Software Release Notes

mPower® Edge Intelligence Software

Includes mPower 6.3.6

Models Impacted:

MultiTech Conduit® Gateway
MultiTech Conduit® IP67 Base Station
MultiTech Conduit® IP67 200 Series Base Station
MultiTech Conduit® AP Access Point

Overview

This document includes the release notes and cumulative changelog for mPower Edge Intelligence embedded software. Detailed information is listed in reverse chronological order, starting with the latest mPower release.

The mPower 6.3.6 release includes reviving user-defined default configuration (removed in 6.3.1) and updates to reset button behavior. It also resolves issues with LoRaWAN functionality and updates the LoRa Cloud Connector. This release impacts Atmel based devices, MTCDT/MTCDTIP/MTCDTIP2, and MTCAP/MTCAP2 hardware.

Updated mPower 6.x.x release notes are available < here >

Downloadable Versions:

- mPower 6.3.6 Availability: August 2025
- mPower 6.3.4 Availability: March 2024
- mPower 6.3.2 Availability: January 2024
- mPower 6.3.1 Availability: November 2023
- Visit http://www.multitech.net/developer/downloads/

Contents

mPower™ Edge Intelligence is MultiTech's embedded software offering delivering network flexibility and 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.

mPower 6.3.6 Changelog and Overview

Released: August 2025
Status: Downloadable

Updates in mPower 6.3.6, from mPower 6.3.4

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.3.6)

User-Defined Default Configuration (UDD)

- Restores UDD feature removed in 6.3.1
- Allows saving custom configurations including:
  - db.json, custom UI images, CA certs, LoRa server config, licenses, payload settings
- Excludes Web Server certificate (auto-generates self-signed cert on restore)
- UI enhancements for setting, clearing, and resetting to UDD

Reset Button Behavior

- New configurable modes:
  - Reboot | Reset to Factory Default
  - Reboot | Reset to UDD | Reset to Factory Default
  - Reboot | Reset to UDD
  - Reboot Only
  - Disabled
- Behavior based on press duration:
  - 10–30s > Reset to UDD
  - ≥30s > Reset to Factory Default
- UI warnings and confirmations added for misconfigured or unsaved states

LoRaWAN Updates

- Basic Station LBT Support (Sx1303/1262)
  - Adds LBT support for MTAC-003
  - New config options:
  - rssi_offset_lbt (default: 8)
  - tx_dwelltime_lbt (default: 4000 ms)
  - US915 tx-power updated to support +36 dBm EIRP
- RSSI Offset & Tx Power Tables
  - UI fixes for AS923/KR920 in LNS mode across MTCAP, MTCDT, MTAC variants
- LENS Certificate Update
  - Combines CA + G5 certs for DigiCert_Global_Root_CA.pem
  - Prepares for post-2030 certificate expiration

Networking & Security (mPower 6.3.6)

LoRa Network Server Updates

- Added clearing up nonce table on start to find entries device ID doesn't exist in end device table
    - /var/config/ partition could eventually fill with LNS DB
    - Customer using the gateway in a test scenario cycled through many thousands of Device EUIs to create the issue

LoRa Cloud Connector (LCC) v1.0.12

- Update lora-cloud-connector to v1.0.12
    - Fixes for Azure connectivity
        - Downlinks did not work with Azure.
        - LCC v1.0.8 and v1.0.9 caused exceptions for downlink direct and C2D messages
    - Added MQTT over websockets using wss://<URL>:<PORT>
        - New support for WebSockets
    - Added API version 1.1.1 which includes connected message and subscribes to lorawan/<GWUUID>/clear
        - API version v1.1 does not subscribe to clear to maintain consistency with previous release
        - LCC v1.0.8 and v1.0.9 did not subscribe to the clear topic
    - Added parsing for HTTPS application to include path in URL, i.e. https://<SERVER>:<PORT><PATH-PREFIX>
        - New feature to have a path prefix setting for APIs
    - Ignore null messages received over remote MQTT
        - server may publish a null to manage retained messages
        - was causing exception in previous release
    - Respond with null message if retain flag is set for messages
        - Retained messages would be received on start-up until cleared at the broker with a null message

Bug Fixes (mPower 6.3.6)

LoRa FOTA Updates

- fotad-1.0.21
- Fixes needed to be compatible with STM and Semtech FOTA
- Set max FCNT in MC setup message to 0xFFFFFFFF
    - Was set to 0 which would break 3rd party implementations of Multicast
- Skip force AppTime sync if device time to start was ahead of gateway
    - Device can correct time after MC setup is received
    - AppTime request would block FragSetup messages to xDot/mDot where AppTime was not supported
- Support unique GenAppKey in local network settings

- Unique GenAppKey allows MCKey encryption to end-device, only adds security in context of a secure element in use at end-device

- MTAC-003 now works MTAC-ETH installed
  - MTAC-003 did not work with MTAC-ETH depending on the AP slot

Known Behaviors (mPower 6.3.6)

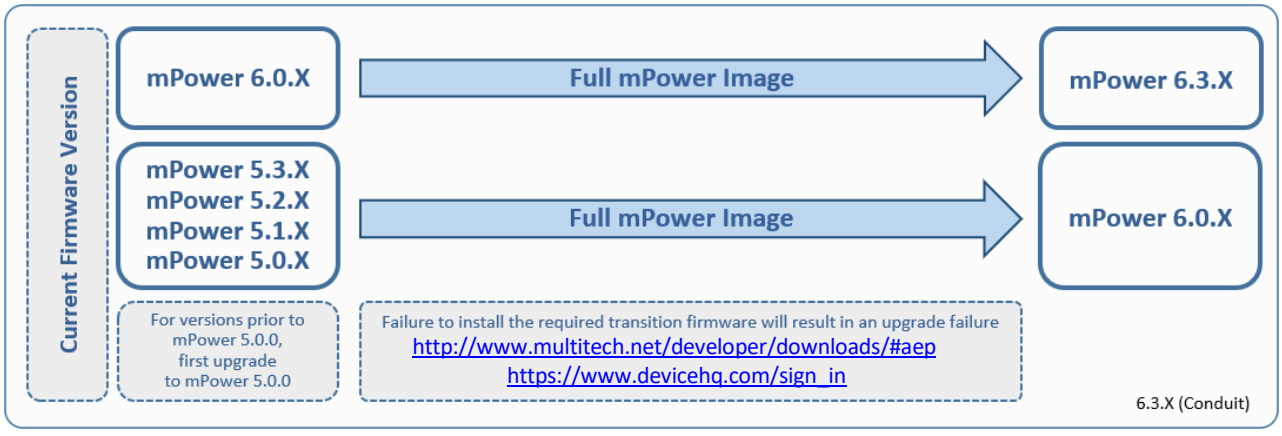
- MTAC-GPIO and MTAC-003 do not work together
  - SPIDEV issues when both cards are installed, LORA will not run
  - SPIDEV paths for MTAC-003 do not show up in /dev/

Schedule (mPower 6.3.6)

- Downloadable Versions
  - mPower 6.3.6 Availability: August 2025
    - Visit http://www.multitech.net/developer/downloads/
  - Device HQ: August 2025
- Manufacturing Updates:
  - Models Specifically Impacted:
    - MultiTech Conduit® Gateway: MTCDT-L4E1, MTCDT-L4G1-868
    - MultiTech Conduit® IP67 Base Station: MTCDTIP-L4E1, MTCDTIP-L4G1-868
    - MultiTech Conduit® IP67 200 Series Base Station: MTCDTIP2-L4E1
    - MultiTech Conduit® AP Access Point: MTCAP-L4E1, MTCAP2-L4E1
  - Download only

Upgrade Process (mPower 6.3.6)

To install mPower 6.3.6, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCDT, MTCDTIP)
- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)

- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.3.4 Changelog and Overview

Released: March 2024
Status: Downloadable/Shipping

Updates in mPower 6.3.4, from mPower 6.3.2

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.3.4)

3G Network Sunset – Maintaining Cellular Connection European Union and United Kingdom	GP-2272 MTX-5247
Overview: As 3G networks sunset in the United Kingdom and European Union, mPower updates are required to avoid service interruption for MultiTech 4G-LTE gateways. The following updates are available in mPower 6.3.4. For more information on 2G and 3G network sunset, visit https://multitech.com/lte-migration/	-
Cellular Module Firmware Default • mPower 6.3.4 sets the cellular module default to CEMODE=2 (Data Centric) • The current cellular module default is CEMODE=1 (Voice Centric) • This change impacts MTCDT-L4E1 and MTCDTIP-L4E1 models	GP-2296 MTX-5263
Disable Voice Calls • mPower 6.3.4 disables the voice call function • Outgoing calls are not possible • Incoming calls are rejected • This change impacts MTCDT-L4E1 and MTCDTIP-L4E1 models	GP-2296 MTX-5263
SMS-only Registration • mPower 6.3.4 enables SMS-only registration • IMS PDN bring-up and registration is blocked • This change impacts MTCDT-L4E1 and MTCDTIP-L4E1 models	GP-2296 MTX-5263

Networking and Security (mPower 6.3.4)

WWAN Mode Receive Errors • In previous versions of mPower, the WWAN MTU packet size is set to 1430 bytes to align with mobile network operator (MNO) requirements. • Occasionally, an MNO sends packets up to 1500 bytes in size. These packets are rejected because they exceed the MTU size. • In mPower 6.3.4, the MTU packet size is set to 1500 bytes, which results in fewer receive packet rejections.	GP-2221 MTX-5211

Bug Fixes (mPower 6.3.4)

Modem Configuration Settings • In previous versions of mPower, when modem configuration settings are changed using APN or PDP mode, cellular mode changes are ignored until the device is rebooted. All setting changes are applied properly when the user reboots the device • In mPower 6.3.4, this issue has been resolved. System reboot is automatically enforced when cellular mode changes are made • This change impacts MTCDT-L4G1 and MTCDTIP-L4G1 models	GP-2317 GP-1998 MTX-5285
User Interface - LoRaWAN Networking • In previous versions of mPower, when setting LoRaWAN Basic Station configuration, the side bar menu options are not updated as expected. Refreshing the page updates the menu properly • In mPower 6.3.4, this issue has been resolved. The side bar menu is updated properly	GP-2319

Known Behaviors (mPower 6.3.4)

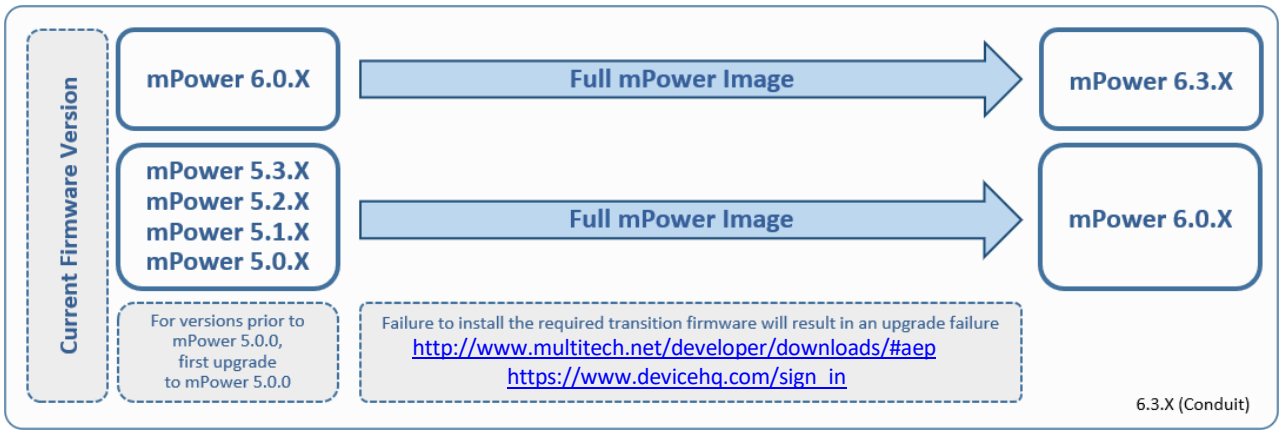
DeviceHQ® Cloud-Based Device Management • For devices that have been shipped with or upgraded to mPower 6.3.4, DeviceHQ reports the mPower version as mPower 6.3.4 • In previous versions of mPower, DeviceHQ incorrectly reports the mPower version	-

Schedule (mPower 6.3.4)

- Downloadable Versions
  - mPower 6.3.4 Availability: March 2024
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: March 2024
- Manufacturing Updates: European Union, United Kingdom, and Global Models
  - Models Impacted
    - MultiTech Conduit® Gateway: MTCDT-L4E1, MTCDT-L4G1-868
    - MultiTech Conduit® IP67 Base Station: MTCDTIP-L4E1, MTCDTIP-L4G1-868
    - MultiTech Conduit® IP67 200 Series Base Station: MTCDTIP2-L4E1
    - MultiTech Conduit® AP Access Point: MTCAP-L4E1, MTCAP2-L4E1
  - Device shipments starting in April 2024 will include mPower 6.3.4
- Manufacturing Updates: All other models
  - Download only
  - Devices that ship from MultiTech will not be impacted

Upgrade Process (mPower 6.3.4)

To install mPower 6.3.4, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCDT, MTCDTIP)
- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

5. Upgrade the mPower version on one device
6. Modify the user-specific configuration settings
7. Perform in-house testing and adjust settings if necessary
8. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

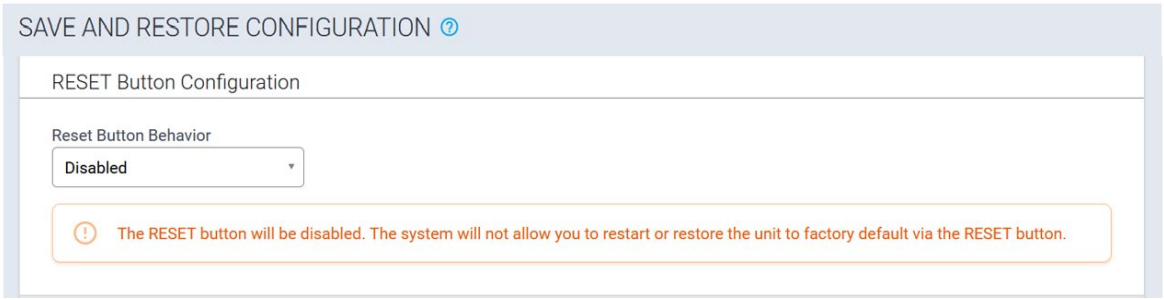
mPower 6.3.2 Changelog and Overview

Released: January 2024
Status: Download Only

Updates in mPower 6.3.2, from mPower 6.3.1

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.3.2)

Hardware Support	
RESET Button Configuration In the User Interface, the Save and Restore Configuration page has been updated to include a new RESET Button Configuration. The following option is available: • **Disabled** – The system will not allow you to restart or restore the unit to factory default via the RESET button 	Enhancement GP-2207 TS-5116215

Bug Fixes (mPower 6.3.2)

LoRa Basic Station • In previous versions of mPower, Actility station configuration was not working as expected • In mPower 6.3.2, this issue has been resolved	-

LoRa Packet Forwarder
• In mPower 6.3.2, when two different LoRa Gateway Accessory Cards are installed, the gateway will select the accessory card that matches the channel plan selected in the Network Server Configuration
• Example:
  ○ US915 channel plan is selected
  ○ One MTAC-LORA-H-915 and one MTAC-LORA-H-868 are installed in the gateway
  ○ LoRa traffic will be directed through the MTAC-LORA-H-915 accessory card
• In previous versions of mPower, both accessory cards were being used, even though only one matched the selected channel plan
	-

LoRa Packet Forwarder • In previous versions of mPower, when in the manual mode and the default value "<WILL-BE-REPLACED-WITH-LORA-EUI>" is used, the original value in in the device is not updated • In mPower 6.3.2, this issue has been resolved	-

Bug Fixes (mPower 6.3.2)

Cloud Connector • In previous versions of mPower, HTTP protocol uplinks were blocked on MQTT lock • In mPower 6.3.2, this issue has been resolved	-

Known Behaviors (mPower 6.3.2)

DeviceHQ® Cloud-Based Device Management • For devices that have been shipped with or upgraded to mPower 6.3.2, DeviceHQ reports the mPower version as mPower 6.3.7	-

Schedule (mPower 6.3.2)

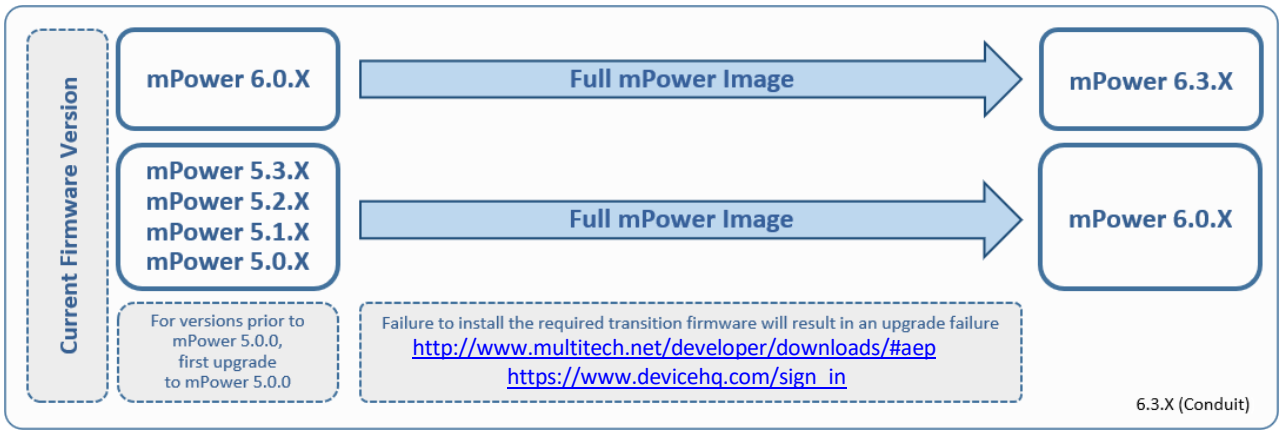
- Downloadable Versions
  - mPower 6.3.2 Availability: January 2024
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: January 2024
- Manufacturing Updates
  - Download only
  - Devices that ship from MultiTech will not be impacted

