

October 2020

# SN-208 OTA firmware update for devices already in a Bluetooth mesh network

## Application note

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## SN-208: OTA firmware update for devices already in a Bluetooth mesh network

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# Overview

## OTA firmware update for devices in the Bluetooth mesh

OTA (over-the-air) firmware update allows you to upgrade the Silvair firmware or external firmware on your lighting devices using the Commissioning mobile app. The update of Silvair firmware is automatic (the new firmware is stored and downloaded from the cloud). To update external firmware, user must have a firmware file (in a zip format) and upload it to the Commissioning mobile app.

**NOTE:**

**Light blinking / light turns off.**

When a device is selected for a firmware update and it is being updated via the Silvair app, it always blinks and the light turns off after firmware update starts. This is expected behavior and may last for a few seconds for each of the updated devices.

**IMPORTANT NOTICE:**

While doing the OTA (over-the-air) update make sure the devices are **powered on**. Powering off the device during the update may render the device unusable.

The main features of the OTA update in the Commissioning app are:

- ability to update the firmware of devices that have already been added to the mesh network (provisioned)
- updating and commissioning activities can be done using a single app
- the update is simultaneous on up to 4 devices (e.g. user selects 20 devices to update, first 4 devices are queued and updated with new firmware, then the app selects the remaining devices and updates them in packets of four)
- ability to update devices from the level of a single, or multiple zones (user first chooses the zone(s) where he'd like to start the update and then selects the devices to update)
- **updating devices with the mobile app is possible only for devices with Silvair firmware version 2.10 and higher**

**NOTE:**

With the Silvair DFU app you can upgrade devices which are not part of the mesh: devices which have not been added yet or have been removed from the mesh network. Updating firmware with the DFU app is available only for devices running firmware version 2.8.0 and above.

**NOTE:**

Devices updated with **new** firmware features must be recommissioned (removed and added to the project again) in order to activate those features.

**Requirements to use the automatic OTA in the mobile app:**

- an account in the commissioning web app
- the commissioning mobile app for iOS
- access to the project with devices to be updated
- a zip file with upgraded firmware which allows for the update of devices with **external** (not Silvair) **firmware**

**NOTE:**

Once the device's firmware is updated, it is not possible to revert it to a previous version!



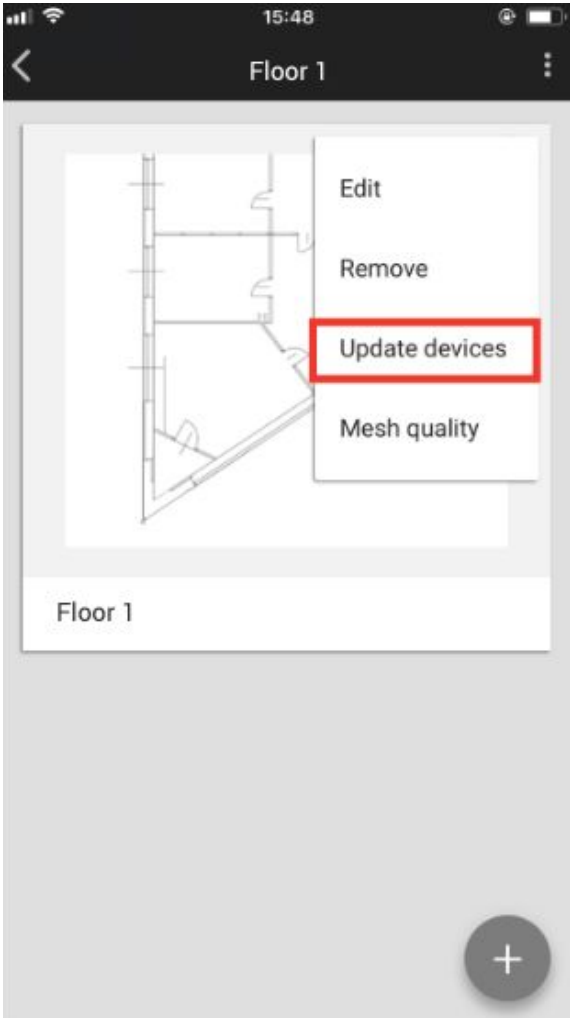
Click [here](#) to see the update flow in the app.

