

FX Series Version 3.21.23 Release Notes

This document summarizes the following firmware release:

| Firmware Release Number | Release Date | See page |
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For support, please visit www.zebra.com/support

FX Series Release V3.21.23

Release Date: 13-September-2022

Zebra's Fixed reader series comprises of the following readers

1. FX7500 Fixed RFID Reader
2. FX9600 Fixed RFID Reader

Both readers are Linux-based devices driven by powerful RFID engine that enables users to integrate RFID into their business logic and applications with great ease and high efficiency.



In order to update to 3.21.23, the readers must be updated to 3.21.21 first. Once updated to 3.21.23 the reader cannot be downgraded to 3.21.21. However, "revert back" functionality from 3.21.23 to 3.21.21 is supported and can be used.



**Due to Key changes in some licensed components, and introduction of a new firmware update process, downgrading to previous releases (v3.10.30 or lower) IS NOT SUPPORTED once the reader is updated to 3.21.x
Please review IMPORTANT NOTES ABOUT FIRMWARE UPDATE on pages 4-5.**



V3.10.30 and above mandates that the user changes the default admin password during first login to web console. The reader web console directs the user to switch to https and then change the password before any further configuration. Also please ensure that the browser cache is cleared to remove cached web pages. This is important to ensure that the web console enhancements are available for use.

For a friendly user experience, it is recommended to use the 123RFID Desktop utility available from the Zebra support site

Release Notes lists new features, any specific usage instructions, and any known issues.

The current build, FX Series 3.21.23, is applicable to both FX9600 and FX7500 readers.

The features and the issues mentioned in this document are applicable for all FX9600 and FX7500 SKUs

Note: The version 3.21.23 software update package includes the files required to update FX9600 and FX7500 RFID Readers.

End Of Life

As of this release, the support for FxConnect and RCI is fully withdrawn. The IoT Connector will subsume these functionalities. For More information refer to the FxConnect to IoTConnector Migration guide (<https://zebradevs.github.io/rfid-ziotc-docs/migration/FxConnect/index.html>).

Contents of the release package:

| IMAGE TYPE | VERSION | FILE NAME | DATE |
|------------------|--|----------------------------------|------------|
| RM Server | 3.21.23 | platform_3.21.23.0.jffs2 | 9/13/2022 |
| LLRP Server | 3.21.23 | | |
| X-Loader | 4.0.0 | x-load_4.0.0.0.bin.ift | 08/26/2018 |
| U-Boot | 3.17.6 | u-boot_3.17.6.0.bin | 8/31/2022 |
| Operating System | 3.20.1 | ulmage_3.20.1.0 | 8/31/2022 |
| Root FS | 3.20.5 | rootfs_3.20.5.0.jffs2 | 8/31/2022 |
| OsUpdate Utility | 1.0.0 | osupdate.elf | 8/31/2022 |
| FxUpdate Utility | 1.0.0 | fxupdate.elf | 8/31/2022 |
| Response | N/A | response.txt response_ext.txt | 8/31/2022 |
| Linux Kernel | 4.9.182 | | |
| Radio Firmware | 2.1.49 (FX9600) 1.4.88 (FX7500) | | |
| Radio API | 2.2.34.0 | | |
| EtherNet/IP | 1.0.11 | zebraethernetip_1.0.11.deb | 02/10/2022 |
| Profinet | 1.0.2 | ZebraProfinetApp_1.0.2.zip | 02/10/2022 |
| Modbus | 1.0.2 | ZebraModbusApp_1.0.2.zip | 02/10/2022 |

IOT Connector Components Version Info:

| IMAGE TYPE | VERSION | FILE NAME | DATE |
|------------------------------|----------|-------------------|------------|
| IOT Connector Debian Package | 2.8.9 | ZIOTC_2.8.9.zip | 08/31/2022 |
| Cloud Agent | 0.5.0.9 | Cloud_agent.elf | 08/31/2022 |
| Radio Control | 0.2.53.0 | radio_control.elf | 08/31/2022 |

Note – All the SDKs (Host & Embedded) are available in Zebra support site.

Host API release Version Info:

| IMAGE TYPE | VERSION | FILE NAME | DATE |
|--------------------|----------|--------------------------|----------|
| RFID3 C API DLL | 5.5.6.3 | RFIDAPI32PC.DLL | May 2021 |
| RFID3 .NET DLL | 1.5.6.2 | Symbol.RFID3.*.dll | May 2021 |
| RFID3 Java JNI DLL | 1.4.0.49 | RFIDAPI3_JNI_HOST.dll | May 2021 |
| RFID3 Java API | 1.4.0.49 | Symbol.RFID.API3.jar | May 2021 |
| 123RFID Desktop | 1.3.0.0 | 123RFID_Desktop_v1.3.0.0 | Sep 2020 |

Native DLL's available for 64-bit.

