Customer Deliverable Documentation
Revision 1.00, October 10, 2008

SmartWare R4.2 Release Notes

Build Series 2008-09-11

SmartWare is the embedded application software of the SmartNode™ series of VoIP Gateways and Gateway Routers. SmartWare provides a full set of IP routing features, advanced Quality of Service and traffic management features plus industry leading Voice over IP functionality including SIP and H.323

Released Build Numbers

SmartNode 2400 R4.2 Build 2008-09-11
SmartNode 4960 R4.2 Build 2008-09-11
SmartNode 4110 Series R4.2 Build 2008-09-11
SmartNode 4520 Series R4.2 Build 2008-09-11
SmartNode 4600 Series R4.2 Build 2008-09-11
SmartNode 4830 Series R4.2 Build 2008-09-11
SmartNode 4900 Series R4.2 Build 2008-09-11
SmartNode 4552 R4.2 SIP Build 2008-09-11
SmartNode 4552 R4.2 H.323 Build 2008-09-11
SmartNode 4554 R4.2 SIP Build 2008-09-11
SmartNode 4554 R4.2 H.323 Build 2008-09-11
SmartNode IC-4BRV R4.2 Build 2008-09-11
SmartNode IC-E1T1V R4.2 Build 2008-09-11
SmartNode IC-4FXS R4.2 Build 2008-09-11

About this Release

R4.2 is a SmartWare Maintenance Release. Please see the White Paper about SmartWare software releases http://www.patton.com/solutions/SmartWare%20Release%20Strategy%20White%20Paper.pdf for more information about this terminology.

R4.2 was spawned in August 2007. Bugs are fixed until August 2008. End of customer support is in February 2009.

Supported Products

SmartNode 2400 (Model Nr. 2400-0002)
SmartNodes 4110 Series (Rev C, Rev E, Rev F, Rev G)
SmartNodes 4520 Series (Rev A, Rev B, Rev C, Rev E, Rev F, Rev G, Rev H, Rev I, Rev J, Rev K)
SmartNode 4552, 4562 (Rev A, Rev B, Rev C)
SmartNode 4554 (Rev A, Rev B, Rev C, Rev E)
SmartNode 4600 (Rev B, Rev C, Rev D, Rev E, Rev F, Rev G, Rev H, Rev I, Rev J, Rev K)
SmartNodes 4830 Series (Rev A, Rev B, Rev E, Rev F, Rev G)
SmartNodes 4900 Series (Rev A, Rev B, Rev C)
SmartNode 4960 Series (Rev B, Rev C)
Smart-DTA (Rev A, Rev B, Rev C)

Supported Interface Cards

IC-4BRV (Model Nr. IC-4BRV-0002, IC-4BRV-0003, IC-4BRV-0004)
IC-E1V (Model Nr. IC-E1V-0003R1, IC-E1V-0003R2, IC-E1V-0003R3, IC-E1V-0003R4, IC-E1V-0004RX)
IC-E1V-0, IC-E1V-15
IC-4FXS (Model Nr. IC-4FXS-0001)
IC-T1V (Model Nr. IC-T1V-0003R1, IC-T1V-0003R2, IC-T1V-0003R3, IC-T1V-0003R4, IC-T1V-0004RX)
IC-T1V-0, IC-T1V-15

History of Solved CTS Cases

The following list refers to open cases in the Change Tracking System 'CTS'.

This Build Series 2008-09-11

10992   Accept SIP INVITE request despite unsupported content type

When the content type of an incoming INVITE request was not supported the content of the request was ignored. This caused a call drop immediately after connecting. Now this behavior is changed, and SmartWare rejects an INVITE request with unsupported content type with a 415 "Unsupported Media Type" status message. In this status message there is now an accept header included which list all supported content types.

Build Series 2008-07-11

10827   Missing ISDN status response
A wrong behavior of the ISDN Layer 3 has been fixed. If a message other than Restart, Restart-Ack or Status using the global call-reference was received, no response has been returned. The new behavior is now according to the Q.931 standard, a status message with cause No. 81 "invalid call reference value" will be sent.