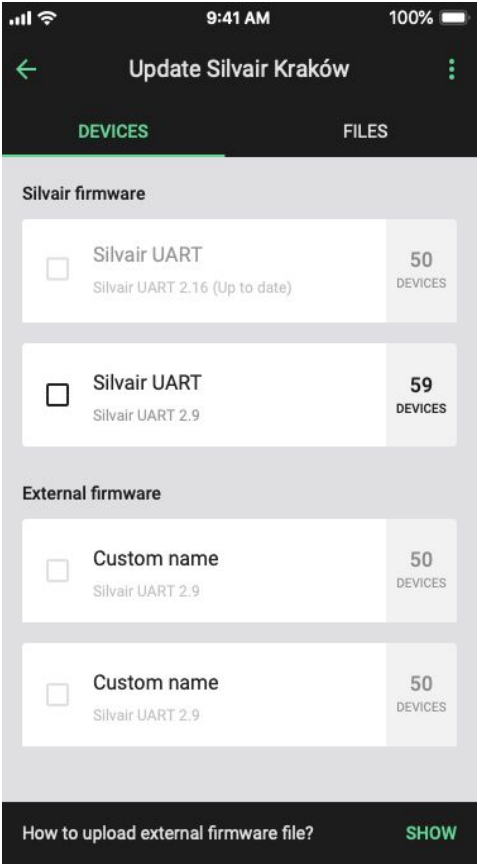
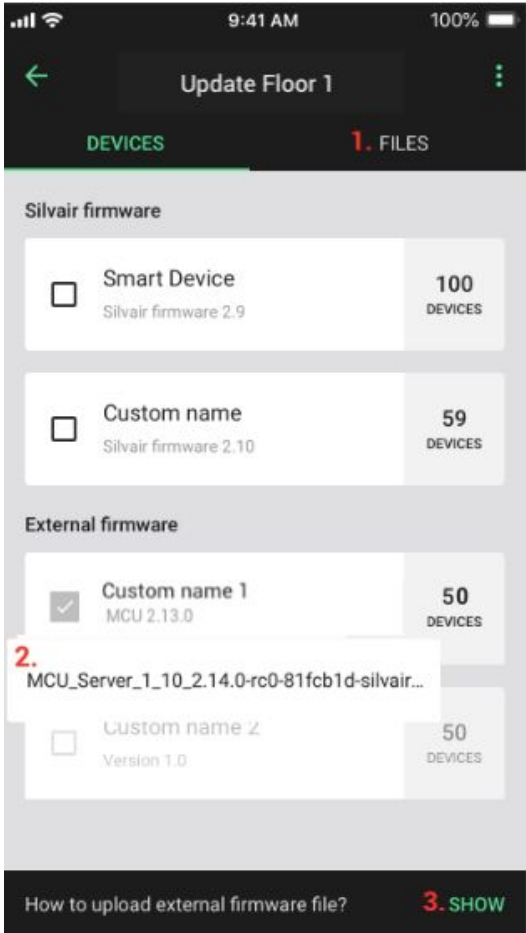
## OTA firmware update in the mobile app



