



Firmware Release Notes

4.800 – 5.063

R-Series Router

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Version 5062, Bootloader 5.45

- 1) Firewall enhancement. Previously new rules inserted below comments would not get matched by new packets until the router was restarted. It is no longer necessary to restart the router.
- 2) Fix firewall translation problem which was introduced in release 5.061.
- 3) Fix to IPsec failover problem. When an interface went OOS, new SAs over the next best interface weren't being created as expected. Problem introduced in release 5.053
- 4) Change so that when interfaces static routes are pointing at go DOWN these static routes will no longer be advertised by BGP and OSPF.
- 5) Change to ADAPT so that it answers with a higher priority (incoming ISDN calls) when it is bound to another protocol (e.g. PANS). It uses the same answering priority it would if it was bound to ASY and ATSO=1 is set.

Version 5061, Bootloader 5.42

- 1) Fix to Firewall NAT, under some circumstances firewall NAT rules could fail due to interaction with normal NAT.
- 2) Changed access level assigned when authenticating using RADIUS. RADIUS Service level 6 now results in SUPER access level rather than HIGH.
- 3) TACACS+ changes:
- 4) PPTP fix. PPTP wasn't working when carrying traffic that had been tunnelled.
- 5) Changes to the way the firewall handles packets with NAT translations to increase throughput.
- 6) Routing table changes relating to new routing code. OOS flags were being cleared wrongly when interfaces connected and disconnected.

Version 5060, Bootloader 5.42

- 1) Change to TCP packets so that incoming and outgoing TCP packets have their SYN packets modified so that any MSS option contains a value not exceeding the MSS possible for the interface the packet is received or sent on.
- 2) Changes to the way inbound ICMP unreachable packets are handled by the firewall and NAT functions.
- 3) Fix for R640 platform. Problem was introduced in 5059 which resulted in a system restart when the router was configured as an IKE responder.
- 4) Some debug removed from wireless WAN functions.
- 5) Change to IKE so that source IP obtained during MODECFG is used rather than first IP address of the subnet. Affects only negotiations where the unit is an initiator during MODECFG negotiations.

Version 5059, Bootloader 5.41

- 1) Change to recently added 'PPP remote callback options changes' to allow IPCP negotiations to complete.

- 2) Change to PPP callback function. When a callback is in progress, the PPP link will ignore deactivate requests from the firewall.
- 3) Fix to VRRP probing which did not work correctly since the Ethernet MAC bridging was added in 5.050 for platforms. This is only a problem for software builds that had the Ethernet MAC bridge included.
- 4) Fix to NAT. Problem introduced in 5.058. If multiple interfaces had NAT enabled, the router could enter an infinite loop resulting in a system restart.

Version 5058, Bootloader 5.39

- 1) Change to NAT function so that when d-natting an incoming packet, the router now ensures the packet arrived on the same interface as the outgoing packet was sent on. The same thing applies to NAT entries set up by way of the static NAT mappings. For those entries, the first inbound packet indicates which interface all subsequent inbound packets should arrive on.
- 2) Change so that if files sregs.dat or x3prof are missing at power up, the router will no longer automatically create them at power up. Instead the router will wait until a save command is issued to create these files. This should reduce the probability of a router being powered off whilst a flash write operation is occurring.
- 3) New bootloader 5.41. This bootloader improvement means that when updating the flash contents via an all file, the mirror directory CRC for the sbios file is updated in addition to the standard directory CRC.
- 4) IKE changes to allow MODECFG to be used with certain vendors equipment when not also configured for XAUTH. The router will now send the XAUTH vendor ID if requesting a local IP address (requires MODECFG) or if performing one of the XAUTH authentication methods.
- 5) New firewall action "pass-ifupnr" which works like the current "pass-ifup" firewall action in that it only passes traffic if the interface is currently up. If the interface is down the action to take is to block. This is so that "uninteresting traffic" will not raise PPP links. However currently this uninteresting traffic can keep PPP links active by causing the inactivity timers to be reset by this traffic. This new action "pass_ifupnr" passes the traffic if the interface is up and does not reset any activity timers with this traffic.
- 6) Renamed PPP external modem web parameters to "lowest free external modem", "external modem 0" and "external modem 1".

Version 5057, Bootloader 5.38

- 1) Firewall change. Packets that match an inspect-state rule, but do not create stateful entries due to lack of resources, or because the packet type is not the type that allow creation of stateful entries (e.g. ICMP echo response), are no longer blocked.
- 2) IPsec change. The unit will now check to see if the best route has changed (so that it can potentially create new SAs) when an interface disconnects. Also, when an interface disconnects, the IP routing table is updated before the router updates the IPsec state rather than after.
- 3) DNS change. It was found that a router could restart when handling DNS responses larger than a regular system buffer. This is not normally an issue, but it appears that there are devices out there that send these odd sized queries as a form of DoS attack.
- 4) Change to the way the OS handles metrics for an 'sroute'. Metrics for remote PPP peers are updated when the regular interface route is updated. The metrics for these two routes should now match at all times.

- 5) Improvement to web pages relating to WWAN module configuration.
- 6) Improvements to the internal operation of dynamic eroutes which are used with a MySQL Egroup configuration.
- 7) BGP communities were not being distributed correctly when BGP is started after a router restart or when an interface changed state. This has been fixed.
- 8) Fixed a problem with MySQL dynamic Eroute functionality which has been found. Under certain circumstances newly created SAs would be deleted because the SA peerip was deemed not to match the value in the Eroute hostname and backup hostname fields. The problem would only occur if there was a backup peer IP configured into the database and the server was acting as responder during IKE negotiations.
- 9) Bridge mode change so that broadcasts and multicasts are not duplicated when the router is running low on buffers.
- 10) Change to 'scan' command so that it now waits if FLASH is busy and then performs the scan command afterwards. Also the scan command now also holds off and pends any other FLASH action until the scan has finished.
- 11) Change to TACACS+ so that the privilege level can be obtained by way of the "priv-lvl" attribute. This is in addition to the method already supported, "priv_lvl", which is the attribute name specified by the RFC.
- 12) Improvement to web pages relating to external modem configuration

Version 5056, Bootloader 5.38

- 1) IP routing and firewall recovery change relating to the new routing code. Routes put out of service by firewall rules weren't being put back into service again after recovery had completed. This has been fixed.
- 2) Change to IP routing tables relating to the new routing code. Previously multiple static/default routes could incorrectly show up in the 'sroute' table.

Version 5055, Bootloader 5.37

- 1) An event is now logged to the eventlog.txt before starting a factory reset caused by the reset button being held down for more than 5 secs.
- 2) SNAIP modified to use the Origin Data link correlator when receiving an ICANREACH Explorer message.
Routers now respond to TEST CIRCUIT with a TEST RESPONSE.
Added ability to generate a TEST RQ so the unit can test connections and respond correctly.
- 3) R640 Bootloader fix. Increased the amount of space available to allow Flashwriter to extract .all files correctly when using TFTP. TFTP all file extraction stopped working correctly between 5050 & 5055 due to lack of free space. Important note, the main image file and bootloader must be updated at the same time or the R640 will no longer boot. New bootloader is 5.38 and corresponding image will be 5.056
- 4) Added 2 new SNAIP parameters. "con_attempts" and "con_boff_time". con_attempts is the number of consecutive attempts to connect and if the unit reaches this count without success it will back off for the given con_boff_time in seconds. If con_boff_time is zero this feature is disabled.
- 5) BGP change. In certain configurations removing a route from the routing table could result in a system restart. This has been fixed.

Version 5054, Bootloader 5.37

- 1) NTP debug output modified to be more user friendly.
- 2) SSH modification so that SFTP can now be requested by way of subsystem channel request.
- 3) Added 'Read only' user access level. Users can log in to the router web GUI to view the config but cannot make changes.
- 4) Reduced main firmware image size on R52.
- 5) Removed incorrect line in logcodes.txt
- 6) User access change to disallow a user with 'Read only' access clearing the eventlog.txt
- 7) New NTP broadcast mode added. Options are now 'Enabled' & 'Enabled (must be synched)'. Usually, when in broadcast mode, NTP will not send packets to broadcast peers if the local clock is unsynchronised. Now, when broadcast mode is set to 'Enabled', the router will still send NTP packets. In this case the leap indicators will be set to indicate that the clock is unsynchronised. This new mode will not raise a PPP interface that is currently down and not 'always-on'.
- 8) NTP 'burst interval' function added. Specifies the transmit interval to use when NTP is unsynchronised. This new function is for interfaces that are not 'always-on'. For use with new NTP broadcast mode 'Enabled'
- 9) PPP remote callback option changes. CLI values changes from OFF & ON to 0, 1 & 2. OFF & ON have been mapped to 0 & 1. A new value of 2 indicates that the PPP should disconnect without making an outgoing callback if the callback option is not negotiated. This differs from value 1 in that if callback is not negotiated in this mode, negotiations continue without making a callback attempt.

Version 5053, Bootloader 5.37

- 1) Fix for a FTP problem introduced in release 5.053
- 2) GPS change to guard against corrupted NMEA messages

Version 5052, Bootloader 5.35

- 1) Change to L2TP to close the L2TP tunnel after a L2TP call is cleared providing there are no other calls using that tunnel.
- 2) NTP parameter "NTP inhibit interface" is now a drop down list instead of a free text field.
- 3) Increased amount of time allowed for L2TP to disconnect when the underlying PPP interface is disconnecting.
- 4) R52U OPTION firmware reduced in size to fit into memory and run.
Do not use 5.052 with this router.
- 5) L2TP change to not retransmit the closing packet if closing the tunnel because retransmits are failing.
- 6) R52U & R526U firmware reduced in size to fit into memory and run with up to 100 static routes.
- 7) R52, R52E, R526, R526E firmware reduced in size to fit into memory and run with up to 100 static routes.
- 8) PPP lost buffer fix.

- 9) Small change to routing that allows packets to be routed to disconnecting interfaces. Ensures that local applications (e.g. L2TP) that are configured to use routing code to determine interface can still deliver packets during the disconnection process. This allows L2TP to complete call/tunnel termination in an orderly fashion.
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- 11) Support added to TACACS+ for long ekey values.
- 12) Change to GPS on R640 to prevent it from reconfiguring the ASY port.
- 13) SNAIP** modified so that when a unit receives a CANUREACH explorer it only responds if SAPs and MACs match.
- 14) Changes to GPS task to enable it to work with GPS modules which are presented as USB serial interfaces. i.e. It is now possible to insert some GPS USB devices into the USB port if the GPS task is included in the firmware.
- 15) SNAIP modified to initialise the Data Link Correlators just before a CAN_U_REACH circuit start message is sent.
- 16) Added TACACS+ accounting messages into SFTP after operations like file transfer/rename/delete have occurred. Support added for sending TACACS+ accounting messages after commands executed via web GUI have been performed.

Version 5051, Bootloader 5.30

- 1) R52u Novatel code size reduced to fit in memory. Do not use firmware version 5.051 with this product.
- 2) TACACS+ support added into SFTP. As authentication is provided by SSH, only command authorisation and accounting is required. Commands currently requiring authorisation are: File delete, rename, read & write.
- 3) Internal changes relating to DHCP operation.
- 4) When using SNAIP protocol, the timeout from the time a CANUREACH_cs is sent until a ICANREACH_cs is expected has been increased from 30 seconds to 60 seconds.
- 5) New IKE parameter to retain the Phase1 SA if the Phase2 negotiation fails. New parameter is IKE x keepph1 <off|on>. Normal mode of operation is off.
- 6) Increased a timer value that detects issues during the boot process. It was seen that on some routers with a large number of eroutes and static routes, the extra time taken to process the config file could result in a system restart.
- 7) PPP inhibit mode change. Where a PPP instance was inhibited by another PPP and the secondary PPP was also set to deactivate when the primary re-activated, previously both PPP's could remain active. This can no longer occur.
- 8) New parameter added to L2TP. 'retxcnt' retransmit count. Allows the number of retransmitted packets to be altered. When using L2TP over GPRS networks, the 1st few packets are sometimes lost. The default value is 5, but to increase reliability on GPRS networks, this value can be increased.
- 9) L2TP enhancement to support the deactivation of a PPP interface carrying the L2TP packets so that when the L2TP disconnects the PPP interface is also deactivated immediately.

Version 5050, Bootloader 5.20

- 1) Increased the bootloader's maximum command input length from 80 to 120 characters. New bootloader 5.27.
- 2) Increased the number of "DHCP MAC -> IP addresses" in the 256 Mb R752 from 10 to 30
- 3) Added RADIUS client to R640 Mkl & MKII.
- 4) Added bisync mode to the sync ports on R640 MkII. New bootloader 5.30.
- 5) Modification to the way blank usernames & passwords are handled by the CLI.
- 6) Added configuration web pages to the "modern" web GUI for the following features: Command mappings, TRANSIP ports, Sync ports and protocol bindings.
- 7) Fix to L2TP/IPsec (server mode). Functionality was broken since 5.030, L2TP uses port translation for clients behind a NAT device. Note that this port translation is rarely needed so most implementations will be unaffected by the problem that this change fixes.
- 8) Added Script Basic to R421
- 9) SNAIP enhancement. Added parameter "waitforcontact". If this parameter is enabled, the unit will not send the "CONTACT" message to finalise a circuit, but instead waits for the head end to do that.

