



**Android Documentation  
Level-0 Registered Device Service**

**Version: 1.1**

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## DOCUMENT REVISION HISTORY

Revision	Change	Done By	Date
1.0	Initial Release.	Radim Smat	2018-07-19
1.1	Updated information in Table 2	Radim Smat	2018-10-31

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## ABBREVIATIONS

API	Application Interface
FAE	Field Application Engineer
HTTPS	Secure Hypertext Transfer Protocol
L0	(Registered Device) Level-0
RD	Registered Device
RDSID	Registered Device Service Identification
SSL	Secure Socket Layer
UID	Unique Identity Data
UIDAI	Unique Identification Authority of India
URL	Uniform Resource Locator

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# REFERENCES

**Table 1: References**

Document Name	Description	Location
Registered Devices Technical Specification – Version 2.0.2 (Revision 1) – July 2017	Registered Devices Technical Specification	<a href="https://uidai.gov.in/images/resource/adhaar_registered_devices_2_0_09112016.pdf">https://uidai.gov.in/images/resource/adhaar_registered_devices_2_0_09112016.pdf</a>
Aadhaar Authentication API Specification – Version 2.5 – March 2018	Aadhaar Authentication API Specification	<a href="https://uidai.gov.in/images/resource/aadhaar_authentication_api_2_5.pdf">https://uidai.gov.in/images/resource/aadhaar_authentication_api_2_5.pdf</a>

# 1 INTRODUCTION

## 1.1 About This Document

This document contains information on NEXT Biometrics Registered Device (RD) service. Intended audience are all users of NEXT Biometrics Level-0 Registered Devices. The document assumes that the audience is familiar with Aadhaar.

## 1.2 About NEXT Registered Device Service

NEXT Biometrics Registered Device (RD) service is a host operating system service / application. It serves as an interface between NEXT Biometrics Level-0 Registered Device fingerprint readers and modules and customer applications.

NEXT RD service complies with the requirements per UIDAI Registered Device Technical Specification, Version 2. (Revision 1) and Aadhaar Authentication API Specification – Version 2.5 for Level-0 Registered Devices.

## 1.3 Registered Device Service Properties

Table 2 lists NEXT Registered Device service properties.

**Table 2: Registered Device Service Properties**

Property	Value
Supported modality	Fingerprint
Level of compliance	Level-0 (L0)
Supported device models	NEXT Biometrics NB-3023-U-UID USB fingerprint reader <sup>1</sup> (MI NB-3023-U-UID)  NEXT Biometrics NB-2023-U-UID USB fingerprint module (MI NB-3023-U-UID)  NEXT Biometrics NB-2023-S-UID SPI fingerprint module (MI NB-2023-S-UID) (planned Q1/2019).
Supported sensor models	NEXT Biometrics NB-0510-S
Connectivity	USB 2.0 (MI NB-3023-U-UID)  SPI (MI NB-2023-S-UID)
Supported Operating Systems	Windows 7, 8.1, 10 (32 and 64 bit) Android from version 5.0 (API 21)
Extractor	Innovatrics ANSI_ISO_SDK v2.0.3, MINEX 3 certified
RD Service ID (RDSID)	Windows: NEXTL0.WIN.001  Android: NEXTL0.AND.001 (SafetyNet) Android: NEXTL0.AND.201 (Managed OS)
RD Service Version	1.0.0
DP ID	NEXTBIOMETRICS.AQT

<sup>1</sup> At the host, NB-3023-U-UID USB is recognised as NB-2023-U-UID

## 2 INSTALLATION

### 2.1 Supported Platforms

Android from version 5.0 or higher

USB 2.0 or higher.

### 2.2 Supported Products

NEXT Biometrics NB-3023-U-UID USB fingerprint reader

NEXT Biometrics NB-2023-U-UID USB fingerprint module

### 2.3 Download Links

<https://www.nextbiometrics.com/rd>

<https://support.nextbiometrics.com>

[RDService L0 Android Setup](#)

### 2.4 Network Connectivity

Host must be connected to the Internet. Secure http (https) connection must be available. Internet connection is also supported via proxy server.