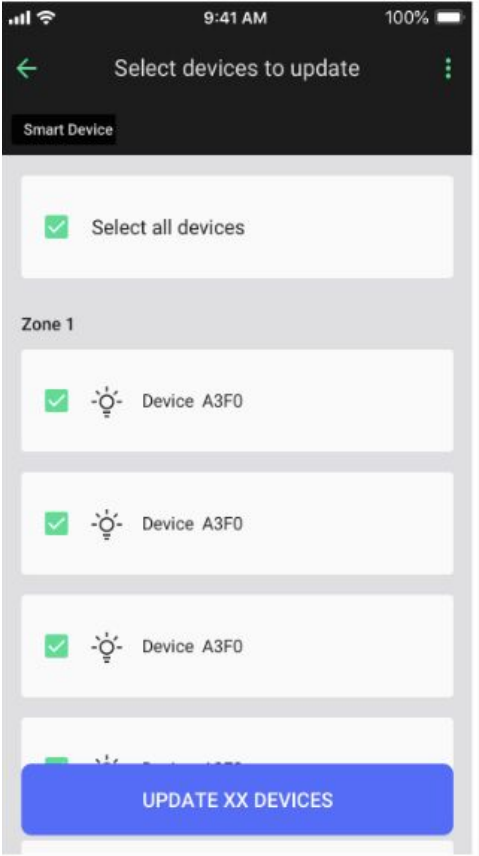
**NOTE:**

**Light blinking / light turns off.**


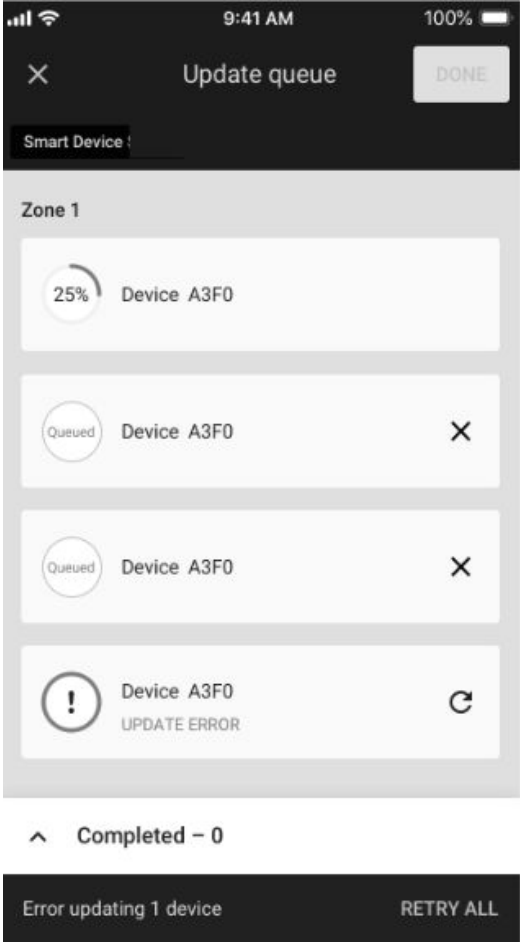
When a device is selected for a firmware update and it is being updated via the Silvair app, it always blinks and the light turns off after firmware update starts. This is expected behavior and may last for a few seconds for each of the updated devices.

Step 1	Step 2
<ul style="list-style-type: none"><li>• Select a project and an area where you would like to do the devices' update.</li></ul> 	<ul style="list-style-type: none"><li>• Press the  button on the area plan and choose <b>“Update devices”</b>. This allows users to select devices added to the zones from that area.</li></ul> 