Version 5049, Bootloader 5.20

- 1) Thin image ASY 1 baud rate is now 115200. Previously this was fixed at 57600 on all platforms.
- 2) Change to SSH so that the number of SSH server services is based upon the number of physical ASY ports on the router. Also ensured that the number of listening sockets available is at least as many as the number of SSH server services.
- 3) PPP changes and fixes
- 4) Change to the srout (Global Static Routing) code so that ethernet interfaces configured to obtain an IP address through DHCP do not add a default route to the srout table when the interface doesn't have any IP address at all.
- 5) IKE bug fix. Bug introduced with release 5.049 that can occur when eroute requests for IKE to create a tunnel cannot be serviced. This could occasionally result in a system restart.
- 6) Improvement to WEB/FTP TCP socket control.
- 7) Increased maximum DynDNS password length to 25 characters

Version 5048, Bootloader 5.19

- 1) WWAN enhancement to modemcc command
- 2) IKE enhancement. Change to IPsec so that the eroute 'bakpeerip' parameter now supports hostnames. The resolving of hostnames to IP addresses has been moved to the IKE task and the resolving is done just prior to the start of the negotiation.
- 3) STP enhancement. The Ethernet group the STP applies to is defined by a new parameter "stp 0 group x". Previously STP has only applied to ports on Ethernet group 0.

- 4) Small change to IKE so that when stored phase 1 IKE SAs are removed they display the correct removal reason
- 5) CLI command interpreter enhancement. Inline modifications to the current command may now be performed using the left/right arrows, HOME/END keys and INSERT/DEL keys.
- 6) STP fix. STP packets were being transmitted out all ports instead of just the specific port that was running STP. Broken since firmware 5.009
- 7) Removed BGP, OSPF, PPTP, SSL CLI, VXN, SFTP from R625 build due to lack of memory.

Version 5047, Bootloader 5.18

- 1) IKE OpenSWAN mode change. The router now successfully negotiates against OpenSWAN boxes as initiator and responder.

Version 5046, Bootloader 5.18

- 1) DHCP enhancement. User defined DHCP options have been added.
- 2) Enhancement to the 'HW' command
- 3) Bug fix for IP analyser filters. Packets were being filtered out of the trace when they shouldn't be. Bug first introduced with release 5.041.
- 4) Enhancements to stateful firewall entries & timeouts. There is a new firewall statistic "In use stateful rules reused" which indicates how many times an in use entry has been re-used by a new stream.

Version 5045, Bootloader 5.17

- 1) Web GUI changes for compatibility with Google Chrome browser
- 2) Changes to "config c showall" command. On routers with hundreds of GRE or IPSec tunnels configured, the output could cause the router to run out of memory. This command is now handled differently to reduce demand on system buffers. Also, protocol bindings were being displayed multiple times.

Version 5044, Bootloader 5.15

- 1) Internal issue fixed with thin image not building correctly.

Version 5043, Bootloader 5.15

- 1) Fixed problem with local DUN PPP connections and DNS.
- 2) Fix to PPP MPPE negotiations which could fail if the remote specified stateless mode.

Version 5042, Bootloader 5.15

- 1) Fix to PPP inhibit mode functionality that was broken in 5.039
- 2) New web page parameter added, Configure > WWAN > SIMx > Network preference/locking string. Previously this parameter was entered as an init string.

Version 5041, Bootloader 5.15

- 1) Analyser enhancement. New port/protocol/address filters have been added to the discarded packets to provide more flexibility to which discarded packets are logged to the trace.
- 2) Enhancement to sastat CLI command. Added some optional arguments to the 'sastat' command so that tunnels can be filtered by remote IP and/or peer ID.
- 3) Fix to IP packets assigned gateway. A check is now made to ensure a gateway is used from the routing table if a manually applied gateway refers to an interface that is out of service.
- 4) IKE enhancement. IKE responder negotiations will now work with OpenSWAN when the 'openswan' config parameter is enabled.

Version 5040, Bootloader 5.15

- 1) Reduced size of thin image on platforms with more than 1 ethernet port.
- 2) Added TCP version of SYSLOG to the R421
- 3) R640 DNS Server selection configs increased to 15 from 5.
- 4) Changes to DNS queries performed by applications on the router. All functions on the router that need to perform a DNS lookup now query 127.0.0.1 to take advantage of the DNS caching implemented in 5040.

Version 5039, Bootloader 5.15

- 1) DNS enhancement.
- 2) Web server enhancement. When in HTTPs mode, requests to the HTTP port (80) result in the client being redirected to the HTTPs (443) port.
- 3) V120 enhancement. Added inactivity timer into V120 (ADAPT) function. New parameter "v120 x tinact y".
- 4) Fixed issue where if a complete XOT header was not received in a single TCP data packet the router would not send the data to the TCP stack.
- 5) DNS enhancement.

Version 5038, Bootloader 5.15

- 1) Added two NTP parameters "inhibit_int and inhibit_add" which cause the NTP transmissions to be inhibited when the configured interface is down. When the interface comes up and if NTP has skipped any scheduled transmissions (because it was inhibited) it will transmit straight away.
- 2) WEB GUI change to allow host names to be entered into the host name fields of the sntp and ntp web pages. (Previously the web GUI would accept IP addresses only.)
- 3) Change to TACACS+ accounting messages.
- 4) Change to NTP and SNTP server name resolution so that if a response is not received (during the SNTP or NTP protocol) it causes a re-resolution of the server to take place.
- 5) Fixed to the WEB save all function so that it doesn't lose a command context each time it is performed. The output displayed has been changed slightly so that it shows the progress as files are saved.

6) VRRP fix. Depending on configuration, Ethernet ports could remain in Master state when they should have switched to Backup due to received VRRP advertisements not being processed by the VRRP handler. This problem could occur where VRRP is configured on a logical Ethernet context (e.g. on routers with a single Ethernet port.)

7) Fix to QoS. The unit would incorrectly delay the sending of packets during times when small amounts of data were being transmitted.

Version 5037, Bootloader 5.15

1) Fix to a problem introduced in version 5.037 that could cause the router to reboot and corrupt the config file when a config save is attempted.

2) Fixed firewall address translation problem with inbound rules where address translations of matching response packets wouldn't take place if NAT was turned on that same interface

3) Further enhancement to config file handling to stop comments after the ENDCFG appearing before the ENDCFG statement.

Version 5036, Bootloader 5.14

1) Increased supported password/pre-shared key length from 30 to 40 characters.

2) WEB UI change. Repositioned items referring to W-WAN (ex GPRS) so that they are in alphabetical order.

3) Change to config save handler to ensure comments at the end are not excluded.

4) Mod to NTP and SNTP so that we can specify the servers in use by host.domain name instead of just by IP address.

Version 5035, Bootloader 5.08

1) WEB UI changes. Parameter descriptions on configuration pages no longer wrap when the browser window is made too small to fit all page items in.

2) Added DHCP parameter 'repdelms' which configures a backoff time in mseconds in which DHCP_OFFER messages are sent. This should mean it should be possible to configure the DHCP server to be slower in response to any other DHCP server on a network.

3) Changes to USB UMSM ASY driver to support DTR control.

4) WEB UI change. Replaced various references to "GPRS" with "W-WAN"

Version 5034, Bootloader 5.06

1) Enhancement to DIR command to support > 100 files.

2) Enhancement to syslog so it uses the "Delay after powerup..." and so will not send a syslog message for this period and will queue them up.

3) Change to the hardware packet processor for GRE Tunnel interfaces to ensure the Tunnel's Source IP address is added to the IP Address table even if the Tunnel is not up.

4) WEB UI changes.

5) Minor SSH enhancement.

Version 5033, Bootloader 5.05

- 1) Added PPPoE MSS clamping to R640 platforms.
- 2) IKE fix. When using certificates, the router would send the wrong ID to the remote. It would send the IP address rather than the ID from within the certificate. (Problem introduced in release 5.030.)
- 3) Firewall address translation enhancement
- 4) SSH fix. Under certain circumstances a problem would prevent more than one simultaneous SSH session from being established. This is now fixed.
- 5) SIM LED now blinks when roaming. Also added SIM PIN and SIM PUK warning messages to the modem status web page
- 6) SSH Server enhancements

Version 5032, Bootloader 5.05

- 1) Added some parameters missing from the WEB configuration pages
- 2) FTP fix. Very occasionally on large FLASH writes (e.g. image), the FTP transfer would stall.
- 3) Fix a minor problem in IPsec that could cause a system restart under certain conditions. For the problem to occur, an eroute must have debug turned on, and also have an incorrect 'remnetid' parameter configured. This was unlikely to cause problems in any normal configuration.
- 4) Increased the PPP high MRU limit to 1600
- 5) Further enhancements to TACACS+.
- 6) Added firewall support for 'oneroute any' keyword.

Version 5031, Bootloader 5.04

- 1) DCD is now activated when using serial ports in synchronous mode on the R640 platforms.
- 2) CDMA provisioning script and web configuration page added.
- 3) Sregister S9 now defines a DCD on delay in 20 msecond units.

Version 5030, Bootloader 5.04

- 1) SSH change. Fixed a problem that occurred when outgoing TCP connections were made from the SSH server. Changed SSH channel ID numbers sent to SSH clients so that they are less likely to clash with an ID used for a previous channel.
- 2) New mode added for DCD control AT&C3 in which this causes DCD to pulse low when the protocol (on the asy port) disconnects. The time it pulses low for is determined by S10 and is in 10 msec units.
- 3) Support for RFC 3947 (latest version of NAT traversal) added into IPsec.

Version 5028, Bootloader 5.04

- 1) TACACS+ enhancements.

Version 5027, Bootloader 5.03

1) Added automatic PUK entry in modemcc driver. The PUK is a new parameter in the GPRS module configuration, and is used if a "SIM PUK" condition is detected. A PIN must also be configured for this to work. As for PIN entry, the PUK entry is only attempted once per reboot or power cycle.

2) Change so that in port isolate mode learning mode is disabled and the static mac table in the Ethernet switch is left configured correctly. This will mean that in port isolate mode it will be possible to "un-isolate" the ports by connecting the ports to the same physical network.

Version 5026, Bootloader 5.02

1) Further improvements to FPGA packet processor.

Version 5025, Bootloader 4.98

1) Fixed a web server problem that could cause the Applet LEDs not to be displayed correctly. This minor issue was introduced with TACAS+

Version 5024, Bootloader 4.97

1) Further improvements to FPGA packet processor.

2) TACACS+ enhancements added. TACAS+ now in test release

Version 5023, Bootloader 4.95

1) FPGA and SW Packet processor support added to the R640 series platform to increase routing and IPSEC throughput.

2) Further improvements to FPGA packet processor.

3) Added Novatel hardware version info to modem status

4) Further changes to help improve performance on the R752.

Version 5022, Bootloader 4.94

1) Improvement to the Eroute SNMP interface retrieval for the case where no Peer IP is configured.

2) Firewall fix. Stateful lookups for FTP data sockets were not working when also using address translation since release 5.021.

3) Further routing/IPSEC performance improvements.

Version 5021, Bootloader 4.93

1) Change to the firewall to NOT automatically start using a new firewall script when the file 'fw.txt' is received (e.g. uploaded by ftp). So to start using a new firewall script that has been just uploaded to flash, if it is now necessary to issue the "fw" command or reboot. This is to prevent users from getting locked out of routers if the ftp transfer of an fw.txt file fails.

2) Added network technology info to GPRS MIB for the Option 3G module.

3) Enhancements to ETH flood protection on R640 series platforms which should reduce likelihood of reboots during Ethernet floods.

Version 5020, Bootloader 4.93

1) Added new event to log resource shortages with. This event also now logs when a remote telnet session is unable to bind onto a remote command session because of a lack of resources.

2) Performance improvement: doubled the size of the stateful firewall entry hash table to account for additional requirements when performing address translation. Also added a new stat that indicates how often the firewall fails to insert an entry into the hash table (should always be 0).

3) Performance improvement: Changed the number of buffers that are put on the R640 Ethernet Rx queue from 16 to 128. This greatly increases IP throughput performance with smaller packets.

4) Added the 'route hash' and 'route flush' commands.

5) Pressing the reset button for 5 secs now also copies fw.fac (if present) to fw.txt and deletes pwds.da0

6) Ethernet driver fix to R52 series routers

7) Added packet filtering based upon destination MAC address to routers with more than one Ethernet port.

8) Change to prevent an ARP problem from occurring on incorrectly configured routers.

9) Change to the PPP 'mask' parameter so if it is set to an empty string, the unit will assume the value is 255.255.255.255.

10) Performance improvement in hash table.

Version 5019, Bootloader 4.90

1) Support added for logging IP loopback packets to the analyser trace. Turn "ana 0 loopon ON" to enable loopback packet logging.

2) FTP server fix. Flash writes could on rare occasions hang. This change resolves the problem.

3) Increased number of buffers to 5000 and messages to 5000 on R640 platforms and on the R752 platforms 10000 buffers and 5000 msgs.

4) Change to Scriptbasic's "execute" function so that when the command completes it returns before the timeout expires

5) Fix for VRRP on a R752 when using Eth 0

6) Enhancements to FAT16 support.

7) Improvements to Option 3G module driver:

- added network technology change events;
- added network technology and cell ID to signal strength events;
- added cell ID and location area code to status;
- correctly initialises preferred SMS message storage.

8) Fast ARP table change and fix.

9) Enhancement to allow certain NAT (IP address translation) firewall rules to work correctly in conjunction with IPSEC.

- 10) IP routing performance improvements on the R640 series routers.
- 11) Removed SIM and other GSM related parameters from Sierra CDMA configuration web pages
- 12) Increased the number of stateful firewall entries and NAT entries for R640 and R752 platforms

Version 5.018, Bootloader 4.89

- 1) OSPF issue fixed.

