

HID® Verifier™ Sentry 2.0

User Guide

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Contacts

For technical support, please visit: <https://support.hidglobal.com>.

What's new

Date	Description	Revision
December 2022	Initial release.	A.0

A complete list of revisions is available in [Revision history](#).

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Section 01

Introduction

1.1 Product overview

The Verifier Sentry 2.0 is a portable biometric and credential reader that can be used for rapid identification and authentication.



1.2 Specifications

Product specifications, biometric and credential capture information, and related software applications are listed in the following table.

Category	Description
Main Processor	Zebra TC72 Handheld Computer with Qualcomm Snapdragon(tm) 660 octa-core, 2.2 GHz
Operating System	Android 11
Memory	32 GB Storage + 4 GB RAM
Weight	790g (1.75 lbs)
Dimensions	7.8" x 4.2" x 6.8"
Operating Temperature	32 °F to 122 °F (0 °C to 50 °C)
Humidity Range	10% to 90% non-condensing; Splash-resistant

Category	Description
Power	Removable battery; 8-hour operation
Ruggedized standards	MIL-STD-810G
External interfaces	USB
Wireless Communications	Class 2, Bluetooth v5.0, Bluetooth Low Energy (BLE); IEEE 802.11 a/b/g/n/ac 2.4GHz & 5GHz
Display	4.7 in. (1280 x 720); exceptionally bright, outdoor viewable; optically bonded to touch panel
Fingerprint	500 ppi, FAP 30 PIV-certified single finger sensor
Camera	13 MP autofocus with flash LED Front: 5 MP Fixed Focus
Smart Card (contact and contactless)	ISO 14443 and 7816 (CAC, PIV, TWIC, FRAC)
Handgrip Barcode Reader	Ergonomic trigger grip and 1D/2D barcode reader accessory
SDKs	HID OMNIKEY Card Reader SDK HID NOMAD 30 SDK Zebra Scanner SDK for Android

Section **02**

Safety and regulatory information

2.1 FCC Statement

FCC ID#: UZ7TC720L (Zebra Technologies Corp.)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interferences that may cause undesired operation.

Note: This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC RF exposure requirements:

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER, COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

2.2 Industry Canada

IC: 109AN-TC720L (Zebra Technologies Corp.)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempt du licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.3 SAR Statement

The Specific Absorption Rate (SAR) of the Verifier Sentry device has been tested and shown to meet the guidelines for acceptable limits. The near body measurements were conducted with the device located 14 mm from the body. In order to ensure exposure levels remain at or below the measured limits, the device should be operated at a distance equal to or greater than 14 mm from the body. Accessories with metal components placed in close proximity to the device may alter the performance of the device in a manner that was not validated, which could impact compliance with SAR limits.

2.4 WEEE Directive

In the European Union, the Waste Electrical and Electronic Equipment Directive (WEEE) symbol on the product label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

More information about HID products can be found at
<http://www.hidglobal.com/certifications/weee-compliance>.



2.5 Recycling

Please discard your computer hardware and other peripherals using a method that is safe for the environment. Whenever possible, reuse any parts, components, and materials.

For recycling information in the United States, see the [Earth911](http://earth911.com) website.



2.6 Battery disposal

You must discard batteries as mandated by your Country, State, County, or other local jurisdiction.

In the United States, refer to the EPA guidelines for the disposal of hazardous waste at <http://www.epa.gov/hw>.

Take the batteries to your local facility that collects dangerous material. To find the nearest collection facility in the United States, go to <http://earth911.com> and enter the local zip code.

Important:

- KEEP AWAY FROM CHILDREN
- DO NOT EXPOSE TO FIRE OR HIGH TEMPERATURES (140 °F/60 °C)
- DO NOT DISASSEMBLE
- DO NOT SHORT THE TERMINALS

2.7 Laser Devices

The barcode reader on the Verifier Sentry 2.0 device has a Class 2 laser scanner with a beam divergence of 48 degrees.

Caution: Class 2 laser scanners use a low power, visible light diode. As with any very bright light source such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.

Caution: Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous laser light exposure.



Section 03

Device description

3.1 Front view



Number	Name	Description
1	Fingerprint reader	(Shown in closed position)
2	Power button	Turns the display on and off. Press and hold to reset the device, power off, or swap battery.
3	Touch screen	Displays all information needed to operate the device.
4	Microphone	For communication in Speakerphone mode
5	Receiver	For audio playback in Handset mode
6	Charging/Notification LED	Indicates battery charging status while charging and app generated notifications.
7	Data Capture LED	Indicates data capture status
8	Front facing camera	For photos and videos
9	Back button	Displays the previous screen
10	Home button	Displays the Home screen with a single press
11	Menu button	Opens a menu with items that affect the current screen or app
12	Search button	Opens the Recent App screen

Number	Name	Description
13	Microphone	Use for communications in Handset mode
14	Speaker	Provides audio output for video and music playback. Provides audio in speakerphone mode