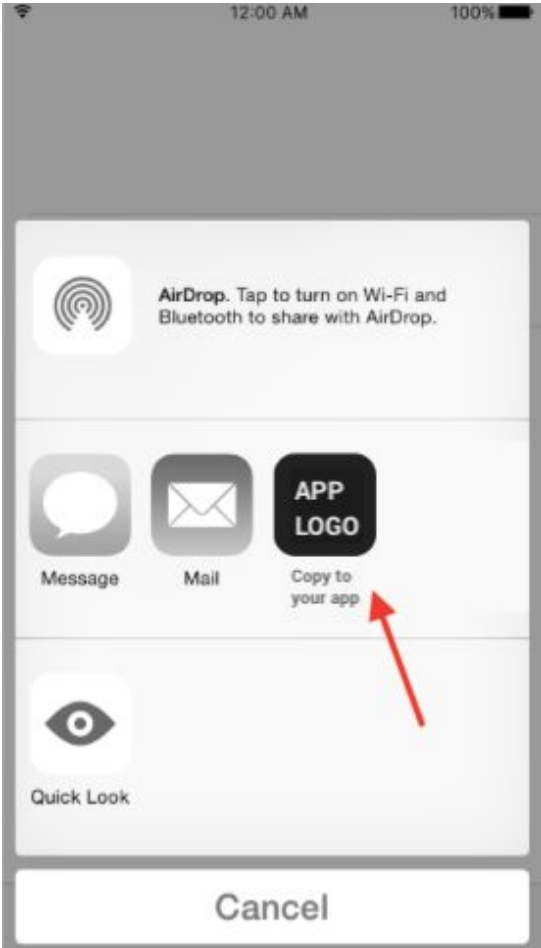
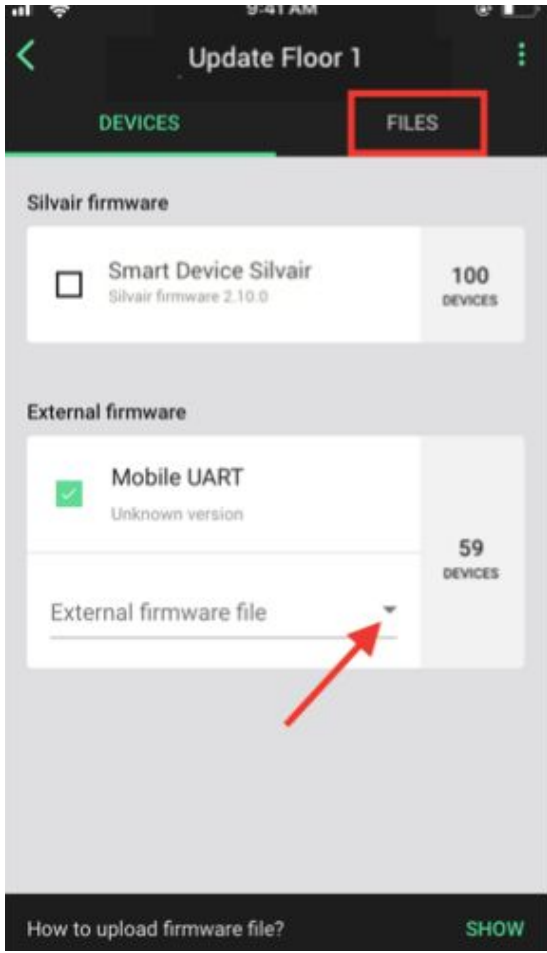
Step 3	Step 4
<ul style="list-style-type: none"> <li>Select firmware to be updated. The screen will show only the devices which have higher firmware versions available.</li> </ul> <p><u>Update methods:</u></p> <ul style="list-style-type: none"> <li><b>Silvair firmware</b> - for devices with Silvair firmware</li> <li><b>External firmware</b> - for devices with external firmware (they undergo update from file)</li> </ul> <ul style="list-style-type: none"> <li>You can select updates for devices with Silvair and external firmware at the same time.</li> <li>In case you update devices with external firmware, go to step 4.</li> <li>Press <b>NEXT</b> and select zones where you will be doing the update (step 5).</li> <li>The devices on the below screen are <b>all devices</b> from the selected area.</li> <li>The number next to a device name is a total number of devices with the same firmware from the selected area.</li> </ul> 	<p><b>NOTE:</b> This step is an addition to Step 3 in case you update devices with external firmware.</p> <ul style="list-style-type: none"> <li>If you select <b>external firmware update</b>, you must choose the external firmware file from the dropdown under each device group. It is not possible to update a device with external firmware without a file.</li> <li>Click <a href="#">here</a> to check how to upload external firmware files to your iOS device.</li> <li>Press <b>NEXT</b> and select zones where you will be doing the update (step 5).</li> </ul>  <ol style="list-style-type: none"> <li>Tap to see, or remove the uploaded firmware file.</li> <li>This is the uploaded firmware file which will be used to update this device.</li> <li>You can also check how to upload external firmware files by tapping SHOW button on the bottom of the screen.</li> </ol>

