

Software Release Notes

mPower® Edge Intelligence Software

Includes mPower 6.3.1

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 latest version includes new features and enhancements to the DeviceHQ interface, cellular hardware support, Modbus protocols, user interface, and networking and security features.

Updated mPower 6.x.x release notes are available [< here >](#)

Downloadable Versions:

- mPower 6.3.1 Availability: November 2023
- mPower 6.3.0 Availability: May 2023
- Visit <http://www.multitech.net/developer/downloads/>

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.

Contents

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mPower 6.3.0	(May 2023)
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mPower 6.0.1	(September 2022)
mPower 6.0.0	(May 2022)
Operating System Overview	
Revision History	

mPower 6.3.1 Changelog and Overview

Released: November 2023

Status: Downloadable

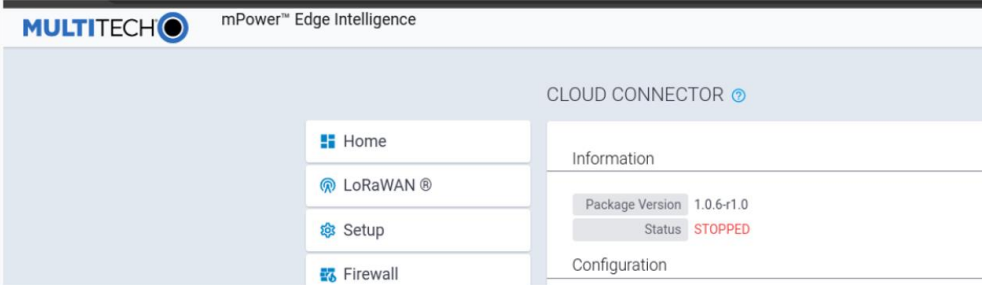
Updates in mPower 6.3.1, from [mPower 6.3.0](#)

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process
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New Features & Enhancements (mPower 6.3.1)

Software & Services - Payload Data Manager																					
BACnet AV (analog value) and BV (binary value) Support <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. <table border="1"> <thead> <tr> <th>Property Type</th><th>Recommended BACnet Object Type</th></tr> </thead> <tbody> <tr> <td>uint8</td><td>Analog Input, Analog Value, Positive Integer Value</td></tr> <tr> <td>uint16</td><td>Analog Input, Analog Value, Positive Integer Value</td></tr> <tr> <td>uint32</td><td>Positive Integer Value</td></tr> <tr> <td>int8</td><td>Analog Input, Analog Value, Integer Value</td></tr> <tr> <td>int16</td><td>Analog Input, Analog Value, Integer Value</td></tr> <tr> <td>int32</td><td>Integer Value</td></tr> <tr> <td>float</td><td>Analog Input, Analog Value</td></tr> <tr> <td>bool</td><td>Binary Input, Binary Value</td></tr> <tr> <td>string</td><td>Character String Value</td></tr> </tbody> </table> Models Impacted: <ul style="list-style-type: none"> Conduit AP Models: MTCAP-868-041A-BAC, MTCAP-915-041A-BAC Conduit Models: MTCDT-247A-868.R3-BAC, MTCDT-247A-915.R3-BAC 	Property Type	Recommended BACnet Object Type	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 Feature GP-2037 MTX-5011
Property Type	Recommended BACnet Object Type																				
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																				
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int32	Integer Value																				
float	Analog Input, Analog Value																				
bool	Binary Input, Binary Value																				
string	Character String Value																				
BACnet Device Settings – Network Interface <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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																				

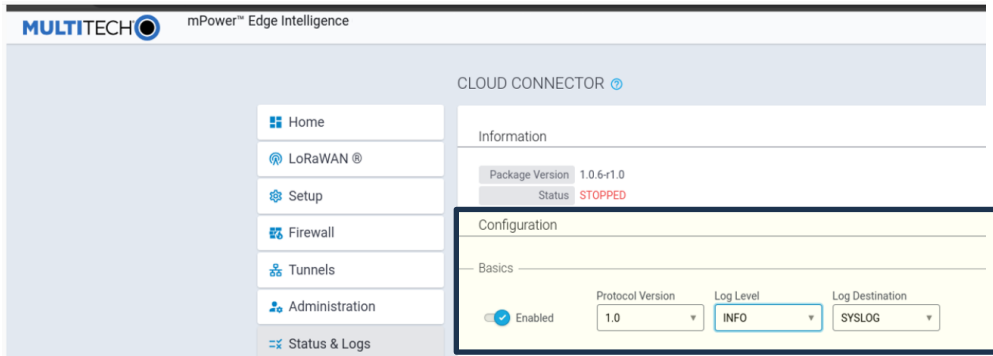
New Features & Enhancements (mPower 6.3.1)

BACnet Device Settings – Available Network Interfaces <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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: <ol style="list-style-type: none"> Updated decode Uplink signature. Support for normalize Uplink functionality. Models Impacted: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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. <p>Please see the following link for additional info: https://multitechsystems.github.io/lorawan-app-connect-mqtt</p> 	Enhancement GP-2071
Cloud Connector - User Interface Configuration <ul style="list-style-type: none"> In mPower 6.3.1, Cloud Connector is moved to the applications page 	Enhancement GP-2066
Cloud Connector – Updated to version 1.1 <ul style="list-style-type: none"> 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)

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)



Enhancement
GP-2095

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.

v1.1 messages	V1.0 messages
Manage downlinks: <ul style="list-style-type: none"> • lorawan/<GW-UUID>/down • lorawan/<GW-UUID>/clear 	Manage downlinks: <ul style="list-style-type: none"> • 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
Request info from the system: <ul style="list-style-type: none"> • lorawan/<GW-UUID>/api_req • lorawan/<GW-UUID>/lora_req • lorawan/<GW-UUID>/log_req 	Request info from the system: <ul style="list-style-type: none"> • lorawan/<APP-EUI>/<GW-UUID>/api_req • lorawan/<APP-EUI>/<GW-UUID>/lora_req • lorawan/<APP-EUI>/<GW-UUID>/log_req
Publish info from the system: <ul style="list-style-type: none"> • lorawan/<GW-UUID>/api_res • lorawan/<GW-UUID>/lora_res • lorawan/<GW-UUID>/log_res 	Publish info from the system: <ul style="list-style-type: none"> • lorawan/<APP-EUI>/<GW-UUID>/api_res • lorawan/<APP-EUI>/<GW-UUID>/lora_res • lorawan/<APP-EUI>/<GW-UUID>/log_res

- <https://github.com/MultiTechSystems/lorawan-app-connect/blob/master/app-connect.py3>

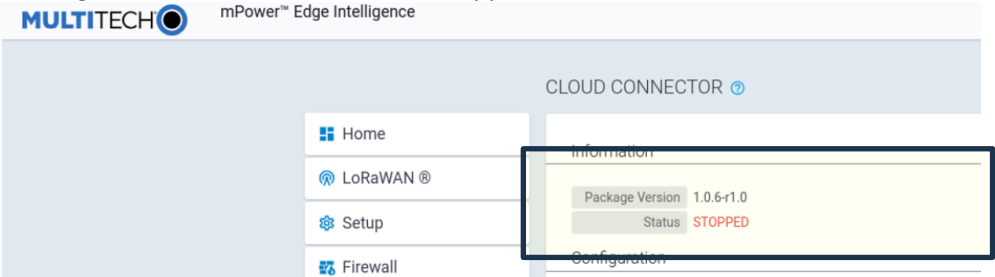
Enhancement
GP-2069

Cloud Connector v1.1 – Package Upgrades

- Starting in mPower 6.3.1, Cloud Connector can be updated using the package upgrade feature.