Version 5.017, Bootloader 4.89

- 1) IMSI field added to PPP/ETH heartbeat UDP packets.
- 2) Fixed incorrect handling of "discardson" checkbox in analyser web page.
- 3) Ethernet driver fix.
- 4) IP routing and IPSec performance enhancement.
- 5) Fix to a problem that can occur when there are multiple IPSec tunnels between two peers. Problem was introduced in version 5.013.

Version 5.016, Bootloader 4.89

- 1) Change to the route table.
- 2) Fixed problem in GPRS configuration web page introduced in 5.015.
- 3) Added current network technology and cell ID to signal strength event log events.

Version 5.015, Bootloader 4.89

- 1) Fixed a problem with the DHCP server.

Version 5.014, Bootloader 4.88

- 1) NTP server mode fix

Version 5.013, Bootloader 4.87

- 1) Improvements to Ethernet flood protection
- 2) Supported added for up to 32 TRANSIP instances on R640 platform.

Version 5.012, Bootloader 4.84

- 1) Reduced heap size on R625
- 2) Improvements to BGP on the R752
- 3) Script Basic script added to allow the SIM card to be chosen at start-up based upon signal strength, radio technology, mobile operator, ping test or various combinations of.

4) IGMP and multicast routing support added to Tunnel interfaces.

Version 5.011, Bootloader 4.83

- 1) Fix to Ethernet group support.
- 2) Change to TCP/Route Table/Firewall
- 3) Firewall/NAT bug fix
- 4) Fix to transip/pad socket connection problem
- 5) W-WAN 'net_str' config parameter added to the GPRS module configuration WEB page.

Version 5.010, Bootloader 4.83

- 1) PPP bug fix introduced in version 5.007.
- 2) USB ASY ports are now accessible via TCP sockets in the same way that regular physical ASY ports are (i.e. connecting to port 4000+ ASY #).
- 3) Added Tunnel status web page
- 4) Script Basic added to R640 products.

Version 5.009, Bootloader 4.81

- 1) OSPF fix.
- 2) Minor enhancement to script basic.
- 3) When the reset button is held in for 5 seconds and the reset process is started, the LEDs now "dance" to make it clear that the reset process has been initiated and the router must not be powered off.
- 4) BGP enhancement.
- 5) Added a new parameter "cmd 0 pbrset <ON|OFF>" that can be used to disable the reset button.
- 6) TELNET fix for clients that send the DO SUPPRESS_GA option message.
- 7) Update to the tunstat command to include the Admin and Operational status of the tunnel. Also added 'clear' option to clear the tunnel statistics.
- 8) SSL client change.
- 9) GRE performance enhancement

Version 5.008, Bootloader 4.76

- 1) Added temperature monitoring for Option 3G modules.
- 2) Support for the PPP username length increase from 40 characters to 60 characters.
- 3) BGP fixes.

- 4) GPS changes: can now specify a prefix and/or suffix string for NMEA lines sent over an IP connection
- 5) Modemcc changed
- 6) Small change to ADSL stats web page to make clear that the "Corrected" and "Uncorrected" figures refer to ADSL blocks and not cells.
- 7) Change to the tunnel interface to improve performance when a large number of tunnels are configured with a short keep alive delay.
- 8) Small change to IKE. IKE will no longer process an IKE packet that arrives on an interface which has IPsec turned off.
- 9) Enhancement to the FTP Relay function so that the FTP client can send data in ASCII mode if configured.
- 10) Added current network and SIM information to GPRS signal strength event strings
- 11) Enhancements and fixes relating to GRE tunnels, route table and general purpose sockets.

Version 5.007, Bootloader 4.76

- 1) Added more ADSL information to the R640 product's web interface
- 2) Fixed minor problem with web server that could occur when trying to read an incomplete web file.
- 3) SSH change - Initial support for client to server port forwarding added.
- 4) Change to firewall rule processing.

Version 5.006, Bootloader 4.76

- 1) Fix to problem in which ASY 1 fails when port 0 is put in sync mode.
- 2) Added two more SMS destinations and trigger levels into the event configuration.
- 3) Enhancement to allow LAPB to configure a SNAIP instance as the lower layer interface.
- 4) Tunnel interface change that affects the transmission of GRE keep-alives.
- 5) Command line interface commands will now return ERROR if an invalid parameter is specified.
- 6) Packets blocked by the firewall now added to the tracing of discarded IP packets.
- 7) PPP change. When configured for L2TP and PPTP, the PPP no longer needs a phonenum configured before outgoing calls can be made.
- 8) Change to the initial Telnet options
- 9) Added "Tunnel" to Interface selection on the "Static Multicast Routes" Web page. The CLI already supported this option.

Version 5.005, Bootloader 4.74

- 1) FTP client modified to cope better with multiple line messages returned by some FTP servers.
- 2) Added options 150 (TFTP server), 161 (FTP server) and 162 (FTP root) to the DHCP server.

- 3) Changes to the telnet server to send extra options to the client
- 4) Added extra asynchronous serial port buffering for use with PPP in ASYNC to SYNC mode.
- 5) Updated PPP auto-ping so that the ping interval is reset if a packet is transmitted over the interface.
- 6) Fixed an incorrect error response when setting the time from the web interface.
- 7) Vendor IDs in the initial IKE phase 1 packet have been re-ordered to improve interoperability with a Cisco PIX running X-auth and MODECFG.
- 8) Added a server mode parameter to PPTP
- 9) PPTP data packets being transmitted to an Ethernet interface weren't begin transmitted if the destination IP was not of that network. This has been fixed.

Version 5.004, Bootloader 4.72

- 1) Fix to an X.25 problem in which sometimes the X.25 call was not cleared correctly. This was in the case of an XOT call being made on a non-standard LCN.
- 2) Enhancement to the processing of Ethernet frames
- 3) Increased the number of ASY buffers from 6 to 7
- 4) Fixed "typo" on Ethernet and PPP web configuration pages.
- 5) PPP in ASYNC to SYNC mode has been enhanced to check the BAD_FCS bit in the packet and discard packets with this bit set.

Version 5.003, Bootloader 4.71

- 1) Support added to the PPP pingip and pingip2 parameters to work with host names rather than just IP addresses.
- 2) Change to web and ftp so that flash reading is performed by a low priority task.
- 3) Added the ability to trace discarded IP packets in the analyser trace. The reason for discarding the packets is included in the trace output.
- 4) Fix to a problem that can occur at boot time when a single unit has both of its sync ports connected via a sync cross-over cable.
- 5) Change to the PPP/ETH heartbeat facility so that the routing code can be used to determine through which interface to send the UDP heartbeat packets.

Version 5.002, Bootloader 4.71

- 1) Firewall change so that the "stat" keyword can be used to collect transaction statistics for ICMP pings in a similar manner to the previously supported UDP echos.

Version 5.001, Bootloader 4.65

- 1) Various enhancements and fixes to SSL and https.
- 2) Support for 6 SSL client configurations added.

- 3) Added missing 'bakpeerip' (backup peer IP) parameter to eroute configuration WEB page.
- 4) A few changes to SNMP
- 5) IKE change.
- 6) Enhancements to TCP to improve robustness.
- 7) Increased the number of FTP server sessions to 4 to allow Windows Explorer to work better

Version 5.000, Bootloader 4.65

- 1) internal changes

Version 4.999, Bootloader 4.64

- 1) Enabled ASY port RX stats for R640 series products.
- 2) Improvements to SSH hardware encryption on R752 and R625 platforms.
- 3) SSH change. Support for key exchange method "diffie-hellman-group1-sha1" added
- 4) Enhancement to the AT\PPP=1 mode
- 5) Spanning Tree Protocol and Network Time Protocol put into general release for R640 series

Version 4.998, Bootloader 4.64

- 1) Fixed ADSL problem that affects on R625 and R752
- 2) Syslog change
- 3) Added new L2TP parameter 'rnd_srcport' to control the source port used on L2TP connections.

Version 4.997, Bootloader 4.64

- 1) internal changes

Version 4.996, Bootloader 4.64

- 1) internal changes

Version 4.995, Bootloader 4.64

- 1) Minor fix to copy command. R640 series could reboot if the user just enters "copy" and then hits return without entering any file names.
- 2) Firewall change
- 3) New syslog features added
- 4) New format for eventlog added and new virtual file "eventlog.xml". R640 only.
- 5) PPTP change

6) Small temporary fix that removes advertisement of an as yet unsupported SSH key exchange algorithm.

Version 4.994, Bootloader 4.64

- 1) Added support for ATM QoS on R640 series
- 2) USB/PPP/MUX issue fixed

Version 4.993, Bootloader 4.63

- 1) SNMP updates
- 2) Enhancement to log in the event log when a parameter change takes place.
- 3) Minor fix to syslog client.
- 4) Added AES (128/192/256) support to the SSH server.
- 5) Fix to problem introduced in version 4.989 in which a unit will reboot whilst doing a config save if the config.da0 file does not already exist.

Version 4.992, Bootloader 4.63

- 1) Fixed problem in protocol switch that could occur when switching between TCP and SSL.

Version 4.991, Bootloader 4.59

- 1) Added TPAD and PPP stat bins to R640 products without WWAN interfaces.
- 2) Added USB support for the latest Option HSUPA modules.
- 3) Added username stamping into config files. The current username is recorded in the config file when changes are saved.
- 4) Syslog additions to support multiple syslog servers.
- 5) PPTP change
- 6) UDP heartbeat change

Version 4.990, Bootloader 4.59

- 1) Fix to problem in which the unit restarts between config.da0 being updated and pwds.da0 being opened. This applies only to when a password change has been detected and the pwds.da0 file needs updating.

Version 4.989, Bootloader 4.59

- 1) Internal changes.

Version 4.988, Bootloader 4.59

- 1) Internal changes.
- 2) TCP listening sockets performance improvement.
- 3) Added support into OpenSSL/certificate code that allows encrypted key files to be used in place of regular ones.
- 4) Added a table of default values for X25Switch (protocol switch).

Version 4.987, Bootloader 4.58

- 1) Internal changes.
- 2) Improved behaviour when attempting to write to a USB disc drive
- 3) Added 230400 to the list of baud rates to try when entering GPRS mux mode

Version 4.986, Bootloader 4.57

- 1 Modified GRE Tunnel interface support to allow multiple tunnels to use the same physical interface to be configured as the tunnel's source.
- 2 Continuous streaming (i.e. to a USB device) of .cap files added.
- 3 Performance improvements made to PPP/ASY/USB routing speed.
- 4 Enabled HTTPS support
- 5 Fixed a problem with config saving where a temporary file wasn't being removed at the end of a config save. This minor problem was introduced with the recently added pwds.dax support.
- 6 Change to stateful firewall entries so that consecutive ICMP packets matching a inspect-state rule will create separate stateful entries rather than re-use the same one.
- 7 Minor changes to the ASY PPP performance enhancement code.
- 8 Added HTTPS parameter to the General purpose sockets WEB page.

Version 4.985, Bootloader 4.57

- 1) Changes to SNAIP to simplify ifOperStatus calculation and to SNMP Traps to map SNAIP and IPSEC Up/Down events to generic Link Up/Down traps.
- 2) Changes to the way config files are loaded/saved. The pwds.dax file is now loaded before the config.dax file so that if a user uploads a config file that contains username and passwords to a unit and then reboots the unit, the new passwords will take effect at the same time as the new usernames.
- 3) Streaming of ana trace to USB drive added. Added new parameter "ana 0 usbcontfile <filename>". When set it causes the analyser data to be continuously sent to a USB drive file "U:<filename>". The existing parameter "ana 0 usbblogsizek <sizek>" defines the size of this file. When the file max size has been reached then oldest data from the file is removed first to keep this file smaller than the required max size. A typical value for this might be say 12000 for a 12Meg max file.
- 4) SNAIP change to drop the read socket instead of the write socket when 1 socket mode is negotiated.
- 5) Fix to SNMP where objects of lengths of 127 bytes were being encoded incorrectly.

6) Fix to privsplit command.

Version 4.984, Bootloader 4.55

- 1) Added ADSL watchdog to R640 series.
- 2) Speed improvement to the "del <wildcard>" command
- 3) Change to copy/move commands so that users with high enough access can perform copy/move operations on pwds.* files.
- 4) Added NetBIOS name server option (NBNS and NBNS2) to DHCP server.
- 5) SNMP fix for exception that could occur when retrieving PPP statistics via SNMP.

Version 4.983, Bootloader 4.55

- 1 Added web GP socket option parameters for the PLC packet relay.
- 2 Enhancement to PLC packet relay.
- 3) Fix to problem introduced in version 4.981 in which U: USB flash drive files cannot be opened.

Version 4.982, Bootloader 4.55

- 1 Fix for SNMP Eroute interface entry so that the operation status is correctly set.
- 2 SNAIP changes for compatibility with Cisco DLSw switch using port 2065
- 3 Support for PLC packet relay server added.

Version 4.981, Bootloader 4.54

- 1) New PPP parameter 'tctxbuf' which, if non-zero, sets the size of the TCP transmit buffer, which holds unacknowledged data yet to be delivered to the remote peer. On slow/lossy links (e.g. GSM), it can be useful to set this buffer size to a low value to prevent the amount of unacknowledged data from getting too high.
- 2) FTP change. It was sometimes possible for files to be left open when small files were being written.

Version 4.980, Bootloader 4.53

- 1) Improved Ethernet flood protection
- 2) Config file changes. epassword type parameters are now saved into a different configuration file, (pwds.da0/pwds.da1) rather than config.da0.

Version 4.979, ARM/MIPS Bootloader 4.53

- 1) Fix for ICMP Unreachable (Fragmentation needed).