3.2 Left side



Number	Name	Description
1	Accessory contacts	Data connection for an accessory
2	Scan button	Initiates barcode capture
3	PTT button	Initiates push-to-talk communications

3.3 Right side



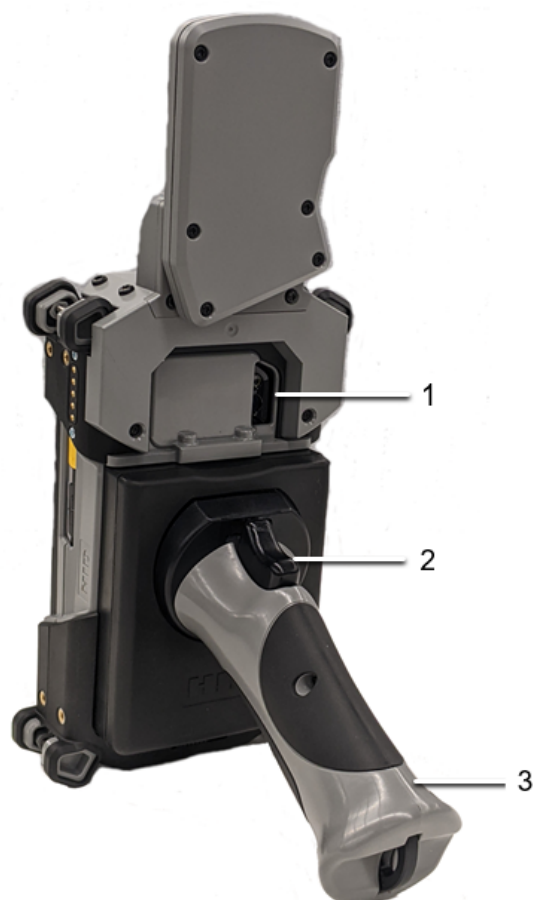
Number	Name	Description
1	Accessory contacts	The data connection for an accessory
2	Side barcode ccan button	Initiates barcode capture
3	Volume buttons	Increases and decreases audio volume

3.4 Top view



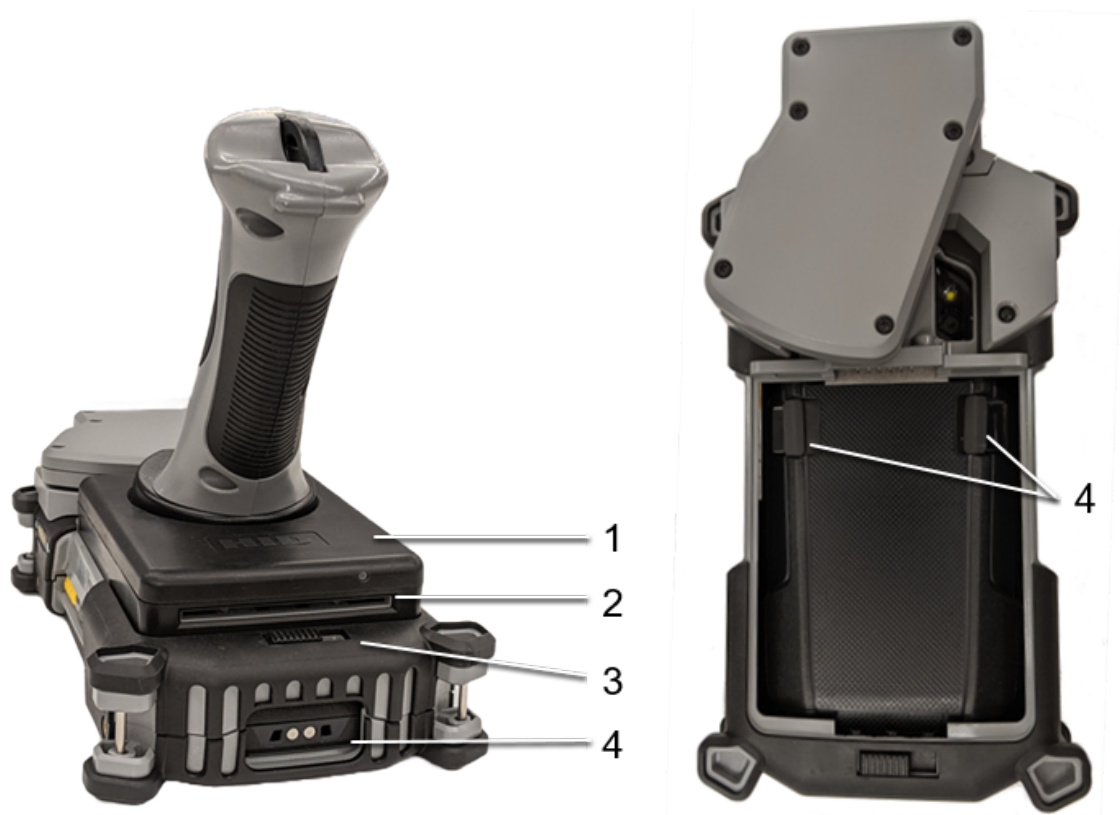
Number	Name	Description
1	Barcode scanner window	Integrated imager that reads bar codes within the field of view