10931   HW Watchdog crash when several SIP OPTIONS messages are received
The SIP stack could crash with a HW Watchdog when several SIP OPTIONS messages are received in a specific sequence. The time it took for this situation to occur is generally related to the number of messages per time and the interval between messages. SmartWare now behaves correctly in this situation.

10942   Wrong IGMP Checksum
The IGMP checksum was incorrectly calculated and thus invalid IGMP messages were sent. This behavior is corrected.

Build Series 2008-05-15

10882   DynDNS client inactive
The DynDNS client was inactive, except the full configuration parameter set in was configured in the dyndns configuration mode. Thus the DynDNS client and the checkip feature were not working. With the fix the DynDNS client is active when enabled.

10901   Call drop after 200 OK because of the SIP multipart header
SmartWare was accepting sip calls that had content-type header field set to "*multipart/mixed*", even though later it couldn't process them and was forced to drop the call. It has been fixed and now SmartWare drops the call with appropriate reason message as soon as it encounters the unsupported header in the initial INVITE message.

10903 Call drop after 200 OK because of the unsupported charset parameter in SIP content-type header

SmartWare was accepting sip calls that had content-type header field specifying unsupported encodings, even though later it couldn't process them and was forced to drop the call. It has been fixed and now SmartWare drops the call with appropriate reason message as soon as it encounters the unsupported "*charset*" parameter in the initial INVITE message.

Build Series 2008-03-11

10786 GRE packets through NAT are swapped between different IP's

The problem occurred when SmartWare was not able to assign unique inbound or outbound Call IDs for the GRE packets. SmartWare stored two NAT entries with the same CIDs so later the NAT translated GRE packets where sent to the wrong IP. This was fixed by checking already stored CIDs in the NAT table before storing a new GRE NAT entry.

10872 SmartNode does not play busy tone in T.38 mode

SmartNodes DSPs are not allowed to send voice/tones when sending T.38. So when a fax transmission terminates unexpected the DSP is in the wrong state to play the busy tone. This was fixed by disabling the T.38 mode when a fax transmission is disconnected.

10880 NAPT drops out of order IP fragments

The NAPT drops all IP fragments that arrive earlier than the fragment one. The order of subsequent fragments does not matter.
This problem is fixed for fragmented IP packets with the SmartNode as final destination. It is not fixed for fragmented IP packets with destination LAN.

Build Series 2008-01-17

10831 Disconnect-signal loop-break configuration problem

In case the disconnect-signal loop break was disabled on an fxs port, it was enabled again after a reboot, because it was the default disconnect-signal method. Now the configuration state of loop-break is always visible in the config, thus the configuration is kept after a reboot.

10840 Call-signaling-port automatically changed at reload

It was possible to configure two sip gateways with call-signaling-port 5060, but after a reload the call-signaling-port of the second gateway was changed by the smartnode. This problem is fixed.

10856 T38 Problem with M-ATA and SN4960

In a FAX scenario where the SN4960 device was the called party and connected to a combined FAX/Phone device, it could happen establishing a T.38 stream failed. This was the case, if the CNG tone of the calling device could not be proper transmitted and the FAX/Phone device stayed too long in the phone mode (more that 10 seconds). This caused a timeout on the SN4960 device after that the starting FAX transmission could not be successfully opened.

10859 Dejitter buffer is not working as configured

If the dejitter buffer was configured to be static it was set as adaptive and vice versa. Now, the dejitter buffer behaves as expected.

10860 Hunt Group does not hunt on DISCONNECT message from ISDN

The Hunt Group handled receiving of a DISCONNECT message from ISDN as a successful connection establishment, which is not the intended behavior. This is corrected now so, that receiving a DISCONNECT message from ISDN is handled in the Hunt Group in the same way as a RELEASE message. This means that the connection was not established and according the cause in the DISCONNECT message the Hunt Group hunts to the next hunt destination or releases the call.

Build Series 2007-12-03

10765 Command map in Precall Service Table not working

In the precall-service-table mode the command map was not working as documented and resulted in a keyword mismatch.

10772 Playing alerting tone stops after 60s

The SN4960 played the alerting tone only for only 60s. This limitation is now removed.