Version 4.978, ARM/MIPS Bootloader 4.53

- 1) Internal changes

Version 4.977, ARM/MIPS Bootloader version 4.53

- 1) Two parameters added to "ana" group of parameters.
- 2) A few BGP fixes to make it work with 1000's of (Tunnel) interfaces.
- 3) New eroute parameter 'nosaoos' added.
- 4) Event logcodes changes so that when we save any edited changes to the logcodes, the changes go to a file "logcodes.dif".

Version 4.976, ARM/MIPS Bootloader 4.53

- 1) Added fast reverse searching in the ARP cache.
- 2) Added code that can be selected to check for duplicated MAC addresses on Ethernet.
- 3) Added Monitor Mib support for CPU current/min/max/average utilization, Messages Free/Min, Buffers Free/Min and Big Buffers Free/Min. These values are now retrievable via SNMP.
- 4) IKE/IPsec changes
- 5) Improved handling of a USB xfer
- 6) Hardware encryption support added into SSL.
- 7) SSL server change.
- 8) Change to dynamic eroute code
- 9) IPsec changes.

Version 4.975, ARM/MIPS Bootloader 4.53

- 1) Removed 100 file limit from web server
- 2) Fixed NULL pointer dereference in DNS handler which could cause a reboot when Telneting to the unit via a DNS resolve.

Version 4.974, ARM/MIPS Bootloader 4.53

- 1) Change to IPsec SA status page
- 2) Fix small bug in eroute status page.
- 3) First release of FAST ARP indexing for quicker ARP lookups.
- 4) Made the PPP absolutely and quickly drop the link
- 5) Added more PPP debug into ACT_RQ and DEACT_RQ under the control of parameter "pppdebug".
- 6) Fixed problem with ACT_IN/DEACT_IN messages sent by PPP/ETH (and onwards)

Version 4.973, ARM/MIPS Bootloader 4.53

- 1) Max number of ARP entries is now 100 on all platforms.

Version 4.972, ARM/MIPS Bootloader 4.53

- 1) IKE updated to support OpenSwan with PSK Aggressive Mode
- 2) Change to IKE so that fewer timer messages are started during negotiations.
- 3) Ensure that task locking is off when locking the high cpu event.
- 4) More changes to limit the size of some large WEB status pages
- 5) More IKE/IPsec changes.

Version 4.971, ARM/MIPS Bootloader 4.53

- 1) IPsec SA status page will now display SAs for up to 50 eroutes at a time (up from 10).

Version 4.970, ARM/MIPS Bootloader 4.53

- 1) Small recovery socket change.
- 2) TPAD fix
- 3) Change to IPsec SA status page

Version 4.969, ARM/MIPS Bootloader 4.53

- 1) Mods to put timestamping into the configuration file.
- 2) Added AES support into SSL sockets.
- 3) Added watchdog timer and event to ISDN B channel sync.
- 4) A more permanent fix for the SNMP bug
- 5) Small fix to modemcc status display that removes spurious data from the SIM status line
- 6) Small recovery socket change.
- 7) LAPB fix s
- 8) Applied the previous LAPB fixes to LAPD.
- 9) Fixed selection of PPPoE MAC address number in PPP config

Version 4.968, ARM/MIPS Bootloader 4.52

- 1) TPAD statistics change.
- 2) SSL change.
- 3) Fix in sroute interface management for a bug that caused BGP
- 4) Added further protection against analyser trace corruption after a reboot
- 5) Addition of new eroute parameter 'requireno'.

6) Fix to LAPB 255 mode

Version 4.967, ARM/MIPS Bootloader 4.48

- 1) Added support for second PING IP address into PPP and ETH.
- 2) Added firewall support to TUN (tunnel) interface.
- 3) SNAIP mod
- 4) Mod to TPAD
- 5) The 'ren' command now waits for the flash operation to complete before returning with 'OK'.
- 6) Added MD5 functions to Basic.
- 7) PPTP changes.
- 8) Small change to PPP.

Version 4.966, ARM/MIPS Bootloader 4.46

- 1) IPsec transport mode change.
- 2) USB
- 3) Fixed SNMP

Version 4.965, ARM/MIPS Bootloader 4.46

- 1) Fixed SNMP bug
- 2) Fixed routing bug
- 3) Minor PPTP change.

Version 4.964, ARM/MIPS Bootloader 4.45

- 1) PPTP support for server mode added.

Version 4.963, ARM/MIPS Bootloader 4.45

- 1) SNAIP mod
- 2) Initial check-in of PPTP client support.
- 3) Couple of fixes for SNMP
- 4) IPsec fix.
- 5) PPTP mods.
- 6) PPTP change.
- 7) Bug fix for SNMP

8) DHCP/DNS change.

9) ETH/PPP PING parameters now only displayed in advanced mode on the WEB pages.

10) Added 2 extra IP address ranges into DHCP server which add to the range of IP address assigned to remote clients.

Version 4.962, ARM/MIPS Bootloader 4.45

1) Internal changes

Version 4.961, ARM/MIPS Bootloader 4.45

1) A couple of changes to support the Lorient Pro SNMP client.

Version 4.960, ARM/MIPS Bootloader 4.44

1) Mod to SNAIP

2) Support for SNMP Bulk gets added.

3) Changes to WEB pages. A number of WEB pages and configuration parameters are now hidden unless the user specifically switches to advanced mode, or the user access level is either HIGH or MASTER.

4) A new user config parameter "webmode" has been added to allow the default display mode for a user to be specified..

Version 4.959, ARM/MIPS Bootloader 4.44

1) Swapped bit defs for Ethernet reset & Wireless modem power

Version 4.958, ARM/MIPS Bootloader 4.42

1) Addition of 'config changes' command

2) Support for VRRP traps added.

Version 4.957, ARM/MIPS Bootloader vers 4.42

1) Added reboot count support for SNMPv3

Version 4.956, ARM/MIPS Bootloader vers 4.39

1) Routing table fixup.

2) PPP Subconfig fix.

3) IPsec fix.

4) Minor fix to ICMP fragment reassembly timeout message.

5) Fix for IKEv2.

- 6) New SNMP implementation added - support for SNMP v1, v2c and v3.
- 7) SNAIP code to try out setting the value of the transport ID field in the SNAIP SSP messages.
- 8) Added support for using the current default route into DNS update.
- 9) USB serial port changes.
- 10) Mod to SNAIP to do a flow control update
- 11) Fix for a SNMPv3 crash caused by an old stack variable was being referenced. Also includes changes to reduce stack usage in the SNMP engine.
- 12) SCEP changes.

Version 4.955, ARM/MIPS Bootloader vers 4.38

- 1) Fix for the 'KBytes Delivered' count on the IPSEC SAs status web page.

Version 4.954, ARM/MIPS Bootloader vers 4.38

- 1) ADSL DSP firmware changes
- 2) - Fix L2TP authentication problem
- 3) New USB code fix.
- 4) L2TP 'window' config parameter appeared not to do anything.
- 5) Removed support for the old style GRE support via eroutes.
- 6) Updated GRE Tunnel. This means the GRE Tunnel interfaces now fully support the functionality of the Eroute GRE support.
- 7) Added support for a list (up to 4) of dialout numbers into PPP.
- 8) Support for up to 4 SNTP hosts added to SNTP client.
- 9) PPP Dialout list included by default (4 numbers)

Version 4.953, ARM/MIPS Bootloader vers 4.38

- 1) Fix to Basic socket handling to ensure that remaining data is not discarded when remote disconnects.

Version 4.952, ARM/MIPS Bootloader vers 4.38

- 1) Added 'stop' options for Ping and Traceroute utilities.
- 2) MySQL changes

Version 4.951, ARM/MIPS Bootloader 4.38

- 1) USB Changes

Version 4.950, ARM/MIPS Bootloader 4.38

- 1) Improvement to thin images.
- 2) Fix to V120 to stop it bumping other protocols from their attached asy ports when the V120 remote control session terminates.

Version 4.949, ARM/MIPS bootloader 4.38

- 1) Removed some debug in new USB drivers
- 2) Mod to ensure that we do not create files with any wildcards in them during a file copy process.

Version 4.948, ARM/MIPS bootloader 4.36

- 1) Fixed software flow control for new USB serial ports.
- 2) Support for various USB HSDPA modems added to new USB code.
- 3) Fixed FAT bug in which when a USB disk is more than 1/2 full we fail to write any more data.
- 4) Added new USB support for BELKIN serial devices.
- 5) Removed some more debug from new USB code.

Version 4.947, ARM/MIPS Bootloader 4.35

- 1) Fixed FAT problem for new USB MSD in which if a USB drive does not contain a partition boot sector and goes straight to the volume boot record we failed to read the disk.
- 2) More new USB changes. Separate timer thread implemented.
- 3) Small fix to 'execute' command in Basic interpreter.
- 4) Fixed driver bug that prevented Annex B units from training up in ASDL2/2+ mode.

Version 4.946, ARM/MIPS Bootloader 4.33

- 1) Fix to stop a crash on new USB stack sometimes when a device is pulled
- 2) internal changes

Version 4.945, ARM/MIPS Bootloader 4.33

- 1) Fixed TPAD build error in previous check-in.

Version 4.944, ARM/MIPS bootloader 4.33

- 1) Implemented new USB stack version of 'usb_port_cmd', which is needed by USB GPRS modules. Also, some other fixes relating to USB serial ports.
- 2) Fix to TPAD crash problem in direct mode when line errors or disconnects occur as overlapped transactions are queued.

Version 4.943, ARM/MIPS Bootloader 4.31

- 1) Initial support for large numbers of tunnel interfaces (>255) added.
- 2) A small fix for Ping to support >255 interfaces.
- 3) Interface Description configuration added for the Ethernet, Eroute, SNAIP and SYNC interfaces.
- 4) More improvements to new USB stack.
- 5) Supporting autoexec and .bat files from USB sticks.

Version 4.942, ARM/MIPS Bootloader 4.30

- 1) Re-instated separate web builds for R640 variants
- 2) SCEP change so that path does not end with '/' char if no application string is configured. Also implemented default config for SCEP.

Version 4.941, ARM/MIPS Bootloader 4.30

- 1) DYNDNS fixup.
- 2) Fixed problem with emodemcc picking up incorrect default parameters when there are more than 3 instances.
- 3) A couple of BGP fixes.

Version 4.940, ARM/MIPS Bootloader 4.30

- 1) Fix to 'privsplit' command so that 'priv' files can be written to the 'U:' drive.
- 2) Fix firewall bug relating to rules matching packets delivered on VLAN interfaces. RX packets on VLAN wouldn't match up correctly with stateful rules.

Version 4.939, ARM/MIPS Bootloader version 4.30

- 1) Privsplit command fix so that it now works with a USB stick that doesn't have any files present already on it. Also modded 'privsplit' command so that 'OK' is only returned when it has finished. (so that the USB stick isn't pulled too quickly).

Version 4.938, ARM/MIPS Bootloader version 4.30

- 1) Change to IP static routes. Previously, static routes that had no IP address configured, or had an IP address of 0.0.0.0 configured would not be placed into the routing table.
- 2) Added a listening initialisation string parameter for external modems. The listening init string is sent at intervals specified by a listening init interval parameter. CLI commands are modemcc x linit_str and modemcc x linit_int.
- 3) Improvement to L2TP backup process.
- 4) BGP was causing the loss of two buffers (if BGP was disabled) everytime PPP went up and down.

Version 4.937, ARM/MIPS Bootloader 4.29

- 1) Fix to data_handler function to check to see if a packet that is address to us is a NATed packet before attempting to defragment it.
- 2) R640 builds now use the same image and web files for all three variants of serial port numbers
- 3) Extended ASY MIBs to include all physical ASY ports.
- 4) Changes to PPP so that before a PPP disconnects, L2TP PPPs operating over that PPP will have be disconnected first.
- 5) Fixed ASY, GPRS and PSTN stats pages so the correct stats corresponding to the ASY ports are displayed.
- 6) Increased max possible number of sreg profiles, when EXT_SREG_SAV is set, from 12 to 15, to cope with boards with larger numbers of serial ports.
- 7) Analyser support for Tunnel interfaces.
- 8) Added new L2TP parameter 'bakremhost' so that it is now possible to specify a backup remote L2TP host server.
- 9) Fix up some NULL pointer dereferences that result in crashing when answering PPP calls made to ASY ports.

Version 4.936, ARM/MIPS Bootloader 4.29

- 1) R640 ADSL MIB counters are now correctly cleared with the at\mibclr command.

Version 4.935, ARM/MIPS Bootloader 4.29

- 1) Changed the number of ASY ports that support being connected to via TCP socket.
- 2) Added unoos timer to route unoos parameters. When set to a non-zero value, the configured interfaces will be put back in service (if oos), and will not go oos again for the configured period of time.

Version 4.934, ARM/MIPS Bootloader 4.29

- 1) We now hold the power off for 5 secs when power-cycling 3G modules on all Mobile platforms.
- 2) Fix for Tunnel interfaces/IPSec interaction

Version 4.933, ARM/MIPS Bootloader 4.27

- 1) More changes for R640 HW Crypto functions.
- 2) Reduced the number of separate builds required for the various R640 models.
- 3) Fixed PAD bug in which incoming calls could be inadvertently responded to with a facilities marker.
- 4) Added command "type fwstat.hit" which displays firewall along with hit counters.
- 5) Reduced the number of SSL contexts so that we now only have one per ASY port and one per socket potentially used by HTTPS.

Version 4.932, ARM/MIPS Bootloader 4.27

- 1) Some more fixups relating to IKE/IPsec and HW crypto.
- 2) R640 changes
- 3) Initial check-in of support for SSL server connections.
- 4) Fixed bug in Sntp web config page.