### 2.5 Installation Instructions

Android L0 RD application package is available at NEXT Support Portal, link [here](#).

#### 2.5.1 RD Service installation from Play Store

RD Service for Android can be installed from Play Store. Search for “NEXT Biometrics L0 RD Service”

#### 2.5.2 RD Service installation from PC

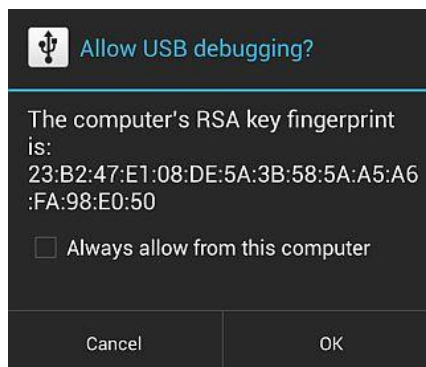
RD Service for Android can be installed from PC using ADB (Android Debug Bridge). This an option for situations when service app is not available or cannot be installed from Play Store

- 1) Install ADB tool. Bothe installation steps and download links are available on Android Developers web page [here](#) .
- 2) Enable developer mode on the device
  - Launch the Settings Application
  - Scroll Down and Tap on About Phone (or About Device)
  - Locate the Build Number Section
  - Tap on the Build Number Option 7 Times
  - Go Back to the Main Settings Page
  - Scroll Down, Tap on Developer Options and enable USB debugging



**Figure 1: USB debugging check button**

- 3) Connect your Android device to host PC having installed ADB. When asked, allow USB debugging on the device.



**Figure 2: USB debugging dialog**

- 4) Open command line terminal and run adb install + name rdservice app

```
adb install rdservice-android.apk
```

### 2.5.3 License activation (temporary)

As of now, Android RD Service requires Innovatrics sw license. The license is tightened to the device MAC address (which is unique) and can't be used on another device. License activation is a temporary process and will be replaced by automated licensing scheme in the next RD Service release scheduled for August 2018.

How to activate and deploy the license:

- 1) On Android device go to About phone (or About device) -> Status and get device MAC address (12 hex number)
- 2) Send the MAC address to your sales representative. NEXT will generate iengine.lic license file for the device.
- 3) Copy the license file to NEXT Biometrics folder. The folder can be located in the root folder of SD Card (if available) or in the root folder of the device.
- 4) Restart the RD service. The option to Restart service is available under RD Service app menu.

## 2.6 De-Installation instructions

Android RD service can be removed in the same way as usual for an Android application.

Another option is to de-install it from command line terminal using ADB tool:

```
adb uninstall com.nextbiometrics.rdservice
```



### 3 RD SERVICE APPLICATION

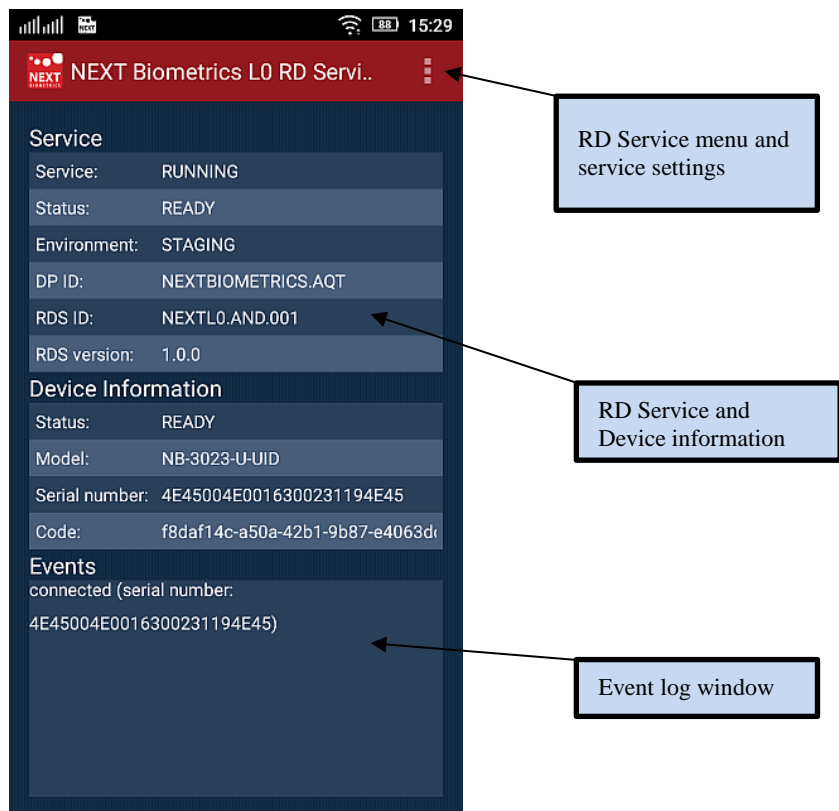
Connect NB-2023-U-UID module or NB-3023-U-UID reader to your Android device.