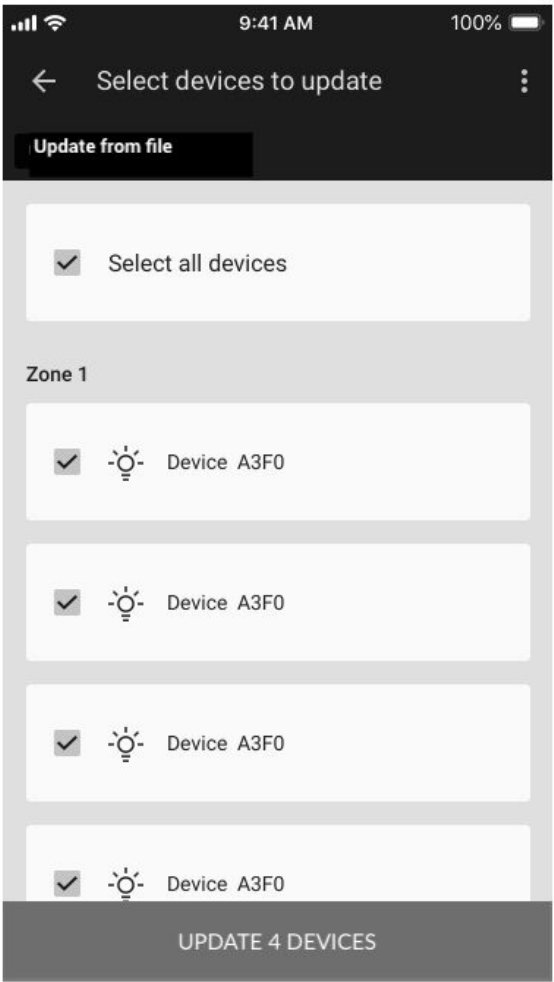
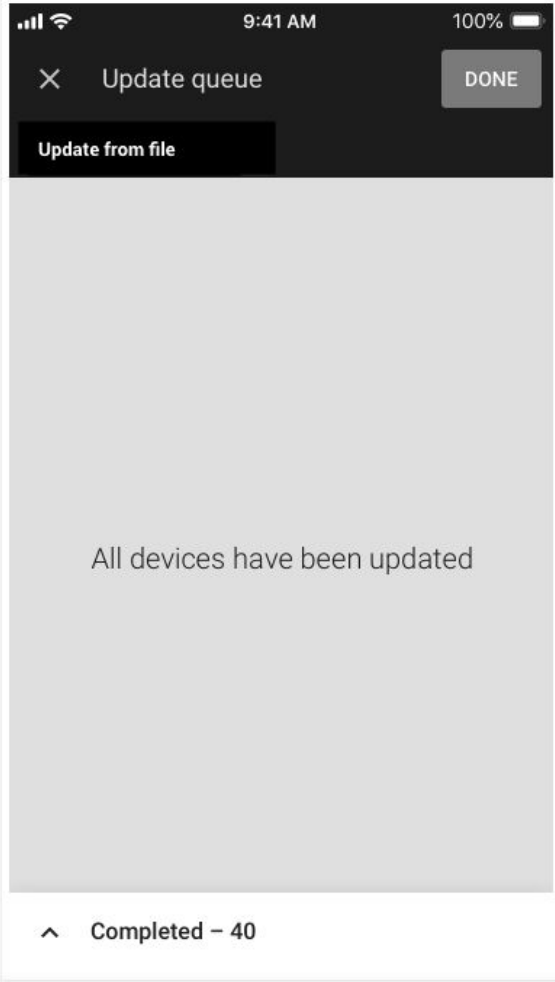
Step 5	Step 6
<ul style="list-style-type: none"> <li>• Select the zones where you would like to start the update. You can select one or more zones.</li> <li>• When choosing zones make sure not to select the zones that are out of the range of your iOS device. We recommend choosing zones that are located at maximum 30 metres away from your position.</li> <li>• You can select zones manually by tapping on each zone's icon.</li> <li>• You can also quickly select all zones by pressing the  button and choosing <b>Select all zones</b>.</li> <li>• Press <b>NEXT</b> button.</li> </ul> 	<ul style="list-style-type: none"> <li>• Double check the chosen devices to update. At this moment you can still deselect some zones or devices.</li> <li>• Make sure that you physically are in a close distance from the selected devices (the closer to the luminaire, the better).</li> <li>• Confirm by pressing <b>UPDATE (XX) DEVICES</b> button which shows the total number of devices to update.</li> <li>• The update should start immediately.</li> </ul> <p><b>NOTE:</b> Remember to keep the phone within 10-30 meters of distance from the updated devices and do not power them off during the update.</p> <p><b>NOTE:</b> Make sure that there is one person updating devices in the zone in a range of approx. 30 metres. If e.g. 2 commissioners are updating devices in a close distance (less than 30m), at the same time, their phones can connect to the same Proxy device, which may lead to errors.</p> 



