USIC - Locate Performance Management™: RDSDK: OTA F/W Feature Adoption

Content

Firmware Upgrade

Introduction

The OTA (Over The Air) F/W (Firmware) update of locators via RDSDK's Bluetooth connectivity is capable of:-

- Checking for and downloading new versions of firmware
- Checking the locator firmware version
- Informing the user a firmware update is available
- Verify the firmware files against the checksum provided within the ZIP archive
- Informing the user of the update process instructions
- Verifying both devices are in a good state to perform the update
- Applying an OTA firmware update using Bluetooth
  - Informing the user of the status and outcome of any firmware update attempts

Usage Instructions

See section entitled **Usage and firmware upgrade Flow**

Locator Display

The locator display provides clear feedback during the firmware upgrade process.

- While the upgrade is in progress, the display shows 'SWUPD' to indicate that the update is underway.
- Once the upgrade is complete, the display changes to 'Done.'
- Additionally, the display shows the current percentage of the upgrade, giving users a real-time status of the process."

Check Firmware Update

Introduction

This method checks for the availability of a new firmware update for the device identified by its serial number, it initiates the process of downloading and preparing the firmware update, notifying the user when the update is available, and verifying that the device is ready for the update process

Definition

```
1    fun checkForFWUpdate(deviceSerialNumber: String,
2    onSuccess: () -> Unit,
3    onFailure:(Error) -> Unit)
4      {
```

Usage

```
1   class FirmwareUpgradeScreen : Fragment() {
2     onCreate() {
3       super.onCreate()
4       fwUpdateBtn.setOnClickListener {
5             deviceName = deviceSerial.text.toString()
6             RadiodetectionProductManager.checkForFWUpdate(deviceSerialNumber = deviceName, onSuccess = {
7                 RadiodetectionProductManager.updateProductFirmware( application,
8                     this,
9                     { Timber.i("Firmware upgrade successfully") },
10                    {reason -> Timber.i(" Firmware upgrade failure, reason
11         %s",reason.cause) } )
12                }, onFailure = { error: Error ->
13                })
14        }
15     }
```

Returns and Exceptions

The method does not return any values but will throw an FWUpdateException that should be handled by the parent application if there is any later firmware available.

The SDK will try to upgrade the firmware before throwing the exception but will throw the exception if it is not able to update the firmware . This might be for several reasons, the most likely being that the SDK has no network connectivity. The parent app should try again until the firmware is updated.

```
1   NoNewFWAvailable
2   UnableToGetAvailableFwVersion
3   UnableToGetCurrentFwVersion
```

Update Product Firmware

Introduction

This method performs the actual firmware update on a product. Once the new firmware has been validated and downloaded, it applies the update to the device. This method also provides success and failure call-backs for the update process.

Definition

```
1    fun updateProductFirmware(applicationContext: ApplicationContext,
2    baseView : Any,
3    onSuccess: () -> Unit,
4    onFailure:(Error) -> Unit )
```

```
5      {
```

Usage

```
1  class FirmwareUpgradeScreen : Fragment() {
2    onCreate() {
3      super.onCreate()
4      fwUpdateBtn.setOnClickListener {
5          deviceName = deviceSerial.text.toString()
6          RadiodetectionProductManager.checkForFWUpdate(deviceSerialNumber = deviceName, onSuccess = {
7             RadiodetectionProductManager.updateProductFirmware( application,
8                 this,
9                 { Timber.i("Firmware upgrade successfully") },
10                {reason -> Timber.i(" Firmware upgrade failure, reason
11       %s",reason.cause) } )
12           }, onFailure = { error: Error ->
13           })
14       }
15     }
```
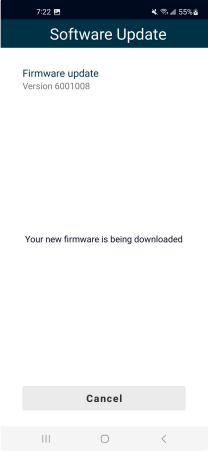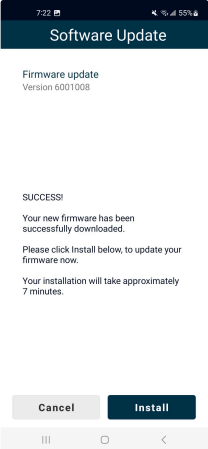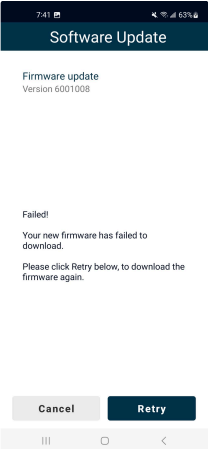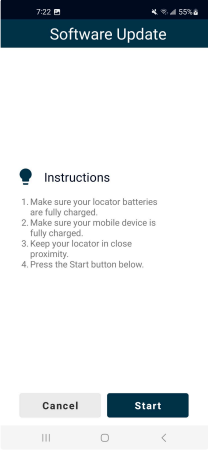
Returns and Exceptions

