencing                      | Yes       | Except G722.   |
| <b>DUT Services – Call Control Services</b>                           | Call Waiting                              | Yes       |  |
|   | Call Hold                                 | Yes       |  |
|   | Call Transfer                             | No        |  |
|   | Three-Way Calling                         | No        |  |
|   | Network-Based Conference                  | NT        |  |
| <b>DUT Services – Registration and Authentication</b>                 | Register Authentication                   | Yes       |  |
|   | Maximum Registration                      | Yes       |  |
|   | Minimum Registration                      | Yes       |  |
|   | Invite Authentication                     | Yes       |  |
|   | Re-Invite or Update Authentication        | Yes       |  |
|   | Refer Authentication                      | Yes       |  |
| <b>DUT Services – Fax</b>   | Device Authenticating BroadWorks          | No        |  |
|   | G711 Fax Passthrough                      | Yes       |  |
|   | G711 Fax Fallback                         | Yes       |  |
| <b>DUT Services – Miscellaneous</b>                                   | T38 Fax Messaging                         | Yes       |  |
|   | Do Not Disturb                            | No        |  |
|   | Call Forwarding Always                    | No        |  |

| BroadWorks SIP Access Device Interoperability Test Plan Support Table      |  |           |          |
|--|--|-----------|----------|
| Test Plan Package  | Test Plan Package Items                    | Supported | Comments |
|  | Call Forwarding Always Diversion Inhibitor | No        |          |
|  | Anonymous Call                             | No        |          |
|  | Anonymous Call Block                       | No        |          |
|  | Remote Restart Via Notify                  | No        |          |
| <b>Advanced Phone Services – Busy Lamp Field</b>                           | Busy Lamp Field                            | No        |          |
|  | Call Park Notification                     | No        |          |
| <b>Advanced Phone Services – Feature Key Synchronization, Private Line</b> | Do Not Disturb                             | No        |          |
|  | Do Not Disturb Ring Splash                 | No        |          |
|  | Call Forwarding                            | No        |          |
|  | Call Forwarding Always Ring Splash         | No        |          |
|  | Call Forwarding Always Diversion Inhibitor | No        |          |
|  | Call Center Agent Logon or Logoff          | No        |          |
|  | Call Center Agent Unavailable Code         | No        |          |
| <b>Advanced Phone Services – Feature Key Synchronization, Shared Line</b>  | Do Not Disturb                             | No        |          |
|  | Do Not Disturb Ring Splash                 | No        |          |
|  | Call Forwarding                            | No        |          |
|  | Call Forwarding Always Ring Splash         | No        |          |
|  | Call Forwarding Always Diversion Inhibitor | No        |          |
| <b>Advanced Phone Services – Missed Calls Display Synchronization</b>      | Missed Calls Display Sync                  | No        |          |
| <b>Advanced Phone Services – Shared Call Appearance using Call Info</b>    | Line-Seize                                 | No        |          |
|  | Call-Info/Lamp Management                  | No        |          |
|  | Public Hold                                | No        |          |
|  | Private Hold                               | No        |          |
|  | Multiple Call Arrangement                  | No        |          |
|  | Bridging                                   | No        |          |
|  | Call Park Notification                     | No        |          |
| <b>Advanced Phone Services – Call Center</b>                               | Hold Reminder                              | No        |          |
|  | Call Information                           | No        |          |
|  | Hoteling Event                             | No        |          |
|  | Status Event                               | No        |          |
|  | Disposition Code                           | No        |          |
|  | Emergency Escalation                       | No        |          |
|  | Customer Originated Trace                  | No        |          |

| <b>BroadWorks SIP Access Device Interoperability Test Plan Support Table</b> |                                     |                  |                 |
|--|-------------------------------------|------------------|-----------------|
| <b>Test Plan Package</b>   | <b>Test Plan Package Items</b>      | <b>Supported</b> | <b>Comments</b> |
| <b>Advanced Phone Services – Call Park Notification</b>                      | Call Park Notification              | No               |                 |
|  | <b>Redundancy</b>                   |                  |                 |
|  | Domain Name System (DNS) SRV Lookup | Yes              |                 |
|  | Register Failover or Failback       | Yes              |                 |
|  | Invite Failover or Failback         | Yes              |                 |
|  | Bye Failover                        | No               |                 |
| <b>Session Border Controller (SBC)/Application Layer Gateway (ALG)</b>       | Register                            | Yes              |                 |
|  | Outgoing Invite                     | Yes              |                 |
|  | Incoming Invite                     | Yes              |                 |
| <b>Video – Basic Video Calls</b>   | Call Origination                    | NA               |                 |
|  | Call Termination                    | NA               |                 |
|  | Call Hold                           | NA               |                 |
|  | Call Waiting                        | NA               |                 |
|  | Call Transfer                       | NA               |                 |
| <b>Video – BroadWorks Video Services</b>                                     | Auto Attendant                      | NA               |                 |
|  | Auto Attendant – HD                 | NA               |                 |
|  | Voice Messaging                     | NA               |                 |
|  | Voice Messaging – HD                | NA               |                 |
|  | Custom Ringback                     | NA               |                 |
| <b>TCP</b>   | Register                            | Yes              |                 |
|  | Outgoing Invite                     | Yes              |                 |
|  | Incoming Invite                     | Yes              |                 |
| <b>IPV6</b>  | Call Origination                    | No               |                 |
|  | Call Termination                    | No               |                 |
|  | Session Audit                       | No               |                 |
|  | Ringback                            | No               |                 |
|  | Codec Negotiation or Renegotiation  | No               |                 |
|  | Call Control                        | No               |                 |
|  | Registration with Authentication    | No               |                 |
|  | T38 Fax Messaging                   | No               |                 |
|  | Busy Lamp Field                     | No               |                 |
|  | Redundancy                          | No               |                 |
|  | SBC                                 | No               |                 |
|  | Video                               | 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, and are typically not BroadWorks release dependent.

If the testing was performed by BroadSoft, then the *Issue Number* is a BroadSoft ExtraView partner issue number. If the testing was performed by the partner or a third party, then the partner may or may not supply a tracking number.

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

| Issue Number | Issue Description  | Partner Version |  |  |  |
|--------------|--|-----------------|--|--|--|
|              |  | R6.T            |  |  |  |
|              | <p><b>SDP Version Incrimination</b></p> <p>There is a known issue in some cases (session audits), where Patton's SmartNode increments the o-line of the SDP when it is not required to do so. There is no other change in the SDP so this does not affect the call in anyway. Hence, there is no Plan to fix this.</p> <p>Workaround: None (Call is not affected).</p> | X               |  |  |  |

### 3 BroadWorks Configuration

---

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

#### 3.1 BroadWorks Device Profile Configuration

This section identifies the device profile to use when deploying the Patton SmartNode with BroadWorks.

The following table identifies the required BroadWorks device identity/profile settings for interoperability between the SmartNode and BroadWorks. For an explanation of the profile parameters, see the *BroadWorks Device Management Configuration Guide* [2].