Models Impacted (mPower 6.3.2)

- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTC DT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
    Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
    Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1
- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTAC-L ORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSER-D CE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually anc in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3
  - Hardware Version: MTCAP-0.3
- MultiTech Conduit® AP Access Point
  - MTCAP-868, MTCAP2-868, MTCAP-915, MTCAP 2-915
  - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
  - Hardware Version: MTCAP-0.0, MTCAP-0.1, MTCAP-0.2

Upgrade Process (mPower 6.3.2)

To install mPower 6.3.2, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



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- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
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3. Perform in-house testing and adjust settings if necessary
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mPower 6.3.1 Changelog and Overview

Released: November 2023
Status: Downloadable/Shipping

Updates in mPower 6.3.1, from mPower 6.3.0

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.3.1)

Software & Services - Payload Data Manager	

BACnet AV (analog value) and BV (binary value) Support
• mPower 6.3.1 has been updated to include support for BACnet objects AV and BV.
• mPower 6.3.1 supports the following BACnet object types:
  ○ Analog Input
  ○ Analog Value (new)
  ○ Binary Input
  ○ Binary Value (new)
  ○ Positive Integer Value
  ○ Integer Value
  ○ Character String Value
• The BACnet object type depends on the type of the sensor property. The table below lists sensor property types and corresponding BACnet object types.
• Models Impacted:
  ○ Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
  ○ Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
	New Feature
	GP-2037
	MTX-5011

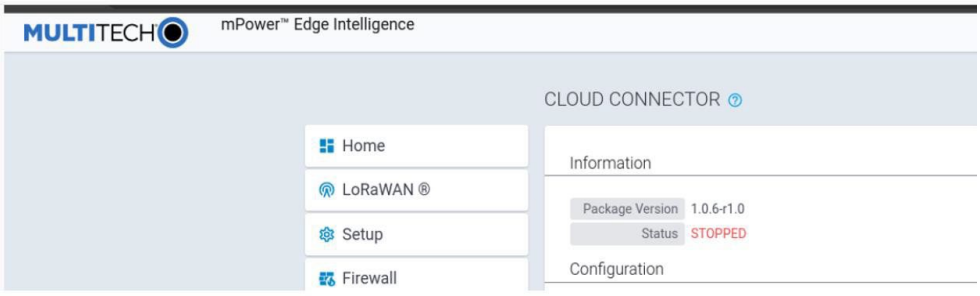
BACnet Device Settings – Network Interface
• mPower 6.3.1 monitors the network interface settings.
• When the IP address and/or subnet of the network interface that BACnet device uses for communication has changed, the change is detected, and a corresponding system update is made so the bacnetOut daemon continues working properly.
• Models Impacted:
  ○ Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
  ○ Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
	New Feature
	GP-2027
	MTX-4999

uint8	Analog Input, Analog Value, Positive Integer Value
uint16	Analog Input, Analog Value, Positive Integer Value
uint32	Positive Integer Value
int8	Analog Input, Analog Value, Integer Value
int16	Analog Input, Analog Value, Integer Value
int32	Integer Value
float	Analog Input, Analog Value
bool	Binary Input, Binary Value
string	Character String Value

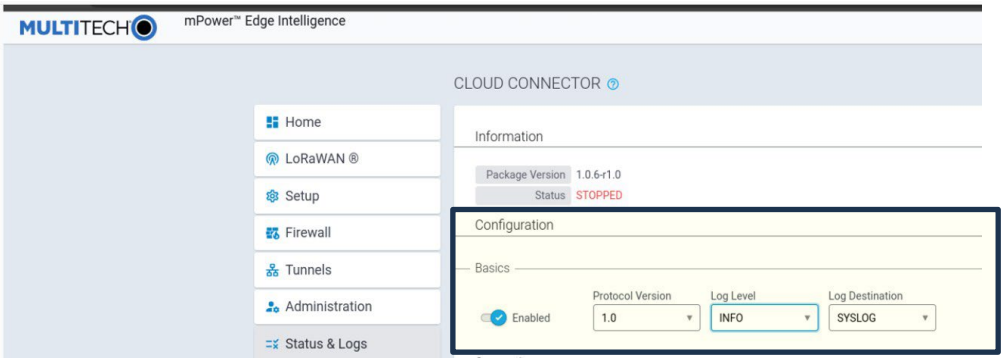
New Features & Enhancements (mPower 6.3.1)

BACnet Device Settings – Available Network Interfaces
• mPower 6.3.1 allows the selection of any Ethernet network interface available in the system: br0, eth0, eth1, eth2, swi1, swi2, swi3, swi4; regardless of LAN or WAN interface.
• Models Impacted:
  ○ Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
  ○ Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
	Enhancement
	GP-2027
	MTX-4999

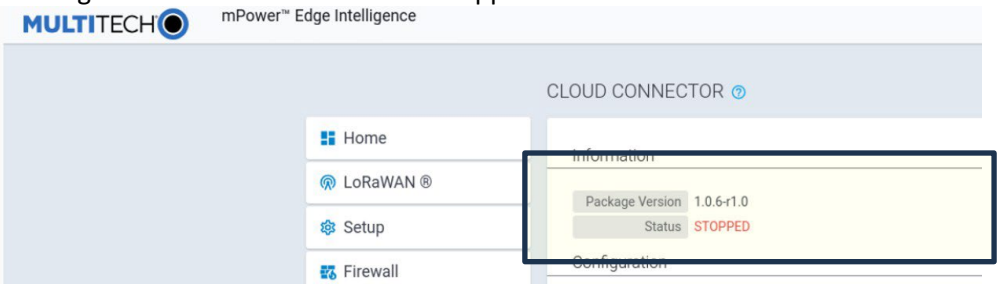
BACnet – Change in JavaScript Engine
• In mPower 6.3.1, Payload Management code is executed using QuickJS JavaScript Engine
• Previous mPower versions used Duktape JavaScript Engine
• QuickJS JavaScript Engine is aligned with The Things Network (TTN) recommendations and allows other updates to be made:
  1. Updated decode Uplink signature.
  2. Support for normalize Uplink functionality.
• Models Impacted:
  ○ Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
  ○ Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
	Enhancement
	GP-2110
	MTX-5086

Software & Services – LoRaWAN Features	
Default Application – Name Change to Cloud Connector • In mPower 6.3.1, the Default Application is renamed Cloud Connector • Cloud Connector allows last mile bi-directional communication from the gateway to a cloud application (Generic MQTT, AWS & Azure) without needing to deploy custom code on each gateway; this allows LoRaWAN uplinks and downlinks to be easily consumed and produced by a cloud application. New features include the ability to trigger request and receive responses via MQTT for LoRa queries, logging, and device API's. Please see the following link for additional info: https://multitechsystems.github.io/lorawan-app-connect-mqtt  	Enhancement GP-2071
Cloud Connector - User Interface Configuration • In mPower 6.3.1, Cloud Connector is moved to the applications page	Enhancement GP-2066
Cloud Connector – Updated to version 1.1 • mPower 6.3.1 supports Cloud Connector version 1.1 (new) or version 1.0 • Detailed technical information is available on the MultiTech Systems github page https://github.com/MultiTechSystems/lorawan-app-connect/blob/master/app-connect.py3	Enhancement

New Features & Enhancements (mPower 6.3.1)

<table>
<tr><td>Cloud Connector v1.1 – Basic Configuration
In Cloud Connector v1.1, there are three basic configuration settings
Protocol Version: v1.0 or v1.1
Log Level: ERROR, WARNING, INFO, DEBUG, TRACE, or MAXIMUM
Log Destination: SYSLOG or FILE (and file path) 
</td><td>Enhancement
GP-2095</td></tr>
<tr><td>Cloud Connector v1.1 – Message Formatting
In Cloud Connector v1.1, API Commands, LoRa requests, and LoRa responses are in a consistent format so they can be easily parsed by third-party software.
<table>
<tr><th>v1.1 messages</th><th>V1.0 messages</th></tr>
<tr><td>Manage downlinks:
• lorawan/<GW-UUID>/down
• lorawan/<GW-UUID>/clear</td><td>Manage downlinks:
• lorawan/<APP-EUI>/<DEV-EUI>/down
• lorawan/<GW-EUI>/<DEV-EUI>/down
• lorawan/<GW-UUID>/<DEV-EUI>/down
• lorawan/<APP-EUI>/<DEV-EUI>/clear
• lorawan/<GW-EUI>/<DEV-EUI>/clear
• lorawan/<GW-UUID>/<DEV-EUI>/clear</td></tr>
<tr><td>Request info from the system:
• lorawan/<GW-UUID>/api_req
• lorawan/<GW-UUID>/lora_req
• lorawan/<GW-UUID>/log_req</td><td>Request info from the system:
• lorawan/<APP-EUI>/<GW-UUID>/api_req
• lorawan/<APP-EUI>/<GW-UUID>/lora_req
• lorawan/<APP-EUI>/<GW-UUID>/log_req</td></tr>
<tr><td>Publish info from the system:
• lorawan/<GW-UUID>/api_res
• lorawan/<GW-UUID>/lora_res
• lorawan/<GW-UUID>/log_res</td><td>Publish info from the system:
• lorawan/<APP-EUI>/<GW-UUID>/api_res
• lorawan/<APP-EUI>/<GW-UUID>/lora_res
• lorawan/<APP-EUI>/<GW-UUID>/log_res</td></tr>
</table>
https://github.com/MultiTechSystems/lorawan-app-connect/blob/master/app-connect.py3</td><td>Enhancement
GP-2069</td></tr>
<tr><td>Cloud Connector v1.1 – Package Upgrades
Starting in mPower 6.3.1, Cloud Connector can be updated using the package upgrade feature.</td><td>New Feature
GP-2065
MTX-5065</td></tr>
</table>

New Features & Enhancements (mPower 6.3.1)

Cloud Connector v1.1 – LoRa Status Information • In mPower 6.3.1, Cloud Connector runs independently from the LoRa Network Server. Basic Station configuration can be changed through MQTT.	New Feature GP-2072
Cloud Connector v1.1 – APP-EUI Support • Cloud Connector v1.1 (new) has removed the APP-EUI limitation, and the gateway listens to all APP-EUI sensor messages. • Cloud Connector v1.0 was limited to one APP-EUI configuration for receiving sensor data. • In previous versions of mPower, Cloud Connector was limited to one APP-EUI configuration for receiving sensor data.	Enhancement GP-2094
Cloud Connector v1.1 – Package Version and Running Status • In mPower 6.3.1, the user interface is updated to display the package version and running status of the Cloud Connector application. 	Enhancement GP-2100
Cloud Connector v1.1 – API Requests and Responses – Transaction ID • In mPower 6.3.1, Cloud Connector API requests and API responses include a transaction ID. • The transaction ID allows the gateway and sensor to track a specific message transaction through its lifecycle, helping monitor the progress of the transaction and ensuring that it is successfully processed.	Enhancement GP-2068
Cloud Connector v1.1 - Subscribe on Session Present • In Cloud Connector v1.1, the server maintains a sticky session and subscribes only when the server sends session_present=false	Enhancement GP-2090
Gateway UUID Update • In mPower 6.3.1, the format for the gateway UUID (universally unique identifier) has been updated to comply with the Open Software Foundation (OSF) standard. • In previous versions of mPower, the UUID was formatted differently.	Enhancement GP-2097
Remote Broker - Wildcard Subscriptions • In mPower 6.3.1, wildcard subscriptions are removed from the remote broker ○ Some brokers do not allow wildcard subscriptions • In previous versions of mPower, wildcard subscriptions were allowed.	Enhancement GP-2007

New Features & Enhancements (mPower 6.3.1)

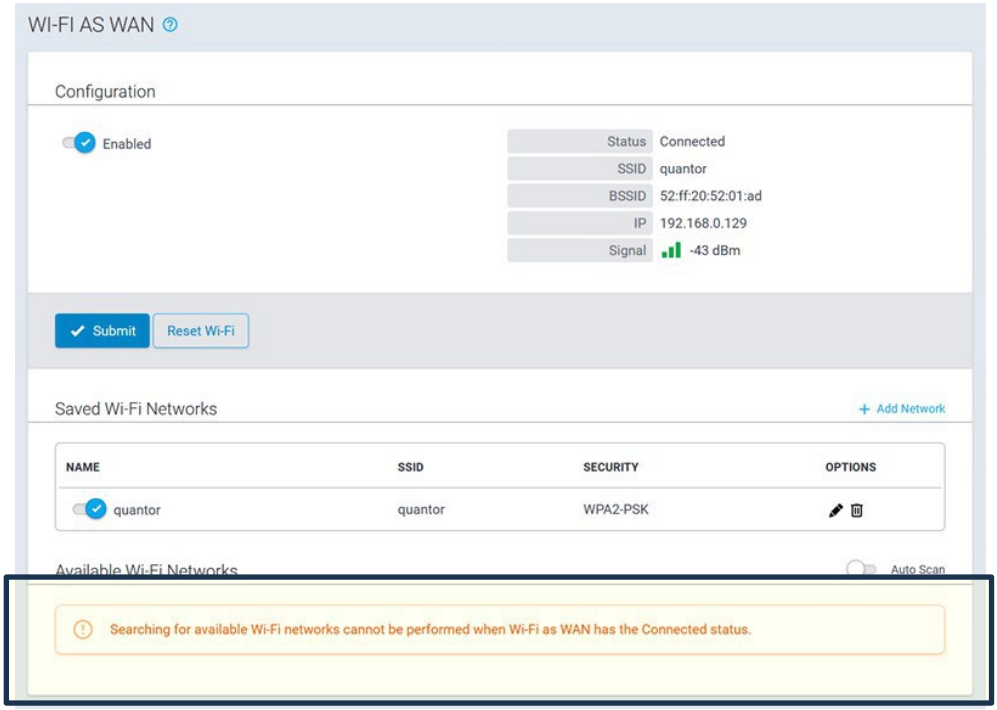
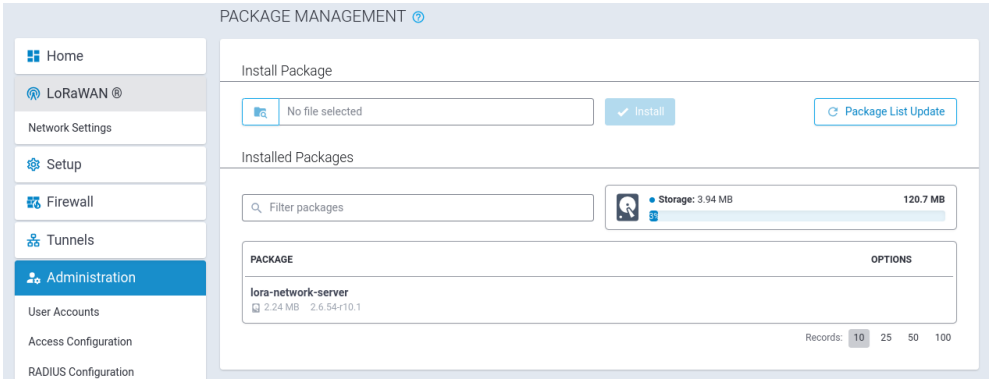
LoRa Spreading Factor Filters
• In mPower 6.3.1, four spreading factor filters are added
  ○ DR5-DR10
  ○ DR7-DR10
  ○ DR5-DR12
  ○ DR7-DR12
• Models Impacted:
  ○ Conduit Models: MTCDT.R3 devices with MTAC-003 Accessory Card
  ○ Conduit IP Models: MTCDTIP.R3 devices with MTAC-003 Accessory Card
	Enhancement
	GP-2013

Basic Station – Persistence Message • In mPower 6.3.1, when persistence is disabled and an Actility URL is detected, a warning message is presented.	Enhancement GP-2064
Basic Station – EU868 Duty Cycle Update • Updated to v2.0.6-20 • Add duty-cycle bands K, L, and N • Changed duty-cycle limits to match EU regulations ○ https://www.thethingsnetwork.org/docs/lorawan/regional-parameters/eu868/ • Also add nodc option to allow the LoRaWAN Network Server manage duty cycle	Enhancement GP-2086
Hardware Support	