3.5 Back view



Number	Description
1	Rear camera and camera flash LED
2	Barcode Reader trigger
3	Hand grip

3.6 Bottom view



Number	Name	Description
1	Contactless card reader	Detects and reads a contactless card when it is in placed within range.
1	Contact card reader	Reads a contact card when properly inserted in the slot with the gold contacts on the top surface of card facing down. See also: "Using the card reader" on page 22
2	Trigger handle latch	Use to remove the trigger handle and expose the battery compartment.
3	Charging contacts	Provides power to the device from cables and cradles.
4	Battery release latches	Secures the battery in the compartment.

Section 04

Getting started

4.1 Powering on/off

To turn on the device:

1. Press and hold the Power button for 6 - 8 seconds or until there is an audible beep and vibration.
Wait for the Android user interface to fully boot up and then swipe up to unlock the touch screen.

To turn off the device:

1. Press the Power button until the menu appears.
2. Select **Power off**.

4.2 Charging the battery

Before using the device for the first time, charge the main battery until the green Charging/Notification light remains lit. To charge the device, use a cable or a cradle with the appropriate power supply.

The 4,620 mAh battery fully charges in less than five hours at room temperature.

Charge batteries in temperatures from 0°C to 40°C (32°F to 104°F). The device or accessory always performs battery charging in a safe and intelligent manner. At higher temperatures (approximately +37°C (+98°F)) the device or accessory may, for small periods of time, alternately enable and disable battery charging to keep the battery at acceptable temperatures. The device or accessory indicates when charging is disabled due to abnormal temperatures via its LED.

To charge the main battery:

1. Connect the charging accessory to the appropriate power source.
2. Insert the device into a cradle or attach to a cable. The device turns on and begins charging. The Charging/Notification light blinks amber while charging, then turns solid green when fully charged.

4.3 Battery information

To access the battery compartment, the trigger handle must be detached from the device.



4.3.1 Installing the battery

To install the battery:

1. Remove the trigger handle (see "Detaching the trigger handle" on the next page).
2. Insert the battery, bottom first, into the battery compartment.



3. Press the battery down into the compartment until the battery release latches snap into place.

4.3.2 Replacing the battery

To replace the battery:

1. Press and hold the Power button until the menu appears.
2. Select **Battery Swap**.
3. Follow the on-screen instructions.
4. Wait for the LED to turn off.
5. Remove the battery (see "Removing the battery" below).

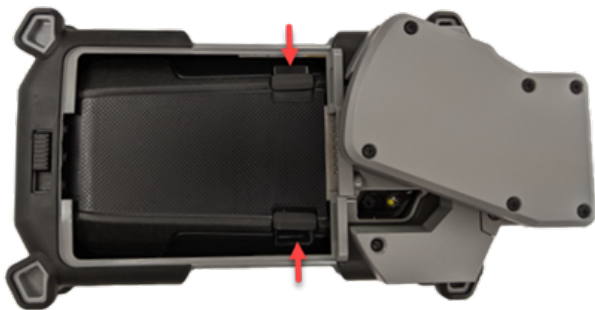
Caution: You must replace the battery within two minutes. After two minutes, the device reboots and data might be lost.

6. Insert the replacement battery, bottom first, into the battery compartment.
7. Press down on the battery until the battery release latch clicks into place.

4.3.3 Removing the battery

To remove the battery:

1. Remove the trigger handle (see "Detaching the trigger handle" below).
2. Squeeze the battery release latches and lift the battery up and out of the compartment.



4.4 Detaching the trigger handle

To remove the trigger handle from the device:

1. Slide the latch to the open position.
2. Begin to lift the end closest to the latch.

3. Slide out the trigger handle at an angle to clear and disconnect from the connector.



After the trigger handle has been detached, the battery compartment is accessible.



4.5 Capturing photos

To capture a photo and save it in a record:

1. Start the appropriate application.
2. From the device desktop, open the camera and then take the photo.
3. Follow the on-screen instructions to save the photo in the record.

Caution: Hazardous optical radiation can be emitted from the camera flash. Do not operate the flash within 258 mm (10 inches) of a subject.

4.6 Using the card reader

The card reader is located in the trigger handle. Both contact and contactless card reading is supported.

After launching the card scanning app, wait for it to load completely until the card reader enters "active" mode. The message "Waiting for card..." message is displayed on the screen and the LED indicator below the card opening at the bottom of the device is solid green.

4.6.1 Contact cards

To scan a contact card:

1. Select the **Contact Card** option (if applicable).
2. When prompted, insert the card into the slot with the front (chip side) of the card facing down (away from the reader) and the edge closest to the chip inserted first.



As the card is read, the LED indicator blinks red and then turns to solid green when the read is complete. Card data is displayed on the screen.

