Release Notes for End device SDK of managed integrations for AWS IoT Device Management

1. Version number

V1.2.0

2. Changes between v1.1.0 and v1.2.0

CORE SDK FEATURES

- **Added WiFi Simple Setup (WSS) support** - Implemented comprehensive WiFi Simple Setup functionality that enables automatic WiFi credential retrieval and device provisioning through a streamlined setup process. This feature allows devices to automatically connect to WiFi networks without manual configuration by retrieving credentials from a provisioner device and switching to the target access point seamlessly.

ENHANCED PROVISIONING WORKFLOW

- **Example WSS integration with provisioning flow** - Demonstrated in the example application how WiFi Simple Setup can work as a primary provisioning method, with automatic fallback to User Guided Setup (UGS) if WSS fails, providing a reference implementation for robust device onboarding experience.

PLATFORM AND API ENHANCEMENTS

- **Added WiFi platform abstraction layer (PAL)** - New WiFi PAL APIs for cross-platform WiFi management including network scanning, connection, and credential management.
- **Enhanced network transport capabilities** - Extended network transport layer to support provisioning-specific network contexts and improved connection handling.
- **Added cryptographic utilities** - New crypto PAL functions to support secure WiFi credential exchange and authentication.

DOCUMENTATION & EXAMPLES

- **Added WSS example implementation** - Included complete example implementation demonstrating WiFi Simple Setup integration with device provisioning workflow. The example PAL layer implementation is provided for Linux platforms, though implementations for other platforms is feasible following the same abstraction patterns.

BUILD & CONFIGURATION

- **Added WSS build configuration** - New IOTMI_USE_WSS_PROVISIONEE build flag to enable/disable WiFi Simple Setup functionality, allowing flexible deployment options. Note: Customers enabling this flag will need to implement the associated WiFi and crypto PAL layer functions for their target platform.

3. Supported functionality

- **MQTT Agent:** Secure communication between end devices and managed integrations by managing MQTT connections with PKCS#11 for TLS connections.
- **Provisionee:** Support provisioning of devices to managed integrations using Fleet Provisioning by claim, with WiFi Simple Setup (WSS) capability for automatic WiFi credential retrieval and seamless network onboarding. Includes fallback to User Guided Setup (UGS) for robust device provisioning workflows.

- **PKCS#11 Interface:** Provide TLS connections and certificate/key management through PKCS#11 on top of Platform Abstraction Layer (PAL).
- **Data Model Handler:** Manage MQTT messages that work with the AWS implementation of Matter data model standard and interact with low-level C functions.
- **Jobs Handler:** Support requesting and receiving OTA IoT Jobs from managed integrations.
- **API operations for low level C-Functions:** Provide a set of callback function pointers to register hardware control functions interact between the device and the cloud data model.
- **Demo applications:** Provide samples for SDK initialization, device provisioning, and event handling for managed integrations API communication.
- **Code Generator:** Automatically generate C headers and source files for AWS implementation of Matter data model clusters, streamlining integration and reducing development effort.

4. Components

- **IoTManagedIntegrationEndDevice-Provisionee binary**
- **IoTManagedIntegrationEndDevice-DataModelHandler binary**
- **IoTManagedIntegrationEndDevice-JobsHandler binary**
- **IoTManagedIntegrationEndDevice-MQTTAgent binary**
- **IoTManagedIntegrationEndDevice-SDKLog binary**
- **IoTManagedIntegrationEndDevice-LowLevelCFunctions source**

5. Supported Platforms

- **Linux (Amazon Linux 2023.6.20241121)**
  - Kernel version: 5.10.228-198.884.amzn2int.x86_64
  - CPU Architecture: x86_64
  - Compiler: gcc-11.2
  - glibc: 2.34 and above
  - binutils: 2.35
- **Ambarella**
  - Toolchain: linaro-aarch64-2020.09-gcc10.2-linux5.4
  - CPU Architecture: aarch64
  - Compiler: gcc-10.2
- **Realtek Ameba D**
  - Toolchain: Realtek asdk-6.4.1 (https://github.com/Ameba-AIoT/ameba-toolchain/releases/download/6.4.1/asdk-6.4.1-linux-newlib-build-2773-i686.tar.bz2)
  - CPU Architecture: ARM v8m
  - Compiler: gcc-6.4.1
- **Espressif ESP32S3**
  - Toolchain: xtensa-esp32s3-elf (https://docs.espressif.com/projects/esp-idf/en/v5.0/esp32s3/api-guides/tools/idf-tools.html#xtensa-esp32s3-elf)
  - CPU Architecture: Xtensa LX7 32 bit
  - Compiler: gcc-11.2.0

6. User guide

https://docs.aws.amazon.com/iot-mi/latest/devguide/managedintegrations-sdk-devices.html

7. License Information

Program Materials License Agreement: https://developer.amazon.com/support/legal/pml

8. Third-party library dependencies

The versions and licenses of library dependencies are included in the release package.