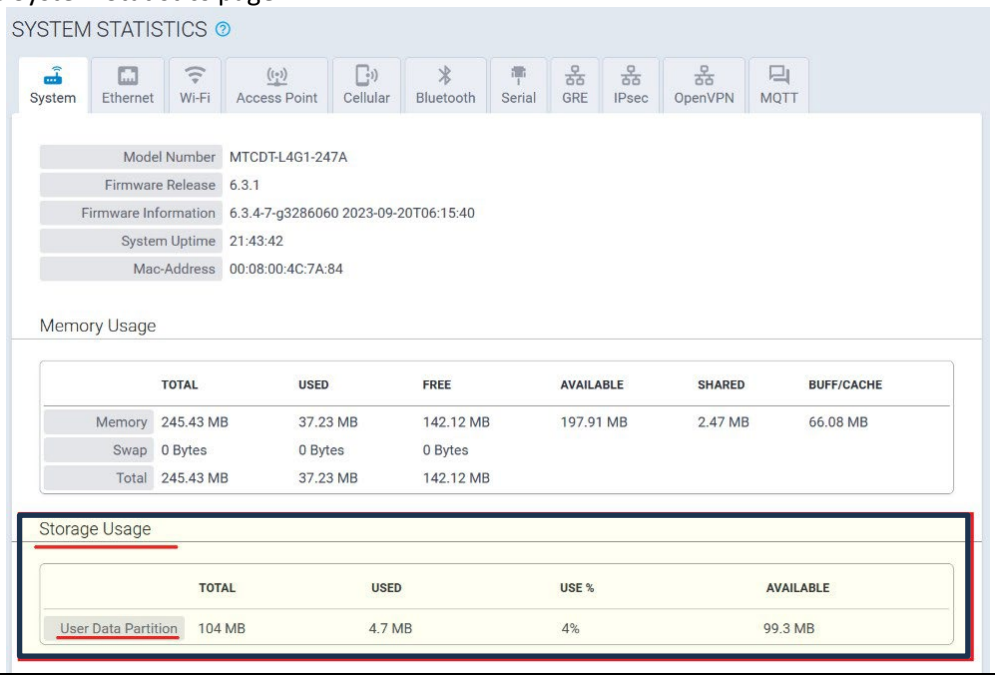
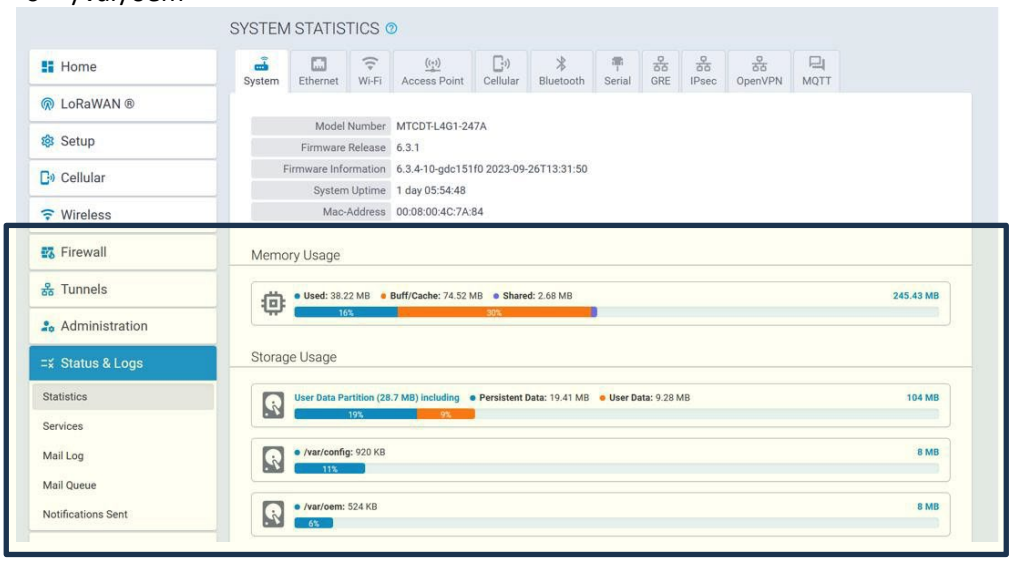
Updated Wi-Fi/BT driver
• In mPower 6.3.1, the Wi-Fi/BT firmware is updated to a proprietary version (v 1.6.6-r18) that allows two features to be enabled simultaneously:
  ○ Bluetooth Low Energy and Wi-Fi as WAN
  ○ Bluetooth Low Energy and Wi-Fi Access Point
  ○ In all other cases, only one feature can be at a time
• In mPower 6.3.0, wireless features are exclusively enabled
  ○ Bluetooth Low Energy
  ○ Wi-Fi as WAN
  ○ Wi-Fi Access Point
  ○ Bluetooth-IP
	Enhancement
	GP-2081
	MTX-5066

Wi-Fi Enhancement (5 GHz Band) • In mPower 6.3.1, when configuring the gateway as a Wi-Fi Access Point, and the Network Band is 5 GHz, the following channels shall not be available in the channel list: 34, 38, 42, and 46. • This behavior was originally reported in mPower 6.3.0	Enhancement GP-2034 MTX-5007

New Features & Enhancements (mPower 6.3.1)

Wi-Fi Enhancement (Wi-Fi as WAN) • When Wi-Fi connection is established and the device is connected to a Wi-Fi access point, mPower will not allow the device to continue scanning for available networks. • User interface alerts the user with the following message: **Searching for available Wi-Fi networks cannot be performed when Wi-Fi as WAN has the Connected status** 	Enhancement GP-2089 MTX-5075
User Experience	
Administration, Package Management • In mPower 6.3.1, installed packages can be updated if another version of the package is available. • This feature is only available to the administrator role. • Previous versions of mPower only allowed administrators to install new packages and remove existing packages. 	New Feature GP-2065 MTX-5065

New Features & Enhancements (mPower 6.3.1)

System Statistics – Storage Usage • In mPower 6.3.1, the user interface displays the external USB storage device usage on the System Statistics page. 	Enhancement GP-2109 MTX-5084
Status & Logs, System Statistics • In mPower 6.3.1, Memory Usage and Storage Usage are displayed in a graph. Previously, this information was available in a table. • In mPower 6.3.1, Storage Usage is displayed in three categories: ○ User Data Partition ○ /var/config ○ /var/oem 	Enhancement GP-2109

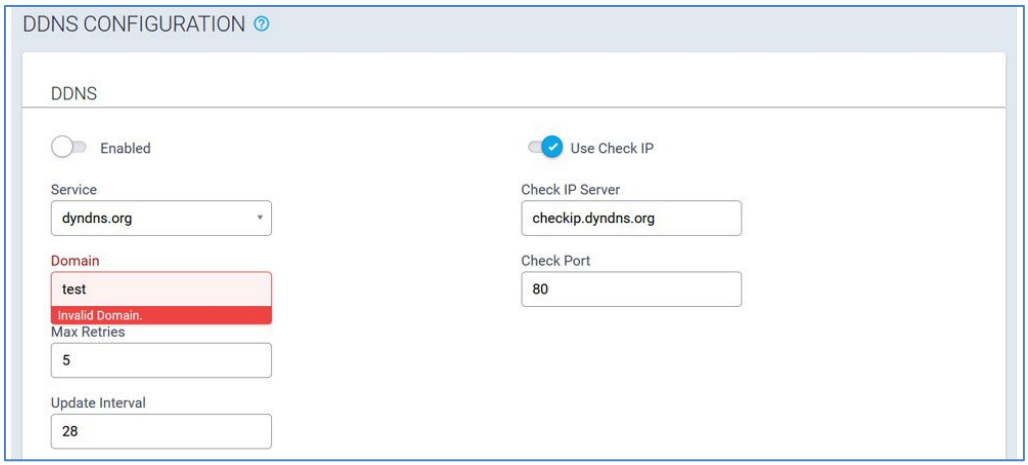
Networking & Security (mPower 6.3.1)

<table>
<tr><td>OpenVPN Tunnel – Tunnel Name Character Limit
In previous versions of mPower, OpenVPN tunnel names could be a maximum of 15 characters. When a tunnel name 13, 14, or 15 characters in length is entered, only the first 12 characters are displayed.
In mPower 6.3.1, the tunnel name character limit is 12 characters.</td><td>Enhancement
MTX-5052</td></tr>
<tr><td>SNMP Configuration – Add support for MIB OID Values
In mPower 6.3.1, support for standard RFC1213-MIB and the following read-only OID values is implemented:<table><tr><th></th><th></th></tr><tr><td>sysDescr</td><td>A textual description of the device.
The system returns the following information:
Product ID
Serial Number
mPower Firmware Release
vendor ID
Example:
MTCDT-246A-915.R3-WW
S/N 12345678
mPower 6.3.0
Multi-Tech Systems</td></tr><tr><td>sysObjectID</td><td>Identification of the device.
Gateway device
1.3.6.1.4.1.995.16.1.2.1</td></tr><tr><td>sysUpTime</td><td>The uptime of the SNMP service.
The time (in hundredths of a second) since the network management portion of the system was last re-initialized.</td></tr><tr><td>sysContact</td><td>Identification of the contact person for this device, together with information on how to contact this person.
Empty by default
Configurable on SNMP Configuration page</td></tr><tr><td>sysName</td><td>Assigned name for this managed device
By convention, this is the device’s fully qualified domain name
Empty by default
Configurable on SNMP Configuration page</td></tr><tr><td>sysLocation</td><td>The physical location of this device
Example: “telephone closet, 3rd floor”
Empty by default
Configurable on SNMP Configuration page</td></tr><tr><td>sysServices</td><td>The set of services that this device offers.
mPower device
76</td></tr></table></td><td>New Feature
GP-1871
MTX-4817
TS-5113882</td></tr>
</table>

Bug Fixes (mPower 6.3.1)

<table>
<tr><td>Cellular Mode Settings
In mPower 6.3.0, when the modem configuration settings are changed, and the changes are applied, cellular mode settings are ignored.
This occurs in APN and PDP context mode
Models Impacted:
Conduit Models: MTCDT-L4G1
Conduit IP Models: MTCDTIP-L4G1
In mPower 6.3.1, this issue has been resolved.</td><td>Hardware
GP-1998
MTX-4952</td></tr>
<tr><td>Cellular Diagnostics
In mPower 6.3.0, the diversity status of the cellular modem was not determined correctly.
Models Impacted:
Conduit AP Models: MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
Conduit Models: MTCDT-LAP3, MTCDT-L4E1, MTCDT-L4N1
Conduit IP Models: MTCDTIP-L4E1, MTCDTIP-L4N1
Conduit IP 200 Models: MTCDTIP2-L4E1, MTCDTIP2-LNA3
In mPower 6.3.1, this issue has been resolved.</td><td>Hardware
GP-2043
MTX-5018</td></tr>
<tr><td>Wi-Fi as WAN
In mPower 6.3.1, “group” and “pairwise” for TKIP+AES networks change to “CCMP TKIP”
mPower 6.3.1 sets “group” and “pairwise” according to the following rules:
<table><tr><th>WPA Algorithm</th><th>Group</th><th>Pairwise</th></tr><tr><td>TKIP</td><td>TKIP</td><td>TKIP</td></tr><tr><td>AES</td><td>CCMP</td><td>CCMP</td></tr><tr><td>TKIP+AES</td><td>TKIP CCMP</td><td>TKIP CCMP</td></tr></table></td><td>Hardware
GP-2044
MTX-5017</td></tr>
<tr><td>Serial-IP Configuration
In previous versions of mPower, when a Secondary Server Port is specified, a Serial IP configuration is not submitted.
In mPower 6.3.1, this issue has been resolved.</td><td>Hardware
MTX-5048</td></tr>
<tr><td>OpenVPN Tunnel Cipher Suite
In mPower 6.3.0, cipher suites list does not appear when TLS Cipher Suite is set to ADVANCED.
User is creating or editing the OpenVPN tunnel (Server or Client mode) in TLS Authorization Mode
In mPower R.6.3.1 the issue has been resolved.</td><td>Networking & Security
MTX-5026</td></tr>
<tr><td>Access Configuration Page – ICMP Settings
In mPower 6.3.0, the ICMP hints for settings on the Access Configuration page were incorrect
In mPower 6.3.1, the ICMP hints have been updated.</td><td>User Experience
MTX-5056</td></tr>
<tr><td>First Time Setup Wizard – Remote Management Port Values
In mPower 6.3.0, the Server Port is incorrectly displayed.
In mPower 6.3.1, this issue has been resolved.
When SSL Enabled is ON, Server Port is 5798.
When SSL Enabled is OFF, Server Port is 5799.</td><td>User Experience
MTX-5047</td></tr>
</table>

Bug Fixes (mPower 6.3.1)

DDNS Configuration Page • In mPower 6.3.0, DDNS configuration changes are not submitted when Domain value is invalid.  • In mPower R.6.3.1 the issue has been resolved.	Networking & Security MTX-5049

Known Behaviors (mPower 6.3.1)

Cellular Radio Firmware Creates an "Echo" Behavior
• Models impacted:
  ○ Conduit AP Models: MTCAP-L4E1, MTCAP2-L4E1
  ○ Conduit Models: MTCDT-L4E1, MTCDT-L4N1
  ○ Conduit IP Models: MTCDTIP-L4E1, MTCDTIP-L4N1
  ○ Conduit IP 200 Series Models: MTCDTIP2-L4E1
• Due to an issue in the cellular radio firmware, AT Commands are "echoed" when executing radio-query commands
• mPower 6.3.1 includes changes that ignore possible "echoes" on the cellular network.
	Hardware
	MTX-5044

BACnet Payload Management- Sensor Decoder That Run in a Loop
• Models Impacted:
  ○ Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
  ○ Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
• It is possible to write a sensor decoder that runs in a loop.
• A sensor decoder that runs in a loop is not valid sensor decoder behavior and may negatively affect the whole system.
• mPower 6.3.1 includes a five second timeout that prevents the decoder from running in a loop.
	Payload Management
	GP-2114
	MTX-5092

DeviceHQ® Cloud-Based Device Management • For devices that have been shipped with or upgraded to mPower 6.3.1, DeviceHQ reports the mPower version as mPower 6.3.5	-

Schedule (mPower 6.3.1)

- Downloadable Versions
  - mPower 6.3.1 Availability: October 2023
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: October 2023
- Manufacturing Updates: BACnet BMS Models
  - Models Impacted
    - Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC
    - Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC
  - Device shipments starting in November 2023 will include mPower 6.3.1
- Manufacturing Updates: All other models
  - Download only
  - Devices that ship from MultiTech will not be impacted

Models Impacted (mPower 6.3.1)

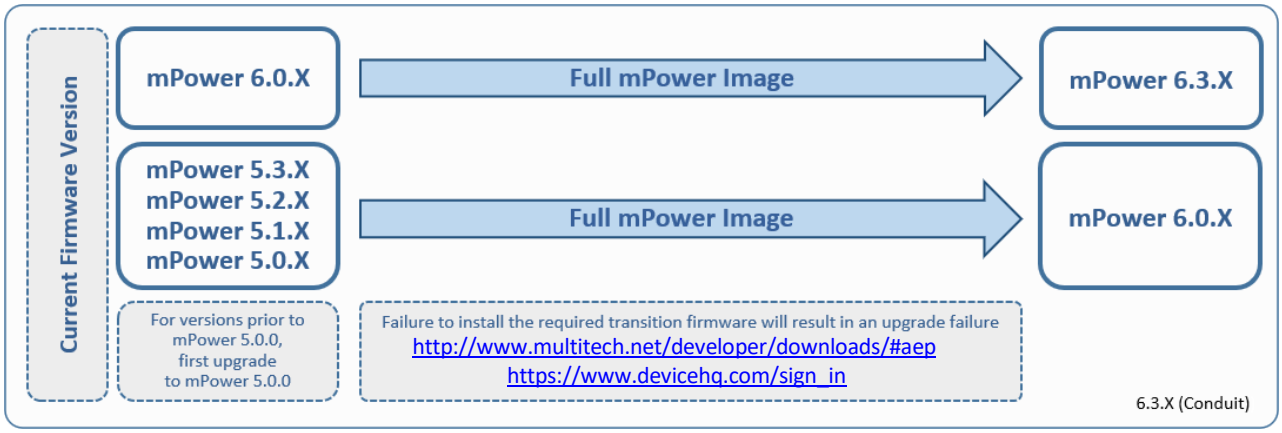
- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTCDT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
    Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
    Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1

Models Impacted (mPower 6.3.1)

- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTA(-LORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSEI -DCE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3
  - Hardware Version: MTCAP-0.3
- MultiTech Conduit® AP Access Point
  - MTCAP-868, MTCAP2-868, MTCAP-915, MTC/ P2-915
  - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
  - Hardware Version: MTCAP-0.0, MTCAP-0.1, MTCAP-0.2

Upgrade Process (mPower 6.3.1)

To install mPower 6.3.1, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCDT, MTCDTIP)
- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.3.0 Changelog and Overview

Released: May 2023
Status: Downloadable

Updates in mPower 6.3.0, from mPower 6.0.4

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.3.0)

Software & Services - Payload Data Manager	
BACnet BMS System Support In mPower 6.3.0, LoRaWAN sensors can be quickly integrated into a Building Management System (BMS) • The MultiTech gateway decodes the data from a LoRaWAN sensor and maps the sensor data into BACnet objects • Uplink and downlink messages are available • Previously, BACnet was supported in mPower 5.5.2 • Devices Impacted: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC Customers that are interested in expanding LoRaWAN sensor capabilities onto existing BMS can do so by ordering the unique MTCAP devices licensed with BACnet payload data management	New Feature GP-1864 MTX-4778
BACnet BMS System Support – Radio Bridge Sensor Support • Radio Bridge wireless sensor decoders are available natively Acceleration Sensor Air Temperature and Humidity Sensor Contact Sensor Door and Window Sensor Push Button Sensor Temperature Sensor Tilt Sensor High-Precision Tilt Sensor Ultrasonic Sensor High-Bandwidth Vibration Sensor Low-Bandwidth Vibration Sensor Voltmeter Water-Leak Sensor • Customers can create their own custom sensor decoders and load them onto the gateway. Contact support@multitech.com for details • Devices Impacted: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC	New Feature GP-1880 MTX-4804
Software & Services – mPower API Services	
mPower API service statistics (api/stats/service) have been expanded to include three new settings • reverseSSH • snmpServer • mqttBroker	Enhancement GP-1747 MTX-4626

