

Software Release Notes

mPower® Edge Intelligence Software

Includes mPower 6.0.0

Models Impacted:

MultiTech Conduit® Gateway

MultiTech Conduit® IP67 200 Series Base Station

MultiTech Conduit® IP67 Base Station

MultiTech Conduit® AP Access Point



Overview

mPower™ Edge Intelligence is MultiTech’s embedded software offering delivering programmability, network flexibility, enhanced security and manageability for scalable Industrial Internet of Things (IIoT) solutions. mPower Edge Intelligence simplifies integration with a variety of popular upstream IoT platforms to streamline edge-to-cloud data management and analytics, while also providing the programmability and processing capability to execute critical tasks at the edge of the network to reduce latency, control network and cloud services costs, and ensure core functionality – even in instances when network connectivity may not be available.

Notes

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

Operating System Updates	Bug Fixes
New Hardware Support	Feature Deprecations
New Features	Schedule
Feature Enhancements	Models Impacted
Known Behaviors	Upgrade Process

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[mPower 6.0.0](#) (May 2022)

Additional Resources

mPower 5.X Software Release Notes <https://www.multitech.com/documents/publications/sales-flyers/mPower>

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/>

Product Support Portal Visit <https://support.multitech.com/> to create a support case

DeviceHQ, Cloud-based IoT Device Management Login: https://www.devicehq.com/sign_in

mPower 6.0.0 Changelog and Overview

May 2022

Updates in mPower 6.0.0, from [mPower 5.3.X](#)

OS Updates	New Hardware	New Features	Feature Enhancements	Known Behaviors	Bug Fixes	Deprecations	Schedule	Models Impacted	Upgrade Process
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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 5.4.81 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

New Hardware Support (mPower 6.0)

MultiTech mCard™ Gateway Accessory Cards (MTAC Series) <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 MultiTech mCard available individually and in select Conduit gateways (MTCDT-series) and IP67 base stations (MTCDTIP- series) 	-
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New Features (mPower 6.0.0)

<p>IP Masquerading</p> <p>The IP Masquerading feature allows users to enable or disable IP Masquerading for WAN interfaces of the device</p> <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 	MTX-4104
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New Features (mPower 6.0.0)

<p>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 	GP-1431 MTX-4299 GP-1385
<p>Remote Syslog Feature Enhancement: TCP and SSL/TLS support</p> <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 	GP-869 MTX-4178 GP-1365 MTX-4205

New Features (mPower 6.0.0)

Support 802.1X authentication on the Ethernet interface(s)

- 802.1X Authentication feature is available for Ethernet network interface (Eth0, Eth1, Eth2) 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

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

GP-1279
MTX-4036
MTX-4131

New Features (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 ping 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 ping 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 	GP-1229 MTX-4033 MTX-4131
<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 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 	GP-79 MTX-4167
<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 	MTX-4106

New Features (mPower 6.0.0)

<p>IPSec Tunnels - the “Allow All Traffic” option (firewall rule that drops or allows all traffic through the tunnel)</p> <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 	<p>GP-1361 MTX-4200</p>
<p>IPSec Tunnels - Multiple Remote Networks Support</p> <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 	<p>GP-1337 MTX-4180</p>

New Features (mPower 6.0.0)

<p>Making cellular radios data-only on AT&T network</p> <ul style="list-style-type: none"> • Overview: Since all new mPower devices are certified as data-only devices, mPower shall disable 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> • 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 	GP-1364 MTX-4206 GP-1390 MTX-4251
<p>Serial Port Configuration</p> <ul style="list-style-type: none"> • Models Impacted: MTCDT with MTAC-MFSER-DTE or MTAC-MFSER-DCE Gateway Accessory Card • Device is configurable to one of the following protocols: RS-232, RS-485 (half-duplex), or RS485 (full duplex) • If RS-485 is selected, the checkbox RS-485 Termination is shown. RS-485 termination should be enabled if this is the first or the last device in the chain 	GP-1178 MTX-3995 MTX-4337

Feature Enhancements (mPower 6.0.0)