New Feature
GP-2065
MTX-5065

New Features & Enhancements (mPower 6.3.1)

Cloud Connector v1.1 – LoRa Status Information <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> In mPower 6.3.1, wildcard subscriptions are removed from the remote broker <ul style="list-style-type: none"> 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)

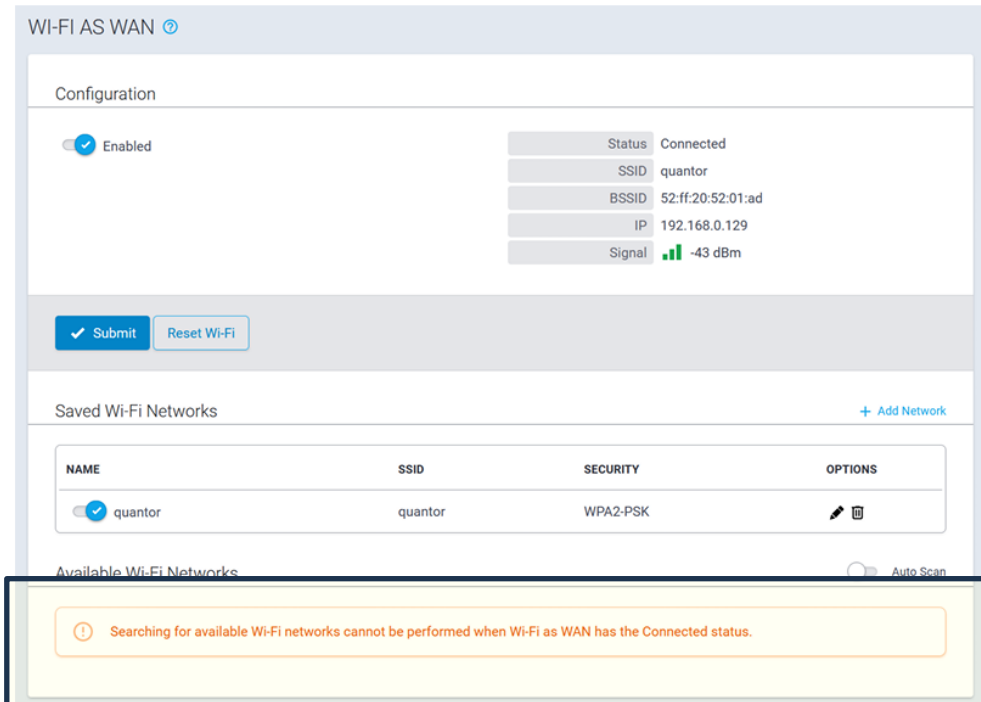
LoRa Spreading Factor Filters <ul style="list-style-type: none"> In mPower 6.3.1, four spreading factor filters are added <ul style="list-style-type: none"> DR5-DR10 DR7-DR10 DR5-DR12 DR7-DR12 Models Impacted: <ul style="list-style-type: none"> Conduit Models: MTCDT.R3 devices with MTAC-003 Accessory Card Conduit IP Models: MTCDTIP.R3 devices with MTAC-003 Accessory Card 	Enhancement GP-2013
Basic Station – Persistence Message <ul style="list-style-type: none"> In mPower 6.3.1, when persistence is disabled and an Activity URL is detected, a warning message is presented. 	Enhancement GP-2064
Basic Station – EU868 Duty Cycle Update <ul style="list-style-type: none"> Updated to v2.0.6-20 Add duty-cycle bands K, L, and N Changed duty-cycle limits to match EU regulations <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Bluetooth Low Energy Wi-Fi as WAN Wi-Fi Access Point Bluetooth-IP 	Enhancement GP-2081 MTX-5066
Wi-Fi Enhancement (5 GHz Band) <ul style="list-style-type: none"> 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**

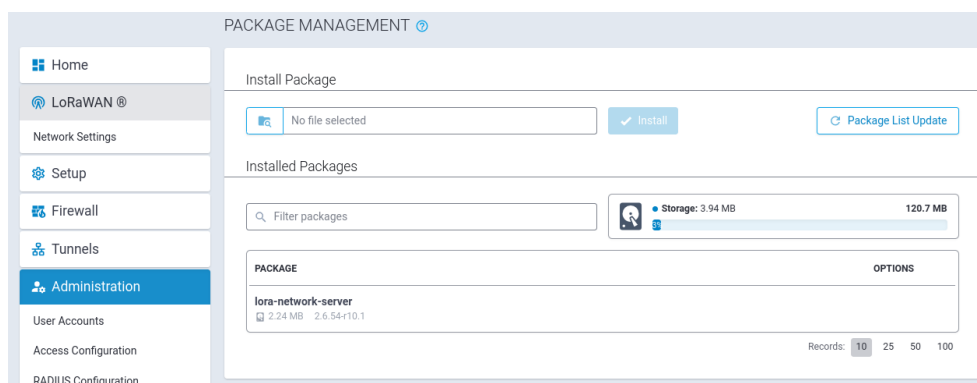


Enhancement
GP-2089
MTX-5075

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.

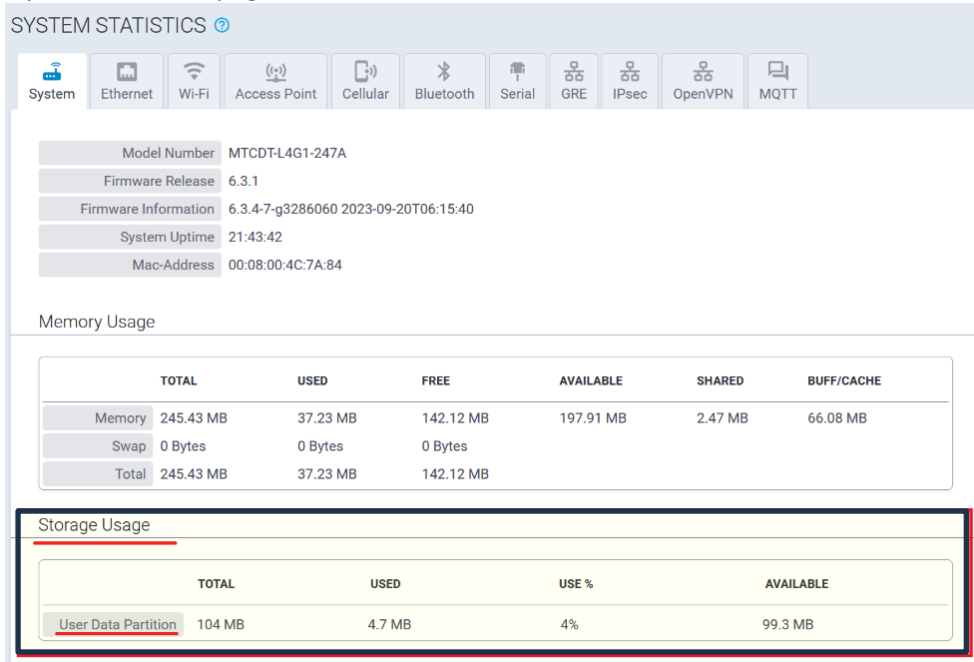


New Feature
GP-2065
MTX-5065

New Features & Enhancements (mPower 6.3.1)

System Statistics – Storage Usage

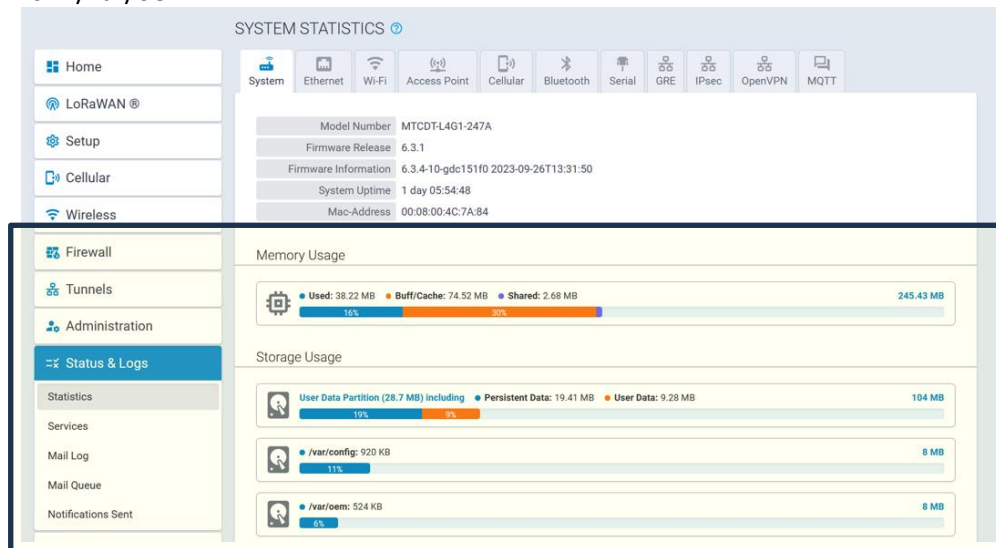
- In mPower 6.3.1, the user interface displays the external USB storage device usage on the System Statistics page.