New Features & Enhancements (mPower 6.3.0)

A complete list of mPower API changes: https://www.multitech.net/developer/software/mtr-software/mtr-api-reference/api-changes/	-
Software & Services – LoRaWAN Features	
MultiTech LENS® - API Connection Improvements • A retry mechanism has been implemented to handle cURL timeouts gracefully and improve the chances of successful communication with the LENS API • After a cURL timeout occurs, multiple attempts are made before the request is considered a failure	Enhancement -
MultiTech LENS® - Channel Frequency List • LENS join requests will include the Channel Frequency List (CFList), ensuring that devices have the correct channel list • US915 and AU915 devices using LoRaWAN 1.3 only	New Feature GP-1895
LoRa Default App Update – Cloud Services • The LoRa Default App has been updated to include options for connection to AWS IoT Core and Microsoft Azure IoT Cloud Services • The LoRaWAN Default App supports HTTPS or MQTTS messages to securely transmit LoRaWAN data from the gateway to an IoT cloud service	Enhancement GP-1605
LoRa Default App Update – Local AppNet EUI versus LENS AppNet EUI • The local AppEUI settings will be used if there is a conflict with the LENS AppNet EUI settings. The LENS AppNet EUI settings will be overridden • In previous versions of mPower, when the local AppEUI settings conflict with the LENS AppNet EUI settings, the LENS AppNet EUI settings take precedent • In customer deployments, there should be no conflict and the local AppEUI settings should be used	Enhancement -
LoRa Default App Update – Additional Error Messages Added • Additional LoRa Default Application error messages have been added to improve the customer experience	Enhancement GP-1679
LoRa Packet Forwarder – Updates to AS923 Channel Defaults • Updates made to AS920-923 (“AS1”) and AS923-925 (“AS2”) channel plans to match the defaults required by The Things Network (TTN) • Data Rate DR6 and DR7 frequencies have been adjusted • NOTE: TTN recommends using Basics Station instead of LoRa Packet Forwarder	Enhancement GP-1567
LoRa Join Server – Support for Third-Party Join Servers Added • Local App EUI settings and Default App Profile settings have been updated to allow the Conduit embedded LoRa network server to connect to a third-party join server • The Semtech LoRaWAN Join Server is supported by this capability https://www.loracloud.com/documentation/join_service	New Feature GP-1859 TS-5113447

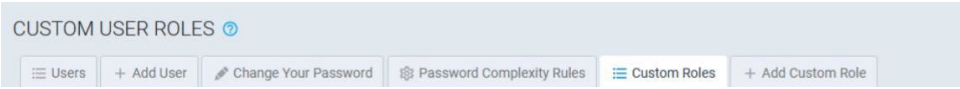
New Features & Enhancements (mPower 6.3.0)

LoRaWAN - Adaptive Data Rate (ADR) Updates • nbTrans setting is added in ADR Link Request (ARDLinkReq) command • nbTrans refers to the number of transmission attempts allowed for a device to successfully send a data packet at a particular data rate before the network adjusts the data rate • The ADRLinkReq command requests a change in the data rate or other adaptive parameters to the network server. This command is part of the process for enabling or disabling ADR functionality or adjusting other ADR-related settings	Enhancement GP-1841
LoRaWAN Enhancement - Reset GPS after PPS Reconnection • mPower 6.3.0 detects when PPS is lost. When PPS returns, the gateway GPS is reset • In previous versions of mPower, loss of PPS results in invalid GPS timestamps attached to received packets • Resetting the gateway GPS upon PPS reconnect restores the correct behavior • Originally available in mPower 6.0.4	Enhancement GP-1825 GP-1826 GP-1827
LoRa Basics Station – 16-Channel Option Available • MTCDT- and MTCDTIP- devices with two LoRa Gateway accessory cards can be configured as a 16-channel LoRaWAN gateway • Devices Impacted: Gateways and Base Stations that include two MTAC-LORA-H or two MTAC-003 gateway accessory cards	New Feature GP-1892
LoRa Basics Station – Support for firmware/program update using CUPS protocol • The LoRa Basics Station software provides credential management and firmware update interface using the Configuration and Update Server (CUPS) protocol. The CUPS protocol provides secure firmware update delivery with ECDSA signatures • This feature is supported by AWS IoT Core • https://docs.aws.amazon.com/iot/latest/developerguide/connect-iot-lorawan-update-firmware.html	New Feature GP-1894 TS-5114179
ChirpStack Gateway Bridge v4 Support • The Conduit LoRa Packet Forwarder is updated to connect to ChirpStack Network Server through the ChirpStack Gateway Bridge • ChirpStack Documentation: https://www.chirpstack.io/gateway-bridge/gateway/multitech/	New Feature GP-1329
Hardware Support	
MTCDT-247A, MTCDTIP-267A Devices Only • Wi-Fi/BT firmware is updated to version 2.5.1.11 • Originally available in mPower 6.0.4	Enhancement GP-1818 GP-1840
MTCDT-L6G1 Support • Support for -L6G1 radio (Sequans CB610L) • Models impacted: MTCDT-L6G1 • Use Case: Customers interested in adding LoRaWAN sensors and gateways to a CBRS Private LTE network	New Feature GP-1420 MTX-4774 GP-1733 MTX-4611
Cellular Configuration Page – Radio Reboot Options • Cellular PPP is enabled: Radio Reboot Enabled option available • Cellular WWAN is enabled: Radio reboot enabled option is not available	Enhancement GP-1869 MTX-4785

New Features & Enhancements (mPower 6.3.0)

<table>
<tr><td>Verizon APN Changes
Verizon Class 3 APN is set automatically over-the-air (OTA) without user intervention
If the current APN is incorrect, the user can enter a new APN
This is a one-time setting change
Devices impacted: MTCAP-LNA3, MTCAP2-LNA3, MTCDT-L4N1, MTCDT-L4G1, MTCDTIP-L4N1, MTCDTIP-L4G1</td><td>Enhancement
GP-1801
MTX-4705
GP-1828
MTX-4740</td></tr>
<tr><td>Cellular Diagnostics Feature
Device Diagnostics pane is added to the Debug Options page
User can download cellular diagnostics and cellular related logs by using the Download Cellular Data button
Cellular diagnostic information is recorded when it is requested by the user
Downloadable report can be saved on a computer hard drive and shared with others when diagnosing connection issues</td><td>New Feature
GP-1834
MTX-4744</td></tr>
<tr><td>MTAC-MFSER-DTE, MTAC-MFSER-DCE Device Statistics Changes
Changes to the Device Statistics page when the serial card is used:<table><tr><th></th><th>MTAC-MFSER-DTE</th><th>MTAC-MFSER-DCE</th></tr><tr><td>DCD Status
(Statistics Page)</td><td>Displayed</td><td>Hidden</td></tr><tr><td>Connection Activation
(DTR Assert)</td><td>Configurable</td><td>Hidden</td></tr><tr><td>Connection Termination
(DTR Toggle)</td><td>Configurable</td><td>Hidden</td></tr></table>
Devices impacted: MTCDT using a Serial Gateway Accessory Card</td><td>Enhancement
GP-1776
MTX-4682</td></tr>
<tr><td>MQTT Broker – Bridge TLS Version Setting
The Bridge TLS version for mPower and the MQTT broker must be the same for the connection to succeed
TLS version menu is added to the MQTT Broker Configuration page
When TLS is enabled, three selections are available: TLSv1.1, TLSv1.2, TLSv1.3
TLSv1.2 is the default value</td><td>Enhancement
GP-1710
MTX-4586</td></tr>
<tr><td>Certificate and Key Management</td><td></td></tr>
<tr><td>Support new Microsoft Azure Root Certificate Authority
Update the certificates database to latest debian</td><td>Enhancement
GP-1872
MTX-4791</td></tr>
</table>

New Features & Enhancements (mPower 6.3.0)

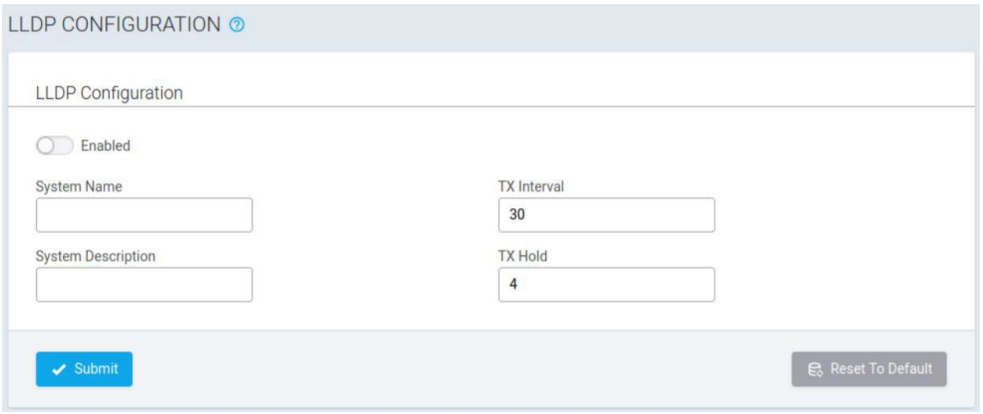
User Experience	
Custom User Roles In previous versions of mPower, users are assigned one of three pre-defined user roles, each with different rights and permissions on the device • Administrators have full rights and permissions, including the ability change settings on the device • Engineers have read/write privileges and some access to controls on the device • Monitors have read-only access In mPower 6.3.0, the administrator can create custom user roles and set the permissions for each custom user role based on organizational need and use case • *Custom Roles* and *Add Custom Role* are new menus under Administration, User Accounts • The administrator creates a new name and description for each custom user role • When a custom user role is defined, the administrator will identify which mPower features can be accessed by the custom user 1. *WRITE – ON* allows custom users to modify the feature 2. *WRITE – OFF* prevents custom users from modifying the feature 3. *VISIBLE – ON* allows custom users to read the status of the feature 4. *VISIBLE – OFF* hides the status of the feature from the custom user  • When the administrator assigns a user to a custom user role, the user will only have access to the features defined by the administrator	New Feature GP-1572 GP-1599
Web Interface - Dark and Light Themes mPower detects the user system preferences and enables light or dark scheme automatically • User can switch the theme any time while working with web user interface • The web user interface theme toggle is present in the mPower header and is available only when a user is logged in	New Feature -
Web Interface – Save & Apply Button Behavior • *Save & Apply* button is displayed ONLY when there are changes that can be saved and applied • The *Save & Apply* button is moved from the main menu and appears in the top of the page • The *Save & Apply* button is animated, and it is blinks periodically	Enhancement -
Web Interface – Main Menu Behavior • It is possible to open/expand all menus and see all submenus available • User must click on the main menu to expand the list of available items • The menu will stay expanded until the user clicks on it again • The menu will not close automatically when opening other menu items	Enhancement GP-1734 MTX-4612
Web Interface – Date and Time Format • mPower detects the user system preferences for date and time format and automatically matches the system format when date and time are displayed within the user interface	Enhancement IN-4635 MTX-4636

New Features & Enhancements (mPower 6.3.0)

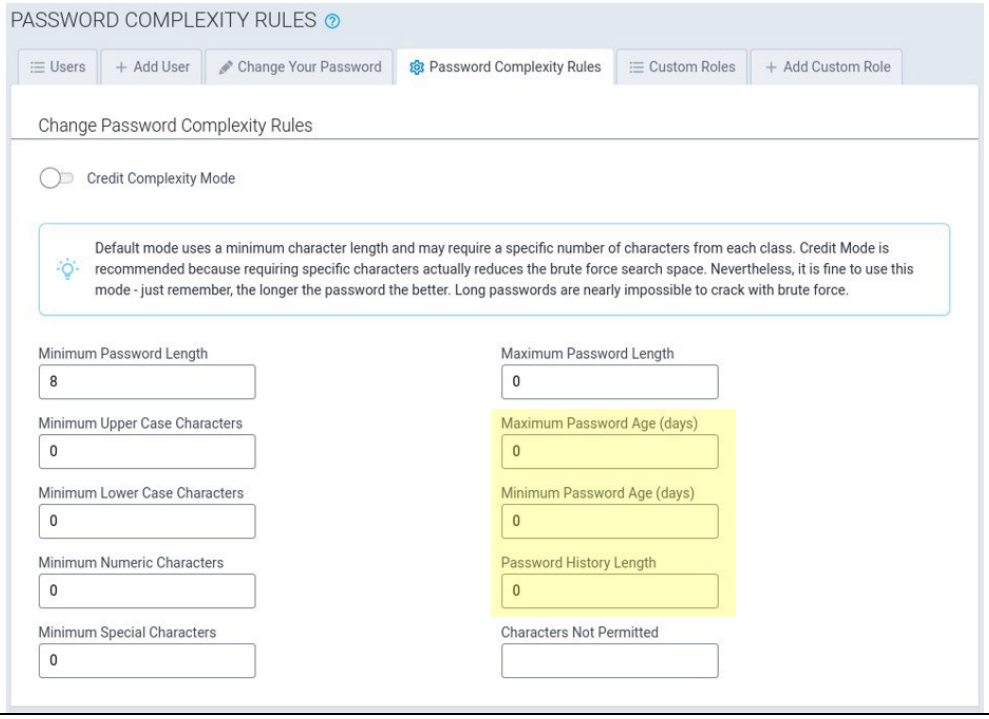
Web Interface – Send and Received SMS • *Send SMS, Sent SMS* and *Received SMS* are combined into a single page • The submenu label is changed to *Send/Received SMS* • *SMS Configuration* and *Send/Received SMS* pages are moved under the *Cellular* main menu • The *SMS* main menu has been eliminated	Enhancement GP-1705 GP-1731 MTX-4579

Operating System Updates (mPower 6.3.0)

Upgrade to OpenSSL 1.1 • mPower 6.3.0 supports OpenSSL 1.1.1q • Previous mPower versions support OpenSSL 1.1.1o	-

LLDP (Link Layer Discovery Protocol) Support
As local area networks expand and include more devices and more types of devices, tools are required to help network administrators locate, monitor and configure network devices
 	
The Link Layer Discovery Protocol (LLDP) is a vendor-neutral link layer protocol used by network devices for advertising their identity, capabilities, and neighbors on a local area network based on IEEE 802 technology, principally wired Ethernet. The LLDP feature allows the network manager to see on the connected switch which device is connected to which port on the switch, how much power is being requested, what the IP address is, etc. Using this information, they can determine where the Conduit is located and, if necessary, remotely disconnect power to the Conduit in case of PoE-powered device.
 	