Host SDK:

| DESCRIPTION | VERSION | FILE NAME | DATE |
|---|------------------------|--|------------|
| Zebra RFID FXSeries Host C SDK for Windows 7 and 10 | V1.0.5 | Zebra-RFID-FXSeries-Host-C-SDK_v1.0.5.msi | May 2021 |
| Zebra RFID FXSeries Host .NET SDK for Windows 7 and 10 | V1.0.5 | Zebra-RFID-FXSeries-Host-DotNet-SDK_V1.0.5.msi | May 2021 |
| Zebra RFID FXSeries Host Java SDK for Windows 7 and 10 | V1.7 | Zebra-RFID-FXSeries-Host-Java-SDK_V1.6.msi | May 2021 |
| Zebra RFID C and Java SDK for 64 bit Host Linux (CentOS & Ubuntu) | V5.5.4.16 V1.4.0.49 | Linux64_SDK_C_V5_5_4_19_JAVA_v1_4_0_49.tar.gz | 10/02/2021 |

Embedded SDK:

| DESCRIPTION | DOCUMENTATION | FILE NAME | DATE |
|-------------------------------------|---|--|----------|
| Zebra Native Java SDK on Windows 7 | Zebra-FXSeries-Embedded-Java-SDK-UserGuide_Windows.docx | Zebra-FXSeries-Embedded-SDK-Java-Windows_V1.0.1.zip | May 2020 |
| Zebra Native Java SDK on Windows 10 | | | |
| Zebra Java SDK for Linux | Zebra-FXSeries-Embedded-Java-SDK-UserGuide_Linux.docx | Zebra-FXSeries-Embedded-SDK-Java_Linux_V1.0.1.tar.gz ZebraFXSeriesEmbeddedSDKJavaLinux_1.0.1.deb | May 2020 |
| Zebra C / CPP SDK for Linux | Zebra-FXSeries-Embedded-C-CPP-SDK-UserGuide_Linux.docx | Zebra-FXSeries-Embedded-SDK-C-CPP_Linux_V1.0.1.tar.gz ZebraFXSeriesEmbeddedSDKCCPPLinux_1.0.1.deb | May 2020 |

Installation Instructions

There are multiple supported ways to upgrade the FX Series RFID readers.

Method 1 – USB Flash Drive:

This is the recommended method. Unzip images and copy to a USB drive. Connect USB drive to the FX Series reader. Upgrade will automatically start in 7-10 seconds.

Method 2 – 123RFID Desktop:

Zebra 123RFID Desktop utility can be used to update the firmware on FX Series readers using a simple and intuitive 3 step process.

The latest 123RFID Desktop can be downloaded from

<https://www.zebra.com/us/en/support-downloads/software/utilities/123rfid.html>

Refer to the video for help on updating the reader firmware using 123RFID Desktop

<https://www.youtube.com/watch?v=NNDBPghjOg8&list=PLrcZVTwQp0ldXdysFQHwqI9FyoBNuApfM&index=5&t=0s>

- ✓ 123RFID can also be used to upgrade multiple readers with a single operation.

Method 3 – Web Interface:

Copy images to the local drive of a local PC, log in to the reader, select 'File based upgrade' on reader upgrade webpage, Enter username and password of reader. Select image to upgrade from the local PC. Click 'Start upgrade'. If the reader firmware is older than version 2.7.19, please ensure to execute a two-step update. First update to version 2.7.19 and then to this new version.

- ✓ The recommended browsers are IE11, Edge, Mozilla Firefox and Chrome v68 or newer.

Method 4 – FTP Server:

Copy images to an FTP server. Navigate to the reader upgrade webpage and select 'FTP upgrade' page. Enter username and password of the FTP server. 'Start upgrade'.

- ✓ FTP/SCP/FTPS server can be used to upgrade the readers.

HARDWARE REQUIREMENTS

- FX7500 & FX9600 (all SKUs)
- A USB drive if performing the update using Method #1

IMPORTANT NOTES ABOUT FIRMWARE UPDATE TO V3.21.23

- **Admin Users will now be forced to change the password during first login.**
- **Due to the changes in key licensed components and introduction of a new firmware update process, downgrades to previous releases are not supported once the reader is updated to V3.21.x or above.**
- **Readers will not allow revert-back to older firmware (older than V3.21.x) once the reader is updated to the current firmware. The revert-back feature will be available when the reader is updated a second time, the revert function will only revert to the lowest 3.21.x version.**
- When using file-based update it is recommended to clear the cached pages and reload the pages of the web console to ensure that the reader upgrades properly.
- If the reader is upgraded/downgraded from/to any other version prior to V3.0.35, then some of the UI pages will not work properly due to cached pages from previous build. Hence it is required to clear the browser cache after any upgrade/downgrade.
- Both the FX7500 and FX9600 readers can be upgraded from V2.7.19 or above using the firmware update mechanisms mentioned in the Installation Instructions.
- When upgrading from older versions (prior to V2.7.19) using file-based methods, it is recommended to upgrade to V2.7.19 first and then upgrade to the current version.