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

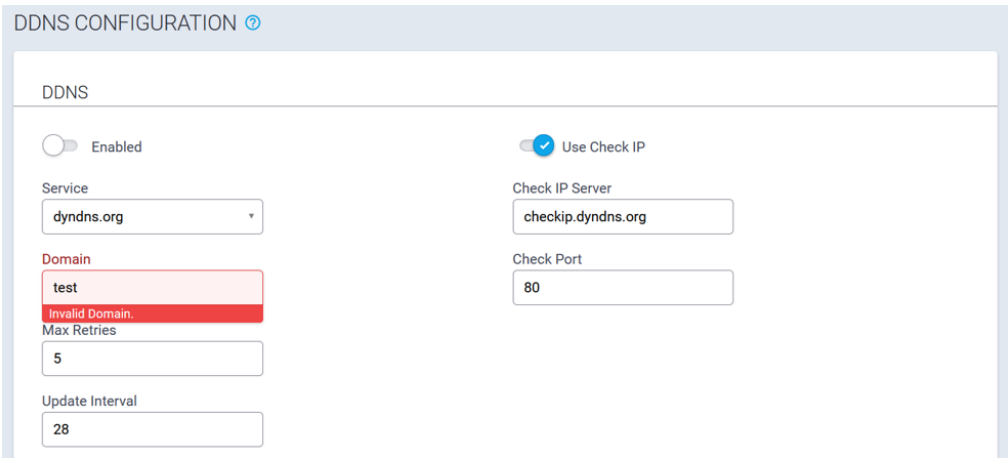
Networking & Security (mPower 6.3.1)

OpenVPN Tunnel – Tunnel Name Character Limit <ul style="list-style-type: none"> 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. 	Enhancement MTX-5052
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Bug Fixes (mPower 6.3.1)

Cellular Mode Settings <ul style="list-style-type: none">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 modeModels Impacted:<ul style="list-style-type: none">Conduit Models: MTCDT-L4G1Conduit IP Models: MTCDTIP-L4G1In mPower 6.3.1, this issue has been resolved.	Hardware GP-1998 MTX-4952												
Cellular Diagnostics <ul style="list-style-type: none">In mPower 6.3.0, the diversity status of the cellular modem was not determined correctly.Models Impacted:<ul style="list-style-type: none">Conduit AP Models: MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3Conduit Models: MTCDT-LAP3, MTCDT-L4E1, MTCDT-L4N1Conduit IP Models: MTCDTIP-L4E1, MTCDTIP-L4N1Conduit IP 200 Models: MTCDTIP2-L4E1, MTCDTIP2-LNA3In mPower 6.3.1, this issue has been resolved.	Hardware GP-2043 MTX-5018												
Wi-Fi as WAN <ul style="list-style-type: none">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>	WPA Algorithm	Group	Pairwise	TKIP	TKIP	TKIP	AES	CCMP	CCMP	TKIP+AES	TKIP CCMP	TKIP CCMP	Hardware GP-2044 MTX-5017
WPA Algorithm	Group	Pairwise											
TKIP	TKIP	TKIP											
AES	CCMP	CCMP											
TKIP+AES	TKIP CCMP	TKIP CCMP											
Serial-IP Configuration <ul style="list-style-type: none">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.	Hardware MTX-5048												
OpenVPN Tunnel Cipher Suite <ul style="list-style-type: none">In mPower 6.3.0, cipher suites list does not appear when TLS Cipher Suite is set to ADVANCED.<ul style="list-style-type: none">User is creating or editing the OpenVPN tunnel (Server or Client mode) in TLS Authorization ModeIn mPower R.6.3.1 the issue has been resolved.	Networking & Security MTX-5026												

Bug Fixes (mPower 6.3.1)

Access Configuration Page – ICMP Settings <ul style="list-style-type: none"> 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. 	User Experience MTX-5056
First Time Setup Wizard – Remote Management Port Values <ul style="list-style-type: none"> In mPower 6.3.0, the Server Port is incorrectly displayed. In mPower 6.3.1, this issue has been resolved. <ul style="list-style-type: none"> When SSL Enabled is ON, Server Port is 5798. When SSL Enabled is OFF, Server Port is 5799. 	User Experience MTX-5047
DDNS Configuration Page <ul style="list-style-type: none"> In mPower 6.3.0, DDNS configuration changes are not submitted when Domain value is invalid.  <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Models impacted: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Models Impacted: <ul style="list-style-type: none"> 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

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, MTAC-LORA-H-923-JP
 - MTAC-003E00, MTAC-003U00
 - MTAC-GPIO, MTAC-MFSE-DTE, MTAC-MFSE-DCE, MTAC-ETH, MTAC-XDOT
 - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDDT-series) and IP67 base stations (MTCDDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-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 6.3.1)

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 (MTCDDT, MTCDDTIP)
- Hardware version (MTCDDT-0.1, MTCDDT-0.2, MTCDDTIP-0.0, MTCDDTIP-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
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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) <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Radio Bridge wireless sensor decoders are available natively <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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

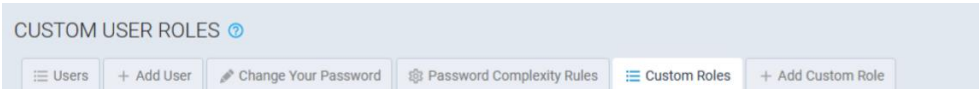
New Features & Enhancements (mPower 6.3.0)

LoRaWAN - Adaptive Data Rate (ADR) Updates <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • MTCDDT- and MTCDDTIP- 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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	
MTCDDT-247A, MTCDDTIP-267A Devices Only <ul style="list-style-type: none"> • Wi-Fi/BT firmware is updated to version 2.5.1.11 • Originally available in mPower 6.0.4 	Enhancement GP-1818 GP-1840
MTCDDT-L6G1 Support <ul style="list-style-type: none"> • Support for -L6G1 radio (Sequans CB610L) • Models impacted: MTCDDT-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 <ul style="list-style-type: none"> • 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)

Verizon APN Changes <ul style="list-style-type: none">Verizon Class 3 APN is set automatically over-the-air (OTA) without user interventionIf the current APN is incorrect, the user can enter a new APNThis is a one-time setting changeDevices impacted: MTCAP-LNA3, MTCAP2-LNA3, MTCDT-L4N1, MTCDT-L4G1, MTCDTIP-L4N1, MTCDTIP-L4G1	Enhancement GP-1801 MTX-4705 GP-1828 MTX-4740												
Cellular Diagnostics Feature <ul style="list-style-type: none"><i>Device Diagnostics</i> pane is added to the <i>Debug Options</i> pageUser can download cellular diagnostics and cellular related logs by using the <i>Download Cellular Data</i> buttonCellular diagnostic information is recorded when it is requested by the userDownloadable report can be saved on a computer hard drive and shared with others when diagnosing connection issues	New Feature GP-1834 MTX-4744												
MTAC-MF5ER-DTE, MTAC-MF5ER-DCE Device Statistics Changes <ul style="list-style-type: none">Changes to the <i>Device Statistics</i> page when the serial card is used:<table><tr><td></td><td>MTAC-MF5ER-DTE</td><td>MTAC-MF5ER-DCE</td></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		MTAC-MF5ER-DTE	MTAC-MF5ER-DCE	DCD Status (Statistics Page)	Displayed	Hidden	Connection Activation (DTR Assert)	Configurable	Hidden	Connection Termination (DTR Toggle)	Configurable	Hidden	Enhancement GP-1776 MTX-4682
	MTAC-MF5ER-DTE	MTAC-MF5ER-DCE											
DCD Status (Statistics Page)	Displayed	Hidden											
Connection Activation (DTR Assert)	Configurable	Hidden											
Connection Termination (DTR Toggle)	Configurable	Hidden											
MQTT Broker – Bridge TLS Version Setting <ul style="list-style-type: none">The Bridge TLS version for mPower and the MQTT broker must be the same for the connection to succeedTLS version menu is added to the MQTT Broker Configuration pageWhen TLS is enabled, three selections are available: TLSv1.1, TLSv1.2, TLSv1.3TLSv1.2 is the default value	Enhancement GP-1710 MTX-4586												
Certificate and Key Management													
<ul style="list-style-type: none">Support new Microsoft Azure Root Certificate AuthorityUpdate the certificates database to latest debian	Enhancement GP-1872 MTX-4791												

New Features & Enhancements (mPower 6.3.0)

User Experience	
<p>Custom User Roles</p> <p>In previous versions of mPower, users are assigned one of three pre-defined user roles, each with different rights and permissions on the device</p> <ul style="list-style-type: none"> • <u>Administrators</u> have full rights and permissions, including the ability change settings on the device • <u>Engineers</u> have read/write privileges and some access to controls on the device • <u>Monitors</u> have read-only access <p>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</p> <ul style="list-style-type: none"> • <i>Custom Roles</i> and <i>Add Custom Role</i> 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 <ol style="list-style-type: none"> 1. <i>WRITE – ON</i> allows custom users to modify the feature 2. <i>WRITE – OFF</i> prevents custom users from modifying the feature 3. <i>VISIBLE – ON</i> allows custom users to read the status of the feature 4. <i>VISIBLE – OFF</i> hides the status of the feature from the custom user  <ul style="list-style-type: none"> • When the administrator assigns a user to a custom user role, the user will only have access to the features defined by the administrator 	<p>New Feature</p> <p>GP-1572</p> <p>GP-1599</p>
<p>Web Interface - Dark and Light Themes</p> <p>mPower detects the user system preferences and enables light or dark scheme automatically</p> <ul style="list-style-type: none"> • 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 	<p>New Feature</p> <p>-</p>
<p>Web Interface – Save & Apply Button Behavior</p> <ul style="list-style-type: none"> • <i>Save & Apply</i> button is displayed ONLY when there are changes that can be saved and applied • The <i>Save & Apply</i> button is moved from the main menu and appears in the top of the page • The <i>Save & Apply</i> button is animated, and it is blinks periodically 	<p>Enhancement</p> <p>-</p>
<p>Web Interface – Main Menu Behavior</p> <ul style="list-style-type: none"> • 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 	<p>Enhancement</p> <p>GP-1734</p> <p>MTX-4612</p>
<p>Web Interface – Date and Time Format</p> <ul style="list-style-type: none"> • 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 	<p>Enhancement</p> <p>IN-4635</p> <p>MTX-4636</p>