<p>Updated Modbus slave feature</p> <ul style="list-style-type: none"> In order to add support of new cellular radios, the Modbus Slave feature is updated in mPower 6.0.0 to use the generic implementation for all band-related queries For Modbus query information: http://www.multitech.net/developer/software/mtr-software/mtr-modbus-information/ 	<p>GP-862 MTX-4190</p>
<p>Serial-IP: Modbus Gateway and Serial-IP settings improvements</p> <ul style="list-style-type: none"> The 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 The system allows customers to configure the Serial Port. Serial Port can be used by other features such as GPS 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 	<p>GP-1432 MTX-4301</p>
<p>Ping Feature – Update the Network Interfaces List</p> <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) ETHERNET (ETH1) ETHERNET (ETH2) 	<p>GP-1320 MTX-4150</p>
<p>PPP-IP Pass-through / Serial Modem Mode - Hide Ping features from the Debug Options Page</p> <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 include: ANY, BRIDGE (BR0) and ETHERNET (ETH0) 	<p>MTX-4093</p>

Feature Enhancements (mPower 6.0.0)

<p>Service Statistics Enhancement</p> <p>The status for new services is 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 	GP-1295 MTX-4142
<p>Cellular Radio Firmware Upgrade Changes</p> <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) 	GP-1451 MTX-4343
<p>Rogers Wireless – Web Interface Update</p> <ul style="list-style-type: none"> • In earlier versions of mPower software, the Web Interface (Cellular, Radio Status) displays the following when a Rogers SIM was inserted in the MTR device Home Network: Rogers AT&T Wireless • In mPower MTR 5.3.5A, the Web Interface (Cellular, Radio Status) has been updated to display the following with a Rogers SIM is inserted in the MTR device Home Network: Rogers Wireless 	GP-1388 MTR only?
<p>Web UI Improvement</p> <ul style="list-style-type: none"> • Material design icons added throughout the web UI • Material design icons are a set of universal icons used to promote simplicity • Additional Information: https://materialdesignicons.com/ 	GP-1362 MTX-4201
<p>Web UI Improvement (Wizard and Support Page)</p> <ul style="list-style-type: none"> • Updated product images added to the First-Time Setup Wizard and Support Page 	GP-1371 MTX-4217

Feature Enhancements (mPower 6.0.0)

<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>GP-76 MTX-4186 SP-5084144</p>
<p>Firewall Settings Improvement</p> <ul style="list-style-type: none"> Firewall settings, “Normal” now includes the following. This is also the default view. This view was formerly “Advanced” <ul style="list-style-type: none"> Prerouting Rules Input Filter Rules Forward Filter Rules Output Filter Rules Firewall settings, “Normal” now includes the following. This view was formerly “Legacy” <ul style="list-style-type: none"> Port Forwarding Input Filter Rules Output Filter Rules 	<p>GP-1426 MTX-4286</p>
<p>IPsec, GRE, OpenVPN Tunnels - Enabled checkbox is moved to the tunnel configuration page</p> <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 	<p>GP-1392 MTX-4255</p>
<p>SNMP Configuration Page - Network Address and Mask validation, IP address conversion to the Network address</p> <ul style="list-style-type: none"> In the 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: 	<p>GP-1468 MTX-4387</p>
<p>Network IP and Mask validation (GRE and IPsec Configuration)</p> <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 	<p>GP-1453 GP-1287 MTX-4353 MTX-4118</p>

Feature Enhancements (mPower 6.0.0)

<p>Add a status message when a partial configuration in the Web UI is applied via DHQ</p> <ul style="list-style-type: none"> In the previous releases, the system does not show a message when a partial configuration upgrade is performed In mPower 6.0.0, when a device checks into DeviceHQ and performs a partial configuration upgrade, the system displays a status message on Web UI: "Partial configuration has been applied. The system is going down for reboot now. (DATE/TIME)" 	<p>GP-418 MTX-4140 IN003879</p>
<p>UXPF utility upgrade</p> <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 <p>http://www.multitech.net/developer/software/mlinux/using-mlinux/using-uxfp-to-upgrade-telit-firmware/</p>	<p>GP-1079 MTX-4037</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>GP-1247 MTX-4058</p>
<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 <p>NOTE: Actual behavior depends on the custom application</p> <ul style="list-style-type: none"> When device boots, the custom application is installed 	<p>GP-1326 MTX-4154</p>
<p>Update MODBUS slave feature</p> <ul style="list-style-type: none"> In order to add support of new cellular radios, the Modbus Slave feature is updated in mPower 6.0 to use the generic implementation for all band-related queries 	<p>GP-862 MTX-4190</p>
<p>Add a status message when a partial configuration in the Web UI is applied via DHQ</p> <ul style="list-style-type: none"> In the previous releases, the system does not show a message when a partial configuration upgrade is performed In mPower 6.0.0, when a device checks into DeviceHQ and performs a partial configuration upgrade, the system displays a status message on Web UI: "Partial configuration has been applied. The system is going down for reboot now. (DATE/TIME)" 	<p>GP-418 MTX-4140 IN003879</p>