10773 Hunt group working in the wrong direction

The hunt group was working in the wrong direction: it was active even in case the caller party released the call.

10798 RIP default route not accepted

RIP did not add default routes to the IP router, if no static default route was previously configured.

10814 Sending connected party number configurable

The interface isdn can now be configured to or not to send the connected party number (COLP). See the section 'New configuration commands' for further information on this subject.

10818 ICMP redirect messages to the wrong subnet

ICMP redirect messages were sent to hosts that were not in the same subnet as the routing SmartNode. Now, the subnet is checked, before ICMP redirect messages are sent.

10830 Compliance with ETSI 300 102

According to ETSI 300 102 the SETUP message is not allowed to carry a Called Party Number of more than 20 digits. If there are more than 20 digits in the Called Party Number, the remaining digits need to be sent in an INFO message.

10832 No ringback tone towards H323

After receiving an ISDN ALTERTING message, the SN4960 opened on a data channel towards H323 but did not play the ring-back tone. Now, the behavior is as expected and the user at the H323 side can hear the ring-back tone.

10836 No second T.38 fax transmission over FXO

After reboot of an FXO device, it was only possible to make one T.38 fax call. After that, it did not work anymore. Only a reboot of the device solved the problem. This problem has been fixed and T.38 works now as expected with SIP as well as with H.323.

Build Series 2007-09-19

10771 VoIP LED behavior

On SmartNodes equipped with a VoIP LED it behaves as follows:

1) one or multiple users are configured to be registered: LED is lit when at least one user is registered, LED is flashing in all other cases, LED is never black

2) no user is configured to be registered: LED is lit when at least one call is is ongoing, LED is black in all other cases, LED is never blinking

10776 System serial number in running-config

The system serial number is displayed in the output of 'show running-config'

10777 Challenges from multiple realms

SIP registrations to multiple registrars in different realms did not properly work: the challenges for the different realms were jeopardizing each other.

10780 Wrong temperature value displayed on SN46xx

The misleading temperature value of 127°C could be displayed in case a reading from the temperature sensor failed.

10782 startup-config file size increased

The maximum startup-config file size was increased from 50kB to 128kB.

10787 RIP is not activated at reboot

In certain configurations RIP was not activated after reboot, despite enabled in the configuration.

10792 RIP route expiry timeout configurable

The expiry timeout of a RIP route is now configurable. More information is available in the section 'new configuration commands'.

10793 RIP routes were never deleted

Routes once learned by RIP were never deleted from the routing table.

10810 Fax fail-over on wrong fax detection

The behavior of fax fail-over on wrong fax detection has been improved: The wrong detection causes a re-invite to T.38 that will be declined by the remote sip phone with the cause 606 not allowed because it doesn't support T.38 at all.

We introduced the following enhancements:

- 606 will now also be accepted as bypass fail-over code.

- If no bypass fail-over coder has been configured, the original voice capabilities will be reoffered. In addition, fax detection will be completely disabled to prevent a further wrong fax detection.

10815 Silent modem fail-over

Some gateways change to G711 on modem detection without sending a re-invite or without sending NSE. We cope with this behavior as follows: On detecting an inband codec change, the current fax/modem settings will be checked. If the new codec matches the configured modem

coder, the DSP will be setup for a modem call. If in fact it is fax call, then the DSP will detect that later and we can switch-over to fax transmission. If no modem transmission has been configured but fax bypass and the detected codec matches, the DSP will be forced to fax bypass transmission. In the case no bypass transmission is configured, the behavior will be the same as before, a re-invite will be issued.

Build Series 2007-07-23

10728 SNMP Traps for Spoofer Interface

A spoofer interface send an SNMP trap when it is fully activated by the PPP dialer and when it is deactivated.

10733 DTMF Levels Adjusted

The level difference between the DTMF low frequencies and the DTMF high frequencies was readjusted for 4 dB to 3dB.

10736 Crash at Call Transfer

The SmartNode crashed in case RTP packets were flowing before the consult call-transfer was completed. This case is now properly caught.

10739 New Behavior of Static NAPT Entries

Static NAPT entries dominate over services on the SmartNode. If e.g. a static NAPT for port 80 is configured, the webserver on the SmartNode will not be accessible anymore.

