

Product Change Notification Software Release Notes

mPower™ Edge Intelligence Software mPower 5.2.5

MultiTech Conduit® AP Access Point
MultiTech Conduit® Programmable Gateway
MultiTech Conduit® IP67 Base Station
MultiTech mCard™ Gateway Accessory Cards



Date: February 9, 2021

Product Change Notification (PCN) Number

PCN 02092021-001 (mPower – Conduit)

I. Overview

mPower 5.2.5 is for use on the MultiTech Conduit® Programmable Gateway, Conduit® AP Access Point, and Conduit® IP67 Base Station

- Interim release, built upon mPower 5.2.1
- Includes:
 1. [Critical bug fix](#): LoRa AS923 channel plan devices used in Japan and Korea
 2. [New Feature](#): Updated reset behavior
 3. [Performance Enhancement](#): LoRa Network Server
- Available for download and included in select devices starting mid-February 2021.
- See [part numbers impacted](#) for details

II. Suggested Action Plan

Customers

1. Download mPower 5.2.5
2. Evaluate in their environment
3. Deploy to fleet
4. Additional information
 - Technical inquiries: email support@multitech.com
 - Sales inquiries: email sales@multitech.com

Contents

- I. [Overview](#)
- II. [Suggested Action Plan](#)
- III. [mPower 5.2.5 Overview](#)
- IV. [Schedule](#)
- V. [Upgrade Process](#)
- VI. [Part Numbers Impacted](#)
- VII. [mPower Edge Intelligence](#)
- VIII. [Additional Information](#)

Distributors

1. Forward this announcement to others within your organization who are actively involved in the sale or support of programmable IoT gateways
2. Notify existing customers of this change and encourage them to evaluate the new firmware with their custom application

III. mPower 5.2.5 Overview

mPower 5.2.5 is an interim software release built upon mPower 5.2.1.

The new features, feature enhancements, bug fixes, and known behaviors announced in mPower 5.2.1 are also available in mPower 5.2.5.

For details about mPower 5.2.1, refer to [Software Release Notice - mPower 5.2.1](#)

Critical Bug Fix (mPower 5.2.5):

mPower 5.2.5 includes the following critical bug fix [GP-964] [GP-997]

Overview of Bug:

1. Bug has been identified in mPower 5.2.1.
2. A combination of FPGA code, LoRa Packet Forwarder, and LoRa Network Server performance results in LoRa sensors not being able to join the network
3. Products Impacted
 - Gateways using the AS923 LoRa channel plan which mandates Listen Before Talk (LBT). Currently, these gateways use FPGA code v33.
 - Gateways shipping with (or upgraded to) mPower 5.2.1 software.
 - See [part numbers impacted](#) for details
4. Listen-Before-Talk FPGA Bug
 - An issue has been identified with the v.33 firmware used in the MultiTech mCard gateway accessory card.
 - After several hours of operations, the gateway stops blocking transmissions when an interfering signal is present.
5. Listen-Before-Talk Packet Forwarder Bug
 - After several days of operation, the gateway is not able to transmit packets and end-devices do not receive the LoRaWAN acknowledgement (ACK) from the network server.
 - When the end-devices do not receive the LoRaWAN ACK messages from the network server, the end-devices start to send new join requests.
 - These repeated join requests impact the LoRa Network Server performance (see below) due to the rejected join requests.
 - Packet Forwarder version: 4.0.1-r32.0
6. LoRa Network Server Performance
 - The Join Nonce Table saves nonce values from every join request from known end-devices.
 - When end-devices cannot join because of the above packet forwarder bug, the database grows in size due to the ongoing join requests.
 - LoRa Network Server version: 2.3.12

Overview of Bug Fix:

1. mPower 5.2.5 includes the fix to this critical issue and allows LoRa sensors to join the LoRa network as intended.
 - LoRa Packet Forwarder is upgraded to version 4.0.1-r35.0
 - LoRa Network Server is upgraded to version 2.4.22-r0.0
 - In mPower 5.2.5, the Join Nonce Table records join requests as a counter, and only the last nonce value is saved
 - This limits the size of the database, because the table is limited to one row per end-device
2. FPGA code in the Conduit gateways and MTAC-LORA-H cards will be upgraded to FPGA v35

Model Numbers Impacted by Bug Fix:

- Japan models: Conduit Programmable Gateway and Conduit IP67 Base Station
- Korea Models: Conduit Programmable Gateway and Conduit IP67 Base Station
- MultiTech mCard™ Gateway Accessory Cards
- See [part numbers impacted](#) for details

New Feature (mPower 5.2.5):

mPower 5.2.5 includes the following new features:

1. Updated Reset Behavior [GP-775]
 - Save and Restore Configuration page changes
 - Factory Default and User-Defined default panes have been added. These options are not dependent on each other.
 - Now it is possible to reset the configuration to factory defaults when the user-defined default configuration is set.
 - Factory Default: Reset to factory default configuration.
 - User-Defined Default: Three options available:
 1. Reset to User-Defined Configuration
 2. Set current Configuration as User-Defined Default
 3. Clear user-Defined Default
 - Reset Button Configuration: Four options available
 1. Enable Reset to Factory Default. When the RESET button is held for 5 seconds or more, the unit will be reset to the factory default settings.
 2. Enable Reset to User-Defined Default. When the RESET button on the device is held for 5 seconds or more, the unit will be reset to the user-defined default settings.
 3. If both options are selected. When the RESET button on the device is held for 5 seconds or more, the unit will be reset to the user-defined default settings. To override user-defined default configurations and restore the unit to factory default, press and hold the RESET button on the device for more than 30 seconds.
 4. If no option is selected. The RESET button will always restart the system and will not allow you to restore the unit to factory or user-defined default.
 - Once the RESET Button Configuration is changed, the user must first submit the changes, followed by a confirmation message.
 - Once the user confirms the RESET Button Configuration, the changes are applied immediately. The device does not need to be rebooted for this change to be applied.

- Reset to Factory Default changes
 - The Web server self-signed certificate and SSH certificates are generated every time during factory reset
 - When a new Web Server CA certificate is generated or uploaded by the user, the Web browser does not redirect to the Login page after the reboot automatically. The user has to refresh the page manually to open Login page.
 - In Release 5.3.1 the following items are removed and/or regenerated during the factory reset:
 - Web Server CA Certificate is deleted and new certificate is generated (new behavior)
 - SSH certificates are removed and new certificates are generated (new behavior)
 - User Defined Defaults configuration is deleted (if set)
 - Root CA certificates are deleted
 - Custom applications are deleted
 - Custom image, favicon and logo are deleted
 - Custom Applications are REMOVED when the user resets the system to USER-DEFINED DEFAULT or restores the configuration from file.
- Reset Button Configuration
 - Reset Button Configuration is a new feature. New settings that allow to enable and disable reset to factory and user-defined configuration are implemented.
 - RESET Button Configuration pane is added to the Save and Restore Configuration page. By default, the option “Enable Reset to Factory Default” is enabled, and “Enable Reset to User-Defined Default” is disabled. This configuration corresponds to the default settings in the Release 5.3.0 and older versions.
 - The changes are available in **/api/resetButton:**

```
{
  "code" : 200,
  "result" : {
    "resetToFactoryDefault" : true,
    "resetToUserDefinedDefault" : false
  },
  "status" : "success"
}
```

Performance Enhancement (mPower 5.2.5):

mPower 5.2.1 includes the following LoRa Network Server behavior:

- The Join Nonce Table saves nonce values from every join request from known end-devices.
- When end-devices cannot join, the database grows in size due to the ongoing join requests.
- LoRa Network Server is upgraded to version 2.3.12

mPower 5.2.5 includes the following LoRa Network Server improvement:

- The Join Nonce Table records join requests as a counter, and only the last nonce value is saved
- This limits the size of the database, because the table is limited to one row per end-device
- LoRa Network Server is upgraded to version 2.4.22-r0.0

Model Numbers Impacted by Bug Fix:

- Conduit® AP Access Point
- Conduit® Programmable Gateways
- Conduit® IP67 Base Stations
- See [part numbers impacted](#) for details

IV. Schedule

There are multiple versions of mPower Edge Intelligence firmware available for customer evaluation and final release.