For most of the following parameters, an “X” indicates that the parameter function is supported and/or required. If the item is blank, it is not supported. For items where text is supplied, the text content maps directly to the web page to add or to modify a device profile.

| Patton SmartNode Identity/Device Profile |                              |
|--|------------------------------|
| Signaling Address Type                   | Intelligent Proxy Addressing |
| Standard Options                         |                              |

| Patton SmartNode Identity/Device Profile |  |
|--|--|
| Number of Ports                          | SN-DTA - 1 Eth, 1 - 2 BRI Port<br>SN4110 - 1 Eth, 2 - 8 FXS/FXO Combo<br>SN4300 - 1 Eth, 16 - 32 FXS or FXO<br>SN4400 - 2 Eth, 16 - 32 FXS or FXO<br>SN4520 - 2 Eth, 2 - 8 FXS/FXO Combo<br>SN4550 - 5 Eth, 1 BRI port<br>SN4630 - 2 Eth, WAN Port, 1 - 4 BRI Ports<br>SN4660 - 4 Eth, 2 - 8 FXS/FXO Combo, 1 PRI, 1 - 8 BRI Ports<br>SN4670 - 3 Eth, WAN Port, 2 - 8 FXS/FXO Combo, 1 PRI, 1 - 8 BRI Ports<br>SN4850 - 2 Eth, WAN Port, 2 - 8 FXS/FXO Combo<br>SN4900 - 2 Eth, WAN Port, 12 - 32 FXS or FXO<br>SN4940 - 1 Eth, 1 - 4 PRI<br>SN4950 - 2 Eth, 1 - 4 PRI<br>SN4960 - 2 Eth, WAN Port, 1 - 4 PRI<br>SN4970 - 1 Eth, 1 - 4 PRI<br>SN4980 - 2 Eth, 1 - 4 PRI<br>SN4990 - 2 Eth, WAN Port, 1 - 4 PRI<br>SN5200 - 2 Eth<br>SN5221 - 2 Eth<br>SN5280 - 2 Eth<br>SN5400 - 2 Eth<br>SN5480 - 2 Eth<br>SN5490 - 2 Eth |
| Ringback Tone/ Early Media Support       | RTP - Session  |
| Authentication                           | Enabled  |
| Hold Normalization                       | Unspecified Address  |
| Registration Capable                     | X  |
| Static Registration Capable              |  |
| E.164 Capable                            |  |
| Trusted                                  |  |
| Authenticate REFER                       | X  |
| Video Capable                            |  |
| Use History-Info Header                  |  |
| Advanced Options                         |  |
| Route Advance                            |  |

|   |               |
|---|---------------|
| <b>Patton SmartNode Identity/Device Profile</b> |               |
| <b>Wireless Integration</b>                     |               |
| <b>PBX Integration</b>                          |               |
| <b>Add P-Called-Party-ID</b>                    |               |
| <b>Auto Configuration Soft Client</b>           |               |
| <b>Requires BroadWorks Call Waiting Tone</b>    |               |
| <b>Advice of Charge Capable</b>                 |               |
| <b>Enable Monitoring</b>                        |               |
| <b>Forwarding Override</b>                      |               |
| <b>Conference Device</b>                        |               |
| <b>Music On Hold Device</b>                     |               |
| <b>Requires BroadWorks Digit Collection</b>     |               |
| <b>Requires MWI Subscription</b>                |               |
| <b>Support Call Center MIME Type</b>            |               |
| <b>Support Identity in UPDATE an Re-INVITE</b>  |               |
| <b>Support RFC 3398</b>                         |               |
| <b>Reset Event</b>                              | Not Supported |
| <b>Trunk Mode</b>                               | User          |
| <b>Hold Announcement Method</b>                 | Inactive      |
| <b>Unscreened Presentation Identity Policy</b>  | Profile       |
| <b>Web-Based Configuration URL Extension</b>    |               |
| <b>Device Configuration Options</b>             |               |
| <b>Device Configuration Options</b>             | Not Supported |

### 3.2 BroadWorks Configuration Steps

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

## 4 Patton SmartNode Configuration

---

The SmartNode can be configured primarily via the CLI. In section [4.1 SmartNode Configuration Parameters](#) you will find a sample configuration file that was used for the majority of the interoperability testing. You may upload the configuration file directly using the Trivial File Transfer Protocol (TFTP) via CLI command or you can upload via HTTP using the devices embedded webserver. The following examples describe how to set the parameters using a configuration file.

To issue a manual copy via TFTP/HTTP use the following commands:

```
copy tftp://x.x.x.x/filename.cfg startup-config
```

or

```
copy http://x.x.x.x/filename.cfg startup-config
```

This configuration description assumes SmartNode uses the Dynamic Host Configuration Protocol (DHCP) to obtain an IP address, TFTP server, and other network settings. The SmartNode is configured to load the configuration file each time it resets or re-synchronizes. For more information on automated provisioning, see the *SmartWare Configuration Guide* [1].

The SmartNode attempts to find a configuration in the following order:

- 1) Raw DHCP 66 Value
- 2) <System MAC Address>.cfg in the directory of the raw DHCP 66 Value
- 3) Prefixes the DHCP66 Value with "http://" and looks for a file named by DHCP 67
- 4) Prefixes the DHCP66 Value with "http://" and looks for a file named using the MAC address convention
- 5) Prefixes the DHCP66 Value with "tftp://" and looks for a file named by DHCP 67
- 6) Prefixes the DHCP66 Value with "tftp://" and looks for a file named by the MAC address convention

The capabilities of the SmartNode have been verified for use with BroadWorks based on the settings described in the following table. For more information on the meaning, purposes, and applicability of the individual configuration items, see the *SmartWare Configuration Guide* [1].

### Configuration Files

A SmartNode's configuration is an ordered list of commands (in a similar method of a Cisco Router). Specific command extension is not needed, .txt or .cfg are commonly used by Patton's technicians.



## 4.1 SmartNode Configuration Parameters

This section describes system-wide configuration items that are generally required for each SmartNode to work with BroadWorks. Subscriber-specific settings are described in the next section. It is recommended you configure this box via TELNET or SSH as the command line is more optimized in the SmartNode.

### What is a SmartNode?

SmartNode<sup>™</sup> is a VoIP Gateway made by Patton Electronics. It is designed to be driven by the CLI, but for those who prefer a WebGUI it is available. The SmartNode can come in a variance of port densities and combinations.

BroadSoft Certified SmartNode densities ranges can be found in section [3.1 BroadWorks Device Profile Configuration](#).

### Configuration

The following figure is the complete configuration used for the interoperability testing with designated wildcards and explanations on the meaning of each section. Wild cards can be identified by a double hash such as, ##WILDCARD##.

|  |   |
|--|---|
| <pre>context ip router   interface WAN     ipaddress ##IPADDRESS## ##SUBNETMASK##     use profile napt NAPT context ip router   route 0.0.0.0 0.0.0.0 ##IP-GATEWAY## 0</pre> | <p>Here you set the needed IP Addressing Scheme</p> <p>More info in:<br/><a href="#">SmartWare Configuration Guide Chapter 9 &amp; 10</a></p> |
|--|---|

Figure 1 Configuration Breakdowns

It is not possible to include all instructions or parameters available here to set up the gateway for every situation. In every explanation is a reference chapter number to the *SmartWare Configuration Guide* [1]. Also, note that if any confusion is not answered by the guide provided, contact [support@patton.com](mailto:support@patton.com) free of charge, or go to your valued reseller.

### Key for understanding outlines and notes:

**System Level Configuration: Outlined in Green**

**Call Level Configuration: Outlined in Orange**

**Registration/Subscription Configuration: Outlined in Blue**

```
#-----#
#
# SN4526/4JS2JO/EUI
# R6.T 2012-07-18 H323 SIP FXS FXO
# 1970-01-15T07:22:35
# SN/00A0BA0403AA
# Generated configuration file
#
#-----#
```

cli version 3.20

```
clock local default-offset +00:00
dns-client server ##DNS-SERVER-IP##
ntp-client server primary ##NTP-SERVER-HOST##
```

DNS/NTP settings appear here.

```
profile napt NAPT
```

Static Port Forwarding Entries go here.

```
profile call-progress-tone defaultSITone
  play 1 330 950 -7
  play 2 330 1400 -7

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
  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
```

This is where you set all *Call-Progress Tones* needed, the setup shown is for the *United States Tones*.