LLDP Configuration is available under *Setup*. When LLDP is enabled, additional settings are available
• System Name
• System Description
• TX Interval (in seconds)
  ○ LLDP frame transmission interval
  ○ Integer value, range 5 – 32768 seconds
  ○ Default value = 30 seconds
• TX Hold (multiplier of the TX interval)
  ○ The amount of time, as a multiple of the TX interval, that a receiving device holds an LLDP packet before discarding it
  ○ Integer value, range 2 – 10
  ○ Default value = 4
 	
 
 	
	New Feature
	GP-14

Networking & Security (mPower 6.3.0)

Password Complexity - Password Expiration *Password Complexity Rules* page has been updated to include settings for password age and password history length **Password Age** • Maximum Password Age: A password expiration interval is configurable in days. When a user password expires due to the age of the password, the user will be prompted to change their password before their next login • Minimum Password Age: The minimum number of days for which a password cannot be changed **Password Complexity – History Length** The number of previous passwords (including the current password) that will be remembered for a user account before a specific password can be reused 	Feature Enhancement GP-280 GP-1823
Easily Retrieve IPv4 and IPv6 Addresses • New SMS command: #wanips • Overview: One SMS command that can be sent to an mPower device to retrieve all WAN IPv4 and IPv6 addresses available to the device	New Feature GP-1629
Private APN – Incorrect Date and Time • In previous versions of mPower, customers using a private APN can experience issues associated with inaccurate date and time • mPower 6.3.0 has been updated so cellular date and time can be used instead of GPS or a private ntp server	New Feature GP-139

Bug Fixes (mPower 6.3.0)

LoRaWAN - Uplink Packets • In previous versions of mPower, the port value for empty uplink packets is incorrectly reported • In mPower 6.3.0, this issue has been resolved. Port value in Network Server database is set to "0" for empty packets	GP-1867 GP-1887 TS-5113991
LoRaWAN - AU915 Downlink • In previous versions of mPower, AU915 device messages do not include ADRLinkReq in the first downlink • In mPower 6.3.0, this issue has been resolved	GP-1862 TS-5113968
LoRaWAN – mPower LENS API Service • In previous versions of mPower, it was discovered that there was no timeout set for cURL calls using the LENS API. The result is failed calls to LENS • In mPower 6.3.0, this issue has been resolved	GP-1882 TS-5113450
Custom Application Contains Special Characters • In previous versions of mPower, in the web user interface, if the filename for a custom application contains a special character (~!@#$%^&*()_), the application cannot be deleted in the API or the user interface • In mPower 6.3.0, this issue is resolved	GP-1774 MTX-4676
Empty SMS Messages • In previous versions of mPower, if a 0 byte (empty) SMS message is accepted by the device, the system can crash • In mPower 6.3.0, this issue is resolved	GP-1838
Save & Apply Error – Bluetooth Configuration • In previous versions of mPower, error message "Request is not allowed" is presented when Bluetooth Configuration changes are made • In mPower 6.3.0, this issue is resolved	GP-1777 MTX-4683
Bootloader Password • In previous versions of mPower, *Bootloader Password Authentication Status* is displayed as *Not Supported* when it should be *Supported* • In mPower 6.3.0, this issue is resolved	GP-1866 MTX-4780
Bootloader Password • In previous versions of mPower, Bootloader Password Validation fails to set a password • In mPower 6.3.0, this issue is resolved	GP-1873 MTX-4789
Password Complexity Rules • In previous versions of mPower, the *Characters Not Permitted* setting is not properly enforced in the *Default* mode. Users can set a password using characters that the administrative user has identified as *Not Permitted* • In mPower 6.3.0, this issue is resolved. User passwords cannot include characters that the administrator has defined as *Not Permitted*	IN:4612
Debug Console, Silent Mode • In previous versions of mPower, when *Silent Mode* is Enabled, output to the Debug Console should be turned off • In mPower 6.0.X, Debug Console entries are logged even though *Silent Mode* is Enabled • In mPower 6.3.0, this issue is resolved	GP-1878 MTX-4799

Bug Fixes (mPower 6.3.0)

U-Boot Access • In previous versions of mPower, during system boot and system reboot, u-boot is not available when it should be • In mPower 6.3.0, this issue is resolved	GP-1879 MTX-4800
WWAN Support • In previous versions of mPower, the WWAN daemon does not stop properly. This can lead to multiple simultaneous WWAN connections • In mPower 6.3.0, this issue is resolved and only one WWAN is in service	GP-1798 MTX-4702

Known Behaviors (mPower 6.3.0)

Wi-Fi/BT Behavior
In mPower 6.3.0, Wi-Fi/BT firmware is updated to version 2.5.1.11
• Multiple wireless features cannot be enabled concurrently
• Wireless features are exclusively enabled
  ○ Wi-Fi as WAN
  ○ Wi-Fi Access Point
  ○ Bluetooth-IP
  ○ Bluetooth Low Energy
• This behavior was originally reported in mPower 6.0.4
	GP-1881
	MTX-4805

-L6G1 Radio Support In mPower 6.3.0, some standard mPower features are not available in the user interface for the MTCDT-L6G1 CBRS Private LTE models • PPP mode is not supported (WWAN only) • Cellular Authentication is not supported • MTU Packet Size configuration is not supported • 2G/3G is not supported • IPv6 is not supported • SMS is not supported • Cellular radio firmware upgrade is not supported • Modbus slave feature is not supported	-
Ethernet-Only Devices Include Cellular Configuration Settings In mPower 6.3.0, cellular configuration settings are present in the setup Wizard and in the user interface for Ethernet-only devices • Ethernet-only devices do not include a cellular radio, and cellular configuration settings should not be present in the setup Wizard or the user interface • The user can skip these settings when setting up an Ethernet-only device	MTX-4734

Known Behaviors (mPower 6.3.0)

Cellular Time Synchronization – Verizon Wireless Networks • Overview: The cellular radio reports the date with an incorrect year (i.e. 2025 instead of 2023) • Recommendation: Customers that enable Cellular Time Sync should verify that the date set on the device is correct before leaving the feature enabled. An incorrect device date may invalidate the CA and Server certificates and result in connection issues • Devices Impacted: MTCDT-L4G1, MTCDTIP-L4G1 Cellular Radio Firmware Version: EG25GGBR07A08M2G_01.002.01.002 MNO: Verizon Wireless • Fix: Update to a new version of cellular radio firmware version EG25GGBR07A08M2G_30.004.30.004 Tools available to identify cellular radio firmware version: • AT Command: **AT+QGMR** o EG25GGBR07A08M2G_30.004.30.004 • **radio-query --vendorfirmware** EG25GGBR07A08M2G_30.004.30.004	
Custom User Roles – MTCAP2, Ethernet-only Devices In mPower 6.3.0, custom user role configuration includes settings for the following features, even though they are not available on Ethernet-only devices o Wi-Fi as WAN o Wi-Fi Access Point o Cellular o Bluetooth o Serial • Devices Impacted: MTCAP2 devices with Ethernet-only backhaul	-

Deprecations (mPower 6.3.0)

MTCAP-LSP3, MTCDT-LSP3 Support • LTE Category 1 -LSP3 radio (Telit LE910C1-NS) support is deprecated from mPower 6.3.0 • For use on Sprint networks	GP-1839
MTCDT-LVW3, MTCDTIP-LVW3 • LTE Category 1 -LVW3 radio (Telit LE910-SV1) support is deprecated from mPower 6.3.0 • For use on Verizon networks	
Telnet Server Support • Support for Telnet Server is deprecated from mPower 6.3.0 and device API • Telnet is not a secure protocol	GP-1787 MTX-4691
WEP (Wired Equivalent Privacy) Security Protocol • Support for WEP protocol is deprecated from mPower 6.3.0 • WPA-PSK, WPA2-PSK, and BPA/WPA-PSK are still available	GP-1986

Deprecations (mPower 6.3.0)

Legacy API Commands — GP-1788, MTX-4692

Legacy API commands, that are no longer used by recent mPower versions, are deprecated from mPower 6.3.0

/api/btCommand/pair	Bluetooth PAN
/api/btCommand/remove	Bluetooth PAN
/api/btCommand/accept_pairing	Bluetooth PAN
/api/devices	Legacy MultiConnect rCell
/api/gccp	Legacy MultiConnect rCell
/api/internal	Internal use
/api/powerManagement	Legacy MultiConnect rCell

Schedule (mPower 6.3.0)

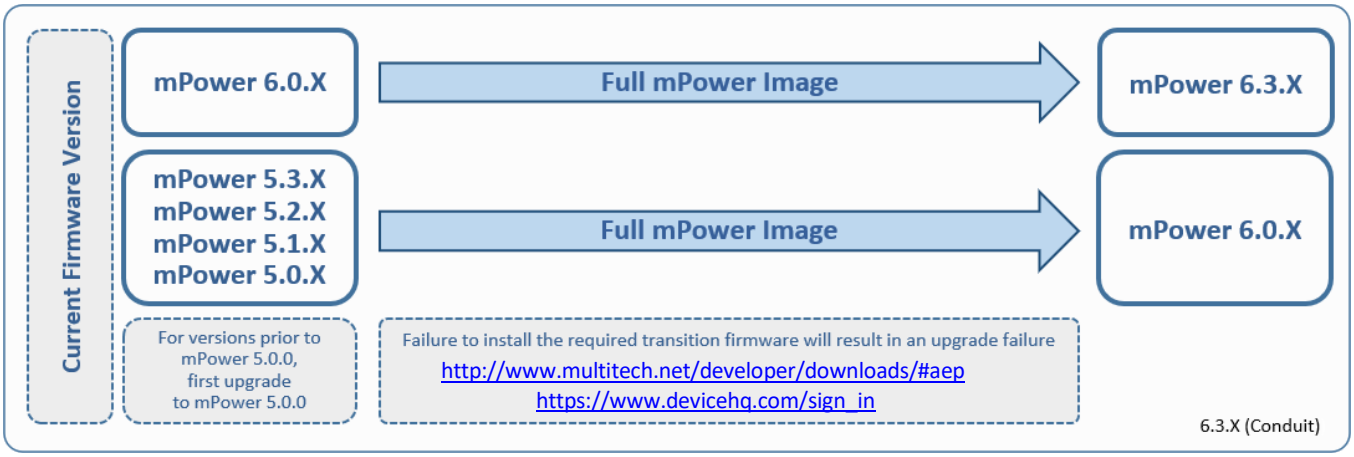
- Downloadable Versions
  - mPower 6.3.0 Availability: May 2023
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: May 2023
- Manufacturing Updates:
  - Download only
  - Devices that ship from MultiTech will not be impacted

Models Impacted (mPower 6.3.0)

- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTC DT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
    Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
    Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1
- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTAC-L ORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSER-D CE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually an in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3
  - Hardware Version: MTCAP-0.3
- MultiTech Conduit® AP Access Point
  - MTCAP-868, MTCAP2-868, MTCAP-915, MTCAP 2-915
  - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
  - Hardware Version: MTCAP-0.0, MTCAP-0.1, MTCAP-0.2

Upgrade Process (mPower 6.3.0)

To install mPower 6.3.0, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCDT, MTCDTIP)
- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.0.4 Changelog and Overview

Released: January 2023
Status: Downloadable

Updates in mPower 6.0.4, from mPower 6.0.2

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features & Enhancements (mPower 6.0.4)

Hardware Support	
MTCDT-247A, MTCDTIP-267A Devices Only • In mPower 6.0.4, WiFi/BT firmware is updated to version 2.5.1.11 • Release Notes: https://github.com/SiliconLabs/RS911X-nLink-OSD/commit/591aae04861c6c7ab374e03135be5d58ffb8c62f	Enhancement GP-1840
LoRaWAN Enhancement - Reset GPS after PPS Reconnection • mPower 6.0.4 detects when PPS is lost and when PPS returns, the gateway GPS is reset • In previous versions of mPower, loss of PPS results in invalid GPS timestamps attached to received packets • Resetting the gateway GPS upon PPS reconnect restores the correct behavior	Enhancement GP-1825 GP-1826 GP-1827
MQTT Bridge Password • In mPower 6.0.4, MQTT bridge password allows spaces • In previous versions of mPower, MQTT bridge password did not allow spaces • Some brokers (including Microsoft Azure IoT Hub) support passwords with spaces	Enhancement GP-1854

Networking & Security (mPower 6.0.4)

IP Defense - DoS (Denial of Service) Prevention • In mPower 6.0.4, DoS prevention is disabled by default • In previous versions of mPower, DoS prevention was enabled by default	Enhancement GP-1815 GP-1844 MTX-4725

Bug Fixes (mPower 6.0.4)

LoRaWAN Packet Table • In previous versions of mPower, LoRaWAN, Packets, Packet Details were not being displayed properly • This issue has been fixed in mPower 6.0.4	User Interface TS-5111718

Known Behaviors (mPower 6.0.4)

Wi-Fi/BT Behavior
• With the update to WiFi/BT firmware version 2.5.1.1, wireless features are exclusively enabled
  ○ Wi-Fi as WAN,
  ○ Wi-Fi Access Point
  ○ Bluetooth-IP
  ○ Bluetooth Low Energy
• Multiple wireless features cannot be enabled concurrently
	GP-1840

Schedule (mPower 6.0.4)

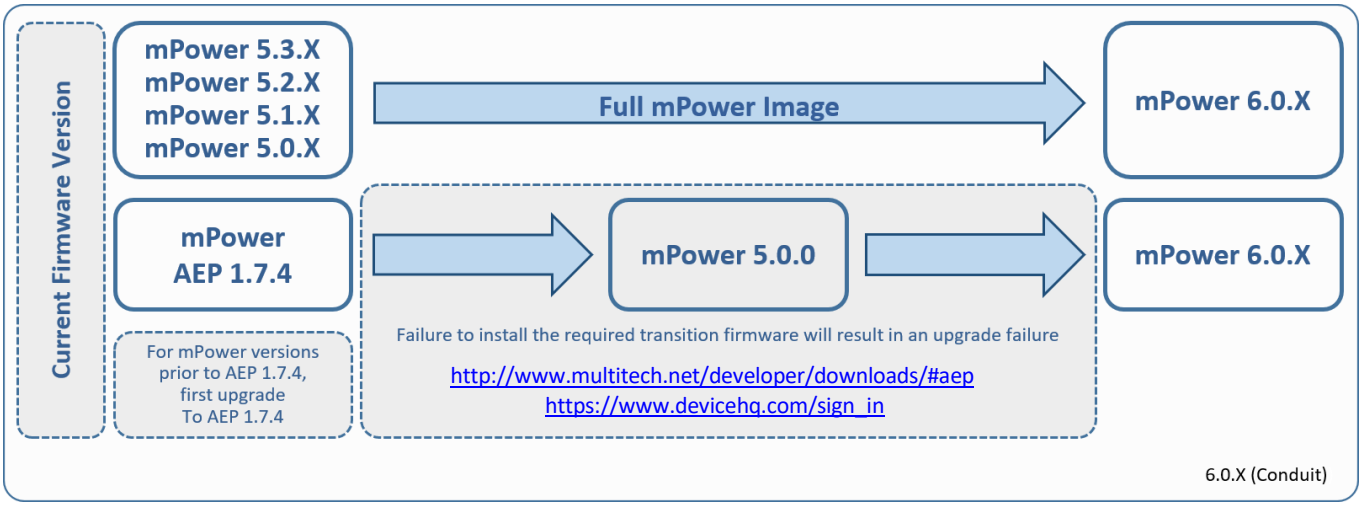
- Downloadable Versions
  - mPower 6.0.4 Availability: January 2023
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: January 2023
- Manufacturing Updates:
  - Download only
  - Devices that ship from MultiTech will not be impacted
- Differential Images:
  - Differential mPower updates are not available for mPower 6.0.4

Models Impacted (mPower 6.0.4)

- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTCDT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
  - Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
  - Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1
- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTAC-LORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSER-DCE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3

Upgrade Process (mPower 6.0.4)

To install mPower 6.0.4, the Conduit gateway must be upgraded to mPower 5.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCDT, MTCDTIP)
- Hardware version (MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.4)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.0.2 Changelog and Overview

Released: October 2022
Status: Shipping

Updates in mPower 6.0.2, from mPower 6.0.1

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

Bug Fix (mPower 6.0.2)

MTCDTIP2 Devices Only • In mPower 6.0.1, it was discovered that after upgrading the MTCDTIP2 devices from mPower 5.3.8 to mPower 6.0.1, LoRa Packet Forwarder and Basic Station modes are not available in the LoRaWAN Network Settings • In mPower 6.0.2, this issue is resolved	TS-5113039

Schedule (mPower 6.0.2)

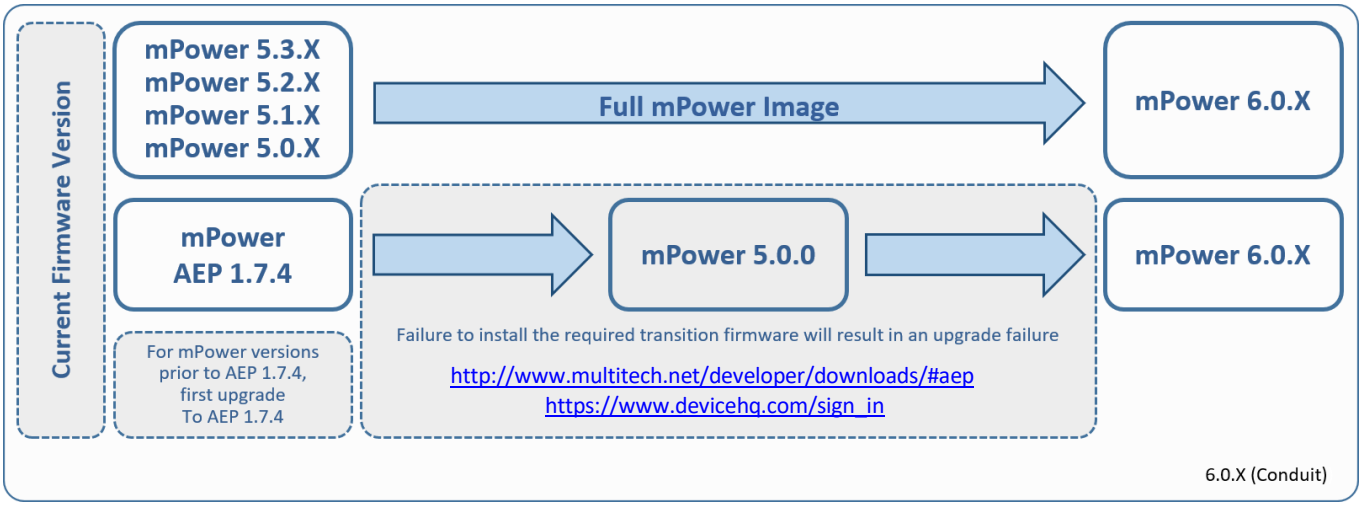
- Downloadable Versions
  - mPower 6.0.2 Availability: October 2022
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: October 2022
- Manufacturing Updates:
  - Devices that ship from MultiTech starting in October 2022 will include mPower 6.0.2
  - See part numbers impacted for details
- Differential Images:
  - Differential mPower updates are not available for mPower 6.0.2

Models Impacted (mPower 6.0.2)

- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3

Upgrade Process (mPower 6.0.2)

To install mPower 6.0.2, the Conduit gateway must be upgraded to mPower 5.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Differential file updates are also available. Visit https://support.multitech.com/ to create a support case and request access to differential file updates.

Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCAP, MTCDT, MTCDTIP)
- Hardware version (MTCAP-0.0, MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.2)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.0.1 Changelog and Overview

Released: September 2022
Status: Shipping September 2022

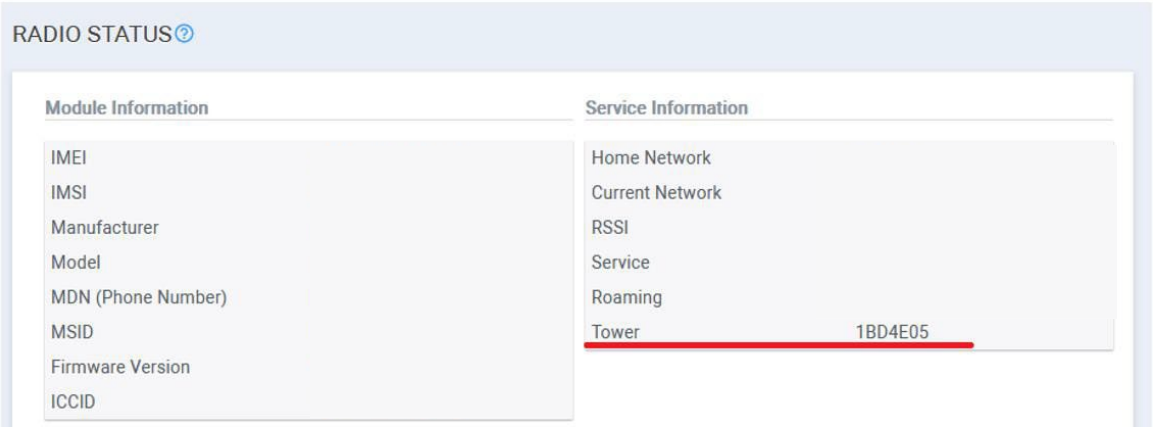
Updates in mPower 6.0.1, from mPower 6.0.0

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

Critical Bug (mPower 6.0.1)

MTCDTIP2 Devices Only • After being upgraded from mPower 5.3.8 to mPower 6.0.1, LoRa Packet Forwarder and Basic Station modes are not available in the LoRaWAN Network Settings • In mPower 6.0.2, this issue is resolved	TS-5113039

New Features and Enhancements (mPower 6.0.1)

Software and Services	
LoRa Network Server – Database Backup • When network time is not set or is lost, LoRa database backup will load the wrong files and a reboot is required. • In mPower 6.0.1, timestamps are not required for database backup and loading. The database backup also writes two copies of each back up interval to provide redundancy	Enhancement TS-5111635
Hardware Support	
RADIO STATUS Page • Tower ID is now presented in the Service Information section • In previous versions of mPower, the Tower ID was presented on the dashboard page, under Cellular 	Enhancement GP-1657 MTX-4547
Verizon Wireless – Updated APN Behavior Devices impacted: MTCAP-LNA3, MTCDT-L4N1, MTCDTIP-L4N1 models When the MNO is defined as Verizon, the SMS command **#apn** returns the message: *APN is obtained automatically from the Verizon network*	Enhancement GP-1596 MTX-4489

New Features and Enhancements (mPower 6.0.1)

Cellular Configuration – Dial-on Demand — Enhancement MP-1606 MTX-4500

- The wording of the tooltip for the dial-on-demand label has been updated
- Tooltip in mPower 6.0.1

  *Enable or disable Dial-on-Demand. If Enabled, the device will bring up and maintain a cellular connection while activity is detected on the **Cellular** interface*
- Tooltip in earlier versions of mPower

  *Enable or disable Dial-on-Demand. If Enabled, the device will bring up and maintain a cellular connection while activity is detected on the **LAN** interface*

User Interface

Web User Interface, status definition updates — Enhancement GP-913 MTX-4189 GP-1595

Updated Status Definition in mPower 6.0.1	Previous Status Definition
DEVICE INFORMATION Page - Cellular WAN State	
Link is up	PPP Link is up
Link is down	PPP Link is down
In process of establishing link	In process of establishing PPP link
Cellular is not running	PPP is not running
SERVICE STATISTICS Page - TCM/ICMP Keep Alive	
IDLE, since link is not up	IDLE, since PPP link is not up
CELLULAR STATISTICS Page - Cellular Link	
Link is up	PPP Link is up
Link is down	PPP Link is down
In process of establishing link	In process of establishing PPP link
Cellular is not running	PPP is not running
NETWORK INTERFACE CONFIGURATION Page - Network Type	
Cellular PPP	PPP
Cellular WWAN	PPP
NETWORK INTERFACE CONFIGURATION – IPv4 Settings - Mode	
Auto	PPP
Auto – Addressed Only	PPP – Addresses Only

- Associated HELP files have also been updated to reflect these updates
- All other Cellular WAN status are unchanged

Web Interface, CELLULAR STATISTICS Page, terminology change — Enhancement GP-1568 MTX-4460 GP-1595

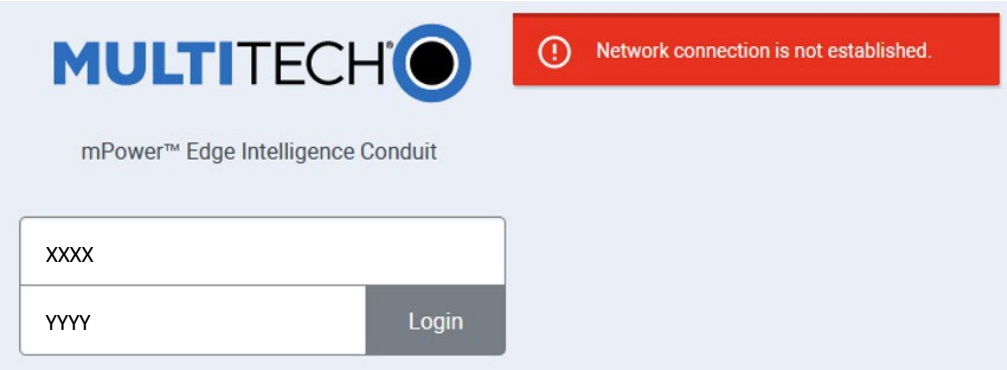
Updated Definition in mPower 6.0.1	Previous Definition
CELLULAR STATISTICS Page - Cellular	
Cellular Trace	PPP Trace

- If cellular mode is PPP, Cellular Trace is only available
- Associated HELP files have also been updated to reflect these updates
- If cellular mode is WWAN, Cellular Trace is hidden

Web Interface, CELLULAR STATISTICS Page — Enhancement GP-1568 MTX-4460

- Cellular logs pane is added and always displayed, regardless of cellular mode (PPP or WWAN)
- The cellular logs pane includes all logs related to cellular functionality

New Features and Enhancements (mPower 6.0.1)

Web Interface, Login Page • During the login process, if connection to the device is lost, a new message is displayed *Network connection is not established.* 	Enhancement GP-1581 MTX-4473
Username and Password – Autocomplete is Disabled • Many configuration pages within mPower require username and password information • Previous versions of mPower allowed this information to be filled in automatically when the user remembers the login credentials. • In mPower 6.0.1, autocomplete is disabled and username and password fields must be completed in full by the user • NOTE: this behavior differs based on web browser. Some web browsers will ignore these parameters and allow autocomplete to occur	Enhancement GP-1582 MTX-4474
User Interface • In earlier versions of mPower, LoRa device CSV file uploads generate a cryptic error message when the CSV file ends with an empty line • In mPower 6.0.1, CSV files that end with an empty line will no longer generate this message	Enhancement TS-5112111

Operating System Updates (mPower 6.0.1)

Upgrade to OpenSSL 1.1
• mPower 6.0.1 supports OpenSSL 1.1.1o
• Previous mPower versions supported OpenSSL 1.1.1n
• Additional information is available
  ○ MultiTech Security Advisories
  ○ CVE-2022-1292
	GP-1600
	MTX-4493

Update to Eclipse Mosquitto MQTT broker • mPower 6.0.1 supports Eclipse Mosquitto 1.6.14 • Previous mPower versions supported Eclipse Mosquitto 1.5.1	TS-5111321

Networking and Security (mPower 6.0.1)

Continuous Ping • In previous mPower versions, the Continuous Ping feature returns unexpected ping results • In mPower 6.0.1, this has been resolved and mPower returns Ping results in the correct format.	GP-1660 MTX-4549
Certificate Validation • In previous mPower versions, X.509 certificate imports are failing • OpenSSL is generating to PKCS#8 when generating private keys. mPower expects PKCS#1 • This conflict means private user keys are not validated in mPower • In mPower 6.0.1, this issue has been resolved. mPower 6.0.1 accepts certificates with PKCS#1 and PKCS#8 keys	GP-1590 GP-1602 MTX-4505 TS-5111455
SNMP Configuration – Add IP Address • In previous versions of mPower, when SNMP Server Configuration is Enabled, and in incorrect mask value is entered in the **ADD IP ADDRESS** window, the window closes and an error message is returned • In mPower 6.0.1, when an incorrect mask value is entered, the window remains open and the message “Invalid Network Mask” is displayed	GP-1645 MTX-4536
DHCP Server Interface • In previous versions of mPower, when a network interface is excluded from br0 and had its own DHCP server configured, the DHCP server remains enabled when the interface is added back to the br0 • In mPower 6.0.1, a yellow warning message is displayed on the **NETWORK INTERFACES CONFIGURATION** window 	GP-1654 MTX-4542

Bug Fixes (mPower 6.0.1)

Failure to upload and apply a configuration file
• In previous versions of mPower, mPower failed to upload and apply a configuration file when the filename includes a space character
• The file is not considered valid
• Behavior was exhibited in:
  ○ Upload X.509 CA Certificates
  ○ Install Custom Application
  ○ Upload Device Configuration file
  ○ Package Management – Upload Package
• This issue has been resolved in mPower 6.0.1
	GP-1574
	MTX-4465

Session timeout interrupts upgrades in Web Interface
• In previous versions of mPower, mPower upgrades and cellular radio firmware upgrades are not completed when the session reaches the timeout period (5 minutes by default)
• This issue has been resolved in mPower 6.0.1
  ○ The session does not expire while the mPower file or cellular radio firmware file is being uploaded, when the session timeout is 10 minutes or less
  ○ If the file upload process takes longer than 10 minutes, the process is cancelled due to the API timeout
	GP-1456
	MTX-4366

WAN Failover Settings not applied properly • This issue was originally identified in mPower 6.0.0 • In the Web Interface, WAN CONFIGURATION page, Active monitoring settings (Hostname, ICMP Count) are made by the user, but not properly applied • This issue has been resolved in mPower 6.0.1	GP-1591 MTX-4484

Client Authentication, Custom Web Server Certificate Failures
• In previous versions of mPower, failures arise when custom web server certificates do not end with a line
  ○ Incorrect certificate example: (/var/config/server.pem)
  ○ Correct certificate example: (/var/config/server.pem)_
• This issue has been resolved in mPower 6.0.1
	GP-1593
	MTX-4485

WWAN Mode • In previous versions of mPower, while in WWAN mode, when a user disables Data Receive Monitor, submits, saves, and applies the changes, the **ppp-rx-monitor process** does not stop. • This issue has been resolved in mPower 6.0.1	GP-1628 MTX-4519
WWAN Mode • In previous versions of mPower, while in WWAN mode, when a user disables **ICMP/TCP Check**, submits, saves, and applies the changes, the **pppcheck** process is still present in the list • This issue has been resolved in mPower 6.0.1	MTX-4481 TS-5110508

Bug Fixes (mPower 6.0.1)

TCP Mode, WAN Failover • In previous versions of mPower, WAN Failover does not work in TCP mode. • No TCP requests corresponding to the configured settings can be seen on the WAN interface • The device interprets that WAN does not have an Internet connection and does not switch to it in case of failover • This issue has been resolved in mPower 6.0.1	GP-1658 MTX-4548
Debug Options • In mPower 6.0.0, Syslog does not work properly when reset to user-defined default • The remote syslog server does not receive logs from devices • This issue has been resolved in mPower 6.0.1	GP-1664 MTX-4551 TS-5111956
Uploading Custom Applications • In previous versions of mPower, the form used to upload the custom applications includes information from a previous upload request • In mPower 6.0.1, this issue has been resolved. The upload custom application form is empty when the customer starts the upload process	GP-1631 MTX-4521
Web Interface - LoRa Configuration – Save and Apply • In previous versions of mPower, the **Save and Apply** button was not working as intended. • After configuration changes are complete, users click **Submit**, and the **Save and Apply** button turns red after a short delay. • In mPower 6.0.1, when a user clicks **Submit,** the **Save and Apply** button turns red immediately, indicating that one additional step is needed to complete the process	GP-1637 MTX-4524
Customizing the User Interface – Support Information • The web interface can be customized to display customer-specific support information on a **CONTACT INFORMATION** window • The administrator can customize the user interface and this information can include a custom URL and descriptive text description • In previous versions of mPower, if the text field is empty, the custom URL is not displayed on the **CONTACT INFORMATION** window • In mPower 6.0.1, when the text field is empty, the custom URL is displayed on the **CONTACT INFORMATION** window	MTX-4537
LoRa Network Server • In earlier versions of mPower, empty downlinks were sent for each uplink • This issue has been resolved in mPower 6.0.1	-

Known Behaviors (mPower 6.0.1)

User Interface (LoRaWAN) • In mPower 6.0.1, LoRaWAN, Packets, Packet Details are not being displayed properly • This issue has been fixed in mPower 6.0.4	TS-5111718

Schedule (mPower 6.0.1)

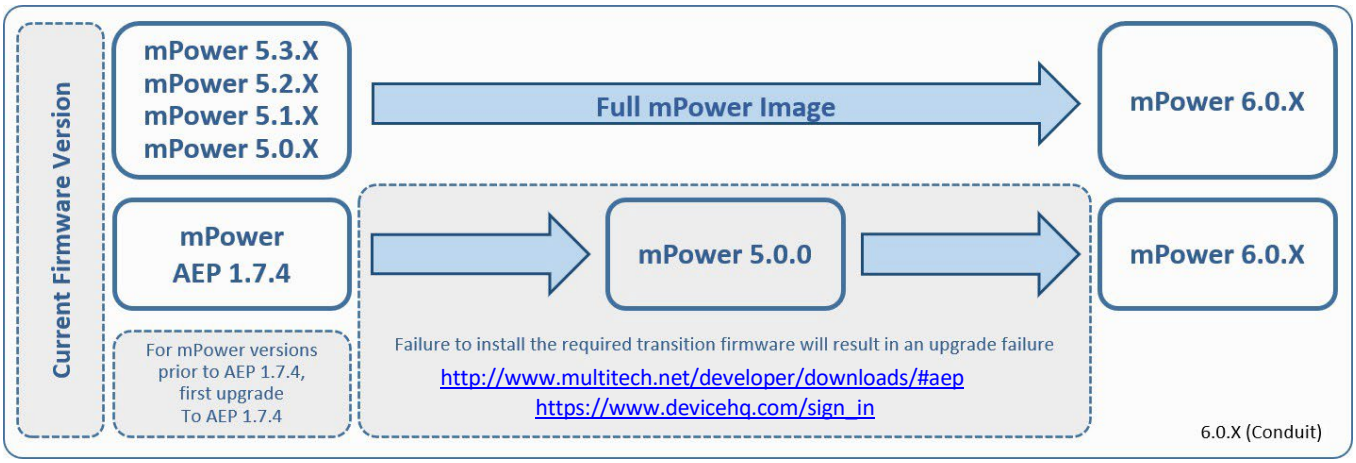
- Downloadable Versions
  - mPower 6.0.1 Availability: May 2022
    - Visit http://www.multitech.net/developer/downloads/
  - DeviceHQ: May 2022
- Manufacturing Updates:
  - Devices that ship from MultiTech starting in September 2022 will include mPower 6.0.1
  - New devices will begin shipping with mPower 6.0.1 immediately, including:
    - Conduit gateways with new MTAC-003 LoRa Gateway Accessory Cards (MTCDT .R3 models)
    - Conduit base stations with new MTAC-003 LoRa Gateway Accessory Cards (MTCDTIP .R3 models)
  - See part numbers impacted for details
- Differential Images:
  - Differential mPower updates are not available for mPower 6.0.1

Models Impacted (mPower 6.0.1)

- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTCDT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
  - Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
  - Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1
- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTAC-LORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSER-DCE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3
  - Hardware Version: MTCAP-0.3
- MultiTech Conduit® AP Access Point
  - MTCAP-868, MTCAP2-868, MTCAP-915, MTCAP2-915
  - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
  - Hardware Version: MTCAP-0.0, MTCAP-0.1, MTCAP-0.2

Upgrade Process (mPower 6.0.1)

To install mPower 6.0.1, the Conduit gateway must be upgraded to mPower 5.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Differential file updates are also available. Visit https://support.multitech.com/ to create a support case and request access to differential file updates.