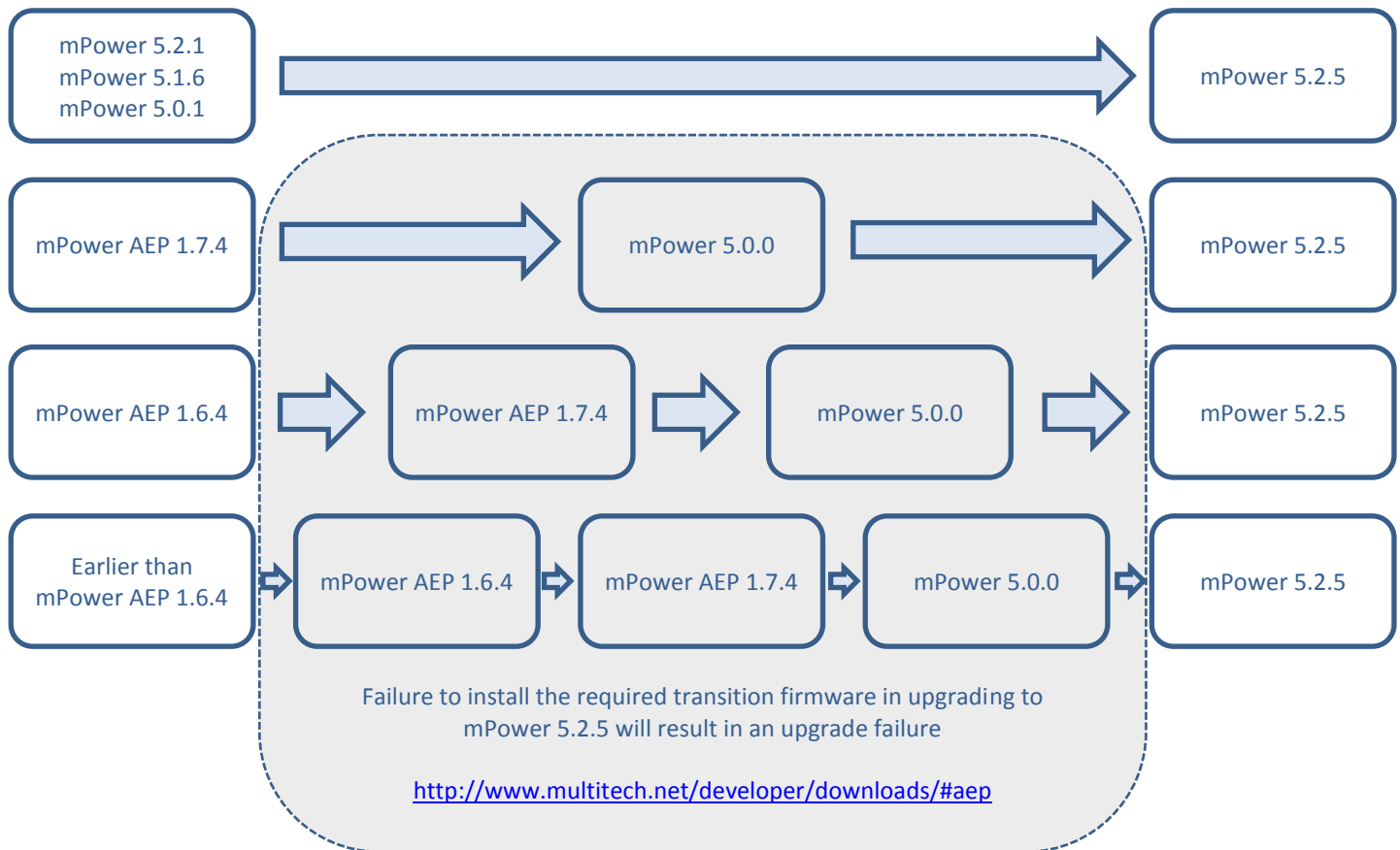
- Manufacturing
 - Select devices with a Date of Manufacture (DOM) after mid-February 2021 will include mPower 5.2.5 and FPGA v.35 firmware.
 - See [part numbers impacted](#) for details
- DeviceHQ[®]
 - Cloud-based IoT Device Management
 - mPower 5.2.5 Availability: mid-February 2021
 - DeviceHQ login: https://www.devicehq.com/sign_in
 - Instructions: [Upgrade Using DeviceHQ](#)
- Downloadable Versions
 - mPower 5.2.5 Availability: mid-February 2021
 - Conduit models: visit <http://www.multitech.net/developer/downloads/#aep>
 - Instructions: [Upgrade Using Device Web Interface](#)

V. Upgrade Process

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

Minimum System Requirements (mPower 5.2.5)

To install mPower 5.2.5, the Conduit Access Point must be upgraded to mPower 5.0.0 or higher. Customers running earlier versions of mPower should use one of the following upgrade processes:



Upgrade Using MultiTech DeviceHQ

DeviceHQ can update the firmware running on any supported device. Since devices have no live connection to DeviceHQ, firmware updates are made the next time a device checks into DeviceHQ.