Step 7	Step 8
<ul style="list-style-type: none"> <li>• Devices are updated simultaneously in groups of 4 devices.</li> <li>• If you are connected to a “Proxy” device and select it for an update, it will always be updated as the last one in a queue.</li> <li>• Devices with <b>external firmware</b> are updated after all Silvoir firmware devices finished updating.</li> <li>• After finishing the update, the app will show “<b>All devices have been updated</b>” message.</li> </ul> <p><b>NOTE:</b> Do not interrupt the update while the selected devices are being updated.</p> 	<ul style="list-style-type: none"> <li>• If there is an error, the app will show the “<b>Update error</b>” message under device name.</li> <li>• In this case, press the “<b>Retry all</b>” button to run the update again.</li> </ul> 

## Update from file (devices with external firmware)

Step 1	Step 2
<ul style="list-style-type: none"><li>• Import the file with the new version of the firmware into your iOS device. You can do it e.g. by AirDrop, or send via email.</li><li>• After importing the zip firmware file, copy it to the mobile app.</li><li>• The app will show “Uploading file” message on the screen.</li></ul> 	<ul style="list-style-type: none"><li>• The firmware file is uploaded in the app.</li><li>• Select the firmware file from the dropdown under a device type you want to update.</li></ul> <p><b>NOTE:</b> You can remove the unwanted firmware file. To do it, open the FILES tab, click on a 3-dot menu and press “Remove”.</p> 

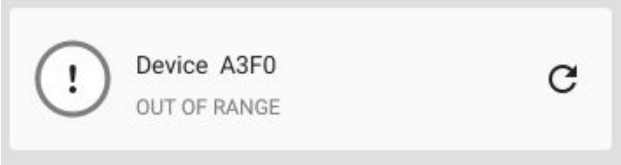
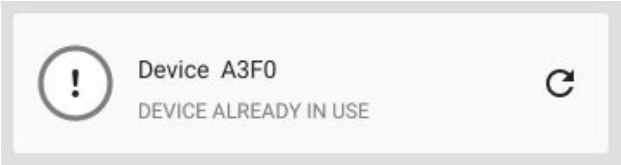
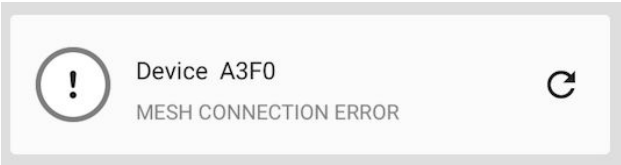

Step 3	Step 4
<ul style="list-style-type: none"><li>• Select the devices to update with new firmware.</li><li>• You can select all devices or choose individual ones manually.</li><li>• Press the button at the bottom of the screen to start updating.</li></ul> 	<ul style="list-style-type: none"><li>• The update should complete automatically on all selected devices.</li><li>• After updating, you should see the message confirming the successful update.</li></ul> <p><b>NOTE:</b> In the case of an update error, press the “<b>Retry all</b>” button at the bottom of the screen to restart the firmware update process.</p> <ul style="list-style-type: none"><li>• You can now exit the update view.</li></ul> 