Version 4.931, ARM/MIPS Bootloader 4.23

- 1) more R640 modifications
- 2) Fix to V.110 crash problem if trying to transmit data just as the network disconnects the connection.
- 3) Added web configuration support for static routes and sroutes via Tunnel interfaces.
- 4) Added low-buffer and low-message threshold flood protection to ethernet driver.

Version 4.930, ARM/MIPS Bootloader 4.21

- 1) R640 modifications
- 2) Increased the BGP startup delay in order to work around a problem where the USB tasks appear to "lock up" and the 3G module is not enumerated at startup.

Version 4.929, ARM/MIPS Bootloader 4.20

- 1) Small change

Version 4.928, ARM/MIPS Bootloader 4.20

- 1) Tunnel interfaces modified to be completely interface agnostic.
- 2) Fixed build error in bootloader affecting builds with MAX_FFFILES<>80
- 3) Increased number of IPCALL switches to 64 on some builds

Firmware version 4.927, ARM Boot loader 4.20

- 1) Internal changes.
- 2) Small change to L2TP to ensure retransmitted packets are sent out at the "l2tp x retpx" millisecond intervals.
- 3) Change to PPP so that when a normally inhibited PPP is activated by traffic, it will make more than one attempt to connect.
- 4) Change to sroutes table (routing table for OSPF and BGP)

Firmware version 4.925, ARM Boot loader 4.19

- 1) IKE change to allow pre-shared keys to be changed without risk of the IPSEC SA's being dropped.
- 2) Fix for route speedup when route is from sroute (BGP & OSPF routing table).
- 3) PPP username and password change.
- 4) Added SNTP parameter "randintsecs"
- 5) Added ability to specify lower interface to use for L2TP UDP sockets.
- 6) Radio PAD change to print the calling NUA rather than the called NUA on inbound calls.

Firmware version 4.923, ARM Boot loader 4.17

- 1) BGP improvement.
- 2) Change to help Windows Vista L2TP / IPSEC clients connect.
- 3) PPP changes.
- 4) SNAIP enhancements
- 5) Improvement to OSPF behaviour when used with tunnel interfaces.
- 6) PPP 'trafficto' parameter added.
- 7) Added new PPP parameter 'aodi_dly2'.
- 8) Added regular events containing the signal strength.

Firmware version 4.922, ARM Boot loader 4.17

- 1) Tunnel entity fix for an issue that could occur when keepalives are enabled.
- 2) Added a configurable description parameter for Tunnel interfaces to allow the user to describe the use of the tunnel.

Firmware version 4.921, ARM Boot loader 4.16

- 1) Increased generic usb-serial driver's bulk-out buffer size
- 2) Change PPP 'pwr_dly' parameter so that it is now a 'range' type parameter.

Firmware version 4.920, ARM Boot loader 4.16

- 1) Improvements to ASY driver.
- 2) Fix to PAD problem
- 3) TTY USB serial ports now queue data at power on

Firmware version 4.919, ARM Boot loader 4.14

- 1) Fixed error in logcodes.txt.

2) Added ability to specify the PING size when using interface autoping feature.

Firmware version 4.918, ARM Boot loader 4.12

- 1) Customer specific changes.
- 2) OSPF and BGP fix.
- 3) Change to radio PAD clear response to conform to the radio PAD format of "CLR DTE 000".
- 4) Included DNS reverse resolve functionality in builds where top talker support is included.
- 5) BGP fix.

Firmware version 4.917, ARM Boot loader 4.11

- 1) Sroute/Route speedup fix
- 2) New ETH/PPP parameter added:- 'ripis'.
- 3) Added a 'name' parameter to L2TP.

Firmware version 4.916, ARM Boot loader 4.06

- 1) Further development of the Tunnel Interface including changes to TCP and OSPF to support the new interface type.
- 2) BGB and GRE keep-alives added to tunnel interface.
- 3) Changes to BGP command and debug formatting.
- 4) RIP change.
- 5) VRRP probing change.
- 6) Web support for Tunnel interfaces plus Tunnel interface statistics added. Also a BGP/sroute bug fix discovered whilst testing.
- 7) BGP added to general release.

Firmware version 4.915, ARM Boot loader 4.05

- 1) Added 'toslist' parameter into eroute configurations.
- 2) Fix to Ethernet problem on R525 and R515 products.
- 3) Modified default lkbyte value for an IPSEC tunnel to be 0 instead of 32767 when a tunnel is configured with 0.
- 4) Added Seek ability into the USB Flash drive functions and increased performance on seeking USB flash files.
- 5) Added SNAIP parameter 'l1 oos'

Firmware version 4.914, ARM Boot loader 3.99

- 1) IPsec change.
- 2) Units with at least 8 Mbytes flash now reserve a complete flash block each for the direct and mirror.
- 3) Flash writes speeded up in the case of writing to files that already exist.
- 4) Flash direct and mirror files are now allocated their own flash blocks for all units with at least 4 Mbytes flash
- 5) SSL client support change.
- 6) SMTP client run_cmd() change.
- 7) Added GP socket option ("sockopt 0 sslver <0-3>")
- 8) PPP change.
- 9) Changed MC75 power-up timing on startup.

Firmware version 4.913, ARM Boot loader 3.96

- 1) Fixed stateful firewall rule problem introduced with routing speedup changes
- 2) Improvement to flash writing on USB flash drives.
- 3) SMTP change.
- 4) Added AT&D5 and AT&D6 options
- 5) Added inactivity timeout parameter into eroute configurations.
- 6) Added special handling of PIN2 error messages.
- 6) PPP heartbeat change.
- 7) PAD change
- 8) Added support for ASY forwarding timer larger than 2.5 seconds.

Firmware version 4.911, ARM Boot loader 3.94

- 1) General routing speed improvements made
- 2) Fixed U: USB wildcard copies problem. Improved validations in USB FAT file system.
- 3) Minor IPsec enhancement.
- 4) Routing table change.
- 5) Improvement to SNAIP on R625 platforms.
- 6) The copy command now supports the format "copy u:<fname>" without the need to specify the destination

Version 4.910, ARM/MIPS Bootloader 3.94

- 1) Fixed SMS problem when receiving and displaying texts longer than about 140 characters.
- 2) SCEP request change.
- 3) Fixed VRRP problem on R52 models
- 4) Logical Ethernet instances of a VRRP eth port now maintain their MAC addresses
- 5) Routing table lookup change

Version 4.909, ARM/MIPS Bootloader 3.94

- 1) Further code reduction for R515 and R510 thin images to bring size back down to below 128K

Version 4.908, ARM/MIPS Bootloader 3.92

- 1) Fixed data abort that could occur when IKE negotiations were happening at the same time as a flash write (e.g. config save).
- 2) Small fix to Basic so that the sockinfo function returns the correct port numbers

Version 4.907, ARM/MIPS Bootloader 3.92

- 1) Added new parameter "cmd 0 cpuhigh_reboot" which defaults to 'OFF'
- 2) Added events into eventlog when modem is attempting to dial, connect and is disconnected.
- 3) Added more info into the "Sustained High CPU event"
- 4) Added support for multiple PPP sessions running over the same PPPoE-encapsulated ATM PVC.
- 5) Added ability to check for tasks locking up forever in loops.

Version 4.906, ARM/MIPS Bootloader 3.90

- 1) Fixed up potential buffer leak on some builds
- 2) Added some restrictions to when we'll send TCP RST packets to restrict resource usage under stress test/ DOS attacks.
- 3) Fixed LEDs
- 4) Increase default number of IP -> X.25 calls from 10 to 50 for basic builds
- 5) Final routing speedups.

Version 4.905, ARM/MIPS Bootloader 3.84

- 1) Updated overview.asp for R526iu
- 2) Led applet handler function now provides the full set of LED states for all R526 GPRS/ISDN/PSTN combinations
- 3) "modemstat s" can now be used to scan for networks from the command line
- 4) Changes to IP routing stack to increase throughput.

- 5) Added support for DHCP relay agent operation.
- 6) Added fixed limit of 4 hops to DHCP relay agent
- 7) Fixed up Ethernet HUB mode group problem

Version 4.904, ARM/MIPS Bootloader 3.76

- 1) Initial check-in of BGP code. Currently NOT included in any builds.
- 2) Changes to BGP
- 3) Small change to GP socket events.
- 4) Further change to DNS forwarding
- 5) Added new command "privsplit <certificate filename>"
- 7) New PPP and ETH boolean parameter
- 8) Added all file support into the application
- 9) Bootloader mod
- 10) OSPF fixup.
- 11) Added MLPPP support for ISDN D64S mode.

Version 4.903, ARM/MIPS Bootloader 3.76

- 1) More DYNDNS changes..
- 2) VRRP change.

Version 4.902, ARM /MIPS Bootloader 3.69

- 1) Fix to problem introduced Sep 19 in which when an email was being sent the unit would be unable to locate the file "event.eml" the first time after power on.
- 2) Added USB device ID for the Novatel EU730 (this is the US version)
- 3) Change to UDP echo client & firewall.
- 4) Addition of three new virtual files "anaip.cap", "anaeth.cap" and "anapp.cap". These files present IP/ETH/PPP (respectively) frames captured to the analyser file in the PCAP format.
- 5) Fix build problem introduced with recent addition of SYNC DMA support
- 6) Recent change to firewall code allowing FTP scanning to work on ports other than 21 didn't work correctly.
- 7) First release of support for DLSSw V2 in SNAIP.
- 8) Added wildcard copying e.g. "copy u:*.bat" will copy all bat files from the USB drive to the local drive.

Version 4.901, ARM/MIPS Bootloader 3.66

- 1) Second phase of Src Mac bridging development.
- 2) DYNDNS Fix.
- 3) Firewall rules specifying 'proto ftp' used to check that either the source or destination port of IP packets used the FTP control port (21).
- 4) Small change to USB ASY ports.
- 5) FTP fix.

Version 4.900, ARM/MIPS Bootloader 3.66

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- 1 IKE debug change.
- 2) Added 2 commands for SNAIP testing.
- 3) Added IMSI (International Mobile Subscriber Identity) to the GPRS module status info.
- 4) Increased the maximum number of saveable ASY profiles on R526
- 5) Fixed R526 builds so that all variants get 6 spare USB ASY ports.

Version 4.899, ARM Bootloader 3.65

- 1) Final implementation for SNA shared port mode.

Version 4.898, ARM/MIPS Bootloader 3.65

- 1) Fix to DNS updates for long passwords
- 2) Added a 10 second PIN # debounce time
- 3) Added 'metric' configuration parameter into PPP and ETH.
- 4) Modified the Ethernet entity so that the MTU can be no larger than 1500 (1496 on a VLAN
- 5) Added an internal Poll event for when a USB MSD is inserted/removed.
- 6) Change to IKE so that certificates/CRL files are read from USB sticks when a USB stick is inserted.
- 7) Added another open read mode option for USB files
- 8) Added new option "SharedPort" for the I1iface parameter to SNAIP.

Version 4.897, ARM Bootloader 3.65

- 1) Small change to JLA task

Version 4.896, ARM Bootloader 3.65

- 1) R52 and R526 models now have 6 logical ASY ports available for USB serial adapters.

2) Fixed USB bug in R421 which

Version 4.895, ARM/MIPS Bootloader 3.65.

- 1) Minor fix to display IKE ID and length fields correctly in analyser on
- 2) GPS changes
- 3) Added second trap_ip parameter
- 4) Added a Traceroute client to the software stack.
- 5) Small fix to Basic "system" command

Version 4.894, ARM/MIPS Bootloader 3.63

- 1) Added Log event "TPAD PIN change".
- 2) PIN Value is now stored in NVRAM so the event regarding PIN change is not triggered automatically on power up
- 3) Fixed up problem with DNS update client.
- 4) Increased number of command filters from 10 to 20.
- 5) DYNDNS change

Version 4.893, ARM/MIPS Bootloader 3.63

- 1) Turned off debug and bufmon

Version 4.892, ARM Bootloader 3.57

- 1) GRE tunnelling change
- 2) Fixed up small issue with command recall functionality
- 3) Change to ICMP time exceeded messages so that we will send them if an ICMP packet ttl reaches 0.
- 4) DHCP server change. We now support advertising of 2 DNS server addresses.
- 5) Added extra error status info for the R52u.
- 6) Addition of some eroute lookup debug.
- 7) Added Cell ID and Location area code information for the R52u

Changes from Version 4.891, ARM Bootloader 3.57

- 1) Fix to problem introduced in version 4.888 in which TPAD Axxx and Nxxx commands were broken.

Changes from Version 4.890, ARM Bootloader 3.56

- 1) Initial implementation of 'at\smib' command.
- 2) A couple of minor changes for slightly increased routing throughput.
- 3) Wildcard support on USB stick regarding the "dir" command and the "del" command added.
- 4) Fix to bug introduced in version 4.858 in which IP header lengths are not correctly encoded.
- 5) Changes to code that uses command interpreter instances to execute commands.
- 6) Two further bootloader flash changes.
- 7) Added "Service Provider Name" field to modem status for R52u
- 8) A couple of small changes to IPsec so that we can operate as a server from behind a NAT box.
- 9) Fixed DYNDNS problem.
- 10) Fixed L2TP configuration problem.

Changes from Version 4.889, ARM Bootloader 3.56

- 1) Fixed buffer loss problem that occurred when ARP requests were received by ethernet contexts that were in VRRP BACKUP mode.
- 2) TCPDIAL change.
- 3) Fixed up "dir <wildcards>" command and also added "del <filename>" where "filename" can contain wildcards.

