Product Change Notification
Software Release Notice

MultiConnect® rCell 100 Series Cellular Router

New Firmware Available
mPower™ Edge Intelligence

Date: February 5, 2020

Product Change Notification Number
PCN 02052020-MTR-001

I. Overview

MultiTech announces new firmware for the MultiConnect® rCell 100 Series (MTR-xx) Cellular Routers.
The purpose of this Product Change Notification is to:
1. Alert customers that updated code is available for evaluation
2. Provide customers important information, the models numbers impacted and the schedule for final release

New firmware version: MTR 5.1.3

II. Schedule

The latest version of mPower™ Edge Intelligence firmware for MTR-xx LTE Category M1 and LTE Category 4 models is available for customer evaluation and final release.

- Downloadable Version
    - Availability: February 2020
    - https://www.multitech.com/brands/multiconnect-rcell-100-series
    - Select the model number you are interested in. In the DOWNLOADS section you can select MTR 5.1.3 and download
- Manufacturing
    - See Models Impacted for details on when MTR 5.1.3 will be available for different versions of the MultiConnect rCell
- DeviceHQ®
    - Cloud-based IoT Device Management
    - MTR 5.1.3 Availability: February 2020
    - https://www.devicehq.com/sign_in

III. mPower™ Edge Intelligence

mPower™ Edge Intelligence is a new embedded software offering, building on its popular application enablement platform, to deliver programmability, network flexibility, enhanced security and manageability for scalable Industrial Internet of Things (IIoT) solutions.

mPower Edge Intelligence simplifies integration with a variety of popular upstream IoT platforms to streamline edge-to-cloud data management and analytics, while also providing the programmability and processing capability to execute critical tasks at the edge of the network to reduce latency, control network and cloud services costs, and ensure core functionality – even in instances when network connectivity may not be available.

In response to evolving customer security requirements, mPower Edge Intelligence incorporates a host of new security features including signed firmware validation, enhanced firewall and VPN settings, secure authentication and more.

IV. MultiConnect rCell Models Impacted

The following MultiConnect rCell models are impacted by these firmware updates:

MultiConnect rCell Hardware Description	Model
4G-LTE Category 4	MTR-LEU7, MTR-LNA7
4G-LTE Category M1	MTR-MNG2

For a specific list of the ordering part numbers impacted, reference Ordering Part Numbers Impacted

V. MTR 5.1.3 Firmware Overview (MTR LTE Category 4 Models)

MTR-LEU7 and MTR-LNA7 models are now shipping from MultiTech with firmware version MTR 5.1.3. Customers that are starting to evaluate and deploy the MTR-LEU7 and MTR-LNA7 models are likely migrating from the MTR-LAT1, MTR-LEU1, or MTR-LVW2 Category 3 models (currently Near-End-of-Life), which currently ship from MultiTech with firmware version MTR 5.0.0.

Model Name	MTR-LAT1 MTR-LEU1 MTR-LVW2 Firmware Version	MTR-LEU7 MTR-LNA7 Firmware Version
MultiConnect rCell	MTR 5.0.0	MTR 5.1.3

Feature Enhancements (MTR 5.1.3):

Firmware version MTR 5.1.3 includes the following new features and feature enhancements in comparison to firmware version MTR 5.0.0.

1. Hardware Support
    a. Radio support **added** for the following cellular technologies

Cellular WAN Support	Wireless Carrier
4G-LTE Category 4 Europe (MTR-LEU7 models)	European Carriers
4G-LTE Category 4 North America (MTR-LNA7 models)	AT&T Verizon

    b. Added support for new GPS module
        • The MTR-LEU7-B10 and MTR-LNA7-B10 models use a different GPS module than the MTR-LAT1, MTR-LEU1, and MTR-LVW2.
            o MTR-LEU7-B10 and MTR-LNA7-B10 use Ublox EVA-M8 GPS/GNSS
            o MTR-LAT1, MTR-LEU1, and MTR-LVW2 use SkyTraq Venus 636 or SkyTraq Venus 816

2. Feature Enhancements
    a. First-Time Setup
        • Setup Wizard: option added for Remote Management – DeviceHQ®

    b. Network Interfaces
        • Added support for IPV6 in several specific network configurations

Network Interface	IP Mode
Bridge (Br0)	STATIC
Ethernet (Eth0)	STATIC DHCP Client
PPP Interface (ppp0)	PPP PPP – Addresses Only

