RuggedVPN Firmware Release 2023032070/2023043050 for Viprinet and Wantastic products; May 2023

The focus of this firmware release is adding support for the newly released "5G Global V2" module, improving SIM hot-plugging on mobile routers and significant performance improvements.

As a brand new feature SIM failover is now available – in router models with multiple SIM slots per modem (Toughlink series) and for the MultiSIM and 5Gv2 DualSIM modules, the router can now automatically switch between SIMs in case the current one does not provide Internet connectivity (due to lack of coverage or due to the SIM hitting a provider traffic limit).

Once again this release is bringing significant performance improvements for a range of products. As an example, the Multichannel VPN Router 310 that originally was sold with a bonding capacity of 100 Mbit/s got its datasheet updated in 2022 to specify 150 Mbit/s. Now, with this release, in most scenarios it is able to achieve 200 Mbit/s.

For VPN Hubs with a lot of tunnels, QoS classes or channels there are equally significant boosts in performance.

Important pre-installation instructions:

- **Protect the Elderly:** Very old routers (6+ years), especially Multichannel VPN Router 300 units that have been operated at sub-optimal temperature ranges often will have a faulty/very aged flash memory, and sometimes drained batteries or capacitors. Quite often they still work absolutely normally, but as soon as the flash is written, it fails. For those old routers installing this firmware update may cause the flash to finally die, with the router no longer starting.

  Therefore when updating those routers, please take extra care. Make sure you have taken a config backup, and have a replacement device in case something goes wrong.

  Please consider retiring old 300 Routers soon. Our VLM Support system allows your for very cost-efficient upgrades to the current 310 model.

- This firmware release is backward-compatible to old releases, including the ones from back in 2018. This means you can first upgrade the Hub, and then upgrade the Node router at a later point. Please note however that all performance enhancements will only be seen once both sides are updated.

Changes compared to the March 2022 (2022021070/2022030250) Release

Improvements and new features

- There is a huge performance improvement for Hubs that have a high number (50+) of tunnels and/or channels.

- QoS classes that are not used by any traffic flow right now will internally be ignored by the routing core. This gives a huge performance improvement on both Hubs and Nodes if a lot of QoS classes are configured. You will be especially be noticing this on VPN Hubs that have a lot of tunnels, with each using the default 9 QoS classes.

- The channel encryption/decryption code has been optimized, providing better throughput on most products.

- The signal monitoring and diagnostics for both the "5G TripleSIM Europe/Americas" and the new "5G Global V2" modules have been vastly improved. You will now get very detailed information about LTE and 5G features used both via the web interface and the monitoring tools. For the "5G Global V2" in addition the current network Carrier Aggregation configuration is also shown – for example if LTE is used on Band 20 and Band 8 at the same time, the monitoring with now show "LTE B20 + LTE B8".

- On all mobile routers (Toughlink series, Multichannel VPN Router 51x and 52x) depending on the version and modem firmware version used SIM hot-plugging never worked really well. The code for this has been rewritten for all models. For the Toughlink series and the TripleSIM 4G and 5G modules, as well as the new dualsim "5G Global V2" module you will now see all SIM cards inserted getting scanned and displayed in the web interface quickly. For Toughlink you may replace, add or remove SIM cards, with those changes being reflected in the web interface quickly.

- For the Multichannel VPN Router 51x and 52x series, if you remove, replace or add a SIM card, this also will be detected quickly.

- Based on the vast improvements of the SIM detection system we now also were able to introduce a new feature: Automatic SIM Failover. For Toughlink, TripleSIM 4G and 5G modules and the new "5G Global V2" module you may now configure a failover timeout in the SIM settings. Should the SIM card slot configured to be used not be able to get a stable Internet connection within the configured timeout, the router will automatically fail over to the next SIM slot that contains a SIM. This feature is an ideal solution when using traffic limited SIM cards, having an automatic failover when the data of one SIM is used up. It's also of good use for usage in moving vehicles and vessels when using SIM cards from multiple network providers and/or countries – should one SIM card not be able to get coverage or only get coverage using expensive roaming, you can have it automatically fail over to the next SIMs until one is found where stable (non-roaming) coverage is available.

- Our VPN tunnels are using the proven TLS 1.1 protocol for encryption. On Virtual VPN Hubs, for WAN and LAN interfaces only a single shared IP is used. Due to this, when connecting to the web interface of those Hubs, only TLS 1.1 was offered to browsers. Recent browser releases started to complain about using this. The code for this was changed in a way that for browsers connecting to the VPN Hub's web interface TLS 1.2 now is also offered along-side with TLS 1.1. Due to this, you will no longer get warnings on this in web browsers. All other products had always offered TLS 1.2 for browsers on the LAN interface, so there is no change for those.

Bug fixes

- Under certain circumstances, LTE network provider names would be displayed garbled.

- In rare cases, power cycling an integrated modem or hot-plugging a module could cause the routing core to get stuck using 100% CPU.

- If multiple clients were loading the web interface at exactly the same time the web interface could lock up for all users.

- The time zone configured was not correctly taken into account, causing wrong time to be displayed on the log file and via SysLog.