New Features & Enhancements (mPower 6.3.0)

Web Interface – Send and Received SMS <ul style="list-style-type: none"> • <i>Send SMS</i>, <i>Sent SMS</i> and <i>Received SMS</i> are combined into a single page • The submenu label is changed to <i>Send/Received SMS</i> • <i>SMS Configuration</i> and <i>Send/Received SMS</i> pages are moved under the <i>Cellular</i> main menu • The <i>SMS</i> main menu has been eliminated 	Enhancement GP-1705 GP-1731 MTX-4579
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Operating System Updates (mPower 6.3.0)

Upgrade to OpenSSL 1.1 <ul style="list-style-type: none"> • mPower 6.3.0 supports OpenSSL 1.1.1q • Previous mPower versions support OpenSSL 1.1.1o 	-
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Networking & Security (mPower 6.3.0)

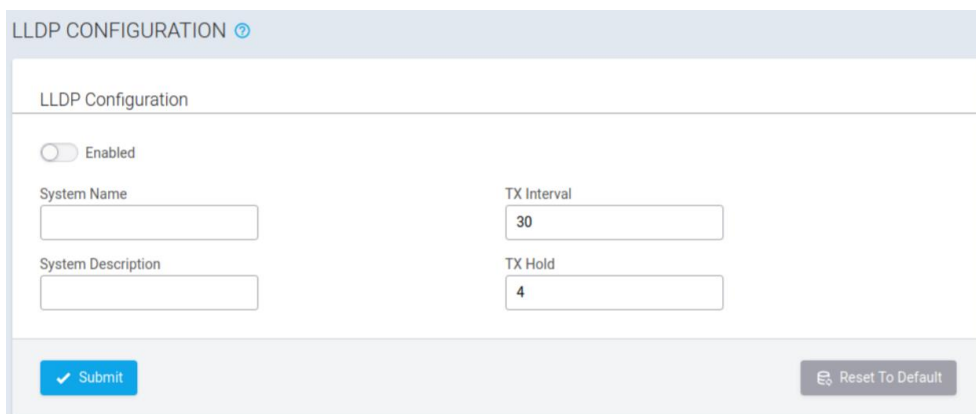
LLDP (Link Layer Discovery Protocol) Support

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



LLDP CONFIGURATION ⓘ

LLDP Configuration

☒ Enabled

System Name

System Description

TX Interval

TX Hold

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

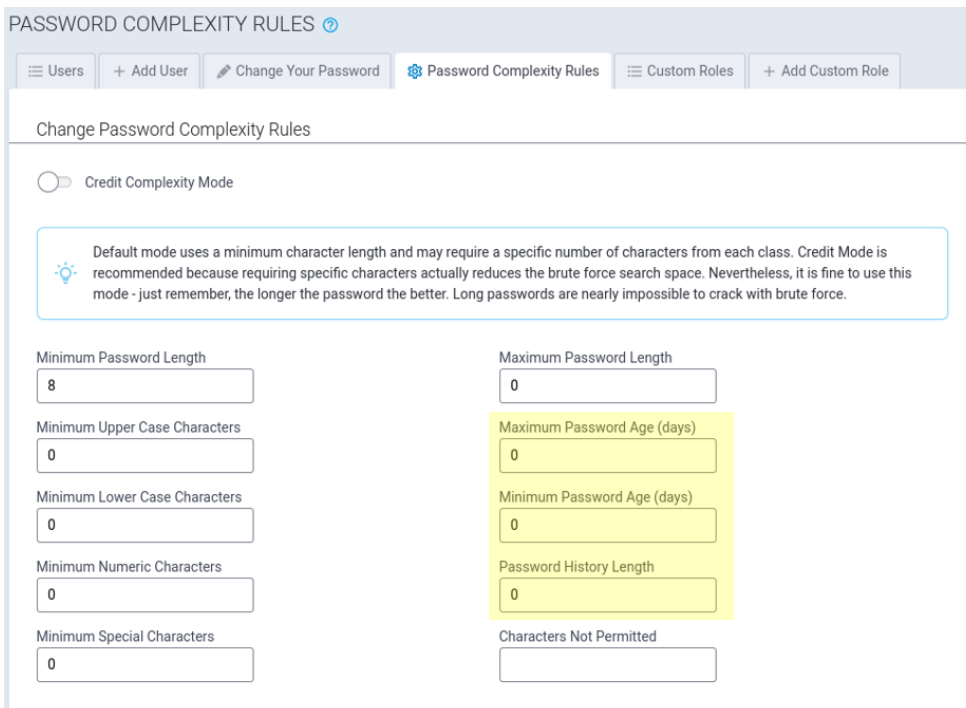
Feature Enhancement
GP-280
GP-1823

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



PASSWORD COMPLEXITY RULES ⓘ

Users + Add User Change Your Password Password Complexity Rules Custom Roles + Add Custom Role

Change Password Complexity Rules

☐ Credit Complexity Mode

Default mode uses a minimum character length and may require a specific number of characters from each class. Credit Mode is recommended because requiring specific characters actually reduces the brute force search space. Nevertheless, it is fine to use this mode - just remember, the longer the password the better. Long passwords are nearly impossible to crack with brute force.

Minimum Password Length: 8

Maximum Password Length: 0

Minimum Upper Case Characters: 0

Maximum Password Age (days): 0

Minimum Lower Case Characters: 0

Minimum Password Age (days): 0

Minimum Numeric Characters: 0

Password History Length: 0

Minimum Special Characters: 0

Characters Not Permitted:

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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> In previous versions of mPower, <i>Bootloader Password Authentication Status</i> is displayed as <i>Not Supported</i> when it should be <i>Supported</i> In mPower 6.3.0, this issue is resolved 	GP-1866 MTX-4780
Bootloader Password <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> In previous versions of mPower, the <i>Characters Not Permitted</i> setting is not properly enforced in the <i>Default</i> mode. Users can set a password using characters that the administrative user has identified as <i>Not Permitted</i> In mPower 6.3.0, this issue is resolved. User passwords cannot include characters that the administrator has defined as <i>Not Permitted</i> 	IN:4612
Debug Console, Silent Mode <ul style="list-style-type: none"> In previous versions of mPower, when <i>Silent Mode</i> is Enabled, output to the Debug Console should be turned off In mPower 6.0.X, Debug Console entries are logged even though <i>Silent Mode</i> is Enabled In mPower 6.3.0, this issue is resolved 	GP-1878 MTX-4799

Bug Fixes (mPower 6.3.0)

U-Boot Access <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Multiple wireless features cannot be enabled concurrently Wireless features are exclusively enabled <ul style="list-style-type: none"> 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 MTCDD-L6G1 CBRS Private LTE models <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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)

<p>Cellular Time Synchronization – Verizon Wireless Networks</p> <ul style="list-style-type: none"> 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 <p>Tools available to identify cellular radio firmware version:</p> <ul style="list-style-type: none"> AT Command: AT+QGMR <ul style="list-style-type: none"> EG25GGBR07A08M2G_30.004.30.004 radio-query --vendorfirmware EG25GGBR07A08M2G_30.004.30.004 	
<p>Custom User Roles – MTCAP2, Ethernet-only Devices</p> <p>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</p> <ul style="list-style-type: none"> Wi-Fi as WAN Wi-Fi Access Point Cellular Bluetooth Serial <ul style="list-style-type: none"> Devices Impacted: MTCAP2 devices with Ethernet-only backhaul 	-

Deprecations (mPower 6.3.0)

<p>MTCAP-LSP3, MTCDT-LSP3 Support</p> <ul style="list-style-type: none"> LTE Category 1 -LSP3 radio (Telit LE910C1-NS) support is deprecated from mPower 6.3.0 For use on Sprint networks 	GP-1839
<p>MTCDT-LVW3, MTCDTIP-LVW3</p> <ul style="list-style-type: none"> LTE Category 1 -LVW3 radio (Telit LE910-SV1) support is deprecated from mPower 6.3.0 For use on Verizon networks 	
<p>Telnet Server Support</p> <ul style="list-style-type: none"> Support for Telnet Server is deprecated from mPower 6.3.0 and device API Telnet is not a secure protocol 	GP-1787 MTX-4691
<p>WEP (Wired Equivalent Privacy) Security Protocol</p> <ul style="list-style-type: none"> 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 Legacy API commands, that are no longer used by recent mPower versions, are deprecated from mPower 6.3.0		GP-1788 MTX-4692
/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)