        • IPv6 WAN on cellular only

    c. Global DNS
        • Option added to configure the hostname of the device

    d. Dynamic Host Configuration Protocol (DHCP) Server
        • IPv4 DHCP Servers (IPv4 support) or DHCPv6 and Router can be viewed, added, or edited

    e. Setting up Wi-Fi as a WAN
        • Support added for connecting to hidden SSID networks

f. Updated Destination and Source Interface Firewall Rules now include OPENVPN option
    - Pre-routing rules
    - Post-routing rules
    - Input filter rules
    - Inbound forwarding rules
    - Output filter rules

g. Added Cellular Configuration Fields
    - Cellular Mode: Select the cellular mode from the drop-down menu based on the cellular radio module in the device (Auto (default), LTE only, LTE prefer, 2G only, 3G only, or 3G prefer)
    - Modem Configuration (allows user to switch firmware from one MNO network to another).
        o MTR-MNG2 Models: Auto (default), AT&T Compatible, Verizon, World-Wide
        o Auto option automatically detects SIM and configures to appropriate MNO

h. Added Password Complexity Rules: Administrative user can choose rules and limitations for user passwords, including:
    - Minimum length of passwords
    - Upper and lower case requirements
    - Special characters (non-alphanumeric)
    - Characters that are not permitted

    Two modes are available:
    - Default Mode: Minimum character length and specific number of characters
    - Credit Mode: Credits are granted for each password character and extra credits are applied for certain character classes. Administrators specify a minimum number of classes. Longer passwords are the strongest.

i. Configuring Device Access: How the device can be accessed as well as security features that decrease susceptibility and malicious activity.
    - Added Reverse SSH Tunnel: enable and configure reverse SSH tunnel either using DeviceHQ (or other cloud service) or a 3rd party service.

j. Managing Devices Remotely (DeviceHQ): Updates to DeviceHQ Check-In Settings
    - Single Check-In: Configure device to check-in to DeviceHQ at a specific date and time
    - Repeatable Check-In: Configure device to check-in to DeviceHQ at a specific time daily or on a specific day of the week.

k. Upgrading Firmware from MultiTech website or DeviceHQ
    - Signed Firmware Validation is automatically used once it is enabled after upgrading from version 5.1 and higher.

l. Manage Custom Applications
    The MultiConnect rCell includes added support for installing custom applications and the managing the version of all installed applications.
    - Maximum application size: 4MB (larger applications may encounter problems)

- Refer to [Creating a Custom Application](#) on the MultiTech Developer Resources website for complete instructions on developing, installing, and deploying custom applications.

    m. Registration Status (beta units only)
- This change only impacts customers who received beta versions of the MTR-LEU7 and MTR-LNA7 which were shipped with firmware version MTR 5.1.1.
- A change was made in libmts-io for checking the registration status of the cellular modem to check for REGISTERED or ROAMING status through the CREG, CGREG, and CEREG commands instead of using just one of them.

3. Bug Fixes
   a. <u>Modbus Support (beta customers only)</u>: Some beta samples were shipped to customers with firmware version MTR 5.1.1. A bug was introduced that prevented the Modbus gateway code from executing, leading to the feature not working at all. This issue has been corrected in MTR 5.1.3.

4. Known Behaviors
   a. <u>SIM Card</u>. The MTR-LNA7 and MTR-LEU7 models all require an LTE micro SIM (3FF).
   b. <u>Missing SIM Card or Removed SIM Card</u>. The message "No SIM" is not displayed immediately when the SIM card is removed or missing from the MTR-LNA7 or MTR-LEU7.
   c. <u>PPP-IP Passthrough IPV6 coverage</u>. The MTR-LNA7 has inconsistent PPP-IP Passthrough IPV6 coverage.
   d. <u>Verizon Dial String</u>. When using the MTR-LNA7 on the Verizon network, the dial string will need to be switched from 1 to 3. For AT&T or T-Mobile, the dial string will remain at 1, which is default.

VI. MTR 5.1.3 Firmware Overview (MTR LTE Category M1 Models)

MTR-MNG2 models are now shipping from MultiTech with firmware version MTR 5.1.3. Some customers have received shipments of the MTR-MNG2 with firmware version MTR 5.1.1.

Model Name	Firmware Version	Firmware Version
MultiConnect rCell	MTR 5.1.1	MTR 5.1.3

Feature Enhancements (MTR 5.1.3):
Firmware version MTR 5.1.3 includes the following new features and feature enhancements in comparison to firmware version MTR 5.1.1.

1. Hardware Support
   a. Radio support **added** for the following cellular technologies

Cellular WAN Support	Wireless Carrier
4G-LTE Category M1 North America (-MNG2 models)	AT&T Verizon

2. Feature Enhancements
   a. WWAN Support. Changes have been made to the WWAN support on the MTR-MNG2.
   b. Registration Status
      i. A change was made in libmts-io for checking the registration status of the cellular modem to check for REGISTERED or ROAMING status through the CREG, CGREG, and CEREG commands instead of using just one of them.

3. Bug Fixes
   a. Modbus Support: In firmware version MTR 5.1.1, a bug was introduced that prevented the Modbus gateway code from executing, leading to the feature not working at all. This issue has been corrected in MTR 5.1.3.