4.6.2 Contactless cards

To scan a contactless card:

1. Select the **Contactless Card** option (if applicable).
2. Hold the card below the bottom of the device underneath the card reader slot. The card should be chip side up and in a landscape orientation relative to the device.



As the card is read, the LED indicator blinks red and then turns solid green when the card read is complete. Card data is displayed on the device screen. If the scanner cannot read the card, a message is displayed.

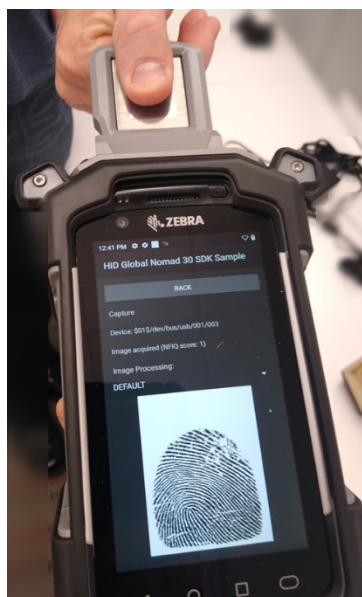
4.7 Using the fingerprint reader

Open the fingerprint reader by rotating it counterclockwise until it is fully open.



To capture a fingerprint:

1. Open your fingerprint scanning app.
2. After the fingerprint scanner initializes, select **Acquire** to begin the fingerprint capture process. (The options and process flow will vary depending on your application.)
3. Place the finger pad on the sensor surface with the area of the finger just below the first knuckle resting against the metal bezel. (Make sure the finger is touching the bezel.)
4. Hold the finger in place until the image is displayed on the device screen.



Section 05

Application development

6.1 Android development setup

Steps to set up your Android development environment include:

- Installing the required development tools
- Configuring the Verifier Sentry 2.0 device for debugging over Wi-Fi
- Installing the required SDKs
- Installing sample apps on the device

The Verifier Sentry 2.0 operating system is Android 11.

6.2 Required development tools

To develop apps for the Verifier Sentry 2.0, the minimum requirements for the development environment include Android Studio and the Zebra Android USB driver, which is used for debugging a device over Wi-Fi.

Required for development environment	Download location
Android Studio, NDK 20.0.5594570	http://developer.android.com/studio
Zebra Android USB driver	http://www.zebra.com/us/en/support-downloads/software/drivers/android-usb-driver.html

6.3 Required SDKs

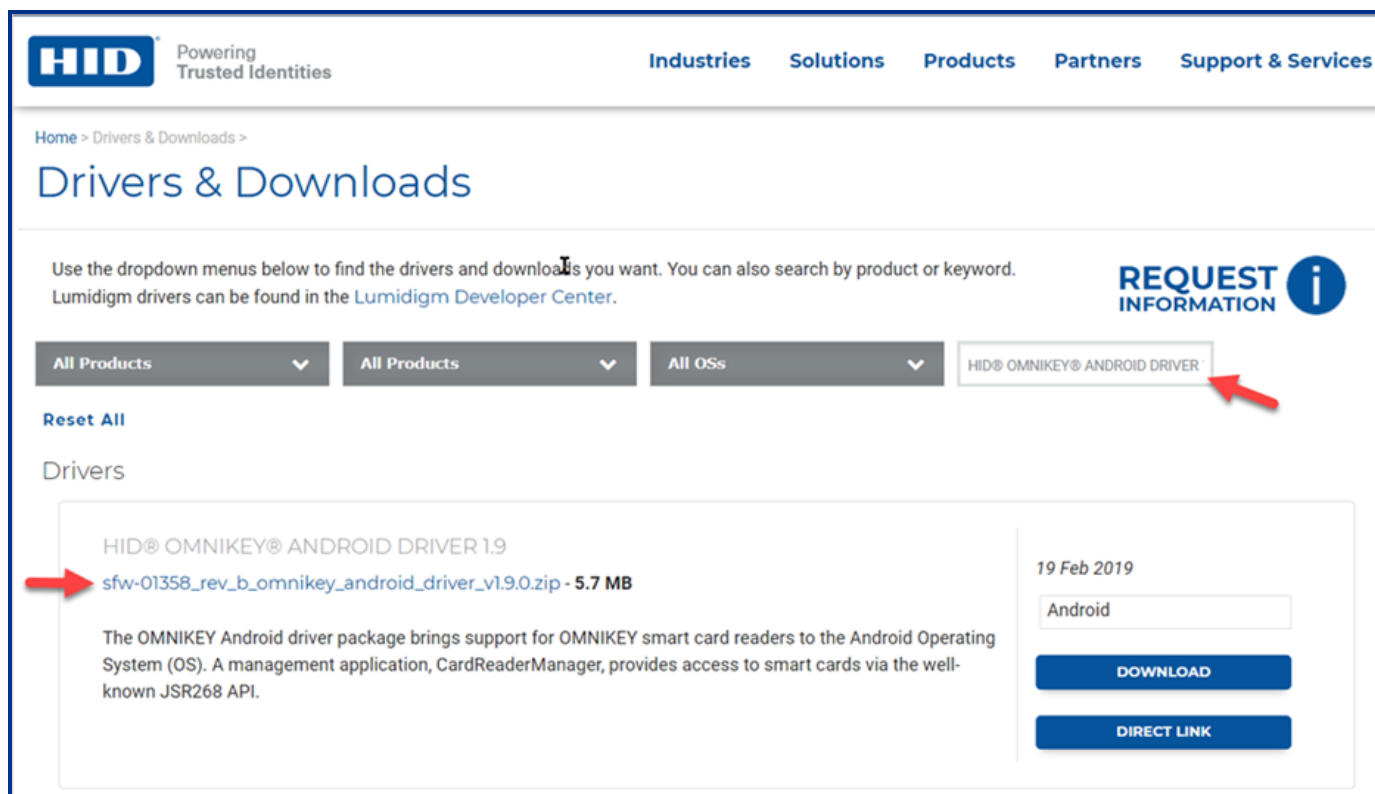
SDK Name	Description
HID NOMAD 30 SDK	• Software Development Kit files for developing applications • HID Nomad 30 SDK for Android.msi - Windows installer package • HID-NOMAD30-1.0.0-1.20201015_1905.tar.gz – Non-Windows package • Documentation • Sample application .apk files for installing pre-built sample application • Sample application source code
HID NOMAD 30 SDK BioBase API Wrapper	• BioBase wrapper library binary, for providing a BioBase API to the NOMAD 30 SDK • BioBase wrapper library source code • Sample application .apk file for installing pre-built sample application • Sample application source code
HID OMNIKEY Card Reader SDK	• Software Development Kit files for developing applications • Documentation • Sample application and service .apk files for installing pre-built sample application and service • Sample application source code
Zebra Scanner SDK for Android	A programming interface for two way communication between Android based applications and the Verifier Sentry 2.0 device. • Barcode scanner library • Scanner control sample application (.apk) and source code • API documentation