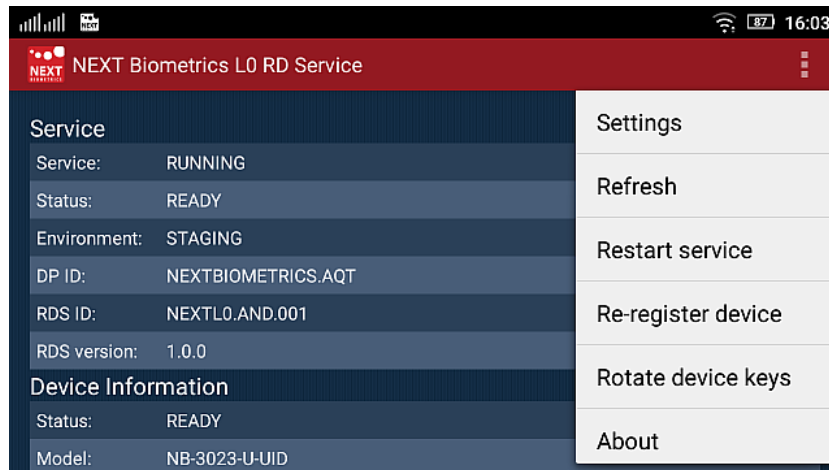
**Figure 3: NB-3023-U-UID “Scallop” reader**

Tap on NEXT Biometrics Icon to launch L0 RD Service. When asked to allow NEXT Biometrics L0 RD Service to access the USB device, click OK. The main app window shows-up.

The main page displays RD service details and device information. The bottom box shows RD service events (the latest event is on top).



**Figure 4: RD Service main activity**



**Figure 5: RD Service menu**

To open RD service menu tap on three dots at top right corner. The menu has several items. The number of items may change over time depending on actual device state. Re-register device and Rotate device keys items are available only in case of connected device (Device status: READY)

### 3.1 RD Service Menu

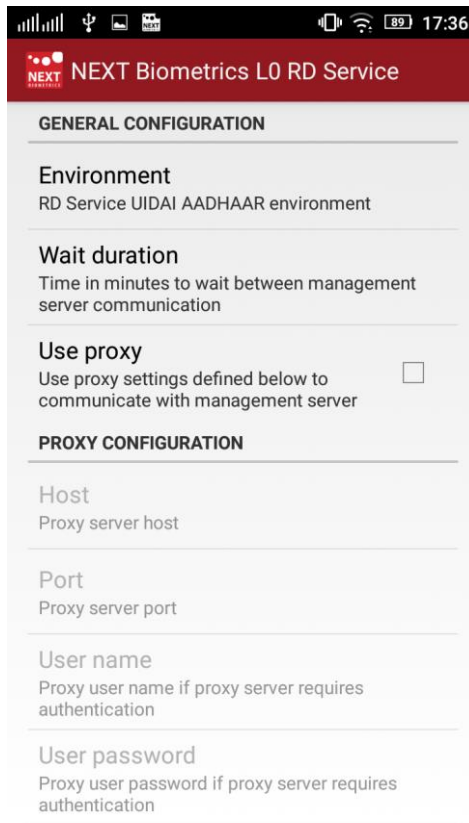
- Settings – allows to modify RD service settings, see section 3.2 for more details.
- Refresh – force update of all displayed information
- Restart service – restarts the service and calls initialization routine.
- Re-register device – the service sends SN of the device to the management server to check if the device is whitelisted. If the device record is found it requests device registration at UIDAI server.
- Rotate device keys - initiates device key rotation. Key rotation is also initiated in case host ID or device SN has changed (e.g. device connected to different host) or in case of expiring device key certificate.