Instructions:

1. Visit <https://www.devicehq.com>
2. Sign in to your account using your **email address** and **password**.
3. Click **Devices**. The device list page opens.
4. Click the name of the device you want to update. You can update firmware on filtered devices or selected devices.
 - If you select individual devices, you update firmware on selected devices or the filtered devices.
 - If you do not select devices you update the firmware on the filtered devices.
5. Click **Schedule** and select **Upgrade Firmware**. From the list of firmware that appears, select the name of the firmware file. A confirmation message appears, informing you that the new firmware is to be applied to the device when the device next checks in.
6. To confirm that you want to update the firmware click **OK**.

NOTE: To schedule multiple devices at once, see help file within DeviceHQ

Upgrade Using Device Web Interface

It is recommended that customers backup their configuration before performing an upgrade.

- If the firmware upgrade fails, or it does not show the login page again, wait an additional 10 minutes.
- Power off and on the hardware and log in using the web interface to check the version.
- If the version does not show the latest, then the upgrade was not successful.
- Try to perform the firmware upgrade again by repeating all the steps.

Instructions:

1. Download the latest firmware file from <http://www.multitech.net/developer/downloads/#aep>

NOTE: There are multiple versions of mPower firmware available.
Please select the file that matches the hardware model being upgraded.

2. Log into the mPower Web interface.
3. In the left navigation pane, click **Administration > Firmware Upgrade**.
4. Click Browse and select the appropriate file.
5. Click **Start Upgrade**.
6. After the firmware upgrade is complete, log back into the web GUI and verify the firmware version shown at the top of the page.

VI. Part Numbers Impacted

Ordering part numbers impacted by the critical bug fix and new feature available in mPower 5.2.5.

Conduit® Programmable Gateways Conduit® IP67 Base Stations		
Status: Active	Status: Active	Status: Active
MTCDT-246A-US-EU-GB-923KR *	MTCDT-LDC3-246A-923-JP *	MTCDT-246A-923-JP *
MTCDTIP-266A-923KR *	MTCDT-LSB3-246A-923-JP *	MTCDT-LDC3-246A-JP *
	MTCDTIP-266A-923-JP *	MTCDT-LDC3-247A-JP *
	MTCDTIP-LDC3-266A-923-JP *	MTCDT-LSB3-246A-JP *
	MTCDTIP-LSB3-266A-923-JP *	
MultiTech mCard™ Gateway Accessory Cards		
MTAC-LORA-H-923KR-LBT **	MTAC-LORA-H-923-JP **	

(*) Devices with a Date of Manufacture (DOM) after mid-February 2021 will include mPower 5.2.5 and FPGA v.35 firmware.

(**) MultiTech mCard Gateway Accessory Cards (MTAC-series) with a Date of Manufacture (DOM) after mid-February 2021 will include FPGA v.35 firmware.

Ordering part numbers impacted by the new feature and performance enhancement available in mPower 5.2.5.

