AEP 1.4.1 Release Notes

What's New

NOTE: When upgrading to AEP 1.4.1 from a firmware level older than AEP 1.3.2 it is necessary to upgrade to AEP 1.3.3 first and then to AEP 1.4.1 in order to retain the LoRa configuration settings. If it does not matter whether the LoRa configuration settings are retained or not, then it is possible to upgrade from any firmware older than AEP 1.3.2 to AEP 1.4.1.

WARNING: Do not insert the MTAC-LoRa-H card into a Conduit running AEP version 1.3.3 or older firmware. There is a firmware bug that crashes the mts-io kernel module during boot, and prevents initialization of much of the software running on the Conduit. This bug is fixed in AEP version 1.4.1. The MTAC-LoRa-H card can be safely used on AEP version 1.4.1 or newer.

Wi-Fi Access Point and Client Support

Support for configuring the Conduit as a Wi-Fi Access Point and/or as a Wi-Fi Client (station mode) using either the 2.4GHz or 5GHz frequency bands. **There is limited support for running Access Point and Client Mode concurrently at 2.4GHz. When concurrent mode is configured, the channel is not configurable because the channel is restricted to be the same as the channel the Wi-Fi client mode gets. Other restrictions include: Wi-Fi Client mode is enabled and Bluetooth Classic or BLE are enabled, Wi-Fi Access Point cannot be enabled. If Bluetooth Clasic and BLE are enabled it is not possible to enable Wi-Fi Client mode. If Wi-Fi Access Point is enabled along with any Bluetooth functionality, Wi-Fi Client mode cannot be enabled. Finally, it is not possible to scan for Wi-Fi Access Points when Wi-Fi Client is connected. To scan, all "Saved Wi-Fi Networks" must be disabled.**

Bluetooth IP and BLE Support

A "Bluetooth IP" feature is now available for Bluetooth Classic that supports connecting to a configured set of Bluetooth Classic devices and supporting access to those devices by bridging the RFCOMM port and some Internet server. AEP Conduit listens for incomming packets to the Bluetooth RFCOMM port and routes data received to a configured server on the Internet. AEP keeps the connection with the server constantly open to be ready to transfer data when received, even when no activity on the Bluetooth RFCOMM port occurs.

In support of Bluetooth Low Energy (BLE), AEP has a Web UI page that can scan for BLE devices. This functionality supports connection to a selected device to obtain a list of UUIDs for services and characteristics of a device and other identifying information.

Bluetooth Classic features cannot be enabled if Wi-Fi Client mode is enabled. Bluetooth Low Energy features cannot be enabled if BLE is enabled concurrently with Wi-Fi Client Mode.

Custom Application Installation in Flash (No SD Card Required)

The SD Card is no longer required to install and run Custom Applications. An applicatin now gets installed in one of two places:

1. /var/config/app/<app_name>

2. /media/card/<app_name>

A new optional boolean value can be placed in the manifest.json file of an application to indicate where the app should be installed. The following is an example of the manifest.json contents with the SDCard boolean:

```
{
        "AppName" : "My Favorite App",
        "AppVersion : "0.11.12",
        "AppDescription" : "This app is too awesome to share",
        "AppVersionNotes" : "Don't ask how we got to this version",
        "SDCard" : True
}
```

The following is pseudo code logic for handling the install of a Custom Application with these enhancements:

```
if "SDCard" present in manifest.json:

        if "SDCard" == true:
                if SD Card is inserted:
                        Install in /media/card/<app_name>
                else:
                        FAIL
        else:
                Install in /var/config/app/<app_name>
else if SD Card is inserted:
        Install in /media/card/<app_name>
else:
        Install in /var/config/app/<app_name>
```

GNSS Support (GPS NMEA Streaming Support)

GPS functionality has been added to the AEP Conduit. The supported functionality in the Web UI is limited to streaming of NMEA data in three modes:

1. As a server streaming data to a client over an IP network connection.

2. As a client streaming to a server application over an IP network connection.

3. Streaming NMEA data through the serial port on the device (requires a MTAC serial card).

The gpsd server is also available on the AEP Conduit, however in order to use it the GPS NMEA data streaming mode must be disabled, and the init script for gpsd service must be added with the update-rc.d command.

WAN Failover

WAN failover is now supported on the AEP Conduit. This feature allows the prioritization of multiple interfaces configured as WAN. The interface with the highest priority will be used as the WAN interface unless and until it is detected that the interface is not working. At that point the next highest priority interface will be configured as the WAN and used.

Network Interfaces

The network interface configuration has been updated to support the new bridge interface (br0) and the additional potential interfaces to support the MTAC Ethernet Accessory Card. Any LAN interface on the AEP Conduit can be assigned to the bridge. The bridge works like any standard bridge interface on Linux.

Ethernet Accessory Card Support

Support for use of the MTAC Ethernet Accessory Card has been added to the AEP Conduit. This feature supports inserting up to two Ethernet Accessory Cards for a sum total of three Ethernet interfaces on the AEP Conduit. The interfaces for the accessory card enumerate themselves as eth1 for a card inserted into Accessory Port 1 and as eth2 for a card inserted into Accessory Port 2.

Miscellaneous Enhancements and Bug Fixes

- The app-manager utility now sets the environment variables correctly for the "Start reload" command after a config file install from Device HQ.
- The size of the fields for the rx_bytes and tx_bytes sent to Device HQ for Cellular stats has been increased and should support far larger values.
- A bug preventing disabling of the LoRa Network Server after it was enabled has been fixed.
- The Multi-Serial Node in Node-RED has been fixed so that RS-485 Half Duplex works and no longer continuously displays "disconnected".
- The level of OpenSSL has been upgraded to 1.0.2k to address multiple CVE's.
- An issue has been fixed where the DHCP client would not renew the lease on an Ethernet interface when cable was unplugged for a time and then plugged back in.
- The DHCP server gateway address now gets updated when the IP on the Conduit interface is changed.
- A bug when resetting to User Defined Defaults not working with non-default IP address has been fixed.
- Installing a custom application from Device HQ, deleting it on Device HQ, adding the app back on Device HQ, and then re-installing the app to the Conduit no longer shows two of the same

application in the app-manager DB.
- ❿ A bug in the Inbound Forwarding Rule menu's Input Filter Rule not showing the External IP address has been fixed.
- ❿ A bug has been fixed involving AEP set for 868, LoRa setting Rx 1 DR Offset drop down menu adds values after changes are submitted.
- ❿ A bug has been fixed involving LNS not sending LoRa downlinks with CRC disabled.
- ❿ A bug has been fixed involving AS923, join on Rx2 NS uses DR0.

For a more detailed list of changes go to

http://www.multitech.net/developer/software/aep/aep-firmware-changelog/ .