If you remove all text in this box completely, the SmartNode will revert to the default settings which are congruent with the *EU Progress-Tones*.

For more information see chapter 47 in the *SmartWare Configuration Guide* [1].

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

This is where you set CODECs and Fax Behavior.

For more information see chapter 52 in the *SmartWare Configuration Guide* [1].

```
profile pstn default
```

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

```
profile sip default
  autonomous-transitioning
```

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

```
context ip router

  interface WAN
    ipaddress ##IPADDRESS## ##SUBNETMASK##
    use profile napt NAPT

context ip router
  route 0.0.0.0 0.0.0.0 ##IP-GATEWAY## 0
```

This is where you set the *IP Addressing Scheme*. For more information see chapters 9 and 10 in the *SmartWare Configuration Guide* [1].

```
context cs switch
```

```
routing-table called-e164 RT_FROM_FXS00
  route .T dest-interface BroadSoft

routing-table called-e164 RT_TO_FXS00
  route ##DID-NUMBER## dest-interface FXS00
```

This is where you set the *Call-Routing behavior*. For more information see chapter 45 in the *SmartWare Configuration Guide* [1].

```
interface sip BroadSoft
  bind context sip-gateway GW_BROADSOFT
  route call dest-table RT_TO_FXS00
  remote ##SIP-PROXY##
  local ##SIP-PROXY##
  early-connect
  early-disconnect
```

This is where you set the parameters that are used to generate SIP INVITE's. Also, header manipulation is available in the SIP Interface. For more information see chapter 44 in the *SmartWare Configuration Guide* [1].

```
interface fxs FXS00
  route call dest-table RT_FROM_FXS00
  message-waiting-indication stutter-dial-tone
  message-waiting-indication frequency-shift-keying
  call-transfer
  caller-id-presentation mid-ring
  subscriber-number ##PHONE-NUMBER##
```

This is where you set the parameters that are used on the FXS Port, you will need one interface for every Port. For more information see chapter 39 in the *SmartWare Configuration Guide* [1].

```
context cs switch
  no shutdown
```

```
authentication-service AUTH
  realm 1 ##AUTH-REALM##
  username ##USER1## password ##PASSWORD##
  username ##USER2## password ##PASSWORD##
  username ##USER3## password ##PASSWORD##
  username ##USER4## password ##PASSWORD##
  username ##USER5## password ##PASSWORD##
```

This is a Database for Username/Passwords (encrypted on view) if Realm is not needed, to match any, delete the line. For more information see chapter 55 in the *SmartWare Configuration Guide* [1].

```
location-service locserv
domain 1 ##PROXY-DOMAIN##
match-any-domain
```

This is a Database for Registration info  
For more information see chapter 57 in the  
*SmartWare Configuration Guide* [1].

```
identity-group default

registration outbound
  registrar ##REGISTRAR-NAME##
  preferred-transport-protocol ##TCP/UDP##
  proxy 1 ##REGISTRAR-HOST##
  lifetime 1200
  register auto
  retry-timeout on-system-error 10
  retry-timeout on-client-error 10
  retry-timeout on-server-error 10

message inbound
  message-server ##SERVER-HOST## 5060
  lifetime 120
  subscribe implicit
  retry-timeout on-system-error 10
  retry-timeout on-client-error 10
  retry-timeout on-server-error 10

call outbound
  proxy 1 ##CALL IP-De
  invite-transaction-timeout 3
  non-invite-transaction-timeout 32
```

Identity-group default is where you can  
set settings that apply globally to all  
usernames. Proxy information usually  
ends up here, along with retry timeouts.  
For more information see chapter 57 in  
the *SmartWare Configuration Guide* [1].

```
identity ##PHONE-NUMBER## inherits default

authentication outbound
  authenticate 1 authentication-service AUTH username ##USER1##

registration outbound
  proxy 1 redas.iop2.broadworks.net

call outbound
  proxy 1 redas.iop2.broadworks.net
```

This is for user  
specific settings  
as the previous  
settings.  
For more  
information see  
chapter 57 in the  
*SmartWare  
Configuration  
Guide* [1].

```
context sip-gateway GW_BROADSOFT

interface sipgwint
  bind interface WAN context router port 5060

context sip-gateway GW_BROADSOFT
  bind location-service locserv
  no shutdown
```

This is where the SIP ties in with the IP.  
For more information see chapter 51 in  
the *SmartWare Configuration Guide* [1].

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

port ethernet 0 1
  medium 10 half
  shutdown
```

This is where the physical setup of Ethernet Ports is done. For more information see chapter 51 in the *SmartWare Configuration Guide* [1].

```
port fxs 0 0
  use profile fxs us
  encapsulation cc-fxs
  bind interface FXS00 switch
  no shutdown