10740 BRI blocked on IC-4BRV

If the Layer1 state machine of the IC-4BRV interface card reached the F3 Deactivated state due to a T3 timer event, the Layer1 could not be reestablished by an outgoing call setup. This only happened if the ISDN protocol of this port was configured to run in USER (TE) mode.

10745 G.SHDSL.bis supported

G.SHDSL.bis is fully supported on devices equipped with a G.SHDSL daughter-card

10747 RTP Crosstalk

Using the SIP auto-transitioning feature made an inconsistency in the RTP port handling appear. The symptom was crosstalk between multiple RTP streams, one-way voice or failed fax transmissions.

10749 Unexpected AIS indication on IC-E1V

If the IC-E1V reached the CRC4 to nom-CRC4 networking mode due to an asymmetric framing configuration, it issued the Alarm Indication Signal (AIS) that could cause link break down on the far end.

10753 SN2400 crash on migration

If a firmware upgrade from release 3.x to release 4.x has been processed, the system could crash during startup phase after reboot. This could only happen if the device was populated with an IC-4BRV interface card that detected 'Link Up' during startup.

10756 Multiple H.323 mode requests.

If a SmartNode was located at the receiving side of a fax transmission, it issued multiple H.323 mode requests to change to T.38. This caused an error on media configuration and the transmission failed.

10759 Configurable PSTN Input-Gain

The Input-Gain for PSTN signals is now configurable. Please consult chapter 'New Configuration Commands' for configuration details.

10763 H323 Early Connect

Early connect is supported in H323. This is useful for incoming non-faststart H.323 calls that lead to early-inband information on the ISDN side.

Caveat - Known Limitations

The following list refers to open cases in the Change Tracking System 'CTS'

CTS2236

Only G.723 high rate (6.3kbps) supported by H.323 (receive and transmit).

CTS2702

TFTP may not work with certain TFTP servers, namely the ones that change the port number in the reply. When using the SolarWinds TFTP server on the CD-ROM this problem will not occur.

CTS2980

With 10bT Ethernet ports, only the half duplex mode works. (With 10/100bT Ethernet ports, all combinations work.)

CTS3233

The SolarWinds TFTP server version 2.2.0 (1999) does not correctly handle file sizes of n * 512 Bytes. Use version 3.0.9 (2000) or higher.

CTS3760

The SIP penalty-box feature does not work with TCP. When the penalty box feature is enabled, the TCP transport protocol must be disabled using the 'no transport tcp' command in the SIP gateway configuration mode.

CTS3786

Autoprovisioning of firmware is currently not supported on the SmartNode 2400.

CTS3924

Changing a call-progress tone has no effect. Adding a new call-progress tone and using it from the tone set profile works however.

CTS4031

The Caller-ID message length on FXS hardware with Chip Revision numbers below V1.5 is restricted to 32 bytes. If the message is longer the message will be truncated. The FXS Chip Revision can be displayed using the 'show port fxs detail 5' CLI command.

CTS4038

When doing 'shutdown' and then 'no shutdown' on an Ethernet port that is bound to an IP interface that receives its IP address over DHCP, the IP interface does not renew the lease.

CTS4077

Using the command 'terminal monitor-filter' with regular expressions on systems under heavy load can cause a reboot.

CTS4335

The duration of an on-hook pulse declared as flash-hook has been raised from 20ms to 1000ms, to cover the most country specific flash hook durations. Existing installations should not be affected, as all on-hook pulses *lower than 1000ms* are declared as flash-hook, including the previous default of 20ms. However, care should be taken in analog line extension applications, to make sure that the flash-hook event is allowed to be relayed over SIP or H.323. This can be achieved by disabling all local call features in the fxs interface on context cs: no call-waiting, no additional-call-offering, no call-hold.

CTS10392

The internal timer configuration command is only able to execute commands that produce an immediate result. Some commands that execute asynchronously cannot be executed by the timer. The following commands (among others) cannot be executed by the timer:

- **ping**
- **traceroute**
- **dns-lookup**
- **copy** any kind of files from or to a TFTP server
- **reload** without the **forced** option

CTS10553

The command "no debug all" does not fully disable the ISDN debug logs. As soon as any other ISDN debug monitor is enabled, all the ISDN monitors that were disabled by "no debug all" are re-enabled.