4. Known Behaviors
   a. SIM Card. The MTR-MNG2 requires a Verizon Category M1 SIM or an AT&T LTE SIM.
   b. LTE Category M1 Coverage. We have experienced inconsistent Category M1 coverage on AT&T and Verizon networks.
   c. Missing SIM Card or Removed SIM Card. The message "No SIM" is not displayed immediately when the SIM card is removed or missing from the MTR-MNG2 models
   d. Dial On-Demand (Verizon). The MTR-MNG2 models do not support Dial On-Demand when used on the Verizon network.
   e. NB-IoT Support. NB-IoT is supported by the MTR-MNG2 modem, but not supported in the mPower firmware.

VII. Upgrading MTR Firmware

    a. At any time in the upgrade process, customers can send an email to support@multitech.com or call +1 763-717-5863.

    b. It is recommended that customers backup their configuration before performing an upgrade.
- If the firmware upgrade fails, or it does not show the login page again, wait an additional 10 minutes.
- Power off and on the MTR and log into the MTR using the web interface to check the version.
- If the version does not show the latest, then the upgrade was not successful.
- Try to perform the firmware upgrade again by repeating all the steps.

    c. To upgrade firmware using the MTR Web User Interface, MTR 5.1.1 firmware or higher must be installed.
- If firmware version is earlier than MTR 5.1.1, first upgrade to MTR 5.1.1 and then upgrade to MTR 5.1.3.

    d. Instructions:
1. Save the firmware binary file to a directory on your workstation.
2. Using the workstation browser, enter the IP address of the MTR (i.e. http://192.168.2.1).
3. Login with admin user and enter the admin password.
4. Click "Administration" tab on left side menu bar.
5. Click "Save/Restore".
6. Click "Save Configuration to File" to save a backup file. A popup window will appear.
7. Select "Save File" and click "OK" button.
8. Now click "Firmware Upgrade" tab on left side menu.
9. This version of firmware has a Firmware Validation option. Review the Firmware Upgrade Help for further information.
10. Click the Browse button and select the latest version of BIN file rcell-mtrv1-upgrade_5.1.3.bin (LTE). Use the respective -signed upgrade file based on Firmware Validation option.
11. Click the "Start Upgrade" button. Confirm the 10 minute "OK" button.
12. Wait for the unit to upgrade and reboot automatically.
13. Again, browse to the IP address, login and verify the Home Page indicates the correct version, 5.1.3.

VIII. Ordering Part Numbers Impacted

The following products and ordering part numbers are impacted by these updates:

Model Name	Ordering Part Numbers	Release Date
MultiConnect® rCell 4G-LTE Category 4 Routers	MTR-LNA7-B07 MTR-LNA7-B07-US MTR-LNA7-B10 MTR-LNA7-B10-US MTR-LEU7-B07 MTR-LEU7-B07-EU-GB MTR-LEU7-B10 MTR-LEU7-B10-EU-GB	Released Available in all models that ship from MultiTech
MultiConnect® rCell 4G-LTE Category M1 / NB-IoT Routers	MTR-MNG2-B07 MTR-MNG2-B07-WW MTR-MNG2-B10 MTR-MNG2-B10-WW	Released Available in all models that ship from MultiTech

IX. MultiConnect® rCell 100 Series Intelligent Cellular Routers

The MultiConnect rCell is a compact, intelligent and fully-featured communications platform that provides cellular capabilities for fixed and mobile applications. It is intended for use in settings such as:

- Remotely monitoring solar micro-inverters, tanks, pipelines, meters, pumps and valves in any energy, utility, or industrial application.
- The MultiConnect rCell 100 Series family has also been successfully deployed by professionals in emergency services, vending, remote patient monitoring, renewable energy systems, process automation and mobile applications (truck, rail, and boat).

The MultiConnect rCell 100 Series (MTR-xx) of cellular routers are a part of the MultiTech comprehensive portfolio of cellular connectivity products optimized for M2M (machine-to-machine). The MultiConnect rCell comes with no cost access to DeviceHQ® which is MultiTech's cloud platform service to monitor and manage deployed MultiConnect rCell cellular routers in the field.

X. Additional Information

If you have any questions regarding this Product Change/Software Release Notification, please contact your MultiTech sales representative or visit the technical resources listed below:

World Headquarters – U.S.A.
+1 (763) 785-3500 | sales@multitech.com

EMEA Headquarters – UK
+(44) 118 959 7774 | sales@multitech.co.uk

For additional information on MultiTech mPower™ Edge Intelligence Software, please visit:

Knowledge Base:
http://www.multitech.com/kb.go
Immediate access to support information and resolutions for all MultiTech products.

MultiTech Support Portal:
https://support.multitech.com/support/login.html
Create an account and submit a support case directly to our technical support team.

MultiTech Website:
www.multitech.com