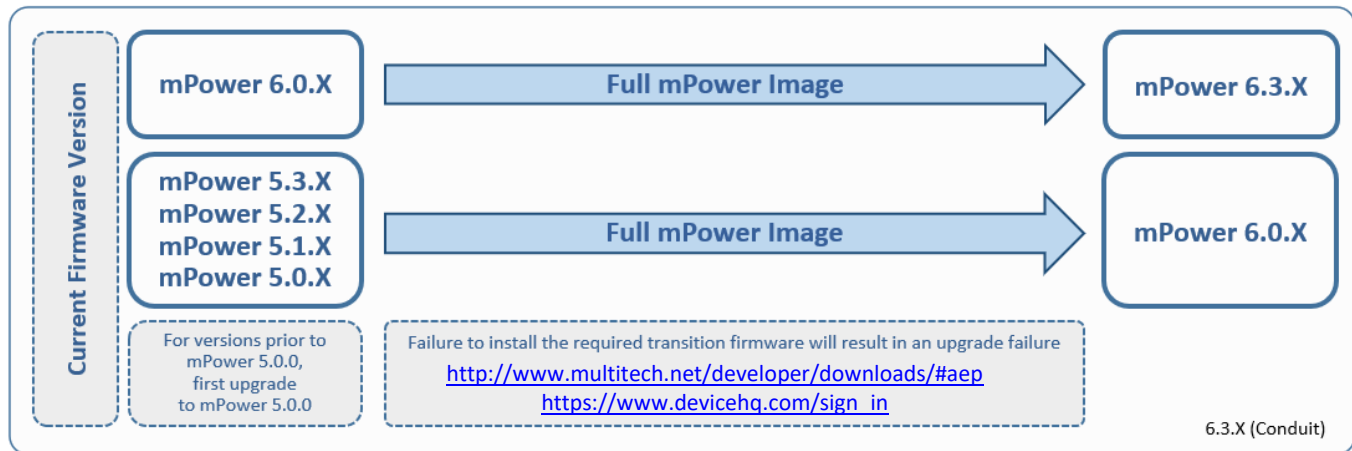
- Downloadable Versions
 - mPower 6.3.0 Availability: May 2023
 - Visit <http://www.multitech.net/developer/downloads/>
 - DeviceHQ: May 2023
- Manufacturing Updates:
 - Download only
 - Devices that ship from MultiTech will not be impacted

Models Impacted (mPower 6.3.0)

- MultiTech Conduit® Gateway
 - MTCDDT-240A, MTCDDT-246A, MTCDDT-247A
 - MTCDDT-L4E1, MTCDDT-L4G1, MTCDDT-L4N1, MTCDDT-LAT3, MTCDDT-LAP3, MTCDDT-LDC3, MTCDDT-LSB3
 - Hardware versions: MTCDDT-0.1, MTCDDT-0.2
- MultiTech Conduit® IP67 Base Station
 - MTCDDTIP-266A, MTCDDTIP-267A
 - MTCDDTIP-L4E1, MTCDDTIP-L4G1, MTCDDTIP-L4N1, MTCDDTIP-LAP3, MTCDDTIP-LDC3, MTCDDTIP-LSB3
 - Hardware versions: MTCDDTIP-0.0, MTCDDTIP-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-MFSE-DTE, MTAC-MFSE-DCE, MTAC-ETH, MTAC-XDOT
 - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDDT-series) and IP67 base stations (MTCDDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-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 6.3.0)

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 (MTCDDT, MTCDDTIP)
- Hardware version (MTCDDT-0.1, MTCDDT-0.2, MTCDDTIP-0.0, MTCDDTIP-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 6.0.4 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
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New Features & Enhancements (mPower 6.0.4)

Hardware Support	
MTCDDT-247A, MTCDDIP-267A Devices Only <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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
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Bug Fixes (mPower 6.0.4)

LoRaWAN Packet Table <ul style="list-style-type: none"> 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
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Known Behaviors (mPower 6.0.4)

Wi-Fi/BT Behavior <ul style="list-style-type: none"> With the update to WiFi/BT firmware version 2.5.1.1, wireless features are exclusively enabled <ul style="list-style-type: none"> Wi-Fi as WAN, Wi-Fi Access Point Bluetooth-IP Bluetooth Low Energy Multiple wireless features cannot be enabled concurrently 	GP-1840
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Schedule (mPower 6.0.4)

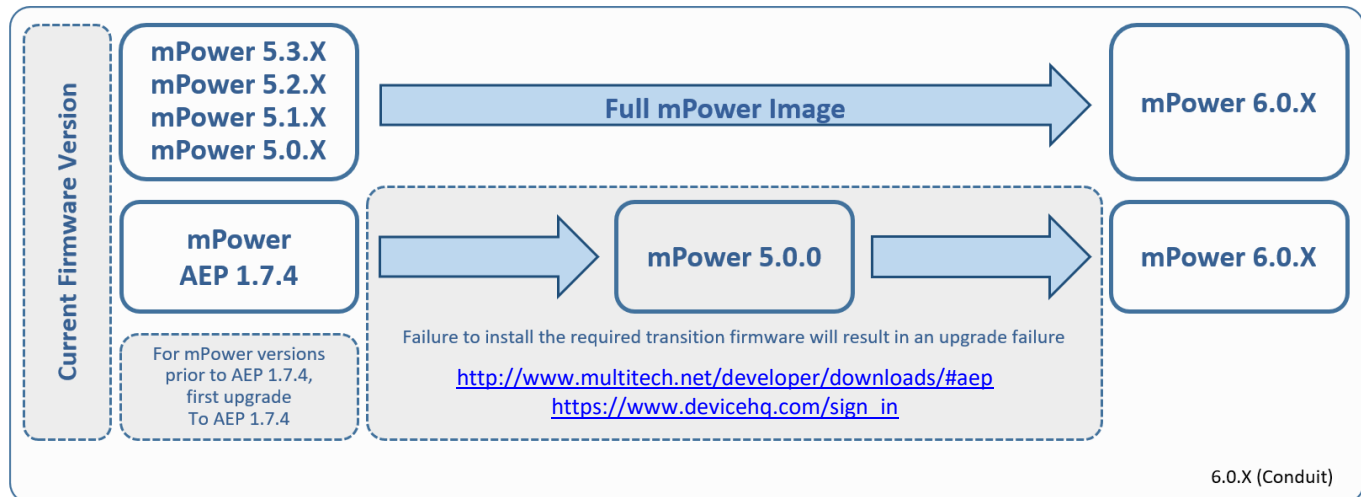
- Downloadable Versions
 - mPower 6.0.4 Availability: January 2023
 - Visit <http://www.multitech.net/developer/downloads/>
 - DeviceHQ: January 2023
- Manufacturing Updates:
 - Download only
 - Devices that ship from MultiTech will not be impacted
- Differential Images:
 - Differential mPower updates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

Models Impacted (mPower 6.0.4)

- MultiTech Conduit® Gateway
 - MTCDDT-240A, MTCDDT-246A, MTCDDT-247A
 - MTCDDT-L4E1, MTCDDT-L4G1, MTCDDT-L4N1, MTCDDT-LAT3, MTCDDT-LAP3, MTCDDT-LDC3, MTCDDT-LSB3
 - Hardware versions: MTCDDT-0.1, MTCDDT-0.2
- MultiTech Conduit® IP67 Base Station
 - MTCDDTIP-266A, MTCDDTIP-267A
 - MTCDDTIP-L4E1, MTCDDTIP-L4G1, MTCDDTIP-L4N1, MTCDDTIP-LAP3, MTCDDTIP-LDC3, MTCDDTIP-LSB3
 - Hardware versions: MTCDDTIP-0.0, MTCDDTIP-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 (MTCDDT-series) and IP67 base stations (MTCDDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-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 (MTCDDT, MTCDDTIP)
- Hardware version (MTCDDT-0.1, MTCDDT-0.2, MTCDDTIP-0.0, MTCDDTIP-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
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Bug Fix (mPower 6.0.2)

MTCDTIP2 Devices Only <ul style="list-style-type: none"> 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
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Schedule (mPower 6.0.2)