Changes from Version 4.888, ARM Bootloader 3.56

- 1) The "modemcc 0 signal/firmware/imei ?" commands now also work on HSDPA units.
- 2) Mod to SNAIP.

Changes from Version 4.887, ARM Bootloader 3.54

- 1) R52 now includes option to select X.21 mode on the sync config web page.
- 2) TPAD direct mode detection change.
- 3) Further TPAD direct mode detection change.
- 4) Changes to improve the connection setup time on HSDPA module.

Changes from Version 4.886, ARM Bootloader 3.54

- 1) HSDPA module changes.
- 2) USB drivers changes
- 3) Bootloader
- 4) Network technology change events are now only triggered by shifts between GPRS/EDGE and UMTS/HSDPA.

5) Fixed problem with 'AT%T' command.

Changes from Version 4.885, ARM Bootloader 3.53

- 1) internal bootloader changes
- 2) USB MSD fix.

Changes from Version 4.884, ARM Bootloader 3.53

- 1) Finished "saveall" command.
- 2) Increased maximum supported length for DNS update passwords to 100 chars.
- 3) Added support for generating SSHv1 key files into "Certificate Utilities" WEB page.
- 4) Added "saveall" option to the web.
- 5) Fixed bug that was causing a crash when running the "muxon" command. GPRS/EDGE/HSDPA models only.
- 6) Changed IKE defaults so that AES is included in the list of acceptable encryption algorithms when acting as responder.
- 7) Small changes to TCP processing.

Changes from Version 4.883, ARM bootloader 3.53

- 1) Fix to recent IKE AES code so that the AES key length attribute is sent as a bit length rather than a byte length.
- 2) Re-enabled new rx/tx bytes in PPP sbins

Changes from Version 4.882, ARM Bootloader 3.53

- 1) Added support for AES into IKE phase 1 negotiations.
- 2) Added SNAIP parameter 'turntxtim' which specifies in milliseconds the turn around time between receiving a frame from an outstation and transmission to that same station.
- 3) Added GPS MIB. Variables are under "gps.0.stats".
- 4) Small fix to DNS update code.

Changes from Version 4.881, ARM Bootloader 3.53

- 1) R52u now generates an event when the network technology
- 2) R421 NT Mode (ISDN network emulation for ISDN->IP switching)
- 3) Added new snaip parameter dcd_toggle.
- 4) Some changes to the SNMP ifTable.
- 5) Small change to the "move" command to allow a 12 character filename to be prefixed by a drive letter.

Changes from Version 4.880, ARM Bootloader 3.53

- 1) MSD mods to unlink the urb's before they are freed when MSD stick is removed.
- 2) Improved web display of USB files to show DIR or VOLUME and disk size.
- 3) USB MSD FAT support enabled.
- 4) Added 3 more SNMP MIB vars. ifInOctets, ifOutOctets and ifSpeed.

Changes from Version 4.879, ARM Bootloader 3.53

- 1) Mod to USB MSD support so we only support FAT16
- 2) IP routing change. Added 2nd 'deact_ent' to routes.

Changes from Version 4.878, ARM Bootloader 3.53

- 1) Fix bug in file renaming of files in USB MSD.
- 2) Pressing the reset button for 5 secs now also copies sregs.fac (if present) to sregs.dat.

Changes from Version 4.877, ARM Bootloader 3.53

- 1) OSPF fix.

Changes from Version 4.876, ARM Bootloader 3.52

- 1) General revisions to support application execution on MIPS processors
New bootloader 3.53.
- 2) Fixed a couple of SNAIP issues in SNA mode on R52 abd R526 platforms

Changes from Version 4.875, ARM Bootloader 3.48

- 1) internal changes
- 2) File writing to USB Mass Storage Device added.
- 3) Fixes to USB MSD.
- 4) Fixed issue relating to inbound firewall rules and FTP data sockets not being handled as expected.
- 5) USB MSD mods to speed up transfers.
- 6) User login changes.
- 7) Small WEB page changes.
- 8) First release of batch file support on the USB MSD.

Changes from Version 4.874, ARM Bootloader 3.46

- 1) Radio PAD mod.

Changes from Version 4.873, ARM Bootloader 3.45

- 1) R421 added to release builds

Changes from Version 4.872, ARM Bootloader 3.44

- 1) First implementation of USB Mass storage support.
- 2) USB MSD mods.
- 3) Added RADIUS client support into R52 and R526 builds.
- 4) OSPF changes.

Changes from Version 4.871, ARM Bootloader 3.43

- 1) R526 boards now support a minimum of 4 usb/serial adapters plugged into the external usb ports.
- 2) New IPSec parameters for VRRP mode.
- 3) Addition of 'tcpdab' (TCPDIAL ABORT) command.
- 4) Fix for a problem that can cause some buffers not be freed when using DNS allow lists in the firewall.
- 5) Added TPAD parameter 'tackdel' to specify the delay in msec.
- 6) Reverted the OSPF configuration method back to the original.
- 7) PPP fixes
- 8) Fixed potential problem in IKE where a buffer could be freed twice.
- 9) Reduced USB ACM driver's write buffer size to slow down writes to the MC75.
- 10) Fixed problem with gateway assignment with packets travelling through IPsec tunnels
- 11) Added a few more error stats to the AAL mib table.

Changes from Version 4.870, ARM bootloader 3.43

- 1) Moved TANS config to appear before Time config on web interface
- 2) Created R450i 'U' build with 256 Simultaneous switches.
- 3) Changed "B-channel #:" to "B-channel ISDN #" on TPAD web page for clarity.
- 4) Changed firewall pass-ifup rule processing.
- 5) Added another bit of debug that will cause a high CPU usage.
- 6) Change to make NT_MODE build work for R526ie
- 7) Fixed problem with R450i 'U' build in which the ADSL modem failed to initialise.

Changes from Version 4.869, ARM Bootloader 3.41

- 1) Added new parameter 'delevel' into TANS. When set to non-zero debug is placed into the analyser trace regarding the TANSIP operation
- 2) Ethernet fix. Non-Hub units with multiple logical interfaces would not respond to ARP requests destined for the second and subsequent logical interfaces. R52e only.
- 3) Addition of support for SNMP MIB.
- 4) Change to OSPF so that configuration file must now be present within the power-up config i.e. config.da0 or config.da1.
- 5) Introduced a delay in the USB port powerup for the 3G/HSDPA module.
- 6) DYNDNS fixup. New functionality that prevents updates unless the unit is also an VRRP MASTER wasn't working quite right.
- 7) Three new PAD commands added. "inpar? <inst>", "inset <inst>", and "inprof <inst>

Changes from Version 4.868, ARM Bootloader 3.41

- 1) USB-to-serial adapters may now be configured to a particular ASY context

Changes from Version 4.867, ARM Bootloader 3.41

- 1) New Analyser parameters added
- 2) New SNMP stats added
- 3) New DynDNS parameter for update as VRRP Master added
- 4) IKE RESPONDER LIFETIME bug fixed (post 4.867)
- 5) Added SSL Client to all builds except 'U' R420 build and R51D Basic build.
- 6) Mods to Radio PAD mode.

Changes from Version 4.866, ARM Bootloader 3.40

- 1) DNS update statistics WEB page label change.
- 2) IKE Change: ignore responder lifetime notification messages that indicate a IKE SA lifetime of less than 60 seconds.
- 3) Baud rate search for GPRS module now includes all baud rates
- 4) Fixed slow start-up of communication with UMTS module on R52U

Changes from Version 4.865, ARM Bootloader 3.40

- 1) Fixed bug in SMS user data encoding in which text messages with a multiple of 8 chars failed to send.
- 2) IKE change relating to NAT traversal. Retrieving/using existing peer info (UDP ports etc) during IKE negotiations isn't acceptable.

Changes from Version 4.864, ARM Bootloader 3.40

- 1) Added support for DHCP server hostname and bootfile fields returned by the server to DHCP clients.
- 2) Added support for TCPDIAL commands from TRANSIP socket connections.
- 3) Further change to TRANSIP code
- 4) Fix USB driver bug where the number of free system event control blocks would gradually be depleted on every disconnect/reconnect of a USB device (e.g. if the MC75 module is power-cycled)
- 5) SNMP change. ipaddrentry and iprouteentry tables are now output in lexical order.
- 6) Fixed MC75 USB problem where the module would not get correctly re-enumerated onto the USB bus after being power-cycled.

Changes from Version 4.863, ARM Bootloader 3.40

- 1) extended X.25 image (U-Build) for R450i released
- 2) Fix that the analyser trace between reboots feature works when the logsize is non-default and also the "SYSTEM , Power UP" item in the analyser trace does not require Layer 1 tracing enabled.

Changes from Version 4.862, ARM Bootloader 3.39

- 1) Added some IP header validation checkskets. Additional header checks added to IPsec code too.
- 2) change to CPUMON command.
- 3) Received Tunnelled fragments with destination address matching one of the interface addresses are now defragmented before being sent to the local protocol handlers .
- 4) Added XAUTH ID field to eroute Web page.

Version 4.861, ARM Bootloader 3.38

- 1) Firewall change. PASS-IFUP rules acted the same way as pass rules.
- 2) IKE changes. Added limits to the number of times some operations can loop around during IKE negotiations.
- 3) Updated IKE responder WEB page so that the IKE debug level 'very high' is available.
- 4) Change so that the analyser trace is preserved through a reboot.
- 5) Small change to TCP options processing done (among other times) when processing IPsec packets.

Changes from Version 4.860, ARM Bootloader 3.38

- 1) Addition of new event to eventlog which is triggered when the CPU load on a unit exceeds 95% for a period of 90 seconds.
- 2) Added new 'asydevs' command to list the ASY contexts that are currently assigned to USB devices, e.g. USB-to-serial adapters, internal GPRS modem etc.

3) ASY driver fix. On 200 MHz boards the ASY driver was still changing DSR and CTS signals even when the port was configured for sync mode.

4) PPP fix. PPP using AAL as l1face would not go out of service when PPP doesn't connect after the unit powers up.

Changes from Version 4.859, ARM Bootloader 3.38

1) SNAIP mods to correctly support window size parameter in HDLC mode and to add some more SNAIP debug.

2) SNAIP removed from 'l' builds.

3) IKE bug fix. IKE negotiations with cisco boxes would fail if the cisco supported XAUTH in some cases. Also modified handling of RESPONDER_LIFETIME notifications so that we process notifications from cisco boxes.

4) TCP bug fix. If two (or more) sockets were opened to the same destination where the only difference was the source address (e.g. using second IP address of ethernet port), then RX packet lookups would match up with the incorrect socket.

5) U Build mod to support 200 instead of 256 simultaneous X.25 SVCs being switched

Changes from Version 4.858, ARM Bootloader 3.37

1) IP->X25 Call table the "IP Length Header" parameter entry bug fixed

2) Rename X25 Switch web page to "Protocol Switch".

3) Small ASY change. We no longer send DTR timer messages from within interrupts if the &D register is set to 0 (ignore DTR).

Changes from Version 4.857, ARM Bootloader 3.36

1) Mods to Radio PAD mode.

2) Small ASY change.

3) Added two parameters into SNAIP

4) Fixed web asp led function for non-GPRS R526 variants.

Changes from Version 4.856, ARM Bootloader 3.36

1) OSPF fix. Configuration file parser was unable to correctly process files xmodemed into the unit.

2) SNAIP change so that we have a different event for the CONNECTED -> DISC_PENDING event so we can trigger an email selectively on that event

3) Change to SNAIP in HDLC mode to not send the RNR Command frame when the protocol decides that the locally attached device should be flowed off.

4) Mod to command line interpreter so that any commands that have a "\n" (not LF char but the string "\n") afterwards then the "\n" string will be ignored.

5) Fix to 'loop' command in NT_MODE so that a NT_MODE device can loop ISDN calls and perform BERT testing functions.

Changes from Version 4.855, ARM Bootloader 3.36

1) SNAIP fix for transmit and receive window size adjustments.

Changes from Version 4.854, ARM Bootloader 3.36

1) Fix to SNAIP in which a repetitive serials of sockets opening and closing could occur.

2) Extra debug added to IKE.

3) Modified the gpstat command so that it is possible to include some additional information in the output. "gpstat v" (v for verbose) will output this information on connected sockets.

4) Increased incoming ring interval timeout from 5 to 10 secs to allow for long intervals

5) Made PPP max negotiation time default to 80 seconds.

6) Fixed a MLPPP problem where ASYNC->SYNC connections using the 'M' (for multilink) specifier wouldn't successfully negotiate.

Changes from Version 4.853, ARM Bootloader 3.36

1) SNAIP fix to a problem in which if the physical sync port transmit watchdog occurs buffers could be freed up twice (this does not apply to RAW mode).

2) SNAIP fix to RAW mode passive=off mode so that SNAIP attempts re-activation when not connected (and passive=off).

3) Fixed typo on X25 Switch configuration web page

4) Transip change so that the A<NUA> command does not require the leading 'A'. Increased Tansip waiting time for A<NUA> to 30 secs to allow for pre-dialling terminals.

5) Fixed problem with eroute packet matching which showed up when using firewall to translate source addresses and negotiating different source traffic selectors with the remote using 'neglocip' parameters.

6) Added 'exit' command to allow users a way to terminate remote command sessions.

7) Two new modemcc parameters added to allow control over the number of RINGs the unit will detect before answering an incoming call.

Changes from Version 4.852, ARM Bootloader 3.35

1) Small change to interface operational status indication.

2) Included ability to select full duplex mode in ethernet driver into R51 units.

3) Fix to R526ie build so that the GPRS ASY ports are set correctly for both the PSTN and ISDN versions.