Using an old configuration file on new Conduit devices may result in the new devices becoming non-functional. To successfully update new Conduit devices, create separate configuration templates for each type of Conduit device:

- Hardware model (MTCAP, MTCDT, MTCDTIP)
- Hardware version (MTCAP-0.0, MTCDT-0.1, MTCDT-0.2, MTCDTIP-0.0, MTCDTIP-0.1)
- Cellular radio (-L4G1, -L4N1, -L4E1)
- mPower version (mPower 5.3.7, mPower 5.3.8s-s1, mPower 6.0.0)

When upgrading a device fleet:

1. Upgrade the mPower version on one device
2. Modify the user-specific configuration settings
3. Perform in-house testing and adjust settings if necessary
4. Use the newly developed configuration file as part of field updates when the new version of mPower is widely deployed

mPower 6.0.0 Changelog and Overview

Released: May 2022
Status: Retired September 2022. Replaced by mPower 6.0.1

Updates in mPower 6.0.0, from mPower 5.3.X

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process

New Features and Enhancements (mPower 6.0.0)

Software & Services	
Updated messaging when partial configuration is applied by DeviceHQ • In mPower 6.0.0, when a device checks into DeviceHQ and performs a partial configuration upgrade, the system displays a status message on Web UI: **Partial configuration has been applied.** **The system is going down for reboot now. (DATE/TIME)** • In previous mPower releases, the Web UI does not show a message	Enhancement GP-418 MTX-4140 IN003879

Multiple LoRa User Interface and API Changes
• Added Duty-cycle info to Gateways page if ISRAEL plan is selected or duty-cycle is enabled
• Added Default Device Profile for local join server on Key Management page
• API Default packet forwarder GW SOURCE for EUI to hardware
  ○ The web page would not load an EUI unless the Basic Settings were shown
• Add delete all end-device and session records button
• Add option to append csv/json device records to the current list on key management page
• Add button to delete all items from downlink queue for all devices
• API options to get a single device or session record use DevEUI
  ○ /api/lora/devices/00-11-22-33-44-55-66-77
  ○ /api/lora/sessions/00-11-22-33-44-55-66-77
• Added option for settingmulticastGroupID for operations
• Add option for max FUOTA packet size
  ○ Field in Network Settings > Datarate settings
  ○ Field in Operations > Show Settings section
	Enhancement

LoRa Firmware Update Over The Air (FUOTA) Updates • LoRa FUOTA Version 1.0.17 • Added an option for maximum packet size to control fragmentation • Added an option for setting multicast group ID	Enhancement

New Features and Enhancements (mPower 6.0.0)

LoRa Network Server Changes
• LoRa Network Server Version 2.5.37
• Add setting for max FOTA packet size (maxRx2PacketSize)
• Add a command to delete all queued downlinks
• Add a command to get single device or session by EUI
• Add a command to delete all devices and sessions
• Add a command to add list of devices or sessions
• Publish lora/<APP-EUI>/<DEV-EUI>/moved topic when device is deleted by command, from user interface or DeviceHQ
  ○ Message contains list of GW-EUI
• Database backup to tar.gz
  ○ Backup to RAM and move into /var/config directory
  ○ Reduce database in /var/config/ to one-fifth
  ▪ 2MB database takes 400K with redundant backup files
• Activate Tx Param controller for LW102 AU915 and AS923 devices on Join
• LENS: published moved MQTT messages when check in update moves devices
• LNS version 2.5.37 added fields to the “up” mqtt messages
  ○ name – device name
  ○ product_id – device product ID
  ○ serial_number – device serial number
  ○ hardware_version – device hardware versionm
  ○ firmware_version – device firmware version
	Enhancement

LoRa Default App Changes
• MQTT QoS and Persist settings
• MQTT Resubscribe on connect
• Add ClientID configuration option
• Add subscriptions for downlinks from remote broker
  ○ lorawan/gweui/deveui/down
  ○ lorawan/gwuuid/deveui/down
• Add subscription for moved devices to publish to remote broker
• lorawan/appeui/deveui/moved
	Enhancement

LoRa Packet Forwarder Changes • Packet Forwarder Version 4.0.17 • LoRa Gateway Version 5.0.11 • Add hardware reset on start-up and restart • Support added for two MTAC-LORA-H-868 or two MTAC-LORA-H-915 LoRa gateway accessory cards	Enhancement
LoRa: Semtech LoRa Basics™ Station Changes: • Updated to version 2.0.6-5 • AU915 Channel Plan – Default transmit power changed to 30 dBm • 16 Channel support added – Ability to manage MTCDT and MTCDTIP devices with two MTAC gateway accessory cards as one 16-channel device on The Things Network	Enhancement GP-1459 GP-1270 TS-5107644

New Features and Enhancements (mPower 6.0.0)

Hardware Support	

New hardware versions are available for Conduit devices
Overview: mPower 6.0.0 identifies the Conduit hardware version and only allow users to download approved mPower versions, preventing a mismatch between hardware and software
Feature: Downgrade Protection
• mPower 6.0.0 includes a means of identifying MTCDT (MTCDT-0.2) and MTCDTIP (MTCDTIP-0.1) devices with substitute components and limits the version of mPower that customers can use
  ○ Devices with substitute components can only be used with mPower 5.3.7 and later
  ○ Future mPower versions will not allow MTCDT-0.2 and MTCDTIP-0.1 devices with substitute components to downgrade to versions of mPower prior to mPower 5.3.7
• Error Messages: If a user attempts to downgrade a device with substitute components to an incompatible firmware version, an error message will be displayed:
  ○ Downgrade using API Command:
  "Firmware check failed. Invalid firmware version for [MTCDT-0.2] hardware."
  "Firmware check failed. Invalid firmware version for [MTCDTIP-0.1] hardware."
  ○ Downgrade using DeviceHQ:
  "Software check failed. Invalid firmware version for [MTCDT-0.2] hardware."
  "Software check failed. Invalid firmware version for [MTCDTIP-0.1] hardware."
• MTCAP, MTCAP2, and MTCDTIP2 devices do not include downgrade protection
• This feature was originally introduced in mPower 5.3.7
	New Feature
	GP-1431
	MTX-4299
	GP-1385

MultiTech mCard™ Gateway Accessory Cards (MTAC Series)
• Support for new MTAC LoRa Accessory Cards
  ○ MTAC-003E00 - 868 MHz LoRa Accessory Card, Antenna Sold Separately
  ○ MTAC-003U00 - 915 MHz LoRa Accessory Card, Antenna Sold Separately
• Updated features include:
  ○ Network-based sensor location using fine timestamping and Time Difference of Arrival (TDOA) from at least three gateways
  ○ Additional spreading factors (SF5 – SF12) allow for optimized network performance, increased LoRa traffic (especially in dense LoRa networks), and improved end-device battery performance
• Reference Known Behaviors for information on using multiple MTAC LoRa Accessory Cards in MTCDT devices
• MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
	New Feature
	-

New Features and Enhancements (mPower 6.0.0)

Cellular radio improvements for devices used on the AT&T network
Feature: Disabled voice support
• mPower 6.0.0 disables voice support for new voice-capable radios in an AT&T-compatible configuration
• The change affects the following list of AT&T-compatible voice-capable cellular radios:
  ○ -L4N1 radios with the "AT&T-compatible" firmware image
  ○ -L4G1 radios with AT&T SIM cards installed
  ○ -LNA7 radios with AT&T SIM cards installed
• If the system detects that the modem is -L4N1, -L4G1, or -LNA7 and the carrier is AT&T, it checks for the voice-related configuration in the modem. If the voice support is enabled and SMS-only mode is disabled, the system executes AT commands to disable voice support and enable SMS-only mode
• UI changes
  ○ If the voice support is disabled, the Wake Up On Call feature does not support the Wake Up settings "On Caller-ID" and "On Ring."
  ○ The system displays a message if one of these settings is enabled when user saves changes in the Wake Up On Call configuration
On Ring and On Caller ID options cannot be enabled in the Wake Up On Call configuration as voice calls are not supported by your carrier
• The radio-query has a new option (--voice-support) that allows the user to get the current voice support settings set in the cellular radio
  ○ radio-query --voice-support shows the information in the following format:
  {
  "smsOnly" : "Indicates that registration flag is enabled or not : BOOL"
  "voiceEnabled" : "Indicates that voice support is enabled or not : BOOL"
  }
• The **radio-cmd** has a new option (**--disable-voice-support)** that disables support of voice calls. It accepts no additional parameters and returns "0" on success and "1" on failure.
  ○ Usage:
  root@mtcdt:/var/config/home/admin# radio-cmd –disable-voice-support
  Success
• There is no command to enable voice support. To enable voice support, the user shall use the appropriate AT commands
	New Feature
	GP-1364
	MTX-4206
	GP-1390
	MTX-4251

Serial Port Configuration • Models Impacted: MTCDT with MTAC-MFSER-DTE or MTAC-MFSER-DCE Gateway Accessory Card • Device is configurable to one of the following protocols: RS-232, RS-485 (half-duplex), or RS485 (full duplex) • If RS-485 is selected, the checkbox **RS-485 Termination** is shown. RS-485 termination should be enabled if this is the first or the last device in the chain	New Feature GP-1178 MTX-3995 MTX-4337

New Features and Enhancements (mPower 6.0.0)

UXPF utility upgrade • Utilities used to upgrade Telit radio firmware (v.1.7.2-0) • Models Impacted: MTCAP-L4E1, MTCAP-LNA3, MTCDT-L4E1, MTCDT-LAT3, MTCDT-L4N1, MTCDTIP- L4E1, MTCDTIP-L4N1 http://www.multitech.net/developer/software/mlinux/using-mlinux/using-uxfp-to-upgrade-telit-firmware/	Enhancement GP-1079 MTX-4037
Fieldbus Protocols	
Updates to Modbus slave feature • Modbus Slave feature is updated in mPower 6.0.0 to use the generic implementation for all band-related queries • This enables future support of new cellular radios • For Modbus query information: http://www.multitech.net/developer/software/mtr-software/mtr-modbus-information/	Enhancement GP-862 MTX-4190
Modbus RTU/TCP and Serial-IP Improvements Overview: Setting improvements for Modbus RTU/TCP Gateway and Serial-IP, allows configuration of the Serial Port so the Serial Port can be used by other features such as GPS • Mode dropdown is added to the General Configuration pane. It allows users to enable one of the following features: ○ Disabled (default). Serial-IP and Modbus RTU/TCP Gateway are disabled ○ Serial-IP ○ Modbus RTU/TCP Gateway ○ Serial-IP and Modbus RTU/TCP Gateway cannot work simultaneously • To use Modbus Gateway, check Protocol under IP Pipe and select SSL/TLS ○ Modbus RTU slave is connected to the Serial Port and a remote Modbus TCP Master ○ Modbus Gateway application works as a translator between Modbus RTU (slave) and Modbus-TCP (master) devices ○ Without Modbus Gateway enabled, the Serial-IP feature simply passes raw data between the serial DB9 interface and the socket representing the TCP connection in the system to a configured remote device • When the Modbus Gateway is enabled, its application runs in the system. The application works as a translator converting between the Modbus-TCP and Modbus RTU protocols. The Modbus Gateway passes data between an RTU connected to the serial port and a Modbus TCP remote client/server	Enhancement GP-1432 MTX-4301
User Experience	
Material Design Icons Simplify the User Interface • Material design icons are added throughout the user interface • Material design icons are a set of universal icons used to improve usability and simplicity • Additional Information: https://materialdesignicons.com/	Enhancement GP-1362 MTX-4201
Updated Product Images • Updated product images added to the First-Time Setup Wizard and Support Page	Enhancement GP-1371 MTX-4217

Operating System Updates (mPower 6.0.0)

Updated Yocto Version • Yocto version updated to Dunfell (version 3.1). • Previous versions of mPower used Yocto Thud (version 2.6)	GP-1322 MTX-4162
Updated Linux Kernel • Linux kernel updated to version 5.4 • Previous versions of mPower used Linux kernel v4.9.240	-
Updated Python • Python updated to version 3.8.11 • Previous versions of mPower used Python 2.7	GP-1224 MTX-4164
DeviceHQ/Node-RED Custom Application ▪ mPower 6.0.0 does not include support for the DeviceHQ/Node-RED Custom Application ▪ Native support for Node-RED was deprecated in mPower 5.3.3 ▪ For details on other methods to create custom applications, see creating a custom application	Deprecation -
RF Survey • The RF Survey is not available for LTE devices and is removed from mPower 6.0.0 • **Page 404** is displayed when trying to access the page using the direct link: /rf_survey	Deprecation GP-1444 MTX-4321

Networking and Security (mPower 6.0.0)

IP Masquerading The IP Masquerading feature allows users to enable or disable IP Masquerading for WAN interfaces of the device • Main points ○ IP Masquerading feature can be used with WAN interfaces only ○ IP Masquerading is enabled by default. When IP Masquerading feature is enabled, the device performs IP address translation of client network traffic to the corresponding WAN interface ○ When IP Masquerading feature is disabled, the device passes client network requests unchanged to the corresponding WAN interface • API Changes ○ api/ni/nis: “wanMasquerade” option is added for each network interface	New Feature MTX-4104
Remote Syslog Feature Enhancement: TCP and SSL/TLS support • New settings are implemented for the Remote Syslog feature: ○ TCP Protocol support ○ SSL/TLS Protocol support ○ Configurable Port • The **Hostname** read-only field is added to the Remote Syslog pane. The hostname value is a part of log entries that are transferred to the remote Syslog Server. The **hostname** value can be configured in the **Hostname Configuration** pane on the **Status | Global DNS** page • API Changes ○ api/syslog ○ api/help/syslog ○ api/secureprotocols/rsyslogd	New Feature GP-869 MTX-4178 GP-1365 MTX-4205

Networking and Security (mPower 6.0.0)

Support 802.1X authentication on the Ethernet interface(s)

New Feature
GP-355
GP-1328
MTX-3053
MTX-4119
MTX-4170

- 802.1X Authentication feature is available for Ethernet network interface (Eth0) if it is not in the Bridge (BR0). For other network interfaces, including Bridge (BR0), this feature is not available and is hidden on Web UI
- The 802.1X Authentication settings depend on the Authentication Method. By default, the Authentication Method is NONE
- The system supports the following authentication methods:
  - EAP-PWD
  - EAP-TLS
  - EAP-TTLS
  - EAP-PEAP

The following settings are available and depend on the Authentication Method:

Setting	Description
Authentication method	Type of the authentication
Username	Identity (user name) to authenticate the user in the inner (phase 2) authentication
Password (not used in EAP-TLS)	The secret string to be used for EAP-PWD authentication
Anonymous ID	Anonymous identity to authenticate the user in the outer (phase 1) authentication
CA Certificate (not used in EAP-PWD)	X.509 Certification Authority certificate
Domain Match (not used in EAP-PWD, optional)	Domain substring for server certificate validation
Subject Match (EAP-TLS only, optional)	Subject substring for server certificate validation
Client Certificate (EAP-TLS only)	X.509 client certificate
Private Key (EAP-TLS only)	Private key of the client
Private Key Password (EAP-TLS only)	Password to decrypt the private key
Authentication Method (EAP-TTLS and EAP-PEAP only)	Type of the inner (phase 2) authentication
PEAP Version (EAP-PEAP only)	Version of the PEAP protocol

Ping Feature Settings: New Options

New Feature
GP-1279
MTX-4036
MTX-4131

- Number of Requests: The number of ping requests. The default is 4. The maximum is 120
- Packet Size (Bytes): Specifies the number of data bytes to be sent.
  - Packets include an additional 28 bytes of data (8 bytes ICMP header and 20 bytes IP header)
  - The default packet size is 56 bytes (which equates to into 84 bytes of data due to ICMP header and IP header)
- When packet size of 0 bytes is requested, the actual packet size is 28 bytes due to ICMP header and IP header
- Do Not Fragment: Enable to prevent fragmentation. Without fragmentation, the ping fails if the ping packet exceeds MTU size for the network path. By default, the option is disabled

Networking and Security (mPower 6.0.0)

Continuous Ping
• The Continuous Ping feature allows users to start a continuous ping to an IP address or URL through a specific interface
• Continuous Ping is available on the Debug Options page
• To start a continuous ping, users specify **IP Address** or **URL**, **Network Interface**, **Packet Size,** and enable or disable the **Do Not Fragment** option
  ○ Continuous Ping starts when the user clicks the **Start Continuous Ping** button
  1. The system starts pinging
  2. The button label changes to **Stop Continuous Ping**
  3. The message "Ping is in progress…" is displayed next to the button
  ○ Continuous Ping stops when the user clicks the **Stop Continuous Ping** button
  1. The system stops pinging
  2. The button label changes to **Start Continuous Ping**
  3. The ping results are shown next to the **Start Continuous Ping** button
• API Changes
  ○ api/stats/continuousPing - Continuous Ping status is stored in the "**isRunning**" field
	New Feature
	GP-1229
	MTX-4033
	MTX-4131

ICMP Keep Alive feature
• Overview: Sometimes when working with private networks, the size of the ping request is regulated. It needs to be configurable to satisfy private network requirements
• In mPower 6.0.0, new setting "Packet Size (Bytes)" is added next to the ICMP Count in the ICMP/TCP Check pane
  ○ The Packet Size setting specifies the number of data bytes to be sent
  ○ Packets include an additional 28 bytes of data (8 bytes ICMP header and 20 bytes IP header)
  ○ The default packet size is 56 bytes (which equates to into 84 bytes of data due to ICMP header and IP header)
  ○ When packet size of 0 bytes is requested, the actual packet size is 28 bytes due to ICMP header and IP header
	New Feature
	GP-79
	MTX-4167