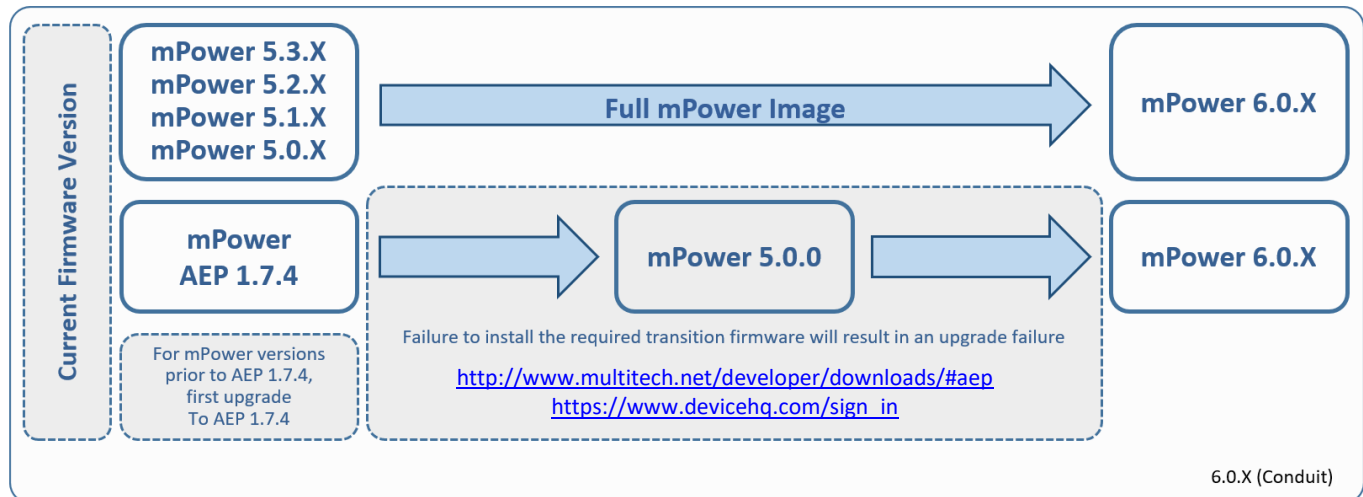
- Downloadable Versions
 - mPower 6.0.2 Availability: October 2022
 - Visit <http://www.multitech.net/developer/downloads/>
 - DeviceHQ: October 2022
- Manufacturing Updates:
 - Devices that ship from MultiTech starting in October 2022 will include mPower 6.0.2
 - See part numbers impacted for details
- 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

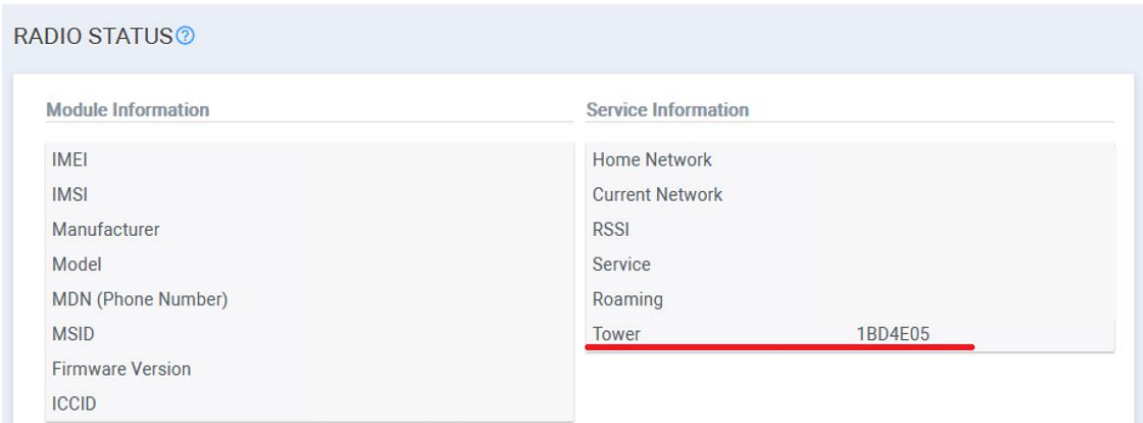
Updates in mPower 6.0.1, from [mPower 6.0.0](#)

New Features & Enhancements	Operating System	Networking & Security	Bug Fixes	Known Behaviors	Deprecations	Schedule	Models Impacted	Upgrade Process
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Critical Bug (mPower 6.0.1)

MTCDTIP2 Devices Only <ul style="list-style-type: none"> 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
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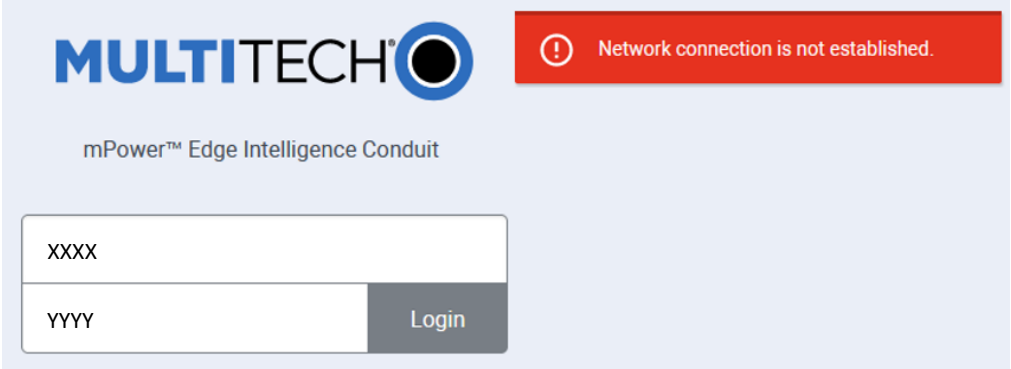
New Features and Enhancements (mPower 6.0.1)

Software and Services	
LoRa Network Server – Database Backup <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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: <i>APN is obtained automatically from the Verizon network</i>	Enhancement GP-1596 MTX-4489

New Features and Enhancements (mPower 6.0.1)

Cellular Configuration – Dial-on Demand <ul style="list-style-type: none"> The wording of the tooltip for the dial-on-demand label has been updated Tooltip in mPower 6.0.1 <i>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</i> Tooltip in earlier versions of mPower <i>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</i> 	Enhancement MP-1606 MTX-4500																																						
User Interface																																							
Web User Interface, status definition updates <table border="1" data-bbox="155 644 1265 1346"> <thead> <tr> <th>Updated Status Definition in mPower 6.0.1</th><th>Previous Status Definition</th></tr> </thead> <tbody> <tr> <td colspan="2">DEVICE INFORMATION Page - Cellular WAN State</td></tr> <tr> <td>Link is up</td><td>PPP Link is up</td></tr> <tr> <td>Link is down</td><td>PPP Link is down</td></tr> <tr> <td>In process of establishing link</td><td>In process of establishing PPP link</td></tr> <tr> <td>Cellular is not running</td><td>PPP is not running</td></tr> <tr> <td colspan="2">SERVICE STATISTICS Page - TCM/ICMP Keep Alive</td></tr> <tr> <td>IDLE, since link is not up</td><td>IDLE, since PPP link is not up</td></tr> <tr> <td colspan="2">CELLULAR STATISTICS Page - Cellular Link</td></tr> <tr> <td>Link is up</td><td>PPP Link is up</td></tr> <tr> <td>Link is down</td><td>PPP Link is down</td></tr> <tr> <td>In process of establishing link</td><td>In process of establishing PPP link</td></tr> <tr> <td>Cellular is not running</td><td>PPP is not running</td></tr> <tr> <td colspan="2">NETWORK INTERFACE CONFIGURATION Page - Network Type</td></tr> <tr> <td>Cellular PPP</td><td>PPP</td></tr> <tr> <td>Cellular WWAN</td><td>PPP</td></tr> <tr> <td colspan="2">NETWORK INTERFACE CONFIGURATION – IPv4 Settings - Mode</td></tr> <tr> <td>Auto</td><td>PPP</td></tr> <tr> <td>Auto – Addressed Only</td><td>PPP – Addresses Only</td></tr> </tbody> </table> <ul style="list-style-type: none"> Associated HELP files have also been updated to reflect these updates All other Cellular WAN status are unchanged 	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	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																																						
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CELLULAR STATISTICS Page - Cellular Link																																							
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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																																						
Web Interface, CELLULAR STATISTICS Page, terminology change <table border="1" data-bbox="155 1495 1265 1608"> <thead> <tr> <th>Updated Definition in mPower 6.0.1</th><th>Previous Definition</th></tr> </thead> <tbody> <tr> <td colspan="2">CELLULAR STATISTICS Page - Cellular</td></tr> <tr> <td>Cellular Trace</td><td>PPP Trace</td></tr> </tbody> </table> <ul style="list-style-type: none"> 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 	Updated Definition in mPower 6.0.1	Previous Definition	CELLULAR STATISTICS Page - Cellular		Cellular Trace	PPP Trace	Enhancement GP-1568 MTX-4460 GP-1595																																
Updated Definition in mPower 6.0.1	Previous Definition																																						
CELLULAR STATISTICS Page - Cellular																																							
Cellular Trace	PPP Trace																																						
Web Interface, CELLULAR STATISTICS Page <ul style="list-style-type: none"> 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 	Enhancement GP-1568 MTX-4460																																						