### 3.2 RD Service Settings

The RD Service application allows to set Aadhaar environment, communication timing and proxy configuration. Service settings are available under app menu, item Settings.

- Environment - defines the Aadhaar environment. The default value is “Staging”. Other options are Production and Pre-Production.
- Wait duration – defines the period of communication with device management server. Also, device key expiration is checked during the communication. The default value is 180 minutes.
- Proxy – use proxy if the network connection between the management server and the device is managed by proxy server.

UID module / reader connected has to be whitelisted for the chosen environment, otherwise the device key can’t be obtained and as a result the RD Service won’t work.



**Figure 6: RD Service settings**

## 4 TROUBLESHOOTING

In case of any issue, look into event box (the main activity window) to see what happened.

### 4.1 RD Service log file

RD L0 Service has implemented logging system. Beside event log window in the RD Service app, events and messages are also tracked and stored to log file called "log.log". Log file is located in logs subfolder of NEXT Biometrics folder. NEXT Biometrics folder can be located in SD card root directory or in the root directory of internal device storage.

### 4.2 No device is connected

#### 4.2.1 Hardware problem

Sign: Device information shows "No device connected".

Reason: RD Service can't see any UID connected device.

Action:

- 1) Check if UID module / reader is properly connected to the device.
- 2) Re-plug the module / reader and restart service (restart option is in app menu). When the system asks for allowing USB device access, click OK.
- 3) Check if the hardware is not damaged. Try different USB cable or UID module / reader.

#### 4.2.2 License file problem

Sign: Even log returns message "ERROR : Failed to add detected device, reason (-800): Unknown algorithm SDK error occurred"

Reason: license file has not been found.

Action:

- 1) Make sure iengine.lic license file is stored in NEXT Biometrics folder.
- 2) If you haven't activated sw license yet, read section 2.5.3

### 4.3 Key Rotation Failed

#### 4.3.1 Environment or whitelisting issue

Sign: Device status in Device information shows "Device has no key". Event log returns "NEXT Biometrics device registration / key rotation failed, reason: Error in registering request (1105), reason: One time token is not valid"

Reason: invalid environment or not whitelisted device

Action:

- 1) Check if the environment shown on the main screen (Service -Environment) is correct. The environment can be changed in app Settings->Environment.
- 2) If the environment is correct, it means the device has not been whitelisted under this environment. Contact us at <https://www.nextbiometrics.com/support/rd-service> and provide device SN together with the device model. Both SN and model are displayed under Device Information.

#### 4.3.2 Network Issue

Sign: Device status in Device information shows "Device has no key". Event log returns "NEXT Biometrics device registration / key rotation failed, reason: Operation timeout" or "Keep alive failed: Failed to process send-receive callback"

Reason: no network connection

Action:

- 1) Make sure the wi-fi is ON and the device has the access to the Internet
- 2) Contact your network administrator to check if proxy server is used. If so, go to Settings, check "User proxy" box, enter required data and restart the service. (restart option is in app menu)

## 4.4 Unable to resolve host

Sign: Even log file record message: “ERROR : Send/Receive: Unable to resolve host "stage.rd.nextbiometrics.com": No address associated with hostname”

Reason: RDM server is down

Action: contact us at <https://www.nextbiometrics.com/support/rd-service/>

## **5 UIDAI SERVER ERRORS**

Refer to Aadhaar Authentication API Specification, URL link in Table 1.