6.4 Install SDKs on the development workstation

6.4.1 HID OMNIKEY Card Reader SDK

To download the SDK:

1. Open the following URL in a browser: <http://www.hidglobal.com/drivers>.
2. In the search box, paste the following string: HID® OMNIKEY® ANDROID DRIVER 1.9. This should be the first driver that is displayed in the list.



3. Click the **sfw-01358_rev_b_omnikey_android_driver_v1.9.0.zip** link to download the package.

To install the SDK:

1. Create the following folder: **C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0**.
2. Extract the package contents into the folder.

6.4.2 NOMAD 30 SDK

1. Extract the contents of the package (*CID_Nomad_30_SDK_Android_1.0.0.76.zip*).
2. Double-click the extracted file **HID Nomad 30 SDK for Android.msi** to install the SDK on the workstation. The SDK contents will be installed in the following default location: C:\Program Files (x86)\hid\Nomad 30 SDK.

6.4.3 NOMAD 30 BioBase wrapper

To install the NOMAD 30 BioBase wrapper:

1. Run **HID_Nomad_30_BioBase_SDK_r1.0.0.exe**. The SDK files will be installed in the following default directory: C:\HID_Nomad_30_BioBase_SDK_r1.0.0.

6.4.4 Zebra Barcode Reader SDK

To install the Zebra Barcode Reader SDK:

1. Open the following URL in a browser: <http://www.zebra.com/us/en/support-downloads/software/developer-tools/scanner-sdk-for-android.html>.
2. Follow the instructions on that page for downloading and installing the Zebra Scanner SDK for Android.

6.5 Configure the device for debugging over Wi-Fi

After the Zebra Android USB driver is installed in your development environment, you can configure a Verifier Sentry 2.0 device for debugging.

The first time the device is turned on, you will need to go through the initial setup process, which includes choosing a language, installing updates, and so forth. **Tip:** Adding a Google account and device password are not required.

Debugging over Wi-Fi requires that your development workstation and the Verifier Sentry 2.0 device are connected to the same wireless network.

To configure debugging over Wi-Fi:

1. Unlock the Verifier Sentry 2.0 device and navigate to Settings.
2. Scroll down and tap on About phone.
3. Scroll down and tap on Build number seven times. The following message is displayed: "You are now a developer!".
4. Tap the back button to return the main settings menu.
5. Tap System to bring up the System menu.
6. Tap Advanced to expand the Advanced menu.
7. Tap Developer options.
8. Scroll down and find the option Wireless debugging. Enable this option.
9. On the **Allow wireless debugging on this network?** popup, select **Allow**.
10. Tap on **Wireless debugging** and pair the device to your workstation. The following steps use a pairing code to pair the device; however, there is a QR Code option.
11. On the Wireless debugging screen, select Pair device with pairing code and then take note of the six-digit code displayed.
12. After the device appears in the Pair devices over Wi-Fi window on the workstation, you can enter the six-digit code.
13. On your workstation, open a terminal window and navigate to android_sdk/platform-tools. If Android Studio was installed with the default settings, use the following command:

```
set PATH=%PATH%;C:\Users\%USERNAME%\AppData\Local\Android\Sdk\platform-tool
```
14. Find your IP address, port number, and pairing code by selecting **Pair device with pairing code** and take note of the IP address, port number, and pairing code displayed on the device.
15. On your workstation's terminal, run the following command using the IP address and port number:

```
adb pair ip_address:port_number
```
16. When prompted, enter the pairing code.
17. Use **adb.exe** to find your device: `adb devices -l`