Conduit® AP Access Point Conduit® Programmable Gateways Conduit® IP67 Base Stations		
Status: Active	Status: Active	Status: Active
MTCDT-240A-US-EU-GB ***	MTCDTIP-266A-868 ***	MTCAP-868-001A ***
MTCDT-246A-868-EU-GB ***	MTCDTIP-266A-868/2 ***	MTCAP-868-041A ***
MTCDT-246A-915-US-EU-GB ***	MTCDTIP-266A-915 ***	MTCAP-915-001A ***
MTCDT-246A-US-EU-GB ***	MTCDTIP-266A-915/2 ***	MTCAP-915-041A ***
MTCDT-247A-868-EU-GB ***	MTCDTIP-267A-868 ***	MTCAP-IN865-001A ***
MTCDT-247A-915-US-EU-GB ***	MTCDTIP-267A-868/2 ***	MTCAP-L4E1-868-001A ***
MTCDT-247A-US-EU-GB ***	MTCDTIP-267A-915 ***	MTCAP-L4E1-868-041A ***
MTCDT-L4E1-246A-868-EU-GB ***	MTCDTIP-267A-915/2 ***	MTCAP-LNA3-915-001A ***
MTCDT-L4E1-246A-915-EU-GB ***	MTCDTIP-L4E1-266A-868 ***	MTCAP-LNA3-915-041A ***
MTCDT-L4E1-246A-EU-GB ***	MTCDTIP-L4E1-266A-868/2 ***	MTCAP2-868-002A-POE ***
MTCDT-L4E1-247A-868-EU-GB ***	MTCDTIP-L4E1-266A-868-NLA ***	MTCAP2-868-042A-POE ***
MTCDT-L4E1-247A-915-EU-GB ***	MTCDTIP-L4E1-266A-915 ***	MTCAP2-915-042A-POE ***
MTCDT-L4E1-247A-EU-GB ***	MTCDTIP-L4E1-267A-868 ***	MTCAP2-L4E1-868-002A-POE ***
MTCDT-L4N1-240A-US ***	MTCDTIP-L4E1-270A-868 ***	MTCAP2-L4E1-868-042A-POE ***
MTCDT-L4N1-246A-915-US ***	MTCDTIP-L4N1-266A-915 ***	MTCAP2-LNA3-915-042A-POE ***
MTCDT-L4N1-246A-US ***	MTCDTIP-L4N1-266A-915/2 ***	MTCAP2-LSP3-915-042A-POE ***
MTCDT-L4N1-247A ***	MTCDTIP-L4N1-267A-915 ***	Status: NEOL MTCDT-210A-US-EU-GB *** MTCDT-H5-210A-US-EU-GB *** MTCDT-H5-240A-US-EU-GB *** MTCDT-H5-246A-868-EU-GB *** MTCDT-H5-246A-US-EU-GB *** MTCDT-H5-247A-868-EU-GB *** MTCDT-H5-247A-915-US *** MTCDT-H5-247A-US-EU-GB ***
MTCDT-L4N1-247A-915-US ***	MTCDTIP-L4N1-267A-915/2 ***	
MTCDT-L4N1-247A-US ***	MTCDTIP-L4N1-270A-915 ***	
MTCDT-LAP3-246A-915-AU ***	MTCDTIP-L4N1-275A-915 ***	
MTCDT-LAP3-246A-AU ***	MTCDTIP-LAP3-266A-915 ***	
MTCDT-LAP3-247A-915-AU ***	MTCDTIP-LAP3-266A-915/2 ***	
MTCDT-LAT3-240A-US ***	MTCDTIP-LAP3-267A-915 ***	
MTCDT-LVW3-240A-US ***		

(***) In mid-February 2021, mPower 5.2.5 will be available for download at <http://www.multitech.net/developer/downloads/#aep>.

VII. mPower™ Edge Intelligence

mPower™ Edge Intelligence is MultiTech's embedded software offering, building on the popular application enablement platform, to deliver programmability, network flexibility, enhanced security and manageability for scalable Industrial Internet of Things (IIoT) solutions. mPower Edge Intelligence simplifies integration with a variety of popular upstream IoT platforms to streamline edge-to-cloud data management and analytics, while also providing the programmability and processing capability to execute critical tasks at the edge of the network to reduce latency, control network and cloud services costs, and ensure core functionality – even in instances when network connectivity may not be available. In response to evolving customer security requirements, mPower Edge Intelligence incorporates a host of security features including signed firmware validation, enhanced firewall and VPN settings, secure authentication and more.

VIII. Additional Information

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

World Headquarters – USA

+1 (763) 785-3500 | sales@multitech.com

EMEA Headquarters – UK

+(44) 118 959 7774 | sales@multitech.co.uk

MultiTech Developer Resources:

www.multitech.net

An open environment where you can ask development related questions and hear back from MultiTech engineering or a member of this community.

Knowledge Base:

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

Immediate access to support information and resolutions for all MultiTech products.

MultiTech Support Portal:

<https://support.multitech.com/support/login.html>

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

MultiTech Website:

www.multitech.com