Feature Enhancements (mPower 6.0.0)

<p>LoRa UI/API Changes:</p> <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 	-
<p>LoRa Firmware Update Over The Air (FUOTA) Changes:</p> <ul style="list-style-type: none"> • LoRa FUOTA Version 1.0.17 • Added option for maximum packet size to control fragmentation • Added option for setting multicast group ID 	-
<p>LoRa Network Server Changes:</p> <ul style="list-style-type: none"> • LoRa Network Server Version 2.5.37 • Add setting for max FOTA packet size (maxRx2PacketSize) • Add command to delete all queued downlinks • Add command to get single device or session by EUI • Add command to delete all devices and sessions • Add command to add list of devices or sessions • Publish lora/<APP-EUI>/<DEV-EUI>/moved topic when device is deleted by command, UI or LENS <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 • 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 	-

Feature Enhancements (mPower 6.0.0)

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 <ul style="list-style-type: none"> ○ lorawan/appeui/deveui/moved 	-
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 • 	-
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 MTCDDT and MTCDDTIP devices with two MTAC gateway accessory cards as one 16-channel device on The Things Network 	GP-1459 GP-1270 TS-5107644

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 with new gateway accessory card: MTAC-003U00 (868 MHz)• MTCDT with new gateway accessory card: MTAC-003E00 (915 MHz)• MTCDTIP with new gateway accessory card: MTAC-003U00 (868 MHz)• MTCDTIP with new gateway accessory card: MTAC-003E00 (915 MHz)	-																					
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 with gateway accessory card: MTAC-LORA-H-868 or MTAC-LORA-H-915• MTCDTIP with gateway accessory card: MTAC-LORA-H-868 or MTAC-LORA-H-915• MTCAP, MTCAP2• MTCDTIP2	-																					
MTCDT- devices can only be used with one version of MTAC LoRa Gateway Accessory Card <table><tr><th>AP1</th><th>AP2</th><th>Support</th></tr><tr><td>MTAC-LORA-H</td><td>None</td><td>Supported</td></tr><tr><td>MTAC-LORA-H</td><td>MTAC-LORA-H</td><td>Supported</td></tr><tr><td>MTAC-003</td><td>None</td><td>Supported</td></tr><tr><td>MTAC-003</td><td>MTAC-003</td><td>Supported</td></tr><tr><td>MTAC-LORA-H</td><td>MTAC-003</td><td>Not Supported</td></tr><tr><td>MTAC-003</td><td>MTAC-LORA-H</td><td>Not Supported</td></tr></table>	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	-
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																				

Bug Fixes (mPower 6.0.0)

<p>Custom OpenVPN config breaks iptables</p> <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 	<p>GP-1421 MTX-3873 SP-5105937</p>
<p>Save & Apply restart redirects to LAN when connected through WAN</p> <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 	<p>GP-1006 IN-4375 MTX-4040</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 the 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>GP-1301 MTX-4143</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>MTX-4359</p>
<p>PPP-IP Passthrough Mode – multiple farpd instances are running if connection re-establishes</p> <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 	<p>MTX-4350</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>GP-114 MTX-4168</p>

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	GP-1224 MTX-4164
<ul style="list-style-type: none"> Python 2 is not present in mPower. Only Python 3.8.11 is supported 	
RF Survey	GP-1444 MTX-4321
<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 	

Schedule (mPower 6.0.0)