4) Fixed problem that occurred when DHCP client code is not included.

5) Added new parameter into the X.25 switch.

6) Couple of small changes to ethernet full duplex support on R51.

Changes from Version 4.851, ARM Bootloader 3.35

- 1) USB-serial driver now recognises both old and new 3G/HSDPA .
- 2) Added PAD parameter 'enqcon' which when set to ON causes the PAD to send an ENQ character on the ASY link when an outgoing call has been answered.
- 3) Fix to TPAD parameter 'Boot to direct mode' not working.
- 4) PPP VJ compression fix. When negotiated, VJ compression would not uncompress correctly if the received TCP header had TCP (not IP) options in it
- 5) Added Peer ID into IKE status WEB page. Also re-ordered the fields so that the peer IP sits next to the new Peer ID field

Changes from Version 4.850, ARM Bootloader 3.33

- 1) Change to recent XAUTH code so that we can now cope with the host end sending back a CFG_SET MODECFG message.
- 2) IPsec changes. Added a new SA delete mode (delmode) parameter into IKE configuration so that we interoperate more effectively with other VPN boxes (e.g. Cisco).
- 3) Small change to IKE DPD logic so that we don't reinitialise the DPD sequence number when the remote responder creates replacement IPsec SAs when the usual situation is that the initiator creates the replacements.
- 4) Addition of new eroute parameter 'inhibitno'. This is a list of eroute numbers that will inhibit the eroute from being used as long as they are not oos.
- 5) R450 now includes option to select X.21 mode on the sync config web page.
- 6) Included PPP RX inactivity timer support into all builds except for ultra low mem build.
- 7) Added missing local access timeout parameter to Configure->General WEB page.
- 8) Transip sockets on R625UDS hardware weren't listening on sockets as expected when the remport and hostname parameters were configured as well as the port field.
- 9) Added new parameter into X.25 switch 'benqcon'.

Changes from Version 4.849, ARM Bootloader 3.30

- 1) All R52 platforms now support at least 4 usb/serial adapters plugged into the external usb ports.
- 2) TPAD software option now enabled on all platforms.
- 3) A mod to the previous check-in which improves the replacement of aging IPsec SAs that were negotiated using local subnet settings provided during MODECFG.

Changes from Version 4.848, ARM Bootloader 3.30

- 1) Small change to signal strength leds on R625UDS threshold for 2 leds is now -85 dBm to indicate a satisfactory signal strength.
- 2) Fixed VRRP bug: VRRP advertisements were being received and handled on a different physical ETH interface to that which VRRP was configured and enabled on
- 3) VRRP Restore is now triggered on a stateful firewall entry in which a VRRP backup is specified IF the stateful rule is acting healthy

Changes from Version 4.847, ARM Bootloader 3.29

- 1) GPRS backup APN code fix-up.
- 2) Fixed problem with units in which no sync data would be passed if configured for external clocking. Problem introduced in 8 March 2006.
- 3) Support for 6 VLANS added to R450, R526, 10 to R625UDS

Changes from Version 4.846, ARM Bootloader 3.29

- 1) Added support for hardware flow control with USB/serial drivers.
- 2) Fixed an IKEv2 issue relating to processing of INITIAL-CONTACT notifications.

Changes from Version 4.845, ARM Bootloader 3.29

- 1) 'passive' parameter in SNAIP is now support in RAW mode
- 2) Small change to signal strength leds on R52, R526e: threshold for 2 leds is now -85 dBm to indicate a satisfactory signal strength.

Changes from Version 4.844, ARM Bootloader 3.28

- 1) Fixed PPP NAT/ANS WEB page problem where incorrect settings were being displayed. Bug introduced with recent (Rev4843) change to MC45 monitor name.
- 2) Change to ethernet driver so that the default MTU setting is now 1500 bytes.

Changes from Version 4.843, ARM Bootloader 3.28

- 1) PPP username and password change. We now support '%s' and '%i' format specifiers. The '%s' specifier is replaced by the serial number of the unit, and the '%i' specifier is replaced by the GPRS module IMEI. It is possible to use these new specifiers in the PPP username and password fields.

Changes from Version 4.842, ARM Bootloader 3.26

- 1) UDP socket listening fix. When other general purpose sockets (e.g. XOT) were in use as well as UDP listening sockets (e.g. L2TP), the UDP sockets could wind up being permanently tied to the same interface the other sockets were using.
- 2) Fixed R421 LEDs.
- 3) PPP remote disconnect oos delay change. It was found that some German ISPs don't actually disconnect the PPP session, they disconnect the PPPoE session.

- 4) Added SNTP timer server as standard to R51 builds
- 5) Fix to asy parity bug, in that when we booted up a unit and parity was configured to be on, and if there were no leading AT commands we responded to commands with the wrong parity.
- 6) NAT changes to make our NAPT P2P friendly.
- 7) DNS lookup change. The supplied hostname must match the hostname in DHCP entries exactly before we return the DHCP entry IP address.
- 8) Added extra logical ethernet interface to R52.
- 9) Changed name of MC45 monitoring task to CELL Monitor. Also changed the mc45mon command to cellmon.
- 10) R526 range now uses USB interface rather than high-speed serial to control EDGE data pump.

Changes from Version 4.841, ARM Bootloader 3.25

- 1) DYNDNS change. It is now possible to configure a period of time after which the unit will perform an update even if the IP address of the unit hasn't changed.
- 2) GPS LED is now turned off, rather than being controlled by the ASY driver.
- 3) Added parameter buipaddr to X25 switch so a separate IP address can be specified for a backup XOT call. Also allow the X.25 switch to specify 'Backup from XOT to XOT'.
- 4) Basic Interpreter builds added to release for R52.

Changes from Version 4.840, ARM Bootloader 3.25

- 1) Changes for HSDPA/ 3G module (R526u, R52u)
Added firmware revision in status reports, fixed SMS receive problem when data pump uses SMS slot 0.
- 2) Support added to auto power-cycle the 3g/HSDPA module. Dual SIM socket support added.
- 3) Added \$CNTI command for 3G module to show network technology in use
- 4) Change to TCP socket code. Now, if a socket has outstanding data in its transmit buffer, and an inactivity timeout occurs, the unit will abort the socket rather than attempt a graceful shutdown of the socket.
- 5) Reduced the standard length of time to allow a socket to close gracefully from 60 seconds to 10 seconds.
- 6) R52u, R526u now shows current network technology on the front-panel GSM LED:
OFF=not available, 1 flash=GPRS, 2 flashes=EDGE, 3 flashes=UMTS, 4 flashes=HSDPA.

Changes from Version 4.839, ARM Bootloader 3.25

- 1) Fixed problem with all units having Kendin switches in which any of the ports on the four-port hub could get associated with the wrong MAC address.
Problem introduced in version 4832 (20 Feb 2006).

Changes from Version 4.838, ARM Bootloader 3.25

- 1) R625UDS can now generate higher frequency sync clocks to much greater accuracy.
- 2) Enabled power-fail interrupt on R52 and R450 ranges.
- 3) Added some more code to the ethernet driver in an attempt to prevent the BDMA receiver from staying disabled after it's automatically disabled during floods.
- 4) Fixed broken PPPoE on R450, R52 and R526 units.

Changes from Version 4.837, ARM Bootloader 3.25

- 1) Added 'stopflood' parameter into 'ana' so that the command 'ana 0 stopflood 1' will cause the analyser to stop when the Ethernet flood protection is triggered.
- 2) GPRS fix for R52, R526. Sometimes the power on sequence would fail due to the EMERG pin being held low when it shouldn't be.

Changes from Version 4.836, ARM Bootloader 3.24

- 1) Modification to event handler. We can now delay the sending of SNMP traps, email requests and SMS messages for a period of time after the unit powers up.
- 2) Mod to analyser trace so we can dump async data to the full size of a buffer.
- 3) Fixed problem with PPPoE ATM encapsulation in which the R625UDS could get into a state where ADSL, APVC and PPPoE were all up, but PPP was unable to come up because PPPoE wasn't sending an ACT_IN to it.

Changes from Version 4.835, ARM Bootloader 3.24

- 1) Fixed up RIPv2 issue where incorrect destination address (9.0.0.224) was being specified on R52, R526 and R450 based units.
- 2) Change to recent mod that saves SNMP traps sent shortly after power up into special queues.

Changes from Version 4.834, ARM Bootloader 3.24

- 1) R526 models now store sync port mode (rs232/x21) in the config.

Changes from Version 4.833, ARM Bootloader 3.24

- 1) Removed display of GPRS registration status in Motorola builds (legacy R510DS only) . The AT+CGREG command is not supported on this module and caused "error" to be displayed.
- 2) Corrected minor error on R450 Configure->DSL->ATM PVC web page.
- 3) Fix to web so that TPAD configuration only appears in builds with TPAD
- 4) Added new check to R450 ADSL code to ensure that the modem module initialises properly after power-up. If it doesn't the module is power-cycled and retried.
- 5) Upgraded R450 ADSL module firmware (adslfw.bin) from REL_13 to REL_14.
- 6) SNMP INTEGER data type encoding fixup.

Changes from Version 4.832, ARM Bootloader 3.24

- 1) X.25 mod so that when a lower layer interface like LAPD or LAPB is de-activating this is remembered in case another X.25 call is requested again quickly.
- 2) R450 boards now power cycle the ADSL modem at startup.

Changes from Version 4.831, ARM Bootloader 3.23

- 1) Added 'vrrpres' specifier into the firewall.
- 2) Increased maximum CHAP challenge length from 20 to 30 bytes long.
- 3) Added SNAIP parameter 'sock_inact' so the inactivity timer for the SNAIP sockets can be configured.
- 4) Fixed R450 data abort when attempting to bring up Firmware Versions web page.
- 5) IKE fix to ensure we won't loop around forever attempting to validate a improperly formatted packet.

Changes from Version 4.830, ARM Bootloader 3.23

- 1) TCP Req' and 'GP socket connected' events (74 and 181) now include the source IP address in the comment.
- 2) R52 now communicates with the MC75 module using its USB interface (on ASY 4) rather than its serial interface.
- 3) Fixed bug in ACM driver that crashed unit when the PPP session was deactivated.
- 4) For R52 with MC75, ASY driver now reserves the ASY context associated with GPRS_ASY_ADD specifically for the MC75 module.
- 5) Default number of TPADs changed to 8 in the case in which the build has TRANSIP asy ports included.
- 6) The R450 DSL binary load module has been renamed to adslfw.bin.
- 7) Added in 'vrrpbu' firewall specifier into the inspect-state firewalls.
- 8) Fixed GPRS stats web page so that stats are displayed when using ASY ports higher than 3
- 9) Initial implementation of RIP authentication.

Changes from Version 4.829, ARM Bootloader 3.23

- 1) Small fix to SNTP server to apply the correct offset to GPS time.
- 2) Added IKE SA peer ID to some IKE events.
- 3) Fix to SNTP server to return the UTC time instead of the local time. Also including SNTP server in the R52 platform.
- 4) Fix to serious bug introduced in 4.827 in which IKE can fire off a never ending series of DEACT_RQ messages to entities LAPB or LAPD. (triggered by LAPB or LAPD deactivating).

Changes from Version 4.828, ARM Bootloader 3.23

- 1) Fixed problem where unit would crash (!) if a GET request for a non-existent file with a very long filename was received.
- 2) We now close a WEB socket if the data submitted to the server exceeds 4K bytes.

Changes from Version 4.827, ARM Bootloader 3.23

- 1) GPS task now remembers the last good date/time information received. Access function "gps_time" added for future use by SNTP server.

Changes from Version 4.826, ARM Bootloader 3.23

- 1) Added support for new R625UDS X.21 daughter card (which doesn't have jumpers).
- 2) First release of SNTP server, operates in unicast mode. SNTP server not included in any release builds yet.
- 3) Addition of a special message q into IP routes.
- 4) Ethernet interfaces can now be deactivated on request by sending a DEACT_RQ message.

Version 4.825, ARM Bootloader 3.18

- 1) Small change to ETH and PPP web config pages to prevent parameter text wrapping.
- 2) IKEv2 fixups.
- 3) IPsec change. Added new parameters to the eroute configuration that allow the local subnet setting (locip/locmsk) to take the value of the IP address of an interface.

Also fixed a bug in the firewall code that prevent address translation from taking place on packets that arrive through a tunnel, but the firewall rule didn't require that the packet use a tunnel.
- 3) Further changes to get the previous check-in working when using IKEv2. There was a problem relating to the case where negotiated values differ from the normal traffic selectors.
- 4) GPRS changes: we now read and report both the GPRS and GSM registration status.
- 5) Added SNAIP protocol RAW_NOHDR which is just like RAW mode except the DLSw headers are not used.
- 6) PING recovery fix. Once 256 ping recovery attempts had been tried, recovery would stop working. Fixed.
- 8) Added new GPRS parameter to control whether we power cycle the GPRS module after 5 mins loss of network registration.
- 9) Fix up PPP inhibit mode 1 (oos if other PPP is active and not oos). It was possible for PPPs that should have been inhibited weren't being inhibited.
- 10) Added new inhibit mode (2) that inhibits a PPP as long as the inhibiting PPP is not oos, whether or not the PPP is up or down.
- 11) Added a new PPP parameter rdoosdly (remote disconnect oos delay) that delays an always-on PPP from going oos for the period of time specified if the remote peer initiates the disconnection.

Changes from Version 4.824, ARM Bootloader 3.18

- 1) Change to TPAD clear_time mode in which the tresp timer is not applied between calls whilst the call to the host is still maintained.
- 2) Fixed event emails and SMS events not working when the web file is compressed.