port fxs 0 1
  shutdown

port fxs 0 2
  shutdown

port fxs 0 3
  shutdown
```

This is where the physical setup of TDM Ports is done. For more information see chapter 16-20 in the *SmartWare Configuration Guide* [1].

## 4.2 Shared Call Appearance Configuration

SmartNode device does not support Shared Call Appearance.

## 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 and the configuration steps required. For Device Management configuration details not covered here, see the *BroadWorks Device Management Configuration Guide* [2].

The basic steps to integrate a device with Device Management are as follows:

- 1) Create device template files for the device with the appropriate BroadWorks Device Management tags.
- 2) Define custom and system tags and add them to the *device template* files. Note that these custom and system tags must also be defined on BroadWorks.
- 3) Create a device profile type on BroadWorks for each device model to be integrated with Device Management.
- 4) Add the device template files and other associated files to the device profile type.
- 5) Create a device profile instance of the device profile type and assign it to a user. A user name and password are assigned to this device profile.
- 6) Configure the end device with the Device Management URL for device files, as well as the user name and password access credentials.

This section describes the steps to integrate the Patton SmartNode products.

As part of the Patton SmartNode customer premises equipment (CPE) kit, BroadSoft has defined a standard device configuration in the device template files that service providers can use on their systems. These files can be uploaded directly to Device Management without modification. However, the service provider also has the option to modify these template files as required to fit their deployment needs.

The CPE kit also includes tools to help automate the integration effort. For releases after Release 17.0, there is a Device Management import/export utility. The CPE kit contains Device Type Archive File (DTAF) files that are used to import the device type and template files.

### 5.1 Device Management Capabilities Supported

The Patton SmartNode has completed Device Management interoperability testing with BroadWorks using the *BroadWorks Device Management 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. 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'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.

| BroadWorks Device Management Interoperability Test Plan Support Table |  |           |          |
|---|--|-----------|----------|
| Test Plan Package   | Test Plan Package Items  | Supported | Comments |
| <b>HTTP File Download</b>   | 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       |          |
| <b>HTTPS File Download</b>  | HTTPS Download Using Xtended Services Platform IP Address      | No        |          |
|   | HTTPS Download Using Xtended Services Platform FQDN            | No        |          |
|   | HTTPS Download Using Xtended Services Platform Cluster FQDN    | No        |          |
| <b>File Inspection</b>  | Inspect System Config File                                     | NA        |          |
|   | Inspect Device-Specific Config File                            | No        |          |
|   | Inspect Other Config Files                                     | NA        |          |
|   | Inspect Static Files   | Yes       |          |
| <b>Device Inspection</b>  | Inspect SIP Settings   | Yes       |          |
|   | Inspect Line Settings  | Yes       |          |
|   | Inspect Service Settings                                       | NA        |          |
| <b>HTTP File Upload</b>   | HTTP Upload Using Xtended Services Platform IP Address         | NA        |          |
|   | HTTP Upload Using Xtended Services Platform FQDN               | NA        |          |
|   | HTTP Upload Using Xtended Services Platform Cluster FQDN       | NA        |          |
| <b>Call Processing Sanity Tests</b>                                   | Register with Authentication                                   | Yes       |          |
|   | Call Origination   | Yes       |          |
|   | Call Termination   | Yes       |          |
|   | Remote Restart   | No        |          |
|   | Shared Line Origination  | NA        |          |
|   | Shared Line Termination  | NA        |          |

| BroadWorks Device Management Interoperability Test Plan Support Table |                          |           |          |
|---|--------------------------|-----------|----------|
| Test Plan Package   | Test Plan Package Items  | Supported | Comments |
|   | Shared Line Status       | NA        |          |
|   | Busy Lamp Field          | NA        |          |
|   | Network-Based Conference | NT        |          |

## 5.2 Device Management Configuration

This section identifies the steps required to enable the Patton SmartNode for device management. For Device Management configuration details not covered here, refer to the *BroadWorks Device Management Configuration Guide* [2].

### 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. Default tags are defined in the Device Management software and there are custom tags that a service provider can create and define via the web portal for use by Device Management. Two types of custom tags can be defined:

- System default – These tags are common to all phones on the system.
- Device type-specific – These tags are only common to Patton phone models.

The Patton SmartNode also makes use of dynamic tags, which can be configured by a BroadWorks administrator as 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. Patton 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.   |
| %SBC_ADDRESS% | IP address/FQDN | SBC SIP address.  |
| %SBC_PORT%    | Port            | SBC SIP port. The port should be set if the defined SBC address is an IP address. If the SBC address is an FQDN, the SBC port should be left unset. |
| %DNS_SERVER%  | IP address      | DNS server address.   |



## Example System Default Tag Settings

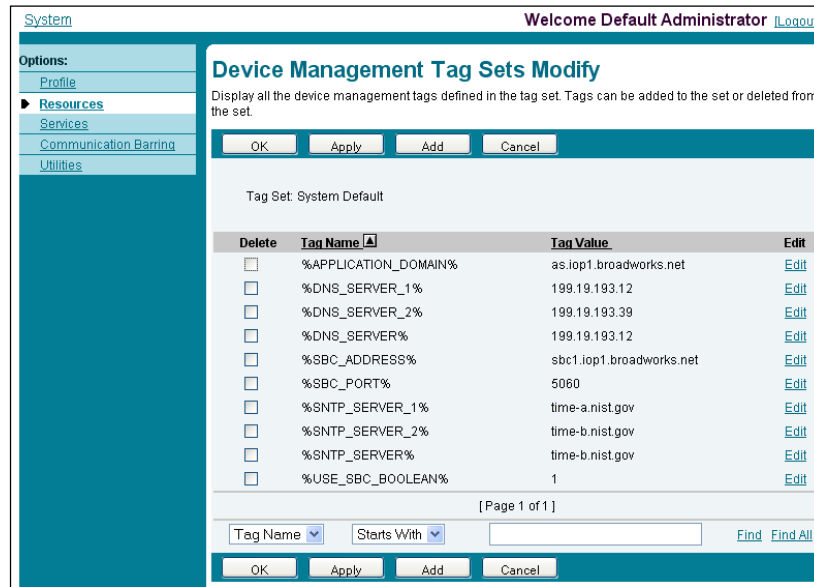


Figure 2 System Default Tag Settings

### 5.2.1.2 Create Device Type Specific Tags

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

| Tag Name         | Valid Settings | Description   |
|------------------|----------------|---|
| %ADMIN_NAME%     |                | Username for Administrator Account.<br>(This is a space holder, actual value for each device should be entered at the device profile level per instruction in <a href="#">5.2.3 Create Device Profile Instance.</a> )       |
| %ADMIN_PASSWORD% |                | Password for Administrator Account.<br>(This is a space holder, actual value for each device should be entered at the device profile level per instruction in <a href="#">5.2.3 Create Device Profile Instance.</a> )       |
| %DEF_GW%         | IP address     | Default IP Gateway of the IP Network.<br>(This is a space holder, the actual value for each device should be entered at the device profile level per instruction in <a href="#">5.2.3 Create Device Profile Instance.</a> ) |

| Tag Name      | Valid Settings       | Description  |
|---------------|----------------------|--|
| %WAN_IP%      | IP address or "DHCP" | IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server.<br><br>(This is a space holder, the actual value for each device should be entered at the device profile level per instruction in <a href="#">5.2.3 Create Device Profile Instance.</a> ) |
| %WAN_NETMASK% | Valid IPv4 Netmask   | Netmask of the SmartNode's WAN interface.<br><br>(This is a space holder. The actual value for each device should be entered at the device profile level per instruction in <a href="#">5.2.3 Create Device Profile Instance.</a> )  |

### Example Device Type Specific Tag Settings

The screenshot shows the BroadSoft System Administration interface. The main content area is titled "Device Management Tag Sets Modify" and displays a table of tags for the "Patton\_Tags" set. The table has columns for "Delete", "Tag Name", "Tag Value", and "Edit". The tags listed are %ADMIN\_NAME%, %ADMIN\_PASSWORD%, %DEF\_GW% (value 1.2.3.1), %WAN\_IP% (value 1.2.3.4), and %WAN\_NETMASK% (value 255.255.128.0). The interface includes navigation buttons (OK, Apply, Add, Cancel) and search filters (Tag Name, Starts With, Find, Find All).

Figure 3 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 phone 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 or IP phone.

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 walks the administrator through the steps to manual add and configure the device profile type(s).

The import method should be used if all of the 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, 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 being imported to. If the DTAF file is at a release level later than the release being imported to, the import can fail.

Otherwise, use the manual method.

#### 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 as a Device Management-enabled device type.

The import method is available in BroadWorks Release 17.0 and later. For previous releases, use the manual configuration method described in the next section.

Download the Patton SmartNode CPE kit from BroadSoft Xchange at [xchange.broadsoft.com](http://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 want to import.

- 1) Log in to BroadWorks as an administrator.
- 2) Browse to *System* → *Resources* → *Identity/Device Profile Types* and select *Import*.
- 3) Click **Browse** to find the extracted DTAF file for the model and click **OK** to start the import.

After the import finishes, complete the following post-import configuration.

- 4) Browse to *System* → *Resources* → *Identity/Device Profile Types*.
- 5) Perform a search to find the imported Patton device profile type, *Patton\_SmartNode*.
- 6) Browse to the *Profile* page and change the Device Management Device Access FQDN to your Xtended Services Platform or Xtended Services Platform cluster address.