- Downloadable Versions
 - mPower 6.0.0 Availability: May 2022
 - Visit <http://www.multitech.net/developer/downloads/>
- Manufacturing Updates:
 - Devices that ship from MultiTech starting in September 2022 will include mPower 6.0.0
 - New devices will begin shipping with mPower 6.0.0 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)
 - Conduit gateways and base stations with new Global 4G-LTE Category 4 cellular radio (-L4G1 models)
 - See part numbers impacted for details
- DeviceHQ: May 2022
- Differential Images:
 - Differential mPower updates are not available for mPower 6.0.0

Models Impacted (mPower 6.0.0)

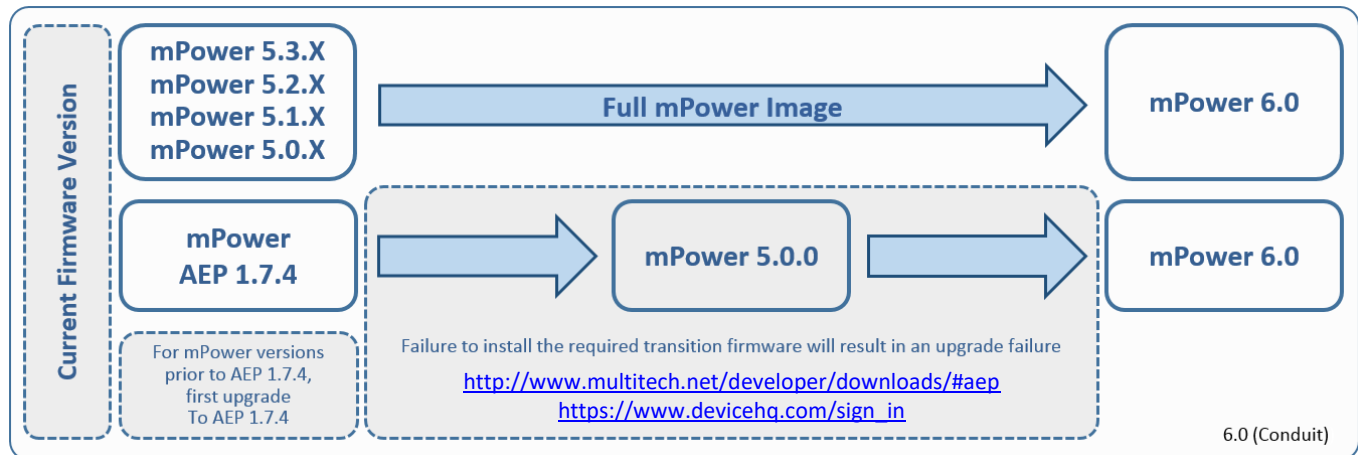
- MultiTech Conduit® Gateway
 - MTCDDT-240A, MTCDDT-246A, MTCDDT-247A
 - MTCDDT-L4E1, MTCDDT-L4G1, MTCDDT-L4N1, MTCDDT-LAT3, MTCDDT-LAP3, MTCDDT-LDC3, MTCDDT-LSB3
- MultiTech Conduit® IP67 200 Series Base Station
 - MTCDDTIP2-EN
 - MTCDDTIP2-L4E1, MTCDDTIP2-LNA3
- MultiTech Conduit® IP67 Base Station
 - MTCDDTIP-266A, MTCDDTIP-267A
 - MTCDDTIP-L4E1, MTCDDTIP-L4G1, MTCDDTIP-L4N1, MTCDDTIP-LAP3, MTCDDTIP-LDC3, MTCDDTIP-LSB3
- MultiTech Conduit® AP Access Point
 - MTCAP-868, MTCAP2-868, MTCAP-915, MTCAP2-915
 - MTCAP-L4E1, MTCAP2-L4E1, MTCAP-LNA3, MTCAP2-LNA3
- 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)

Upgrade Process (mPower 6.0.0)

To install mPower 6.0.0, 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 mPower images are not available for mPower 6.0.0.



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

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

When upgrading a device fleet:

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

Revision History

Version	Author	Date	Change Description
-004	DT	7/25/2022	Upgrade process for mPower 6.0.0 updated
-003	DT	07/14/2022	New hardware support added to mPower 6.0.0 Known behaviors updated in mPower 6.0.0 Schedule for mPower 6.0.0 updated Models impacted for mPower 6.0.0 updated
-002	DT	05/19/2022	GPSD update removed from mPower 6.0.0
-001	DT	05/03/2022	Initial version