Issues Addressed in 3.21.23 over 3.21.21

- Fix for issue with IOT Connector Auto connect / connect when not able to access the root certificates from the internet.
- Fix issue in LLRP Server setting incorrect cable loss compensation value for Antenna Check resulting in incorrect antenna connect status when reader is idle.

Known Issues

- After mapping the Keyboard Emulation to a data endpoint in IoTConnector, If the Line ending needs to be changed, Users will need to, after changing the line ending, map the data endpoint to None and click on update, and then change the data endpoint back to keyboard emulation.
- Idle Mode time out is not used by IOT Connector and should be set to 0 ensuring that the radio stays powered on before connecting to cloud. If the reader was configured with V3.1.12 Idle mode timeout defaults to “10” seconds. It is recommended to change this to 0 first to disable the Idle mode before Enrolling to Cloud.
- Rare occurrence of “Self-Signed Certificate error” is shown in the webpage when in http mode (it is a false alarm). There is no loss of functionality due to this issue and can be ignored.
- CPU Usage is higher than V3.6.28 when reading tags using the web console due to enablement of high-resolution timer.
- Antenna status in web console is not updated with the antenna connect status when the reader is connected to cloud. The antenna status can be retrieved by the cloud app as part of get status API.
- RM Server does not indicate that the reader is dis-enrolled or dis-connected from Cloud if it is done outside the reader.

ADDITIONAL NOTES

Summary of major issues and limitations are listed below.

- **Cable loss compensation is being used to aid in the detection of Antenna presence. As part of deployment it is required to set the Cable length and loss appropriately.**
- If the admin user password is changed it will be necessary to install the latest versions of EtherNet/IP, Profinet and Modbus packages.
- Since the Reader will only accept zebra signed firmware, downgrades to previous releases are not supported.
- Reader will not allow revert back to older firmware (Older than V3.8.x) once the reader is updated to the current firmware.
- When updating the reader to 3.8.x it is necessary to clear the browser cache to use the pages that use Node JS. Some of the web pages that need this are ReadTags, Advanced Antenna Configuration, FXConnect, Serial configuration, Syslog.
- If reader is upgraded/downgraded from/to any other version prior to 3.0.35, then some UI pages will not work properly due to cached pages from previous build. Hence it is required to clear the browser cache after any upgrade/downgrade.
- User applications installed on older release (2.7.x, 2.6.x etc.) will not execute on 3.x build. Users will have to recompile their apps using the new tool chain.
- Applications that use RFID3 API to perform reader firmware update must use RFID3 API for C dll version 5.5.2.15. There is no need to recompile the app as the dll signature has not changed.

- For Keyboard Emulation under FX Connect feature, Data Suffix and Data Prefix will work for lower-case alphabets only other special characters may not work.
- Tag Data from Keyboard Emulation uses all lower-case alphabets.
- In Reader Wireless Settings Parameter web page, WiFi signal strength is always shown as 100%. To read the correct strength, refer to the ESSID field
- Number of rounds stop trigger when more than one antenna is enabled does not stop reads after N rounds
- LLRP in secure mode will prevent the Read Tags, Advanced Antenna Config, Serial port communication and Zebra FX Connect web pages from functioning properly. To use the above functionality, it is recommended to set LLRP to non-secure mode to use these features. There is no security risk as the non-secure connection is internal to the reader.
- Serial Port configuration (including BaudRate, StopBits, DataBits, Flowcontrol and Parity) and Mode of usage (Debug, Push Data or free Port) changes need reader reboot before these changes take effect. However, the Tag reporting and inventory settings in push data mode take effect immediately without reboot.
- After changing serial port configuration, banner message “reboot required” is not consistent. It is recommended to follow above note whenever serial port configuration is changed.
- Large file names are not supported when importing reader configuration in Reader Profiles web page
- It is not possible to disable GPI function as defined in the LLRP standard. It is simply recommended to just not use the GPI function if it is not needed for a use case.
- RFSurvey is not supported in FXSeries Readers even though the LLRP capability reports true for canDoRFSurvey.