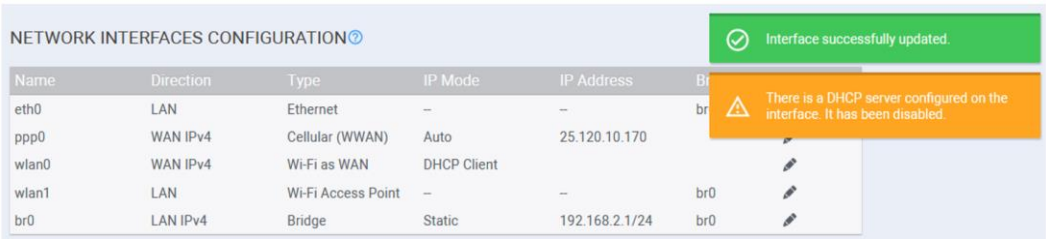
New Features and Enhancements (mPower 6.0.1)

<p>Web Interface, Login Page</p> <ul style="list-style-type: none"> During the login process, if connection to the device is lost, a new message is displayed <i>Network connection is not established.</i> 	<p>Enhancement GP-1581 MTX-4473</p>
<p>Username and Password – Autocomplete is Disabled</p> <ul style="list-style-type: none"> 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 	<p>Enhancement GP-1582 MTX-4474</p>
<p>User Interface</p> <ul style="list-style-type: none"> 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 	<p>Enhancement TS-5112111</p>

Operating System Updates (mPower 6.0.1)

<p>Upgrade to OpenSSL 1.1</p> <ul style="list-style-type: none"> mPower 6.0.1 supports OpenSSL 1.1.1o Previous mPower versions supported OpenSSL 1.1.1n Additional information is available <ul style="list-style-type: none"> MultiTech Security Advisories CVE-2022-1292 	<p>GP-1600 MTX-4493</p>
<p>Update to Eclipse Mosquitto MQTT broker</p> <ul style="list-style-type: none"> mPower 6.0.1 supports Eclipse Mosquitto 1.6.14 Previous mPower versions supported Eclipse Mosquitto 1.5.1 	<p>TS-5111321</p>

Networking and Security (mPower 6.0.1)

Continuous Ping <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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)

<p>Failure to upload and apply a configuration file</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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
<p>Session timeout interrupts upgrades in Web Interface</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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
<p>WAN Failover Settings not applied properly</p> <ul style="list-style-type: none"> 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
<p>Client Authentication, Custom Web Server Certificate Failures</p> <ul style="list-style-type: none"> In previous versions of mPower, failures arise when custom web server certificates do not end with a line <ul style="list-style-type: none"> 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
<p>WWAN Mode</p> <ul style="list-style-type: none"> 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
<p>WWAN Mode</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> 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
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Schedule (mPower 6.0.1)

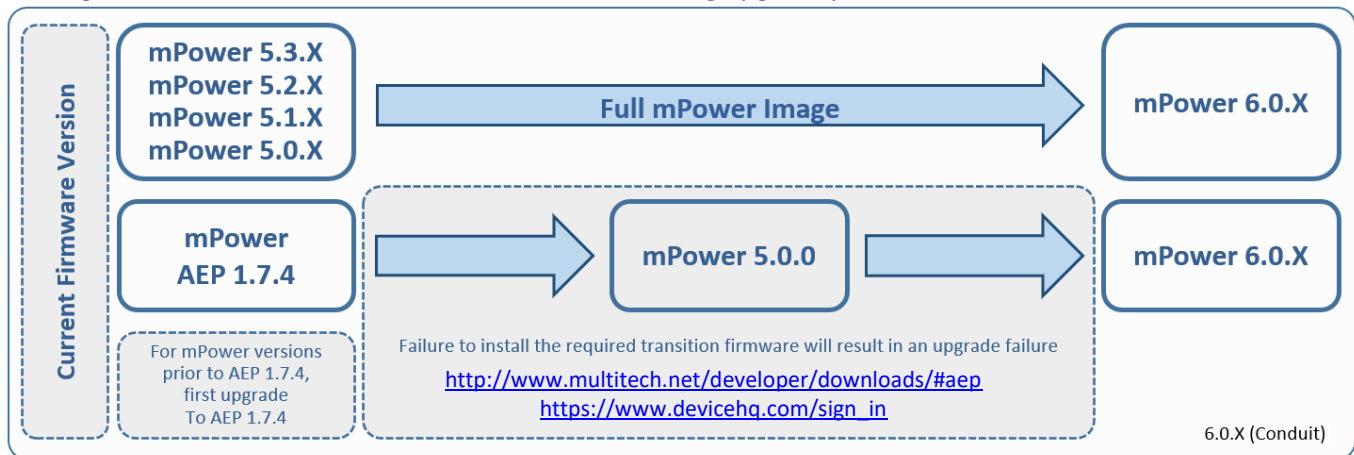
- Downloadable Versions
 - mPower 6.0.1 Availability: May 2022
 - Visit <http://www.multitech.net/developer/downloads/>
 - DeviceHQ: May 2022
- Manufacturing Updates:
 - Devices that ship from MultiTech starting in September 2022 will include mPower 6.0.1
 - New devices will begin shipping with mPower 6.0.1 immediately, including:
 - Conduit gateways with new MTAC-003 LoRa Gateway Accessory Cards (MTCDDT .R3 models)
 - Conduit base stations with new MTAC-003 LoRa Gateway Accessory Cards (MTCDDTIP .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
 - MTCDDT-240A, MTCDDT-246A, MTCDDT-247A
 - MTCDDT-L4E1, MTCDDT-L4G1, MTCDDT-L4N1, MTCDDT-LAT3, MTCDDT-LAP3, MTCDDT-LDC3, MTCDDT-LSB3
 - Hardware versions: MTCDDT-0.1, MTCDDT-0.2
- MultiTech Conduit® IP67 Base Station
 - MTCDDTIP-266A, MTCDDTIP-267A
 - MTCDDTIP-L4E1, MTCDDTIP-L4G1, MTCDDTIP-L4N1, MTCDDTIP-LAP3, MTCDDTIP-LDC3, MTCDDTIP-LSB3
 - Hardware versions: MTCDDTIP-0.0, MTCDDTIP-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-MF5ER-DTE, MTAC-MF5ER-DCE, MTAC-ETH, MTAC-XDOT
 - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDDT-series) and IP67 base stations (MTCDDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-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.



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- 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:

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 6.0.0 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
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New Features and Enhancements (mPower 6.0.0)

Software & Services	
Updated messaging when partial configuration is applied by DeviceHQ <ul style="list-style-type: none"> 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: <p style="text-align: center;">Partial configuration has been applied. The system is going down for reboot now. (DATE/TIME)</p> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> /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 setting multicastGroupID for operations Add option for max FUOTA packet size <ul style="list-style-type: none"> Field in Network Settings > Datarate settings Field in Operations > Show Settings section 	Enhancement
LoRa Firmware Update Over The Air (FUOTA) Updates <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ◦ Message contains list of GW-EUI • Database backup to tar.gz <ul style="list-style-type: none"> ◦ Backup to RAM and move into /var/config directory ◦ Reduce database in /var/config/ to one-fifth <ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> ◦ 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 <ul style="list-style-type: none"> • MQTT QoS and Persist settings • MQTT Resubscribe on connect • Add ClientID configuration option • Add subscriptions for downlinks from remote broker <ul style="list-style-type: none"> ◦ 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 <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Updated to version 2.0.6-5 • AU915 Channel Plan – Default transmit power changed to 30 dBm • 16 Channel support added – Ability to manage MTC DT and MTC DTIP 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	
<p>New hardware versions are available for Conduit devices</p> <p>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</p> <p>Feature: Downgrade Protection</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> Downgrade using API Command: <ul style="list-style-type: none"> "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: <ul style="list-style-type: none"> "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 	<p>New Feature</p> <p>GP-1431</p> <p>MTX-4299</p> <p>GP-1385</p>
<p>MultiTech mCard™ Gateway Accessory Cards (MTAC Series)</p> <ul style="list-style-type: none"> Support for new MTAC LoRa Accessory Cards <ul style="list-style-type: none"> MTAC-003E00 - 868 MHz LoRa Accessory Card, Antenna Sold Separately MTAC-003U00 - 915 MHz LoRa Accessory Card, Antenna Sold Separately Updated features include: <ul style="list-style-type: none"> 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) 	<p>New Feature</p> <p>-</p>

