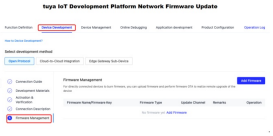

tuya IoT Development Platform Network Firmware Update User Manual

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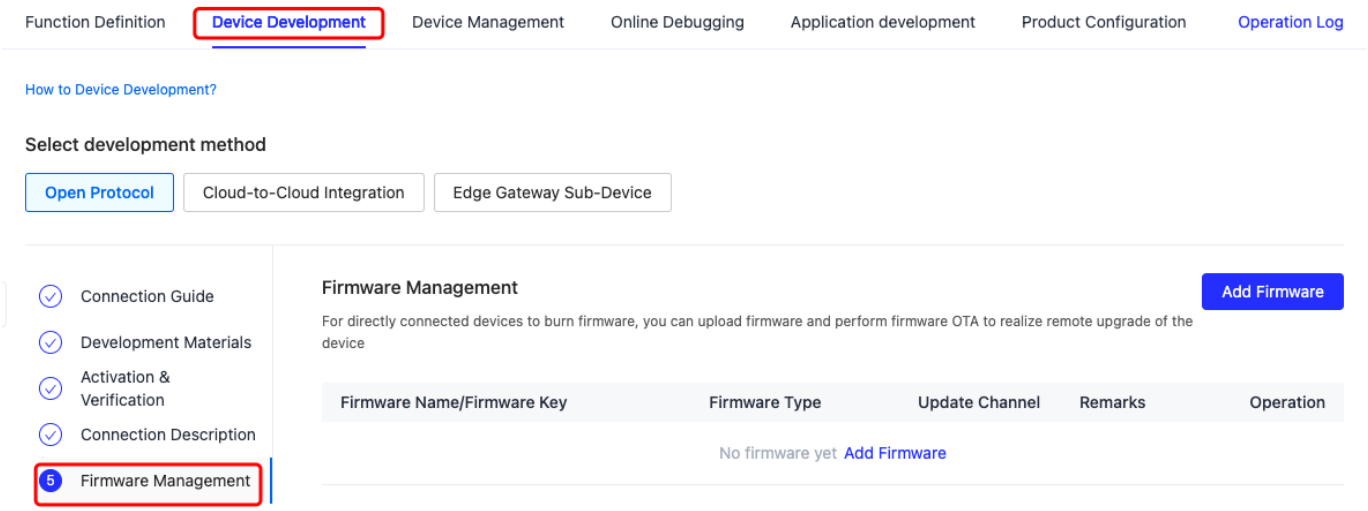
tuya IoT Development Platform Network Firmware Update



Specifications

- **Product:** Network Firmware Update
- **Version:** 20240119
- **Update Type**: Online Version

Product Information

An OTA update is the wireless delivery of new software, firmware, or other data to connected IoT devices. It can be used to fix bugs and add features.

Product Usage Instructions

Features
Details on the features of the product.

Update Methods
Explanation of different update methods available for the product.

Automatic Update
Automatic update is determined by the auto-update setting on the Tuya IoT Development Platform and the app together.

How It Works

Update Process
Detailed steps on the update process.

Silent Update Process
Explanation of how the silent update process works.

Development Guide

Reference the Header
Guidelines on referencing the header in the development process.

How to Use

1. Create firmware on the Tuya IoT Development Platform and obtain the firmware key.
2. Specify the firmware key when calling the device initialization API.
3. Subscribe to OTA events to get notified of the update progress.
4. Compile the project to obtain the update file with “UG” in its name.
5. Upload firmware and deploy an OTA update task on the Tuya IoT Development Platform.

FAQ

- **Why Do Firmware Updates Fail?**
  The reasons for firmware update failures are categorized into firmware download issues and installation issues. Most failures occur due to download problems. If the update progress is over 90%, it indicates complete firmware download; otherwise, it is incomplete.
- **Why Aren’t Updates Detected?**
  If updates are not detected, check if an update rule is configured and ensure that the target device meets this rule. Updates may not be detected if they are not initiated by the device itself.

An OTA update is the wireless delivery of new software, firmware, or other data to connected IoT devices. It can be used to fix bugs and add features.

Features

- Update the firmware on the main network module.
- Multiple update methods are available.

Update methods

Three update methods are available based on how an update is notified.

- **Update notification**: Users are prompted whether to install an update when they open a device panel.
- **Forced update**: Users receive a firmware update notification and have no op-tion but to update the firmware.
- **Check for updates**: Users will not receive a firmware update notification, but need to manually check for new updates.

Automatic update

Automatic update is determined by the auto update setting on the Tuya IoT Devel-opment Platform and the app together.