CTS10586

The codecs G.723 and G.729 cannot be used at the same time on all platforms, except the IC-E1T1, the IC-4BRV and the SmartNode 4960.

CTS10587

If you run coexisting SIP and H.323 gateways on SN2400 due to limited memory you need to limit the total number of calls of the H.323 gateway with a preferences file as follows:

- 30 SIP calls => Limit H.323 to 90
- 60 SIP calls => Limit H.323 to 60
- etc.

CTS10610

SmartNode 4960 Gigabit Ethernet does not properly work with Dell 2708 Gigabit Ethernet Switch. A work-around is to configure 100Mbit.

CTS10730

Due to memory limitations it is not possible to download a software image to the SN4552 when two SIP gateways are active.

General Notes

Factory Configuration and Default Startup Configuration

The SmartNodes, as delivered from the factory, contain both a **factory configuration** and a default **startup configuration**. While the factory configuration contains only basic IP connectivity settings, the default startup configuration includes settings for most SmartWare functions. Note that if you press and hold the system button (Reset) for 5 seconds the factory configuration is copied onto the startup configuration (overwrite). The default startup-config is then lost.

IP Addresses in the Factory Configuration

The factory configuration contains the following IP interfaces and address configurations bound by the Ethernet ports 0/0 and 0/1.

```
interface eth0
  ipaddress dhcp
  mtu 1500
interface eth1
  ipaddress 192.168.1.1 255.255.255.0
  mtu 1500
```

New Configuration Commands

The commands documented in the Release Notes only cover new additions, which are not yet included in the Software Configuration Guide for R4.2, available from www.patton.com.

Current Revision:

Document Number: 13211U8-005 Rev. A
Part Number: 07MSWR42_SCG
Revised: August 17, 2007

Connected party number (COLP)

First appeared in build series: 2007-12-04

Sending the connected party number (COLP) can now be suppressed by the command send-connected-party-number.

Mode

context cs/interface isdn

	Command	Purpose
Step 1	[*name*] (if-isdn)[if*name*]#[no] send-connected-party-number	Enables/Disables sending the connected-party-number. Default: enabled.

RIP route expiry

First appeared in build series: 2007-09-19

This command sets the route expiry timeout for routes learned from RIP.

Mode

interface ip

	Command	Purpose
Step 1	[*name*] (if-ip)[*name*]#rip route-expiry [1..3600]	Sets the RIP route expiry timeout. Default: 180s

Input Gain

First appeared in build series: 2007-07-23

This command allows amplifying or to attenuate the signals received on the different PSTN ports like E1/T1, BRI, FXS or FXO. Be aware that every change of the gain value can influence the system

behaviour. If the gain level is too low DTMF tones cannot be detected anymore. The same applies also for level that is too high because the signal will be overdriven and distorted.

Mode

profile pstn

	Command	Purpose
Step 1	**[*name*] (pv-pstn)[*name*]#input-gain [-31..31]**	Defines the input gain of PSTN signals in dB. Default: 0dB

H323 Early Connect

First appeared in build series: 2007-07-23

Early connect can be enabled to open a data path before the call is connected to play inband information from the ISDN side.

Mode

interface h323

	Command	Purpose
Step 1	**[*name*] (if-h323)[*name*]#early-connect**	Enables the h323 early connect feature.

Documentation

CD-ROM

The CD-ROM that is delivered with SmartNodes includes user documentation and tools for SmartWare R4.2:

- Software Configuration Guide SmartWare Release R4.2

- SmartNode Hardware Installation Guide

- TFTP Server

- Telnet

- Acrobat Reader

WWW

Please refer to the following online resources:

- Software Configuration Guide SmartWare Release R4.2:
  http://www.patton.com/manuals/SCG-r42.pdf

- SmartWare Configuration Library:
  http://www.patton.com/voip/confignotes.asp

How to Upgrade

Software Upgrade/Update (R3.xx to R4.2)

Note: when encountering problems due to memory exhaustion (message "`Parsing batch file...%
APP - OUT OF MEMORY.`") shutdown the H.323 gateway prior to initiating the download command as
follows (which will temporarily free the required memory):

*node***(gw-h323)[h323]#shutdown**

After the successful download either issue the 'reload' command (in order to start the SmartNode with the
new software) or restart the H.323 gateway thus enabling calls again (with the current software):

*node***(gw-h323)[h323]#no shutdown**

1. For SmartNode 2400, SmartNode 4552, and for SmartNode 4520 Series: for an update from R3.xx,
you have the choice to upgrade to R4.2 with or without the new GUI functionality.