The device is listed as shown:

```
C:\>adb devices -l
List of devices attached
21139524200059    device product:TC72 model:TC72 device:TC72 transport_id:1
C:\>
```

For additional information about this topic, see <http://developer.android.com/studio/command-line/adb#connect-to-a-device-over-wi-fi-android-11+>.

6.6 HID NOMAD 30 sample

To install the NOMAD 30 sample app, enter the following commands in the command window:

```
cd C:\Program Files (x86)\hid\Nomad 30 SDK\Android\Samples\bin
```

```
adb -s device_id install N30SdkSampleJava.apk
```

Example of a successful result:

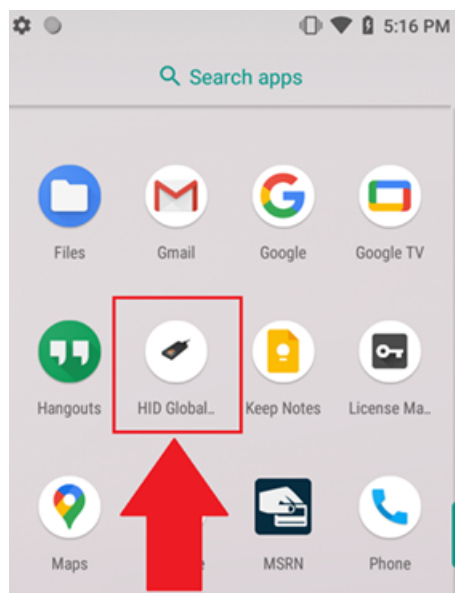
```
C:\>adb devices -l
List of devices attached
21139524200059    device product:TC72 model:TC72 device:TC72 transport_id:1

C:\>cd C:\Program Files (x86)\hid\Nomad 30 SDK\Android\Samples\bin

C:\Program Files (x86)\HID\Nomad 30 SDK\Android\Samples\bin>adb -s 21139524200059 install N30SdkSampleJava.apk
Performing Streamed Install
Success

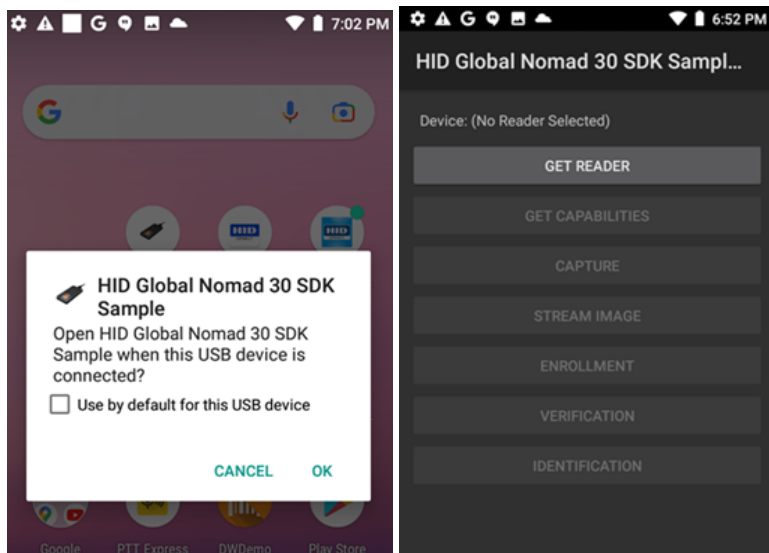
C:\Program Files (x86)\HID\Nomad 30 SDK\Android\Samples\bin>
```

The HID Global sample app will be visible in the apps on the device:

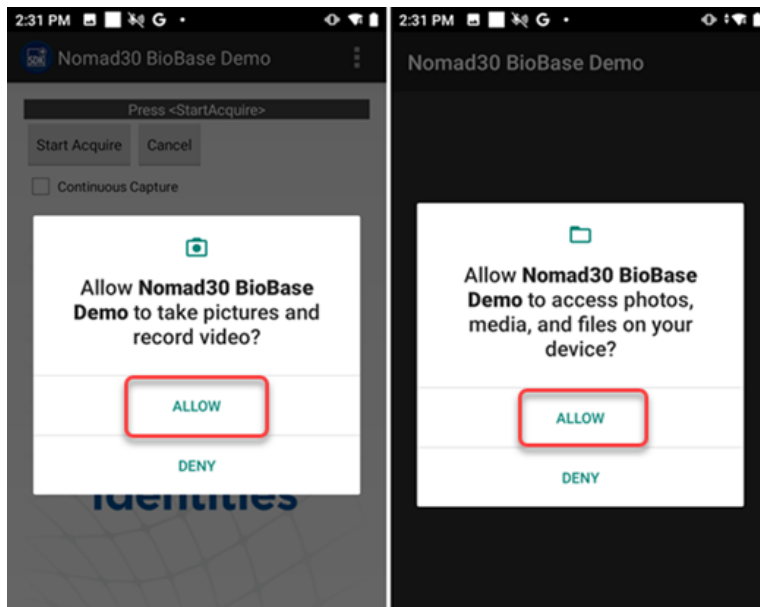


Run the sample

1. Open the HID Global Nomad 30 SDK Sample app.
2. If prompted, select OK to open the app.



3. Select GET READER to access the device reader. The first time GET READER is selected, select ALLOW when prompted to allow access to the camera, photots, media, and files.



4. Close the HID Global Nomad 30 SDK Sample application.

6.7 HID NOMAD 30 BioBase Wrapper sample

1. In the command window on the development machine, change to the C:\HID_Nomad_30_BioBase_SDK_r1.0.0\app directory.

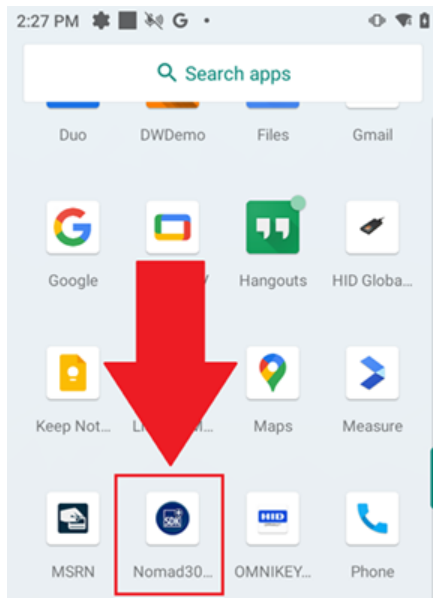
```
cd C:\HID_Nomad_30_BioBase_SDK_r1.0.0\app
```

2. Install the sample application.

```
adb -s device_id install biobSample-release-r1.0.0.apk
```

```
C:\Program Files (x86)\Android\android-sdk\platform-tools>adb -s 060829d4df64629b install C:\biobSample-release-r1.0.0.apk
Success
C:\Program Files (x86)\Android\android-sdk\platform-tools>
```

The NOMAD 30 SDK Sample app will be visible in the apps:



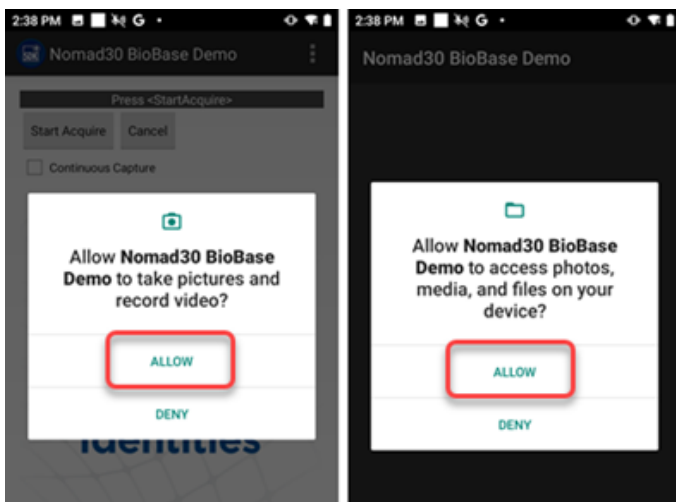
Run the sample

1. Open the NOMAD 30 BioBase Wrapper Sample app.
2. If the BioBase Wrapper sample does not open automatically, tap the sample icon to open it.

3. Select **Start Acquire**.



4. Select ALLOW if prompted to allow access to the camera, photos, media, and files.



6.8 HID OMNIKEY Card Manager service and sample app

To instal the sample app:

1. In the command window on the development machine, change to the C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0\files directory.

```
cd C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0\files
```