The method does not return any values but will throw an FWUpdateException that should be handled by the parent application if there is any latest firmware available.
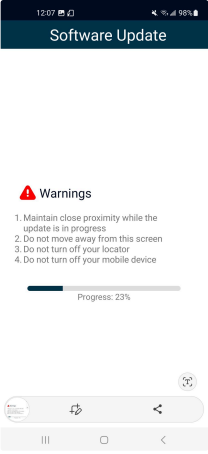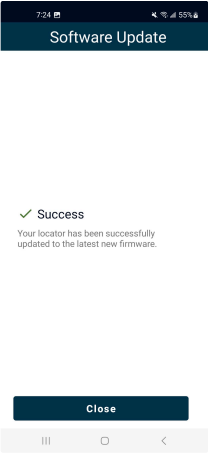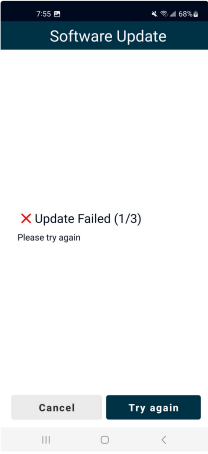
The SDK will try to upgrade the firmware before throwing the exception but will throw the exception if it is not able to update the firmware . This might be for several reasons, the most likely being that the SDK has no network connectivity. The parent app should try again until the firmware is updated.

```
1  NoNewFWAvailable
2  UnableToGetAvailableFwVersion
3  UnableToGetCurrentFwVersion
```

Usage and firmware upgrade Flow

Steps	Description	Screens
Step - 1	When the FW update process is initiated, the first step is to download the latest files	
Step - 2.a	When the firmware files are downloaded successfully, the UI presents option to install the downloaded files	

		7:22 🖼 📶 55% 🔋 **Software Update** Firmware update Version 6001008 SUCCESS! Your new firmware has been successfully downloaded. Please click Install below, to update your firmware now. Your installation will take approximately 7 minutes. Cancel **Install** ‖‖‖ ◯ ‹
Step - 2.b	When the firmware files are not downloaded successfully, the UI presents option to retry downloading the files again	7:41 🖼 📶 63% 🔋 **Software Update** Firmware update Version 6001008 Failed! Your new firmware has failed to download. Please click Retry below, to download the firmware again. Cancel **Retry** ‖‖‖ ◯ ‹
Step - 3	When the user clicks Install, the user is presented with instruction to be followed while the Firmware is upgrading	7:22 🖼 📶 55% 🔋 **Software Update** 💡 Instructions 1. Make sure your locator batteries are fully charged. 2. Make sure your mobile device is fully charged. 3. Keep your locator in close proximity. 4. Press the Start button below. Cancel **Start** ‖‖‖ ◯ ‹
Step - 4	When the user clicks start, the user can see the progress of the firmware upgrade both in the mobile UI and locator screen	

		12:07 🔋🔲 ⏻ 🔋 98%🔋 **Software Update** ⚠ **Warnings** 1. Maintain close proximity while the update is in progress 2. Do not move away from this screen 3. Do not turn off your locator 4. Do not turn off your mobile device ▬▬▬▬▬▬▬▬▬▬▬ Progress: 23% 🔲 ⟵ 🔄 ＜ III ◻ ＜
Step - 5.a	When the firmware upgrade succeeds, the UI lets the user know that the process is completed, when Close button is clicked, the control goes back to the TPA	7:24 🔋 ⏻ 🔋 55%🔋 **Software Update** ✓ **Success** Your locator has been successfully updated to the latest new firmware. [**Close**] III ◻ ＜
Step - 5.b	When the firmware upgrade fails, the user is allowed to retry the process for three more times	7:55 🔋 ⏻ 🔋 68%🔋 **Software Update** ✕ Update Failed (1/3) Please try again [Cancel] [**Try again**] III ◻ ＜