# Troubleshooting

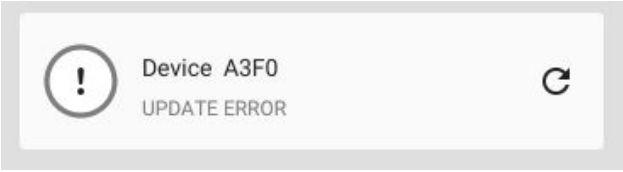
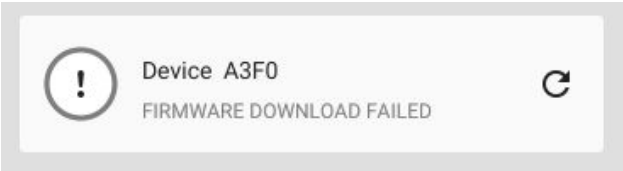
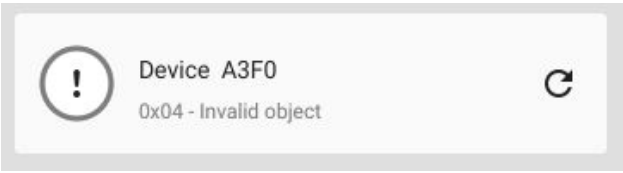
Errors may occur during a devices' firmware update (Silvair firmware, and external firmware). Some common errors and their explanations are provided below.

**IMPORTANT NOTICE:**

While doing the OTA (over-the-air) update make sure the devices are **powered on**. Powering off the device during the update may render the device unusable.

 A grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "OUT OF RANGE" below it. On the far right is a circular refresh icon.	<p>The mobile phone running the mobile app is too far from the mesh device being updated. Move closer to the device to be updated and try again.</p>
 A grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "DEVICE ALREADY IN USE" below it. On the far right is a circular refresh icon.	<p>The mesh device is being actively used by another user (testing, configuring, being added to another zone). Close and log out of the mobile app on the other iOS devices which are using the same project. If you are unable to access other devices, try the update again later.</p>
 A grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "MESH CONNECTION ERROR" below it. On the far right is a circular refresh icon.	<p>There is a problem with the mesh network connection because there is no mobile device proxy in the mesh. Enable the mobile device proxy on another device in this zone (found in device's settings view in the mobile app), and retry the OTA update.</p>
 A grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "INVALID FIRMWARE FILE" below it. On the far right is a circular refresh icon.	<p>The firmware file that was uploaded is invalid. The file might be: corrupted, in the wrong format, or signed with another device's encryption key. Upload the file again, or contact your external firmware provider.</p>

## SN-208: OTA firmware update for devices already in a Bluetooth mesh network

 <p>The screenshot shows a grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "UPDATE ERROR" below it. On the far right of the box is a circular refresh icon.</p>	<p>The firmware update was interrupted by the user, or the device encountered a connection error during the process.</p> <p>This error may also be caused by a malfunctioning device. Retry the process again, and contact your device manufacturer for assistance.</p>
 <p>The screenshot shows a grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "FIRMWARE DOWNLOAD FAILED" below it. On the far right of the box is a circular refresh icon.</p>	<p>There was a problem downloading the firmware zip file. Possible causes include a lost/poor internet connection.</p> <p>For external firmware update - upload the firmware file to the mobile app again, and retry firmware update.</p> <p>For Silvair firmware update - retry the process again.</p>
 <p>The screenshot shows a grey rectangular box with a white background. On the left is a circular icon with an exclamation mark. To its right, the text reads "Device A3F0" and "0x04 - Invalid object" below it. On the far right of the box is a circular refresh icon.</p>	<p>The device encountered a technical error during the update process. Note the error and contact our Support.</p>