2. Install the card reader manager on the device.

```
adb -s device_id install card-reader-manager-1.9.01.apk
```

3. Install the sample application (omnikey-demo-1.1.0.apk).

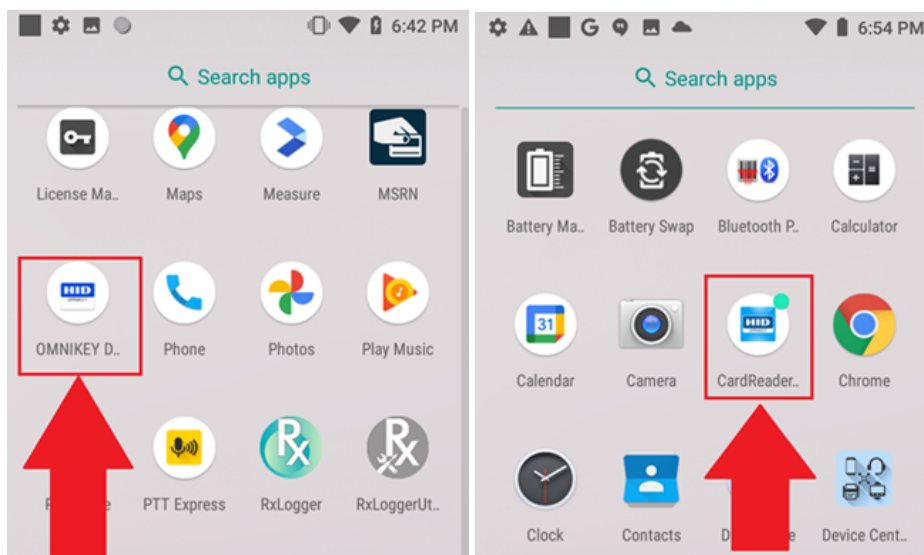
```
adb -s device_id install omnikey-demo-1.1.0.apk
```

```
C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0\Files>adb -s 21139524200059 install card-reader-manager-1.9.01.apk
Performing Streamed Install
Success

C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0\Files>adb -s 21139524200059 install omnikey-demo-1.1.0.apk
Performing Streamed Install
Success

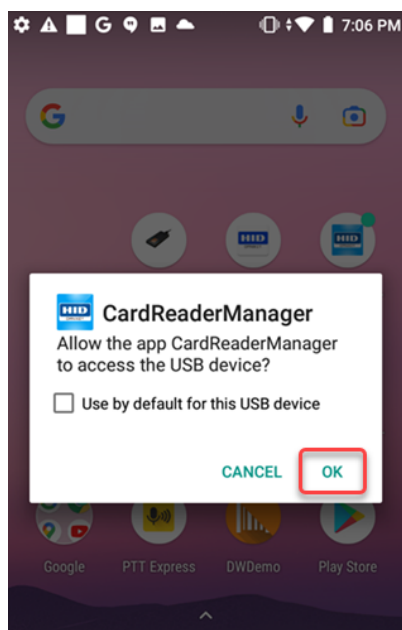
C:\SFW-01358_Rev B_OMNIKEY_Android_Driver_v1.9.0\Files>
```

The HID OMNIKEY Demo app and CardReaderManager app will be visible in the apps on the device:

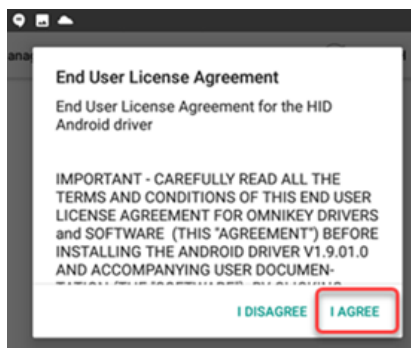


Run the sample

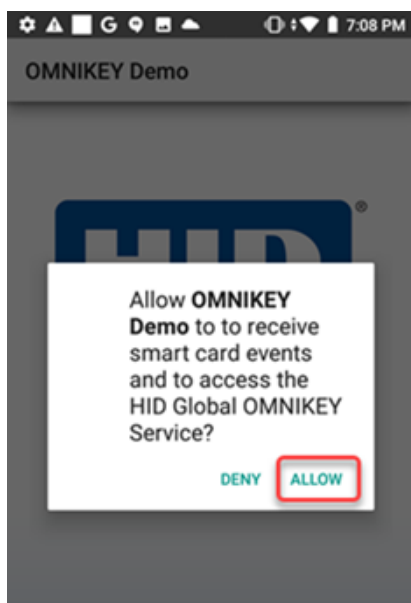
1. Open the OMNIKEY Card Reader Demo app.
2. If prompted, allow access for the CardReaderManager.



3. Open the CardReaderManager app and then select I AGREE to accept the End User License Agreement.



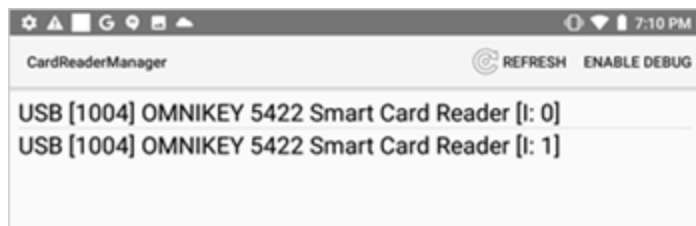
4. Close the CardReaderManager app.
5. Open the OMNIKEY Demo app by tapping the icon.
6. Select ALLOW if prompted to allow the app to receive smart card events and to access the OMNIKEY service.



You should now see the “Waiting for card” message in the app.



If the **Waiting for card...** message does not display, return to the **CardReaderManager** app and be sure the **OMNIKEY 5422 Smart Card Reader** devices are shown:



Revision history

Date	Description	Revision
December 2022	Initial release.	A.0



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