Changes from Version 4.823, ARM Bootloader 3.16

- 1) Changed R450i web applet not to use GPRS data saver mode.
- 2) Addition of 'ripip' parameter to eroute config.
- 3) TPAD statistics change. L1 statistics are now updated when TPAD uses LAPB or LAPD as the L2 interface.
- 4) Fixed bug in command session authentication. Units with RADIUS support built in sometimes printed out some garbage when a command session was locally authenticated.
- 5) Fixed bug in sregs conversion in which when the number of ports increases the wrong ports get the factory defaults assigned to the s regsiters for that port.

Changes from Version 4.822, ARM Bootloader 3.14

- 1) RIP update fix. Metrics of routes updated by RIP packets received on one interface weren't being delivered on other interfaces unless the non-updated metric was < 16.
- 2) Increased max number of saved sregs on R52 from 4 to 6.
- 3) RIP update changes. The RIP two update timeouts are now configurable..
- 4) Fix to L2TP bug if remote uses L2TP header compression. (R52, R450).
- 5) Change to eroute autosa code. 'autosa' may now take on 3 values 0,1 and 2.
0 replaces the original 'OFF'.
1 replaces 'ON'.
2 is new.

When set to 2, tunnels will be created automatically (same as 1), but the requirement for a route with matching interface is removed. In addition, SAs created using an interface that differs to the current route interface aren't deleted as they are when autosa is set to 1.

- 6) Fixed DSL LINE LED on R450 web applet. Was flashing blue but now correctly flashes green.
- 7) Fixed slow startup of GPRS module on R52 inadvertently introduced in Previous release.

Changes from Version 4.821, ARM Bootloader 3.14

- 1) IKE DPD change. IKE SAs are now deleted along with IPsec SAs when a dead peer is detected.
- 3) Fix to correct L2TP failure on R52 and R450.
- 4) Change to the ETH and PPP 'ripip' parameter. This parameter may now contain a list of (up to 10) IP addresses to use rather than just a single address.
- 5) IKE DPD change. We now ignore the SPI field with DPD R_U_THERE ACK notifications.
- 6) IKE DPD. And also ignore the same SPI field on received DPD R_U_THERE requests.

Changes from Version 4.820, ARM Bootloader 3.14

- 1) On Event Log-codes web page swapped around Priority is Conditional on Instance and Entity so that Entity comes first which is more logical.
- 2) VLAN tagging table (Config->Eth->Vlans) now has srcIPAddr and srcmask parameters added.
- 3) Mod to the way RIP & VLAN interact. If a RIP packet now matches an entry in the VLANs table, a RIP packet for each VLAN entry is generated.
- 4) ISDN support now installed by default on R4500 builds.

Changes from Version 4.819, ARM Bootloader 3.14

- 1) Added 2 more events "LAPD x healthy" and "LAPD x unhealthy".
- 2) SNTP and Syslog now obey the 'cmd 0 ipent & ipadd' setting regarding the source IP address.

Changes from Version 4.818, Bootloader 3.14

- 1) Fixed SMS problem on R51e (with Nokia module) where multi-line texts were not always correctly handled by the Imlet.
- 2) Fixed problem with SMS concatenation on R52e where MC75 module was not accepting full size SMS string.. Concatenated SMS segment size is now limited to 152 characters.
- 3) Fixed problem with V120 (ADAPT) web page MSN inadvertently setting CLI and MSN fields in respective LAPB configuration also.
- 4) PPP change. PPP's were being inhibited by other PPP's that couldn't raise because they were waiting for a power up delay timer to expire. This is no longer the case.

Changes from Version 4.817, Bootloader 3.14

- 1) Mod so that products with Kendin ethernet hubs can do VLAN functions. The VLAN functions cannot work unless it is in hub mode and all 'groups' are 0.
- 2) VLAN Web support added
- 3) Fix problem in PAD LL (leased line mode) in which if a remote responds directly to the CALL with a CLEAR we fail to retry the call.
- 4) Firewall support for VLANs.
- 5) Fix to ensure we 'de-NAT' on return packets when they match return stateful 'routeto' firewall entries.
- 6) Added LAPD parameter 'reactsecs' which will cause the LAPD instance to reactivate itself after deactivation has been present for this number of seconds.
- 7) Added LAPD new event 'Unable to activate' which will occur when a LAPD instance attempts to activate but is unable to do so.

Changes from Version 4.816, ARM bootloader 3.13

- 1) PPP change so that we can now send PPP LCP echo requests via the command line. e.g. "PPP 1 pinglcp" to send a LCP echo request out on PPP 1.
- 2) Added new option for SNAIP parameter 'use1sock'. As well as supporting "OFF" and "ON" it also can be set to "Compatible" for compatibility with the RFC (RFC 1795) regarding single socket mode.
- 3) Analyser now includes the ability to filter based on IP protocol.
- 4) Added supported for multi-homing IP addresses into the ethernet driver.
- 5) Small change to PPP so that a PPP isn't inhibited by another PPP that is disabled due to a time-schedule being off.
- 6) Small eroute hash table bug fix. Previously, hash table sorting could be done incorrectly due to incorrect table mask value being used.
- 7) Added adapt to the R51e build.

Changes from Version 4.815, ARM Bootloader 3.13

- 1) IPsec changes. It is now possible to tunnel packets within a second (or more) tunnel. A new parameter 'intunnel' has been added to eroute configs.
- 2) Commands executed via SMS are now executed using a configured access level (sms_access, sms_access_2).
- 3) IKE DPD configuration wasn't being saved. Fixed.
- 4) Recovery changes. Recovery on 'always on' links won't begin until the oss timeout has expired. Also fixed recovery failure disconnect when using the PING method.
- 6) Another recovery code modification that fixes a problem that occurs when auto-activation of PPP links takes longer than the firewall rule dt=<x> time.
- 7) Added new command "dhcp2mac2ip" which copys all DHCP entries into the MAC2IP table
- 8) Fixed problem where the incorrect source IP address would be used due to PPP incorrectly informing TCP that a link was connected, when in fact negotiations were still in progress.
- 9) Fixed up issue with WEB pages that allowed users with low access levels to configure pages that they shouldn't have been able to.
- 10) Small DYNDNS change to ensure that the IP address of the interface is used as the socket source address when IPsec is enabled on that same interface.

Changes from Version 4.814, ARM Bootloader 3.12

- 1) Small change to ensure that the PIN (if required) is re-entered after the GPRS module is power cycled. Also modified the GPRS WEB pages do not wipe the PIN from the configuration.

Changes from Version 4.813, ARM Bootloader 3.11

- 1) Removed automatic detection of a GPRS modem that doesn't support mux mode.
- 2) When doing a factory reset because of Pin2 being connected to Pin 22 (R420 only) we only perform this operation once so that the unit comes back up correctly after doing the reset.

3) Fixed up problem first noticed with Ethernet MAC address filtering code that causes the output of 'scan' to be lost if the command is entered soon after the unit boots.

4) Ver1.00 of SNAIP released here.

Changes from Version 4.812, ARM Bootloader 3.10

1) Addition of Ethernet MAC addresses filtering.

2) Added parameter to X25 Switch called 'nostripfac'. When set this parameter stops the X25 switch from stripping Packet size and window size facilities as it switches an X.25 call

Changes from Version 4.811, ARM Bootloader 3.10

1) PPP change. It is now possible to configure a name for each PPP and each PPP sub-config. This name field is displayed on the PPP and ISDN BRI WEB status pages.

Changes from Version 4.810, ARM Bootloader 3.10

1) Eroute lookup problem fixed. If an eroute remip parameter was changed, it could break eroute lookups because the fast eroute lookup logic relies on the lookup tables being sorted.

Changes from Version 4.809, Bootloader 3.10

1) Fixed IKE decode bug which was causing problems..

2) Added processing of IKE RESPONDER-LIFETIME notification messages. We will now modify our IKE SA lifetime to the value specified in the notification as long as the new value is less than the current value in the IKE SA. If the specified value is less than 60 seconds, we will only reduce our lifetime to 60 seconds.

3) Removed 'Physical Port' display from 'eth 0 ?' output on VLAN hub builds to avoid confusion, since the physical port is always zero for these builds.

4) Fixed IPSec IPCOMP problem on incoming packets for R450, R52

5) Minor logging and Web changes:

a) No longer logging when we receive DPD REQ and ACK messages to the event log.

b) Top talker WEB page changed so that total Kbps value doesn't read 0 when total bps value is > 1024 bps.

6) SNAIP test mods. First version known to work against a Cisco.

Changes from Version 4.808, ARM Bootloader 3.10

1) RIP change. We now process RIP packets with source address from any network.

2) Two new PPP parameters added

a) "detach". Used to always detach (and reattach) the GPRS module between PPP connections.

b) "rxtimeout". An inactivity timeout reset with each received PPP packet.

Changes from Version 4.807, ARM Bootloader 3.09

1) TPAD parameter 'clear_time' also now applies when a call is disconnected by the drop of DTR (as well as the usual DLE/EOT method).

- 2) More top talkers changes. Added 'resolve all' button to page.
- 3) Two new PPP parameters added. 'ping2cont' is used to set the initial ping interval to the interval in use when the PPP last disconnected.
'detach_on_fail' is used to make a GPRS PPP connection detach and reattach after a failed PPP connection disconnects.
- 4) Basic changes: increased number of user strings in the MIB to 40, and increased number of config strings to 30
- 5) Mod so that the gps_on parameter is available in all builds.
- 6) Added "flood_prot" counter to the MIB so that it can be cleared via the ethernet stats web page.
- 7) Fixed encryption data abort problem, introduced in check-in Ver4806.

Changes from Version 4.806, ARM Bootloader 3.09

- 1) New 'rresolve <ipaddr>' command added. This command attempts to locate a hostname matching the supplied IP address using the DNS system.
- 2) Altered the Top Talkers WEB page so that the entries are sorted by total bps, with highest total usage at the top of the table.
- 3) Flood protection statistical counter added in to ethernet driver. Also some useful values printed out on the 'eth 0 ?' command.
- 3) Added new TPAD parameter 'stx_2_soh' which when set converts the leading STX character in a transaction into an SOH character.

Changes from Version 4.805, ARM Bootloader 3.08

- 1) Fixed problem in top talker code which resulted in the incorrect bit rates being displayed.
- 2) Added TPAD parameter 'clear_time' which defines the clear delay in seconds in which the socket closing or the X.25 call clearing is delayed by after the TPAD session has finished.
- 3) New WEB interface functionality included. It is now possible to enter CLI commands.
- 4) Fix to access level printout (in the help '?' command).

Changes from Version 4.804, ARM Bootloader 3.08

- 1) Small change to IPsec Peers status page. Sometimes, the DPD column heading would not appear. Fixed.
- 2) Extra initialisation commands added for the MC75 to select SMS message storage and enable the GSM LED. Also suppressed the rssi URC messages. R52 only.
- 3) For the MC75 we now set hardware flow control before entering mux mode. R52 only.
- 4) Inserted a short delay before starting the SMS send sequence. This is to avoid occasional SMS send failures when we reply immediately to an SMS command (gstatus for example).
- 5) Fix so that if a V120 link is up on a TPAD connection (ASY port on TPAD has performed a ATDV... connection) then this is undisturbed by another TPAD doing a transaction.

- 6) More Top Talker changes. Low usage users (< 1kbps) are displayed along with the bps usage.
- 7) Fix to L2TP so that the authenticate modes work

Changes from Version 4.803, ARM Bootloader 3.06

- 1) Increased max length of Basic user strings in the MIB to 120 chars
- 2) Status->Web Directory now displays compressed sizes of each file as well.
- 3) Fix to bug introduced in check-in 2d-994(6/10/05) in which the AT&V command was broken. It was only returning "ERROR".

Changes from Version 4.802, ARM Bootloader 3.06

- 1) Fixed up small problem with SCEP WEB page where the certificate file name could not be entered. Only existing filenames could be selected.
- 2) Fix to TPAD polling in which the 'dialctx' parameter was incorrectly used for incoming polling. Problem was introduced Tue Jul 19th check-in 2e-344.

Changes from Version 4.801, ARM Bootloader 3.05

- 1) New ADSL firmware, version 13.10.5, for R625UDS. This is a patch release for new DT U-R2 v6.1 performance requirements.
- 2) Fix bug in ethernet driver that broke UDP heartbeats if the heartbeat interval was ever set to 0.
- 3) UDP heartbeat code now included in 'S' and '9' builds.
- 4) Added Data forwarding timer (ATS15) to ASY config web form.
- 5) Mod so when a command buffer contains multiple commands to be processed only the latest will be processed.
- 6) SNAIP builds now have 2 sessions instead of 1
- 7) parity settings fix for ASY ports connected to TCP socket. 'force_parity' now only set if parity reg (S23) bit 2 (8bit+parity) is not set.
- 8) Fixed problem with regard to setting parameters on WEB on SNAIP session 1. Also fixed bug in which RAW mode fails when 'use_1_sock' mode is off.

Changes from Version 4.800, ARM Bootloader 3.05

- 1) Added support for RIP metric updates to all builds that include RIP code. Note this is not available on the 'U' build.
- 2) Changed UDP heartbeat to send the configured value of the parameter "Number of most recent transaction times to average" when the average transaction time of this number of transactions takes longer than the configured value "Generate event after average transaction time exceeds (ms)" instead of sending the value of the "Generate event after average transaction time exceeds (ms)" parameter.
- 3) Fixed problem with TPAD stats where 'last N' averaging would stop if the TPAD stats were cleared via the WEB statistics page.