The screenshot shows the 'Device Management' configuration page. The 'Device Access FQDN' field is highlighted with a red box and contains the value 'xsp.iop1.broadworks.net'. Other visible fields include 'Device Type URL', 'Device Configuration Tags', 'Device Access Protocol', 'Device Access Port', 'Device Access Context Name', 'Device Access URI', 'Default Device Language', 'Default Device Encoding', 'Authentication Mode', 'Device Access Username', 'Device Access Password', 'Re-type Device Access Password', 'MAC Address In', and 'Device Access HTTP Authentication'.

Figure 4 Device Access FQDN

- 7) Click the *Files and Authentication* link and 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 [5.2.2.2.3 Static Files](#) to define the static firmware files and to upload the firmware.

**NOTE:** The non-firmware static files in section [5.2.2.2.3 Static Files](#) are included in the import.

### 5.2.2.2 Configuration Method 2: Manual

This section identifies the manual steps necessary to configure BroadWorks to add the Patton SmartNode as a Device Management-enabled device type.

The manual method must be used for BroadWorks releases prior to Release 17.0. It is an optional method in Release 17.0 and later. To determine when to use the manual method, see section [5.2.2 Configure BroadWorks Device Profile Type](#). 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.

The steps in this section must be completed for the device profile type for each Patton model.

#### 5.2.2.2.1 Modify Device Profile Type

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

Browse to *System* → *Resources* → *Identity/Device Profile Types* and perform a search to find the Patton 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.

The *Standard Options* and *Advanced Options* should already be configured as specified in section [3.1 BroadWorks Device Profile Type Configuration](#). If there are differences, perform an update to match the settings in section [3.1 BroadWorks Device Profile Type Configuration](#).

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

##### 5.2.2.2.1.1 Configure Device Configuration Options

If Device Management has been enabled previously for the device profile type(s), proceed to the next section.

Device Configuration is enabled differently depending on the deployed BroadWorks release.

For BroadWorks Release 18.0 and later, configure as described in the following table.

| Parameter                    | Value             | Description                      |
|------------------------------|-------------------|----------------------------------|
| Device Configuration Options | Device Management | Use BroadWorks Device Management |

The following figure shows Device Management enablement for BroadWorks Release 18.0 and later.

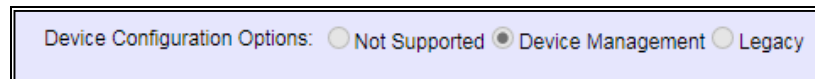


Figure 5 Enable Device Management (Release 18.0 and Later)

For BroadWorks releases prior to Release 18.0, configure as described in the following table.

**NOTE:** These settings serve only to enable Device Management and are otherwise not meaningful in this context.

| Parameter               | Value         | Description  |
|-------------------------|---------------|--|
| Auto Configuration Type | 2 Config File | Not meaningful other than it must be selected.             |
| CPE System File Name    | not_used      | This parameter must not be blank, so set it to "not_used". |
| Device File Format      | not_used      | This parameter must not be blank, so set it to "not_used". |

The following figure shows Device Management enablement for BroadWorks release prior to Release 18.0.

Figure 6 Enable Device Management (pre-Release 18.0)

#### 5.2.2.2.1.2 Configure Device Management Options

Modify the device profile type *Device Management Options* as directed in the following table. These are common settings that apply to all devices enabled for Device Management.

If Device Management has been enabled previously for the device profile type(s), ensure the existing settings match the settings described in this section.

Parameters not identified in the following table can usually be left at the default values.

| Parameter   | Value  | Description  |
|---|--|--|
| Device Configuration Tags                               | Use Default System Tag Set and Tag Set.<br><br>Select the device tag set created in section <a href="#">5.2.1.2 Create Device Type Specific Tags</a> . |  |
| Allow Identity/Device Profiles to Configure Custom Tags | checked  | Optional   |
| Allow Groups to Configure Custom Tags                   | checked  | Optional   |
| Device Access Protocol                                  | http   |  |
| Device Access FQDN                                      | <BroadWorks-XSP-Cluster-Address><br>Example: xsp.iop1.broadworks.net   | Set to the Xtended Services Platform cluster FQDN if using an Xtended Services Platform farm. Otherwise, set to the individual Xtended Services Platform FQDN or IP address. |
| Device Access Port                                      | <BroadWorks-XSP-Port><br>Example: 80   | This should be set to "80".  |
| Device Access Context Name                              | dms  | This does not need to be defined. BroadWorks defaults to the system-defined value.   |
| Device Access URI                                       | <model name><br>Example: SmartNode_2-8_FXS   | This defines the directory the Xtended Services Platform uses to access the configuration files.   |

**Example Device Management Options Settings:**

Device Management

Device Type URL:

No Tags

Device Configuration Tags:  Use Default System Tag Set Only

Use Default System Tag Set and Tag Set:

Allow Identity/Device Profiles to Configure Custom Tags

Allow Groups to Configure Custom Tags

Send Email Notification to User upon Device Reset Failure

Device Access Protocol:

Device Access FQDN:

Device Access Port:

Device Access Context Name:

Device Access URI:

Default Device Language:

Default Device Encoding:

Authentication Mode:  MAC-Based  User Name and Password

Device Access Username:

Device Access Password:

Re-type Device Access Password:

MAC Address In:  HTTP Request URI

HTTP Header with Following Format:

Device Access HTTP Authentication:  Basic  Digest

Figure 7 Device Management Options Settings

#### 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 downloads.

Configuration templates, firmware, and other files the SmartNode uses must be uploaded to BroadWorks. Download the Patton SmartNode CPE kit from BroadSoft Xchange at [broadsoft.com/xchange](http://broadsoft.com/xchange). 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  |
|---------------------------------------|--|-----------------|--|
| <b>Examples</b>                       |  |                 |  |
| <i>Patton_%BWMACA<br/>DDRESS%.cfg</i> | <i>Patton_%BWMACADDR<br/>ESS%.cfg.template</i> | Device-specific | This file contains all the configuration and firmware files that the phone needs to load |

The following table identifies other files that the Patton SmartNode downloads from the server or uploads to the server. These files are not provided in the CPE kit and must be obtained from Patton.

| File Name  | File Type | Description   |
|--|-----------|---|
| <i>SN&lt;Model<br/>Number&gt;_H323_SIP_<br/>&lt;release<br/>version_release<br/>date&gt;.zip</i> | Static    | This is the firmware for the specific SmartNode according to the <Model Number> field in the file name. |

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

This section identifies the device-specific files used by Patton and provides instructions for defining and uploading the files for Device Management.

Each SmartNode downloads a device-specific file based on the MAC address using the following file name format: *Patton\_%BWMACADDRESS%.cfg*.

Add a BroadWorks device profile type file to the Patton SmartNode device profile for the device specific file using the settings described in the following table.

Parameters not identified in the following table can usually be left at the default values.

| Parameter                 | Value   | Description   |
|---------------------------|---|---|
| Device Access File Format | <device-specific-file-format><br>Example:<br><i>Patton_%BWMACADDRESS%.cfg</i> | This is the file name format the phone uses to request the file.            |
| Repository File Format    | <i>Patton_%BWFQDEVICEID%.cfg</i>  | This is the file name format as stored in the Device Management repository. |
| File Category             | Dynamic Per-Device  | This file is unique per device.   |



| Parameter                         | Value                  | Description   |
|-----------------------------------|------------------------|---|
| File Customization                | Administrator and User | This identifies who can customize this file template.                     |
| Enable Caching                    | Not set                | Caching should not be enabled for device-specific files.                  |
| Assign File                       | Custom                 |   |
| Authentication Mode               | User Name and Password | The phone-specific file is authenticated with the user name and password. |
| Device Access HTTP Authentication | Digest                 |   |

After defining the device-specific file type, upload the corresponding device-specific file template downloaded from BroadSoft Xchange. Use the **Browse** button on the file definition screen. Be sure to click **Apply** after uploading the file.

#### Example Device-Specific File Settings:

**Identity/Device Profile Type File Modify**  
Modify or delete a file type defined in an Identity/Device Profile Type.

OK Apply Delete Cancel

Device Access File Format: Patton\_%BWMACADDRESS%.cfg  
Repository File Format: Patton\_%BWFQDEVICEID%.cfg  
Access File: http://xsp.iop1.broadworks.net:80/dms/Patton\_SmartNode\_2-8\_FXS/Patton\_{%25BWMACADDRESS%25}.cfg  
Note: this URL has undefined content. Validate it manually by replacing any content between {} with valid value(s).  
Repository File:  
Template File: [Download](#)  
File Category:  Static  Dynamic Per-Type  Dynamic Per-Device  
File Customization: **Administrator and User** ▼  
 Allow Upload from Device

Assign File  
 Manual  
 Custom  
Upload File:  [Browse...](#)

Currently using configuration /var/broadworks/lpDeviceConfig/type/Patton\_SmartNode\_2-8\_FXS/Patton\_%BWMACADDRESS%.cfg.template