Firewall Status Page
• The **Status** page is added under the **Firewall** main menu
• Firewall status page contains Filter tables in the **Filter Rules** pane, NAT tables in the **NAT Rules** pane, and iptables-save command output in the **IP Tables Dump**
• The **Download** button allows users to download an archive file that contains the same information that is displayed on Web UI; there are three files in the archive:
  ○ **iptables-filter.log**
  ○ **iptables-nat.log**
  ○ **iptables-save.log**
• API Changes**.** The following API endpoints are added:
  ○ https://192.168.2.1/api/firewall/downloadStatus
  ○ https://192.168.2.1/api/firewall/status
	New Feature
	MTX-4106

Networking and Security (mPower 6.0.0)

IPSec Tunnels • The "Allow All Traffic" checkbox is added to the IPsec tunnel configuration. The option is disabled by default when adding a new tunnel • When the checkbox is disabled, all traffic through the tunnel is dropped and the user has to add firewall rules manually to allow the traffic. Enabling the checkbox allows all traffic through the tunnel without creating explicit rules to allow traffic by subnet and/or connection attributes • When performing a firmware upgrade from a previous firmware version that does not have this setting, all existing tunnels will have the "Allow All Traffic" checkbox enabled and corresponding firewall rules will be set in the system, so nothing will change in tunnel behavior after upgrade • When adding a new tunnel, if the "Allow All Traffic" checkbox is not checked, then all traffic through the tunnel will be dropped. The user will have to add a corresponding firewall rules on the Firewall Settings page • API Changes ○ The "allowAllTraffic" is added to the api/ipsecTunnels collection	New Feature GP-1361 MTX-4200
IPSec Tunnels - Multiple Remote Networks Support • The system allows to specify multiple local networks and remote networks when configuring an IPSec tunnel • API changes ○ "remoteSubnets" array replaced the "remoteNetworkIp" and "remoteNetworkMask" in the /api/ipsecTunnels collection	New Feature GP-1337 MTX-4180

Ping Feature – Update the Network Interfaces List
• The list of the network interfaces available in the Network Interface dropdown list is updated.
• The list of available network interfaces depends on the hardware configuration.
• The following network interfaces are available:
  ○ ANY
  ○ BRIDGE (BR0)
  ○ CELLULAR
  ○ WI-FI WAN
  ○ WI-FI AP
  ○ ETHERNET (ETH0)
	Enhancement
	GP-1320
	MTX-4150

PPP-IP Pass-through / Serial Modem Mode - Hide Ping features from the Debug Options Page
• PPP-IP Pass-through Mode:
  ○ It is not possible to Ping directly from the device
  ○ The Ping and Continuous Ping features are not available in the Debug Options Page
• Serial Modem Mode:
  ○ Continuous Ping feature is not available
  ○ Ping feature is available. Network Interface options: ANY, BRIDGE (BR0) and ETHERNET (ETH0)
	Enhancement
	MTX-4093

Networking and Security (mPower 6.0.0)

Service Statistics Enhancement The status for new services are added to the Service Statistics Page. Services and their possible statuses are listed below: SNMP Server ○ SNMP Server is disabled ○ SNMP Server is running ○ SNMP Server is stopped Security Violation ○ Security violation is disabled ○ Security violation has not been detected ○ Security violation has been detected (shown if the /var/log/tomoyo/reject_003.log log is NOT empty) Reverse SSH ○ Reverse SSH service is disabled ○ Reverse SSH service is running ○ Reverse SSH service is stopped MQTT Broker ○ MQTT Broker service is disabled ○ MQTT Broker service is running ○ MQTT Broker service is stopped Remote Management ○ Displaying statuses from the Remote Management page Continuous Ping ○ Continuous Ping is running ○ Continuous Ping is disabled	Enhancement GP-1295 MTX-4142
Support Static IP on Wi-Fi as WAN • Ability to disable DHCP Client and enable **Static** mode is implemented for WLAN0 (Wi-Fi as WAN) network interface • In mPower 6.0.0 the WLAN0 network interface can be configured in the following modes: ○ DHCP Client (default) ○ DHCP Client – Addresses Only ○ Static	Enhancement GP-76 MTX-4186 SP-5084144
Web Server X.509 Certificate - Default details are updated • The CN value in the default Web Server X.509 certificate is changed from **ocg.example.com** to **mtx.example.com**	Enhancement GP-1247 MTX-4058

Networking and Security (mPower 6.0.0)

Firewall Settings Improvement
• Firewall "Normal Settings" is the default mode. This view was formerly "Advanced Settings"
  ○ Prerouting Rules
  ○ Input Filter Rules
  ○ Forward Filter Rules
  ○ Output Filter Rules
• Firewall "Legacy Settings" now includes the following. This view was formerly "Normal Settings"
  ○ Port Forwarding
  ○ Input Filter Rules
  ○ Output Filter Rules
	Enhancement
	GP-1426
	MTX-4286

IPsec, GRE, OpenVPN Tunnels - Enabled checkbox is moved to the tunnel configuration page • This is an improvement that does not affect the GRE, IPSec and OpenVPN functionality and API • The "Check" icon in the Enabled column on the GRE, IPSec or OpenVPN Tunnel Configuration page does not allow the user to enable or disable a tunnel • To enable or disable a tunnel, click the **Enabled** checkbox while adding or editing tunnel	Enhancement GP-1392 MTX-4255
SNMP Configuration Page - Network Address and Mask validation, IP address conversion to the Network address • In previous mPower releases, the system displayed an error if the entered IP Address and Mask do not match while adding an IP network to the Allowed IP Addresses list on the SNMP Configuration page • In mPower 6.0.0 the system automatically converts the IP address based on the Mask value, and adds a corresponding valid Network Address to the list	Enhancement GP-1468 MTX-4387
Network IP and Mask validation (GRE and IPSec Configuration) • The system (Web UI) checks the entered IP Address and Mask and automatically converts the IP address value to a valid Network Address while adding or editing GRE or IPsec Tunnels • The API validation of the entered Network Address and Mask is implemented, and the system does not allow to save the settings if the Network Address and Mask do not match • For example, user enters **Remote Network Route** as **192.168.2.2** and the **Remote Network Mask** as **24** while editing a GRE Tunnel. The Network Address in this case is 192.168.2.0, and the system will automatically change it and add a valid Network address, so the remote network route will be a valid value of **192.168.2.0/24** • The same conversion is performed for Local Networks and Remote Networks when adding or editing an IPSec tunnel	Enhancement GP-1453 GP-1287 MTX-4353 MTX-4118

Bug Fixes (mPower 6.0.0)

Reset to User Defined Defaults shall restore custom applications
• If a custom application is installed while a user sets the current configuration as user-defined defaults, the system shall try to restore it when performing reset to User Defined defaults
• Main use case
  ○ Install a custom application, configure the device, save the changes, and set the current configuration as user-defined defaults
  ○ Change the configuration (make any changes you need), save and apply the changes.
  ○ Click "Reset to User Defined Defaults"
• Result
  ○ Device reboots
  ○ overlayfs is reset
  ○ The system installs the custom application from /var/persistent
  ○ Device reboots again as soon as the custom app is installed. NOTE: Actual behavior depends on the custom application
  ○ When device boots, the custom application is installed
	Applications
	GP-1326
	MTX-4154

libmts-io • MCC and MNC values are retrieved incorrectly from table • In mPower 6.0.0, MCC and MNC values are retrieved correctly for further carrier detection	Hardware GP-114 MTX-4168
Rogers Wireless – Web Interface Update • In mPower 6.0.0, the Web Interface (Cellular, Radio Status) has been updated to display the following with a Rogers SIM is inserted in the device **Home Network: Rogers Wireless** • In earlier versions of mPower software, the Web Interface (Cellular, Radio Status) displays the following when a Rogers SIM was inserted in the device **Home Network: Rogers AT&T Wireless**	Hardware GP-1388
SMS - quotation mark character (Double universal) " is displayed with the backslash \ character in the received SMS message (like an escaped character) • An extra slash character is added before the quotation mark " in the sent and received messages • In mPower 6.0.0, the issue is resolved, and an extra slash is no longer added to the Sent and Received SMS messages	User Experience MTX-4359
Device UI inaccessible after firmware upgrade if User Authentication enabled • If User Authentication feature was enabled prior to the firmware upgrade, UI will be inaccessible with SSL error when the upgrade is finished. To restore access to the device user should either reboot the device or restart lighttpd service. This may lead to the issues with upgrade in the field if there is no physical access to the device and no ssh access or SMS commands are enabled • This issue exists in previous released firmware (mPower 5.2.1 and mPower 5.3.0) • In mPower 6.0.0, the issue is resolved, and user can access the device after performing upgrade if the User Authentication is enabled	User Experience GP-1301 MTX-4143

Bug Fixes (mPower 6.0.0)

Cellular Radio Firmware Upgrade Changes • Menu name changed to "Cell Radio FW Upgrade" • Page name changed to “Cellular Radio Firmware Upgrade” • “Cell Radio Firmware Upgrade” shall be in the setup menu, below time configuration (PPP-IP pass-through mode and serial modem mode)	User Experience GP-1451 MTX-4343
Custom OpenVPN config breaks iptables • Customer unsuccessfully tried to setup a VPN connection using custom OVPN config file. • Upon investigation the root cause was found in this string: *remote 20.191.55.208 1194 udp* • If we split the string to these two, VPN connection works properly: *proto udp* *remote 20.191.55.208 1194* • Corresponding changes are implemented, and such custom configuration can be applied, and the tunnel connection will be established successfully	Networking GP-1421 MTX-3873 SP-5105937
Save & Apply restart redirects to LAN when connected through WAN • When connected through the WAN, the Web UI redirects to a LAN IP (Ethernet eth0) when executing a Save & Apply that requires a reboot • In mPower 6.0.0, if the current device IP is external (public) IP address or this is a domain name, redirection will be performed to the same address. Otherwise, the system will redirect to LAN IP address	Networking GP-1006 IN-4375 MTX-4040
PPP-IP Passthrough Mode – multiple farpd instances are running if connection re-establishes • In some cases, there are multiple farpd instances running at the same time. The issue occurs when the PPP-IP Passthrough mode cellular connection is interrupted. When the cellular connection reestablishes, the system runs a new farpd instance, but does not end the previous one. This issue does not affect the functionality • In mPower 6.0.0, when cellular connection re-establishes and new settings are obtained, the farpd service restarts and there is only one farpd service in the services list	Networking MTX-4350

Known Behaviors (mPower 6.0.0)

The following devices and device configurations **cannot** be downgraded from mPower 6.0.X to mPower 5.3.7 or mPower 5.3.8:
• MTCDT-XXXX.**R3** devices
  ○ MTCDT with new gateway accessory card: MTAC-003U00 (868 MHz)
  ○ MTCDT with new gateway accessory card: MTAC-003E00 (915 MHz)
• MTCDTIP-XXXX.**R3** devices
  ○ MTCDTIP with new gateway accessory card: MTAC-003U00 (868 MHz)
  ○ MTCDTIP with new gateway accessory card: MTAC-003E00 (915 MHz)
	Known Behavior

The following devices and device configurations can be downgraded from mPower 6.0.0 to mPower 5.3.7 or mPower 5.3.8 • When the downgrade process is complete, a factory default is recommended • MTCDT devices with gateway accessory card: MTAC-LORA-H-868 or MTAC-LORA-H-915 • MTCDTIP devices with gateway accessory card: MTAC-LORA-H-868 or MTAC-LORA-H-915 • MTCAP, MTCAP2 devices • MTCDTIP2 devices	Known Behavior

Known Behaviors (mPower 6.0.0)

MTCDT- devices can only be used with one version of MTAC LoRa Gateway Accessory Card **AP1** / **AP2** / **Support** MTAC-LORA-H / None / Supported MTAC-LORA-H / MTAC-LORA-H / Supported MTAC-003 / None / Supported MTAC-003 / MTAC-003 / Supported MTAC-LORA-H / MTAC-003 / Not Supported MTAC-003 / MTAC-LORA-H / Not Supported	Known Behavior

Deprecations (mPower 6.0.0)

DeviceHQ/Node-RED Custom Application ▪ mPower 6.0.0 does not include support for the DeviceHQ/Node-RED Custom Application ▪ Native support for Node-RED was deprecated in mPower 5.3.3 ▪ For details on other methods to create custom applications, see creating a custom application	-
Python 2 support • Python 2 is not supported in mPower 6.0.0. Only Python 3.8.11 is supported	GP-1224 MTX-4164
RF Survey • The RF Survey page is removed from mPower 6.0.0 • **Page 404** is displayed when trying to access the page using the direct link: /rf_survey	GP-1444 MTX-4321

Schedule (mPower 6.0.0)

- Downloadable Versions
  - mPower 6.0.0 Availability: May 2022
  - DeviceHQ: May 2022
- Differential Images:
  - Differential mPower updates are not available for mPower 6.0.0

Models Impacted (mPower 6.0.0)

- MultiTech Conduit® Gateway
  - MTCDT-240A, MTCDT-246A, MTCDT-247A
  - MTCDT-L4E1, MTCDT-L4G1, MTCDT-L4N1, MTCDT-LAT3, MTCDT-LAP3, MTCDT-LDC3, MTCDT-LSB3
  - Hardware versions: MTCDT-0.1, MTCDT-0.2
- MultiTech Conduit® IP67 Base Station
  - MTCDTIP-266A, MTCDTIP-267A
  - MTCDTIP-L4E1, MTCDTIP-L4G1, MTCDTIP-L4N1, MTCDTIP-LAP3, MTCDTIP-LDC3, MTCDTIP-LSB3
  - Hardware versions: MTCDTIP-0.0, MTCDTIP-0.1
- MultiTech mCard™ Gateway Accessory Cards
  - MTAC-LORA-H-868, MTAC-LORA-H-915, MTAC-LORA-H-923-JP
  - MTAC-003E00, MTAC-003U00
  - MTAC-GPIO, MTAC-MFSER-DTE, MTAC-MFSER-DCE, MTAC-ETH, MTAC-XDOT
  - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
  - MTCDTIP2-EN
  - MTCDTIP2-L4E1, MTCDTIP2-LNA3
  - Hardware Version: MTCAP-0.3
- MultiTech Conduit® AP Access Point
  - MTCAP-868, MTCAP2-868, MTCAP-915, MTCAP2-915
  - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
  - Hardware Version: MTCAP-0.0, MTCAP-0.1, MTCAP-0.2

Operating System Overview

	mPower 5.3.X	mPower 6.0.X	mPower 6.3.X
Yocto Embedded Software	Thud version 2.6	Dunfell version 3.1	Dunfell version 3.1
Linux Kernel	version 4.9	version 5.4	version 5.4
OpenSSL	1.1.1n (mPower 5.3.8s-s1)	1.1.1o	1.1.1q
TLS	TLS 1.2, TLS 1.3 Configurable	TLS 1.2, TLS 1.3 Configurable	TLS 1.2, TLS 1.3 Configurable
Python	2.7	3.8.11	3.8.11
Node-RED	0.15.3 (DeviceHQ Custom App)	Deprecated	Deprecated
lighttpd	version 1.4.59	version 1.4.59	version 1.4.59

Additional Information

mPower Software Lifecycle Management

https://multitech.com/wp-content/uploads/mPower-Software-Lifecycle-Management.pdf

mPower 5.X Software Release Notes

https://multitech.com/wp-content/uploads/mPower-Software-5.x.x-Conduit-Gateways.pdf

Security Advisories

https://www.multitech.com/security

Downloads

http://www.multitech.net/developer/downloads/

Getting Started

http://www.multitech.net/developer/software/aep/creating-a-custom-application/

API Reference:

http://www.multitech.net/developer/software/mtr-api-reference/

Support:

Visit https://support.multitech.com/ to create a support case

DeviceHQ, Cloud-based IoT Device Management

Login: https://www.devicehq.com/sign_in

MultiTech Developer Resources

www.multitech.net

Frequently Asked Questions (Knowledge Base)

https://multitech.com/faqs/

MultiTech Support Portal

https://support.multitech.com/

Create an account and submit a support case directly to our technical support team.

MultiTech Website

https://multitech.com/

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Revision History

Version	Author	Date	Change Description
-015	LD	08/22/2025	mPower 6.3.6 added
-014	DT	11/20/2024	mPower 6.3.2 Schedule clarified
-013	DT	04/04/2024	mPower 6.3.4 added mPower 6.3.2 Bug Fixes updated
-012	DT	02/13/2024	mPower 6.3.2 Known Behaviors added mPower 6.3.1 Known Behaviors updated mPower 6.3.2 Models Impacted updated mPower 6.3.1 updated • Networking and Security, SNMP Configuration • Add support for MIB OID Values
-011	DT	01/23/2024	mPower 6.3.2 added
-010	DT	11/07/2023	mPower 6.3.1 added
-009	DT	05/17/2023	mPower 6.3.0 added Operating System Overview added
-008	DT	01/10/2023	mPower 6.0.4 added
-007	DT	10/7/2022	mPower 6.0.2 added
-006	DT	09/16/2022	mPower 6.0.1 added MTCDTIP-L4E1-270A removed from mPower 6.0.1 models impacted. Last supported in mPower 5.3.3
-005	DT	08/08/2022	Editorial updates
-004	DT	07/25/2022	mPower 6.0.0 – Upgrade process updated
-003	DT	07/14/2022	mPower 6.0.0 – Hardware support updated mPower 6.0.0 – Known Behaviors updated mPower 6.0.0 -- Schedule updated mPower 6.0.0 -- Models Impacted updated
-002	DT	05/19/2022	mPower 6.0.0 -- GPSD support removed
-001	DT	05/03/2022	Initial version