New Features and Enhancements (mPower 6.0.0)

<p>Cellular radio improvements for devices used on the AT&T network</p> <p>Feature: Disabled voice support</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> -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 <ul style="list-style-type: none"> 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 <p style="text-align: center;">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</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> radio-query --voice-support shows the information in the following format: <pre>{ "smsOnly": "Indicates that registration flag is enabled or not : BOOL" "voiceEnabled": "Indicates that voice support is enabled or not : BOOL" }</pre> 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. <ul style="list-style-type: none"> Usage: <pre>root@mtcdt:/var/config/home/admin# radio-cmd --disable-voice-support</pre> <p>Success</p> There is no command to enable voice support. To enable voice support, the user shall use the appropriate AT commands 	<p>New Feature</p> <p>GP-1364</p> <p>MTX-4206</p> <p>GP-1390</p> <p>MTX-4251</p>
<p>Serial Port Configuration</p> <ul style="list-style-type: none"> Models Impacted: MTCDDT 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 	<p>New Feature</p> <p>GP-1178</p> <p>MTX-3995</p> <p>MTX-4337</p>

New Features and Enhancements (mPower 6.0.0)

UXPF utility upgrade <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Mode dropdown is added to the General Configuration pane. It allows users to enable one of the following features: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Linux kernel updated to version 5.4 Previous versions of mPower used Linux kernel v4.9.240 	-
Updated Python <ul style="list-style-type: none"> Python updated to version 3.8.11 Previous versions of mPower used Python 2.7 	GP-1224 MTX-4164
DeviceHQ/Node-RED Custom Application <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Main points <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> api/ni/nis: "wanMasquerade" option is added for each network interface 	New Feature MTX-4104
Remote Syslog Feature Enhancement: TCP and SSL/TLS support <ul style="list-style-type: none"> New settings are implemented for the Remote Syslog feature: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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)

- 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

New Feature

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

Ping Feature Settings: New Options

- 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

New Feature

GP-1279
MTX-4036
MTX-4131

Networking and Security (mPower 6.0.0)

<p>Continuous Ping</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Continuous Ping starts when the user clicks the Start Continuous Ping button <ol style="list-style-type: none"> The system starts pinging The button label changes to Stop Continuous Ping The message “Ping is in progress...” is displayed next to the button Continuous Ping stops when the user clicks the Stop Continuous Ping button <ol style="list-style-type: none"> The system stops pinging The button label changes to Start Continuous Ping The ping results are shown next to the Start Continuous Ping button API Changes <ul style="list-style-type: none"> api/stats/continuousPing - Continuous Ping status is stored in the “isRunning” field 	<p>New Feature GP-1229 MTX-4033 MTX-4131</p>
<p>ICMP Keep Alive feature</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 	<p>New Feature GP-79 MTX-4167</p>
<p>Firewall Status Page</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> iptables-filter.log iptables-nat.log iptables-save.log API Changes. The following API endpoints are added: <ul style="list-style-type: none"> https://192.168.2.1/api/firewall/downloadStatus https://192.168.2.1/api/firewall/status 	<p>New Feature MTX-4106</p>

Networking and Security (mPower 6.0.0)

IPSec Tunnels <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> The “allowAllTraffic” is added to the api/ipsecTunnels collection 	New Feature GP-1361 MTX-4200
IPSec Tunnels - Multiple Remote Networks Support <ul style="list-style-type: none"> The system allows to specify multiple local networks and remote networks when configuring an IPsec tunnel API changes <ul style="list-style-type: none"> “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 <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> PPP-IP Pass-through Mode: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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)

<p>Service Statistics Enhancement</p> <p>The status for new services are added to the Service Statistics Page. Services and their possible statuses are listed below:</p> <p>SNMP Server</p> <ul style="list-style-type: none"> ○ SNMP Server is disabled ○ SNMP Server is running ○ SNMP Server is stopped <p>Security Violation</p> <ul style="list-style-type: none"> ○ 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) <p>Reverse SSH</p> <ul style="list-style-type: none"> ○ Reverse SSH service is disabled ○ Reverse SSH service is running ○ Reverse SSH service is stopped <p>MQTT Broker</p> <ul style="list-style-type: none"> ○ MQTT Broker service is disabled ○ MQTT Broker service is running ○ MQTT Broker service is stopped <p>Remote Management</p> <ul style="list-style-type: none"> ○ Displaying statuses from the Remote Management page <p>Continuous Ping</p> <ul style="list-style-type: none"> ○ Continuous Ping is running ○ Continuous Ping is disabled 	<p>Enhancement GP-1295 MTX-4142</p>
<p>Support Static IP on Wi-Fi as WAN</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ DHCP Client (default) ○ DHCP Client – Addresses Only ○ Static 	<p>Enhancement GP-76 MTX-4186 SP-5084144</p>
<p>Web Server X.509 Certificate - Default details are updated</p> <ul style="list-style-type: none"> • The CN value in the default Web Server X.509 certificate is changed from ocg.example.com to mtx.example.com 	<p>Enhancement GP-1247 MTX-4058</p>

Networking and Security (mPower 6.0.0)

Firewall Settings Improvement <ul style="list-style-type: none"> Firewall “Normal Settings” is the default mode. This view was formerly “Advanced Settings” <ul style="list-style-type: none"> Prerouting Rules Input Filter Rules Forward Filter Rules Output Filter Rules Firewall “Legacy Settings” now includes the following. This view was formerly “Normal Settings” <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> 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)

<p>Reset to User Defined Defaults shall restore custom applications</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Device reboots overlays 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 	<p>Applications GP-1326 MTX-4154</p>
<p>libmts-io</p> <ul style="list-style-type: none"> 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 	<p>Hardware GP-114 MTX-4168</p>
<p>Rogers Wireless – Web Interface Update</p> <ul style="list-style-type: none"> 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 	<p>Hardware GP-1388</p>
<p>SMS - quotation mark character (Double universal) " is displayed with the backslash \ character in the received SMS message (like an escaped character)</p> <ul style="list-style-type: none"> 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 	<p>User Experience MTX-4359</p>
<p>Device UI inaccessible after firmware upgrade if User Authentication enabled</p> <ul style="list-style-type: none"> 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 	<p>User Experience GP-1301 MTX-4143</p>

Bug Fixes (mPower 6.0.0)

Cellular Radio Firmware Upgrade Changes <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Customer unsuccessfully tried to setup a VPN connection using custom OVPN config file. Upon investigation the root cause was found in this string: <i>remote 20.191.55.208 1194 udp</i> If we split the string to these two, VPN connection works properly: <i>proto udp</i> <i>remote 20.191.55.208 1194</i> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> MTCDT-XXXX.R3 devices <ul style="list-style-type: none"> MTCDT with new gateway accessory card: MTAC-003U00 (868 MHz) MTCDT with new gateway accessory card: MTAC-003E00 (915 MHz) MTCDTIP-XXXX.R3 devices <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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			Known Behavior
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	

Deprecations (mPower 6.0.0)

DeviceHQ/Node-RED Custom Application <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Python 2 is not supported in mPower 6.0.0. Only Python 3.8.11 is supported 	GP-1224 MTX-4164
RF Survey <ul style="list-style-type: none"> 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
 - MTCDDT-240A, MTCDDT-246A, MTCDDT-247A
 - MTCDDT-L4E1, MTCDDT-L4G1, MTCDDT-L4N1, MTCDDT-LAT3, MTCDDT-LAP3, MTCDDT-LDC3, MTCDDT-LSB3
 - Hardware versions: MTCDDT-0.1, MTCDDT-0.2
- MultiTech Conduit® IP67 Base Station
 - MTCDDTIP-266A, MTCDDTIP-267A
 - MTCDDTIP-L4E1, MTCDDTIP-L4G1, MTCDDTIP-L4N1, MTCDDTIP-LAP3, MTCDDTIP-LDC3, MTCDDTIP-LSB3
 - Hardware versions: MTCDDTIP-0.0, MTCDDTIP-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-MFSEER-DTE, MTAC-MFSEER-DCE, MTAC-ETH, MTAC-XDOT
 - Note: MultiTech mCard available individually and in select Conduit gateways (MTCDDT-series) and IP67 base stations (MTCDDTIP- series)
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-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://www.multitech.com/documents/publications/sales-flyers/mPower%20Software-Lifecycle%20Management.pdf>

mPower 5.X Software Release Notes

<https://www.multitech.com/documents/publications/sales-flyers/mPower%20Software%205.x.x%20Conduit%20Gateways.pdf>

Security Advisories

<https://www.multitech.com/landing-pages/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

Knowledge Base

<http://www.multitech.com/kb.go>

MultiTech Support Portal

support.multitech.com

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

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Revision History

Version	Author	Date	Change Description
-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