

# FX Series Version 3.10.30 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](http://www.zebra.com/support)

## FX Series Release V3.10.30

### Release Date: 10 February 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.



**Due to the introduction of a new firmware update process, downgrading to previous releases (V3.7.x) ARE NOT SUPPORTED once the reader is updated to V3.8.x or 3.9.x or 3.10.x.**

**Please review IMPORTANT NOTES ABOUT FIRMWARE UPDATE on pages 4-5.**

**V3.10.30 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 or to configure the reader using FX Connect (available via license). For an evaluation license of FX Connect, please contact your Zebra sales representative.

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

The current build, FX Series 3.10.30, 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 3.10.30 software update package includes the files required to update FX9600 and FX7500 RFID Readers.

**Contents of the release package:**

IMAGE TYPE	VERSION	FILE NAME	DATE
RM Server	3.10.30	platform_3.10.30.0.jffs2	02/10/2022
LLRP Server	3.10.30		
X-Loader	4.0.0	x-load_4.0.0.0.bin.ift	08/26/2018
U-Boot	3.17.3	u-boot_3.17.3.0.bin	01/03/2022
Operating System	3.10.3	ulmage_3.10.3.0	12/09/2021
Root FS	3.17.11	rootfs_3.17.11.0.jffs2	01/25/2022
OsUpdate Utility	1.0.0	osupdate.elf	02/10/2022
FxUpdate Utility	1.0.0	fxupdate.elf	02/10/2022
Response	N/A	response.txt response_ext.txt	02/10/2022
Linux Kernel	4.9.182		
Radio Firmware	2.1.46 (FX9600) 1.4.88 (FX7500)		
Radio API	2.2.33.5		
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	2.6.15	R2C_2.6.15.zip	02/10/2022
Cloud Agent	0.3.24.0	Cloud_agent.elf	02/10/2022
Radio Control	0.2.49.0	radio_control.elf	02/10/2022

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	2.0.1.0	123RFID_Desktop_v2.0.1.0	Mar 2022

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)	V5.5.4.19 V1.4.0.50	Linux64_SDK_C_V5_5_4_19_JAVA_v1_4_0_50.tar.gz	Mar 2022

## 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 V3.10.30**

- **Admin Users will now be forced to change the password during first login.**
- Due to the introduction of a new firmware update process, downgrades to previous releases are not supported once the reader is updated to V3.8.x or above.
- Readers will not allow revert-back to older firmware (older than V3.8.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 3.8x version.
- Readers, when updated to V3.8.x using FTP-based update methods, will not enable revert-back until the next two firmware updates. This issue is not present in file-based or USB-based firmware updates.
- 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.

## ENHANCEMENTS / CHANGES in 3.10.30 over 3.9.16

- Support for 802.1x authentication for Ethernet Interface
  1. Support for the following outer authentication
    - EAP-TLS
    - EAP-TTLS
    - EAP-PEAP
  2. Support for the following inner authentication for EAP-TTLS and EAP-PEAP
    - TLS
    - MSCHAPV2
- Support for multiple certificates via web console and RM interface.
- IOT Connector changes to include the following
  1. Support for connecting to application in the below cloud platforms
    - GCP
    - AWS
    - Azure
    - IBM
  2. Support for Async Events channel with ability to send "Heartbeat Events" and configured management Events.
  3. GPIO module addition to GET GPO/GPI pin states and enabled GPI async events.
  4. Ability to get the Radio Control and Cloud Agent logs (Errors, Warnings, and Info).
  5. Added generic mechanism to retrieve files and list directory from /apps and /tmp using the IOT Connector interface (via RM)
  6. Limit max number of error log files in Cloud Agent and Radio Control to 5 files of 200 kB each.
  7. Updated ZMQ, mosquitto and nlohmann json libraries to the latest version
  8. Support for MQTT over web socket with Paho MQTT
  9. Web Page changes for configuring IOT Connector Support (ZDS and other cloud support) and General MQTT.
  10. Batching is enabled by default when using the reader with http post in IOT Connector.
- Security Updates
  1. SPR-44764 Changes in Kernel and wifi driver for including CVE fixes for FRAG attack vulnerabilities.
  2. wpa\_supplicant: version update: v2.6 to v2.9
  3. avahi: Update to v0.8 and recipe is updated for link local IP assignment-based MAC's 2 least octet
  4. Update of Python on the reader to V3.9.5 version
  5. Update of mod wsgi to V4.7.1
  6. Prevent getting the log file when user is not logged in
  7. **Web interface admin users will now be forced to change the password during first login.**
  8. **If the admin user password is changed it will be necessary to install the latest versions of EtherNet/IP, Profinet and Modbus packages.**
- Platform Updates
  1. python3.x: Added python modules ctypes and asyncio.
  2. nmbd: Disabled master role of server
  3. SPR44511 Added support for reconnect to LLRP Server when reader is configured as LLRP Client.
  4. Support for retrieving TID at configurable intervals over LLRP.
  5. Support for configuring the FxConnect GPO control, single GPI trigger and TID and User memory read via FxConnect web pages.
  6. Support for Configuring and Notification of "Return Loss" over LLRP.
  7. Adjusted return loss threshold for identifying antenna disconnects.

- Regulatory Changes
  1. Include South Africa 900 MHz 3 channels for FX9600
  2. Include Ukraine Support on FX7500
  3. Include Morocco regulatory
  4. “Egypt” regulatory is configurable only in the Egypt SKU on FX9600
  5. Addition of Jordan as a selectable regulatory.
  6. Includes several additional countries in ETSI 900 MHz on FX9600. Below is the list of additional countries included
    - Belgium
    - Bulgaria
    - Czech Republic
    - Finland
    - France
    - Iceland
    - Latvia
    - Lithuania
    - Portugal
    - Romania
    - Spain
    - Sweden
  7. Include Costa Rica regulatory
  8. Include Ghana regulatory

### **Issues Addressed in 3.10.30 over 3.9.16**

- SPR-40953 Fix Access Slowness when reading memory bank data compared to V3.1.12
- Allow rfidadm user to read or write to the usb stick
- Fix for issue – “Reader Not accessible over predictable IP first time after factory reset when connected back to back with PC”.
- SPR-45342 Changes to prevent Stream Engine closed when FXConnect is used with https.
- SPR-44512 Prefilter is reporting non matching tags in FXConnect

### **Known Issues**

- After downgrading the reader from 3.10.30 to older releases (3.9.16 or 3.8.22) the users will need to re-configure the IOT Connector config due to incompatibility of the schema. Also users will need to enroll back to ZDS on downgrading from 3.10.30 to older release.
- 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.

- 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.
- Reader when updated to V3.8.x using ftp based updated will not enable revert back until the next two firmware updates. This issue is not present in file based or usb based firmware updates.
- 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.