To upgrade to R4.2 without the GUI functionality, enter the following command (telnet, console):

```
copy tftp://<tftp_server_address>/<server path>/b flash:
```

To upgrade to R4.2 with the GUI functionality, enter the following command (telnet, console):

```
copy tftp://<tftp_server_address>/<server path>/bw flash:
```

2. For SmartNode 2400: download software for the interface cards (IC-E1V, IC-T1V, IC-4BRV, IC-4FXS)
that you want to use with your SmartNode 2400:

```
copy tftp://<tftp_server_address>/<ic-e1t1v server path>/b flash:
```

and/or

```
copy tftp://<tftp_server_address>/<ic-4brv server path>/b flash:
```

and/or

```
copy tftp://<tftp_server_address>/<ic-4fxs server path>/b flash:
```

Example:

```
copy tftp://172.16.36.80/software/ic-4brv/b flash:

copy tftp://172.16.36.80/software/ic-4e1t1v/b flash:
```

3. For SmartNode 2400 with interface card IC-4FXS and for SmartNode 4520 Series : If you require
country-specific profiles for the FXS ports other than the available profiles (i.e. US/Canada, Great
Britain, EuroPOTS and Swiss profiles), download the respective country profile:

```
copy tftp://<tftp_server_address>/<ic-4fxs server path>/<country>/b
flash:
```

4. Load Patton-specific settings (preferences), if available:

Extract the files 'b_Patton_prefs' and 'Patton.prefs' into the same directory on the TFTP-server.

```
copy tftp://<tftp_server_address>/<server path>/ b_Patton_prefs flash:
```

5. Reboot the SmartNode afterwards:

```
reload
```

Notes about Upgrading from Earlier Releases

Note that SmartWare Release R4.2 **introduces some changes in the configuration** compared to Release R3.xx.

Please refer to the SmartWare Migration Notes R3 to R4 available at upgrades.patton.com.

How to submit Trouble Reports

Patton makes every effort to ensure that the products achieve a supreme level of quality. However due to the wealth of functionality and complexity of the products there remains a certain number of problems, either pertaining to the Patton product or the interoperability with other vendor's products. The following set of guidelines will help us in pinpointing the problem and accordingly find a solution to cure it.

Problem Description:
Add a description of the problem. If possible and applicable, include a diagram of the network setup (with Microsoft tools).
Product Description:
When reporting a problem, always submit the product name, release and build number. Example: SmartNode 2400 *V1 R4.2 Build 2008-09-11* This will help us in identifying the correct software version. In the unlikely case of a suspected hardware problem also submit the serial number of the SmartNode (s) and/or interface cards.
Running Configuration:
With the Command Line Interface command 'show running-configuration' you can display the currently active configuration of the system (in a telnet and/or console session). When added to the submitted trouble report, this will help us analyze the configuration and preclude possible configuration problems.
Logs and Protocol Monitors:
Protocol traces contain a wealth of additional information, which may be very helpful in finding or at least pinpointing the problem. Various protocol monitors with different levels of detail are an integral part of SmartWare and can be started (in a telnet and/or console session) individually ('debug' command). **N.B.:** In order to correlate the protocol monitors at the different levels in SmartWare (e.g. ISDN layer3 and Session-Router monitors) run the monitors concurrently.
Network Traffic Traces:
In certain cases it may be helpful to have a trace of the traffic on the IP network in order to inspect packet contents. Please use one of the following tools (supporting trace file formats which our tools can read):   Ethereal (freeware; www.ethereal.com)
Your Coordinates:
For further enquiries please add your email address and phone number.