```

administrator %ADMIN_NAME% password %ADMIN_PASSWORD%
dns-client server %DNS_SERVER%
timer PROVISIONING now + 3 minute "provisioning execute
PF_PRO_BROADSOFT"

snmp-client server %SNTP_SERVER% port 123 version 4

actions
rule PROVISIONING_NORELOAD
    
```

File Authentication  
Authentication Mode:  MAC-Based  User Name and Password  
MAC Address In:  HTTP Request URI  
 HTTP Header with Following Format:   
Device Access HTTP Authentication:  Basic  Digest  
Allowed Access Protocols:  http  https  ftp

Figure 8 Patton\_%BWMACADDRESS%.cfg File

#### 5.2.2.2.2 Static Files

Static files are files such as firmware and media files that are not configurable and/or do not make use of the dynamic BroadWorks Device Management tags.

The Patton SmartNode requires the following static files:

- SN<Model Number>\_H323\_SIP\_<firmware-version>\_<release date>.zip

Add a BroadWorks device profile type file to the Patton SmartNode device profile for each of the static files using the settings described in the following table.

Parameters not identified in the following table can usually be left at the default values.

| Parameter                 | Value   | Description   |
|---------------------------|---|---|
| Device Access File Format | <file-name><br>Examples:<br>SN4110_H323_SIP_R6.T_2013-10-31.zip | This is the file name the phone uses to request the file.   |
| Repository File Format    | <file-name><br>Examples:<br>SN4110_H323_SIP_R6.T_2013-10-31.zip | This is the file name as stored in the Device Management repository. Use the same name as the actual file name. |
| File Category             | Static  | This is a static file. There are no dynamic tags in the file.   |
| File Customization        | Disallow  | This file must not be modified.   |
| Enable Caching            | Selected  | Caching is recommended for static files.  |
| Assign File               | Custom  |   |
| Authentication Mode       | Not set   | The static files are not authenticated. Do not select either of these options.                                  |

After defining the static file types, upload the corresponding static files. Firmware must be obtained from Patton. Use the **Browse** button on the file definition screen. Be sure to click **Apply** after uploading the file.

### Example Static File Settings

**Identity/Device Profile Type File Modify**  
Modify or delete a file type defined in an Identity/Device Profile Type.

OK Apply Delete Cancel

Device Access File Format: SN4110\_H323\_SIP\_R6\_T\_2013-10-31.zip  
 Repository File Format: SN4110\_H323\_SIP\_R6\_T\_2013-10-31.zip  
 Access File: [http://xsp.iop1.broadworks.net:80/dms/Patton\\_SmartNode\\_2-8\\_FXS/SN4110\\_H323\\_SIP\\_R6.T\\_2013-10-31.zip](http://xsp.iop1.broadworks.net:80/dms/Patton_SmartNode_2-8_FXS/SN4110_H323_SIP_R6.T_2013-10-31.zip)  
 Repository File: [Download](#)  
 Template File: [Download](#)  
 File Category:  Static  Dynamic Per-Type  Dynamic Per-Device  
 File Customization: **Disallow** ▼  
 Enable caching

Assign File  
 Manual  
 Custom  
 Upload File:  [Browse...](#)  
 Currently using /var/broadworks/lpDeviceConfig/type/Patton\_SmartNode\_2-8\_FXS/SN4110\_H323\_SIP\_R6.T\_2013-10-configuration file: 31.zip.template  
 Please obtain this file from the equipment vendor.

File Authentication  
 Authentication Mode:  MAC-Based  User Name and Password  
 MAC Address In:  HTTP Request URI  
 HTTP Header with Following Format:   
 Device Access HTTP Authentication:  Basic  Digest  
 Allowed Access Protocols:  http  https  tftp

Figure 9 Firmware File

### 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 a Patton device deployed at a user's site.

This section describes how to create a BroadWorks device profile instance for an individual Patton SmartNode device. Device profile instances are usually created at the BroadWorks Group level and assigned to users.

When you create the device profile, you must define the authentication data. The authentication data is used by Device Management to challenge a request from a phone to download a configuration file. The device must send credentials that match the credentials stored in the device profile.

Browse to the BroadWorks <group> → *Resources* → *Identity/Device Profiles* page and select *Add* to add a new Patton SmartNode device profile. Define the device profile instance using the settings described in the following table.

Parameters not identified in the following table can usually be left at the default values.

| Parameter | Value | Description |
|-----------|-------|-------------|
|-----------|-------|-------------|

| Parameter                    | Value  | Description  |
|------------------------------|--|--|
| Identity/Device Profile Name | <device-profile-name><br>Example: Patton_SmartNode_2-8_FXS                 | The device profile name is a unique identifier for the device profile instance.  |
| Identity/Device Profile Type | <Patton_SmartNode_2-8_FXS-device-profile-type><br>Example: BSFT_IOP_SN4110 | From the drop-down list, select the Patton SmartNode device profile type created in the previous section.                          |
| Authentication               | Use Custom Credentials   | Use the unique login name and password for each phone.   |
| Device Access User Name      | <phone-login-name><br>Example: BSFT4110                                    | The user name used to log in from the phone.<br>The phone login user naming convention must be determined by the service provider. |
| Device Access Password       | <phone-login-password><br>Example: 654321                                  | The password used to log in from the phone.  |

### Example Identity/Device Profile Add Settings

**Identity/Device Profile Modify**  
 Modify or delete an existing group identity/device profile.

Saved

OK Apply Delete Cancel

Profile Users Files Custom Tags

Identity/Device Profile Name: BSFT\_IOP\_SN4110  
 Identity/Device Profile Type: Patton\_SmartNode\_2-8\_FXS  
 Device Type URL: http://xsp.iop1.broadworks.net:80/dms/Patton\_SmartNode\_2-8\_FXS/

Protocol: SIP 2.0  
 Host Name/IP Address:  Port:   
 Transport: Unspecified  
 MAC Address:   
 Serial Number:   
 Description:   
 Outbound Proxy Server:   
 STUN Server:   
 Physical Location:

Lines/Ports: 8  
 Assigned Lines/Ports: 1  
 Unassigned Lines/Ports: 7  
 Version: 7

Authentication  
 Use Identity/Device Profile Type Credentials  
 Use Custom Credentials  
 \* Device Access User Name: BSFT4110  
 \* Device Access Password:   
 \* Re-type Device Access Password:

OK Apply Delete Cancel

Figure 10 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<br>%   | <Administrator Username><br>Example:<br>administrator   | Username for Administrator Account   |
| %ADMIN_PASSW<br>ORD%   | <Administrator Password><br>Example:<br>123456  | Password for Administrator Account   |
| %DEF_GW%   | IP Address<br>Example:<br>1.2.3.1   | Default IP Gateway of the IP Network   |
| %WAN_IP%   | IP Address<br>Example:<br>1.2.3.4   | IP Address of the SmartNode or enter DHCP to request an IP Address from the DHCP server.     |
| %WAN_NETMAS<br>K%  | Netmask<br>Example:<br>255.255.128.0  | Netmask of the SmartNode's WAN interface   |
| PRI Devices Custom Tags (Must be defined only for Smart Node devices containing PRI interface) |   |  |