- If you disable the automatic update feature on the Tuya IoT Development Plat-form, the selected update method will be applied.
- If you enable the automatic update feature on the Tuya IoT Development Plat-form:
  - If users enable the automatic update feature on the app, the device firmware will be automatically updated within a specific time. This is also known as a silent update.

- If users disable the automatic update feature on the app, the forced up-date will be applied.

How it works

Update process

```
sequenceDiagram
%%{init: { "sequence": { "wrap": true} } }%%
opt Trigger OTA
 alt Non-silent update
App ->> Cloud: Check for an update.
Cloud -->> App: Return
App ->> Cloud: Initiate an update.
 Cloud ->> Device: Send an update request.
Cloud -->> App: Return
else Silent update
Device ->> Cloud: Regularly check for silent update tasks.
Cloud -->> Device: Return the result.
Device ->> Device: If there is an update task,<br/>regularly check i
f the task is due.<br/>When it is due, start the update process.
end
end
opt OTA process
 Device ->> Cloud: Request the update package.
Cloud -->> Device: Return
Device ->> Cloud: Update the OTA status (in progress).
Cloud ->> App: Report the OTA status.
Cloud -->> Device: Return
Device ->> Cloud: Report the update progress.
Cloud ->> App: Report the update progress.
App ->> Cloud: Query the update progress.
end
opt OTA result
 alt The reported version number matches the target one.
Device ->> Cloud: The update succeeds, with the firmware version upd
ated.
Cloud ->> App: Report the firmware version, indicating a successful
update.
Cloud -->> Device: Return
else The reported version number does not match the target one, or t
he update times out.
Device ->> Cloud: The update status is changed to anomalous.
Cloud ->> App: Report an update failure.
Cloud -->> Device: Return
end
end
```

Silent update process

```
graph TB
A(Device is powered on.) --> B[Query the cloud for any silent update
 tasks.]
B --An update available--> C[Is the update task due?]
B --No update available--> D[Start a timer and check again in six ho
urs.]
D --Check as scheduled--> B
C --No--> E[Start a timer and start the update<br> when the timer ex
pires.]
C --Yes--> F[Start the update.]
F --> G(Update is completed.)
E --> G
```

Development guide

Reference the header

- tuya_iot_wifi_api.h
- base_event_info.h

How to use

1. Create firmware on the Tuya IoT Development Platform and obtain the firmware key.
2. When calling the device initialization API, specify the firmware key in the input parameter.
3. To get notified of the progress of the update, you can subscribe to OTA events.

```
// OTA
#define EVENT_OTA_PROCESS_NOTIFY    "ota.process"
#define EVENT_OTA_FAILED_NOTIFY     "ota.failed"
#define EVENT_OTA_FINISHED_NOTIFY   "ota.finished"
```

4. Compile the project to obtain the update file with UG in its name.
5. Upload firmware and deploy an OTA update task on the Tuya IoT Development Platform.

FAQs

- **Why do firmware updates fail?**
  The reasons are broken down into two categories, firmware download issues and installation issues. Most update failures occur due to download issues. If the update progress is reported as above 90%, it can be considered that the firmware download is complete. Otherwise, it is not.
    - Device network issues
        - The signal is weak and there is a high packet loss due to the device being far from the router.
        - The long network latency causes high packet loss.
        - The mobile network operator does not support resumable downloads.
    - HMAC verification fails.
    - Device certificate issue
    - Proxy server issue
    - Cloud storage issue
- **Why aren't updates detected?**
    - **If the updates have been released**

Check if you have configured an update rule and confirm whether the target device meets this rule.

- **If the updates are not released**
  - Check if the target device has been included in the testing allowlist.
  - If the device version on the allowlist page is shown as unknown, it could lead to a failure in detecting updates. Confirm each possible reason below.
    - The device is either inactive, removed, or deployed in a different data center.
    - The device ID is incorrect.
    - After being activated, the device does not report the version number of the target firmware.
    - If the silent update is enabled, the app cannot detect updates as they are initiated by the device.

Reference

- For more information about firmware management, see Manage Firmware.
- For more information about firmware update configuration, see Update Firmware.
- For more information about the updates FAQs, see Q&A.

Documents / Resources

	tuya IoT Development Platform Network Firmware Update [pdf] User Manual IoT Development Platform Network Firmware Update, Development Platform Network Firmware Update, Platform Network Firmware Update, Network Firmware Update, Firmware Update, Update

References

- Device Initialization-TuyaOS-Tuya Developer
- Event Service-TuyaOS-Tuya Developer
- Manage Firmware-Tuya IoT Development Platform-Tuya Developer
- Manage Firmware-Tuya IoT Development Platform-Tuya Developer
- Manage Firmware-Tuya IoT Development Platform-Tuya Developer
- Update Firmware-Tuya IoT Development Platform-Tuya Developer
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