robustOS

Smart Reboot App Datasheet

"A unique App for your Robustel router that could save a lot of money in unnecesary site visits"

Roaming SIM cards are often sold as a way to improve reliability in IoT applications but there are many examples of unsuccessful outcomes by virtue of the router not roaming to a different network when Comms has failed on the current network.

A detailed explanation of this issue is available in the Smart Roaming white-paper available from your Robustel Sales representative or https://www.robustel.com/category/white-paper/

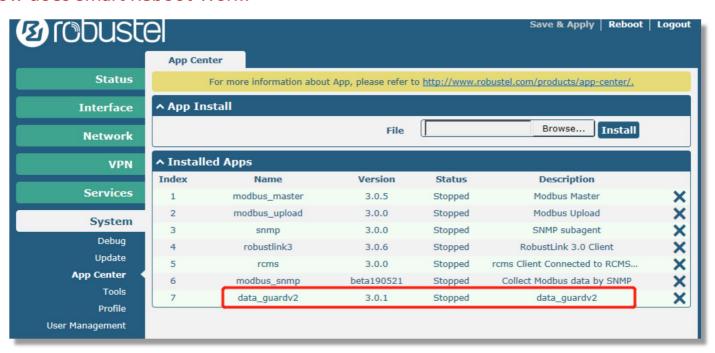## How does Smart Reboot Work?

Figure 1.0 - "Screenshot of the required application 'Data-Guardv2' in which the Smart Reboot functionality resides"

The process that routers use to determine which network to use (Automatic Network Selection) only uses signal strength to determine a usable network and this doesn't necessarily correlate with a network that can actually transmit data.

The key feature of the Smart Reboot app, is the ability to send an SMS message to the router with the body – "SIM1 SMARTREBOOT", recovering Data Comms remotely when all else has failed.
A simple SMS could be the difference between having to visit site or not – put in more stark terms – **"A 10c SMS message could save a $1000 truck-roll!"**

*Smart Reboot is available as part of the Data-Guardv2 RobustOS Application
and can be added to any Robustel device
by speaking to your Robustel Sales Manager or via the Robustel App Center in RCMS*

How Smart Reboot can "Save the day!"

The usual first sign of lost Comms is a failed update /data transfer or a warning from a dashboard. If you do not have a good overview or timely alerts about your estate of devices, RCMS (Robustel Cloud Management Service) could be an invaluable tool – see: https://www.robustel.com/robustel-cloud-manager-service/

The example below shows how a router in China was recovered to a working state with Smartreboot with SMS messages sent from the UK in the comfort of the sender's home:

Timestamp	Direction	SMS message content	Note
27/11/2019 11:00	MO	"modem_status=Ready reg=Registered, roaming cell_id=524C706 plmn_id=46000 csq_value=28 network=LTE"	This SMS response summarises current connection status. SMARTREBOOT has achieved a change from network 46001 (China Unicom) to 46000 (China Mobile)
27/11/2019 10:59	MT	"SIM CELLSTAT"	This SMS Command interrogates current connection status.
27/11/2019 10:58	MO	"SMARTREBOOT&D complete"	This response is sent from the current network to indicate Smart Reboot is complete.
27/11/2019 10:57	MO	"SMARTREBOOT&D commencing …"	This response is sent from the current network to indicate Smart Reboot is commencing.
27/11/2019 10:57	MT	"SIM 1 SMARTREBOOT&D"	This command, is used if there is a problem with Data Comms on the current network and attempts to force a network change.
27/11/2019 10:55	MO	"modem_status=Ready reg=Registered, roaming cell_id=6074716 plmn_id=46001 csq_value=27 network=LTE"	This SMS response summarises current connection status.
27/11/2019 10:55	MT	"SIM CELLSTAT"	This SMS Command interrogates current connection status.

Figure 2.0 - Transcript of an SMS conversation between User and Router in China – SMARTREBOOT forces a change in network and recovers comms

Disclaimer & Recommendations

Please note that Smart Reboot has been optimised for "unsteered" roaming SIMs – Robustel's network selection logic may not be able to bring about performance benefits on SIMs that experience "steering of roaming" by network operators.

Robustel highly recommend extensive testing of SMARTREBOOT with the exact SIM types that plan to be used in production. Some network operators' systems may react in an unhelpful fashion when the SMARTREBOOT process is invoked. Testing before rollout is essential.
Because network operator system behaviour cannot be guaranteed, Smart Reboot should be considered a "last ditch" effort to recover Data Comms when all else has failed – including a call to your network operator to see if connectivity issues are from a known cause and that a fix is pending.

Anecdotally, best results may be gained from the following process:
1 - Check current network status with "SIM CELLSTAT"
2 - Use "SIM1 SMARTREBOOT" to attempt a change in network. Wait 5 minutes.
3 - Check current network status with "SIM CELLSTAT", if network hasn't changed, try (2) again
4 – Once "SIM CELLSTAT" confirms a change to an alternative network, wait 5 mins and use "SIM1 CONNECT" to raise the data connection on the newly registered network.