| %PORT-<br>TYPE_x%  | PRI service level type<br>e1 or t1<br>Example:<br>e1<br><br>*Replace "x" with<br>numeric value of<br>1-4  | An E1T1 Port can either work in T1 or in E1 (G.704) mode.                                    |
| %LINECODE_x%   | Line code for each of the PRI ports<br><br>ami or b8zs or hdb3<br><br>ami - Alternate Mark Inversion Code (T1 or E1)<br>b8zs - Bipolar 8-Zero Substitution Code (T1 only)<br>hdb3 - High Density Bipolar Order 3 Code (E1 only)                             | Line codes can be selected on the PRI port whereas only "ami" is standardized for E1 and T1. |
| %FRAMING_x%  | Frame format<br>crc4 or esf or non-crc4 or sf<br><br>*Replace "x" with<br>numeric value of<br>1-4<br><br>crc4 - CRC4 multiframing (E1 only)<br>esf - Extended Superframe (T1 only)<br>non-crc4 - Framed without CRC4 (E1 only)<br>sf - Superframe (T1 only) | Four framing formats are available for selection on the E1T1 port.                           |

| Parameter   | Value   | Description   |
|---|---|---|
| %L3_PROTOCOL_x%   | Layer 3 protocol<br><br>dms-100 or dss1 or ni2 or ntt or pss1<br><br>*Replace "x" with numeric value of 1-4<br><br>dms-100 - Nortel DMS-100 Primary Rate Protocol (Similar to NI-1/2)<br>dss1- Digital Subscriber Signaling 1<br>ni2 - NI2 (National ISDN 2)<br>ntt - NTT (Nippon Telecom)<br>pss1 - Private Signaling System 1 (Q.SIG) | Specify the ISDN layer 3 protocol.  |
| %UNI_SIDE_x%  | Specify the UNI side of the interface<br><br>*Replace "x" with numeric value of 1-4<br><br>net or user<br><br>net - Network side<br>user - User side  | Make sure that the device connected to a SmartNode ISDN port is operating the opposite side of the configured uni-side.                               |
| %BCHAN_ORDE R_x%  | Specify B-channel allocation strategy<br><br>Ascending or ascending-cyclic or descending or descending-cyclic<br><br>*Replace "x" with numeric value of 1-4<br><br>ascending - Ascending<br>ascending-cyclic - Ascending cyclic<br>descending - Descending<br>descending-cyclic - Descending cyclic                                     |   |
| %PCM_LAW%   | ulaw or alaw<br><br>aLaw - Uses aLaw (used in Europe)<br>uLaw - Uses uLaw (used in USA)   | The PCM law-select specifies the voice characteristic compression curve. Two values are possible: a-Law (used in Europe) and u-Law (used in the USA). |
| <b>BRI Devices Custom Tags (Must be defined only for Smart Node devices containing BRI interface)</b> |   |   |
| %BRI_POWER%   | To provides power to ISDN Phones?<br><br><blank> or power-feed<br><br>power-feed - if yes.<br>Leave blank - if no.  | Enables or disabled the providing of -40V on the BRI ports.   |
| %PP_PMP%  | Specify Q.921 operating mode<br><br>pmp or pp<br><br>pmp - Point to multipoint (For BRI Phones)<br>pp - Point to point  |   |

| Parameter       | Value   | Description   |
|-----------------|---|---|
| %L3_PROTOCOL_x% | Layer 3 protocol<br><br>dms-100 or dss1 or ni2 or ntt or pss1<br><br>*Replace "x" with numeric value of 1-4<br><br>dms-100 - Nortel DMS-100 Primary Rate Protocol (Similar to NI-1/2)<br>dss1- Digital Subscriber Signaling 1<br>ni2 - NI2 (National ISDN 2)<br>ntt - NTT (Nippon Telecom)<br>pss1 - Private Signaling System 1 (Q.SIG) | Specify the ISDN layer 3 protocol   |
| %Bchan_ORDER_x% | Specify B-channel allocation strategy<br><br>Ascending or ascending-cyclic or descending or descending-cyclic<br><br>*Replace "x" with numeric value of 1-4<br><br>ascending - Ascending<br>ascending-cyclic - Ascending cyclic<br>descending - Descending<br>descending-cyclic - Descending cyclic                                     |   |
| %UNI_SIDE_x%    | Specify the UNI side of the interface<br><br>net or user<br><br>net - Network side<br>user - User side  | Make sure that the device connected to a SmartNode ISDN port is operating the opposite side of the configured uni-side. |

### Example Custom Tags Settings

**Identity/Device Profile Modify**  
View and modify device management tags used by the Identity/Device Profile.

OK Apply Add Cancel

Profile Users Files Custom Tags

Identity/Device Profile Name: BSFT\_IOP\_SN4110  
Identity/Device Profile Type: Patton\_SmartNode\_2-8\_FXS

| Delete                   | Tag Name         | Tag Value     | Edit                 |
|--------------------------|------------------|---------------|----------------------|
| <input type="checkbox"/> | %ADMIN_NAME%     | administrator | <a href="#">Edit</a> |
| <input type="checkbox"/> | %ADMIN_PASSWORD% | 123456        | <a href="#">Edit</a> |
| <input type="checkbox"/> | %DEF_GW%         | 1.2.3.1       | <a href="#">Edit</a> |
| <input type="checkbox"/> | %WAN_IP%         | 1.2.3.4       | <a href="#">Edit</a> |
| <input type="checkbox"/> | %WAN_NETMASK%    | 255.255.128.0 | <a href="#">Edit</a> |

[ Page 1 of 1 ]

Tag Name Starts With Find Find All

OK Apply Add Cancel

Figure 11 Device Profile Custom Tags

### 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, provided that the template files are created with the correct Device Management tags.

The device profile created in the previous section should 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* page and set the parameters as described in the following table.

It is expected that parameters not identified in the following table are already set or are self-explanatory.

| Parameter                    | Value   | Description  |
|------------------------------|---|--|
| Identity/Device Profile Name | <device-profile-name><br>Example: BSFT_IOP_SN4110                                 | From the drop-down list, select the device profile instance created in the previous section. |
| Line/Port                    | <SIP register address-of-record><br>Example:<br>8881001023@as.iop1.broadworks.net | Supply the desired SIP register Address-of-Record.   |

### Example User Addresses Settings

Figure 12 Assign Device Profile to User

## 5.2.5 Configure Edge Device

In many deployments, an edge device is deployed on the enterprise edge. Configure the edge device SIP server setting with the service provider's session border controller IP address or FQDN.

To integrate the edge device with Device Management, the SBC address tag (%SBC\_ADDRESS%) defined in section 5.2.1.1 *Create System Default Tags* must be overridden at the group level with the LAN address of the edge device. At the *Group* → *Utilities* → *Configure Device* page, select the Patton device profile (example: Patton\_SmartNode\_2-8\_FXS). Perform the following steps.

- 1) Click on the *Custom Tags* tab.
- 2) Click **Add**.



- 3) Add the SBC tag.
- 4) For the tag, enter "SBC\_ADDRESS".
- 5) For the value, enter the IP address (that is, the edge device LAN IP address).
- 6) To save the tag data, click **OK**.

This Tag/Value is applied to all Patton model phones in the group using the modified *Device Profile Type*.

Repeat for each Patton model provisioned in the group.

### 5.2.6 Configure Patton SmartNode

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 below, depending on the model of your SmartNode.
  - Ethernet port 0/0 acts as a DHCP Client so it will 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.

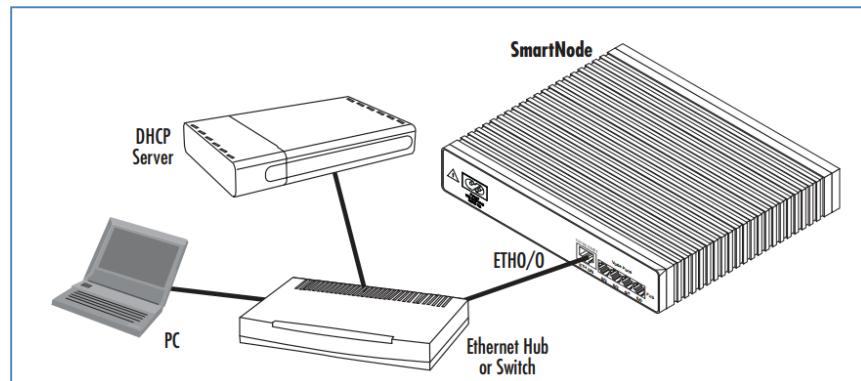


Figure 13 SmartNode as DHCP Client

- 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.

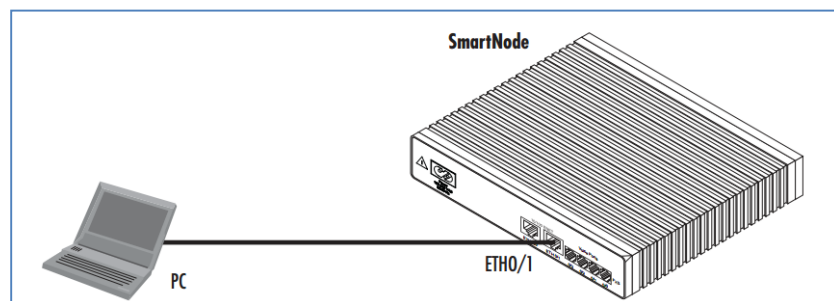


Figure 14 SmartNode as DHCP Server

- 2) Once connected, you will see a login screen. The factory default username is *administrator* and the password is left blank.

Example:

```
login: administrator
password:
10.10.50.106>
```

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

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

```
enable
configure
profile provisioning PF_PRO_BROADSOFT
destination configuration
location 1 http://xsp.iopl.broadworks.net/dms/Patton_2-8_FXS_DM/Patton_$(system.mac).cfg
location 2 http://xsp.iopl.broadworks.net/dms//Patton_2-8_FXS_DM/Patton_$(system.mac).cfg
location 3 http://199.19.193.16/dms/Patton_2-8_FXS_DM/Patton_$(system.mac).cfg
activation reload immediate
provisioning execute PF_PRO_BROADSOFT
```

- 4) Once step 3 is configured, the Patton SmartNode will execute the provisioning request to the BroadWorks server, GET the configuration stored and then reload itself.

Your Patton SmartNode is now configured and ready for service.

**References:**

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

Email Patton Technical Support: [support@patton.com](mailto:support@patton.com)

Call Patton Technical Support: 301.975.1007

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

## Appendix A: Sample Patton SmartNode Configuration Files

**NOTE:** The following samples are examples and should be used as a reference only. DO NOT CUT AND PASTE THESE EXAMPLES TO GENERATE YOUR CONFIGURATION FILES. Use the configuration files obtained from Patton with the specific release to generate your configuration files.

```
#-----#
#
# SN4526/4JS2JO/EUI
# R6.T 2012-07-18 H323 SIP FXS FXO
# 1970-01-15T07:22:35
# SN/00A0BA0403AA
# Generated configuration file
#
#-----#

cli version 3.20
clock local default-offset +00:00
dns-client server 8.8.8.8
webserver port 80 language en

system

    ic voice 0
        low-bitrate-codec g729

profile napt NAPT

profile ppp default

profile call-progress-tone defaultSItone
    play 1 330 950 -7
    play 2 330 1400 -7

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
    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

profile pstn default

profile ringing-cadence default
  play 1 1000
  pause 2 4000

profile sip default
  autonomous-transitioning

profile aaa default
  method 1 local
  method 2 none

context ip router

  interface WAN
    ipaddress 192.168.1.2 255.255.255.192
    use profile napt NAPT

context ip router
  route 0.0.0.0 0.0.0.0 192.168.1.1 0

context cs switch

  routing-table called-e164 RT_FROM_FXS00
    route .T dest-interface BROADSOFT

  routing-table called-e164 RT_TO_FXS00
    route default dest-interface FXS00

  interface sip BROADSOFT
    bind context sip-gateway GW_BROADSOFT
    route call dest-table RT_TO_FXS00
    remote as.iopl.broadworks.net
    local as.iopl.broadworks.net
    early-connect
    early-disconnect

  interface fxs FXS00
    route call dest-table RT_FROM_FXS00
    message-waiting-indication stutter-dial-tone
    message-waiting-indication frequency-shift-keying
    call-transfer
    caller-id-presentation mid-ring
    subscriber-number 2405555731

context cs switch
  no shutdown

authentication-service AUTH
  realm 1 as.iopl.broadworks.net
  username fred password fsmith

location-service locserv
  domain 1 as.iopl.broadworks.net
```

```
match-any-domain

identity-group default

    authentication outbound
        authenticate 1 authentication-service AUTH username fred

    registration outbound
        registrar as.iopl.broadworks.net
        preferred-transport-protocol udp
        proxy 1 redas.iopl.broadworks.net
        lifetime 1200
        register auto
        retry-timeout on-system-error 10
        retry-timeout on-client-error 10
        retry-timeout on-server-error 10

    message inbound
        message-server as.iopl.broadworks.net 5060
        lifetime 120
        subscribe implicit
        retry-timeout on-system-error 10
        retry-timeout on-client-error 10
        retry-timeout on-server-error 10

    call outbound
        proxy 1 redas.iopl.broadworks.net
        invite-transaction-timeout 3
        non-invite-transaction-timeout 32

identity 2405555731 inherits default

    registration outbound
        proxy 1 redas.iopl.broadworks.net

    call outbound
        proxy 1 redas.iopl.broadworks.net

context sip-gateway GW_BROADSOFT

    interface sipgwint
        bind interface WAN context router port 5060

context sip-gateway GW_BROADSOFT
    bind location-service locserv
    no shutdown

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

port ethernet 0 1
    medium 10 half
    shutdown

port fxs 0 0
    use profile fxs us
    encapsulation cc-fxs
    bind interface FXS00 switch
```

```
no shutdown

port fxs 0 1
  shutdown

port fxs 0 2
  shutdown

port fxs 0 3
  shutdown

port fxo 0 0
  shutdown

port fxo 0 1
  shutdown
```

**NOTE:** The following samples are examples and should be used as a reference only. DO NOT CUT AND PASTE THESE EXAMPLES TO GENERATE YOUR CONFIGURATION FILES. Use the configuration files obtained from Patton with the specific release to generate your configuration files.

#### System Default File: nvram:factory-config

```
#-----#
#
# Factory configuration file
#
#-----#

dns-relay
sntp-client
sntp-client server primary 129.132.2.21 port 123 version 4

system

  ic voice 0
    low-bitrate-codec g729

profile napt NAPT

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

context ip router

  interface eth0
    ipaddress dhcp
    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 DHCP

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
```

## References

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- [1] Patton Electronics Co. 2013. *SmartWare Configuration Guide, 07MSWR61\_SCG, Rev. A*. Available from *SmartWare* at <http://www.patton.com/manuals/SCG-r61.pdf>.
- [2] BroadSoft, Inc. 2013. *BroadWorks Device Management Configuration Guide, Release 18.0*. Available from BroadSoft at [broadsoft.com/xchange](http://broadsoft.com/xchange).
- [3] BroadSoft, Inc. 2013. *BroadWorks Redundancy Guide, Release 18.0*. Available from BroadSoft at [broadsoft.com/xchange](http://broadsoft.com/xchange).
- [4] BroadSoft, Inc. 2013. *BroadWorks SIP Access Device Interoperability Test Plan, Release 18.0*. Available from BroadSoft at [broadsoft.com/xchange](http://broadsoft.com/xchange).
- [5] BroadSoft, Inc. 2013. *BroadWorks Device Management Interoperability Test Plan, Release 18.0*. Available from BroadSoft at [broadsoft.com/xchange](http://broadsoft.com/xchange).