FX Series Version 3.7.26 Release Notes

This document summarizes the following firmware releases:

Firmware Release Number	Release Date	See page
V3.7.26	04-September-2020	Page 1

For support, please visit www.zebra.com/support

FX Series Release V3.7.26

Release Date: September 04, 2020

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.

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 3.7.26, is aimed at 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 3.7.26 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 LLRP Server	3.7.26 3.7.26	platform_3.7.26.0.jffs2	09/04/2020
X-Loader	4.0.0	x-load_4.0.0.0.bin.ift	08/26/2018
U-Boot	3.0.13	u-boot_3.0.13.0.bin	01/14/2019
Operating System	3.7.3	uImage_3.7.3.0	09/04/2020
Root FS	3.7.11	rootfs_3.7.11.0.jffs2	09/04/2020
OsUpdate Utility	1.0.0	osupdate.elf	09/04/2020
FxUpdate Utility	1.0.0	fxupdate.elf	09/04/2020

Response	N/A	response.txt response_ext.txt	09/04/2020
Linux Kernel	4.9.182		
Radio Firmware	2.1.31 (FX9600) 1.4.85 (FX7500)		
Radio API	2.2.26.0		
EtherNet/IP	1.0.10	zebraethernetip_1.0.10.deb	09/04/2020

Read To Cloud Components Version Info:

IMAGE TYPE	VERSION	FILE NAME	DATE
R2C Debian Package	1.3.5	R2C.zip	09/04/2020
Cloud Agent	0.1.12	Cloud_agent.elf	09/04/2020
Radio Control	0.1.0	radio_control.elf	09/04/2020

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	5.5.4.16	RFIDAPI32PC.DLL	Sep 2020
RFID3 .NET DLL	1.5.1.22	Symbol.RFID3.*.dll	Sep 2020
RFID3 Java JNI DLL	1.4.0.44	RFIDAPI3_JNI_HOST.dll	May 2020
RFID3 Java API	1.4.0.44	Symbol.RFID.API3.jar	May 2020
123RFID Desktop	1.2.0.4	123RFID_Desktop_v1.2.0.4	May 2020

Native DLL's available for 64-bit. 32-bit RFID C Dll will be provided on request.

Host SDK:

DESCRIPTION	VERSION	FILE NAME	DATE
Zebra RFID FXSeries Host C SDK for Windows 7 and 10	V1.0.4	Zebra-RFID-FXSeries-Host-C-SDK_v1.0.4.msi	Sep 2020
Zebra RFID FXSeries Host .NET SDK for Windows 7 and 10	V1.0.4	Zebra-RFID-FXSeries-Host-DotNet-SDK_V1.0.4.msi	Sep 2020
Zebra RFID FXSeries Host Java SDK for Windows 7 and 10	V1.5	Zebra-RFID-FXSeries-Host-Java-SDK_V1.5.msi	May 2020
Zebra RFID C and Java SDK for 64 bit Host Linux (CentOS & Ubuntu)	V5.5.4.14 V1.4.0.46	Linux64_SDK_C_V5_5_4_14_JAVA_v1_4_0_46.tar.gz	09/04/2020

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.

Latest 123RFID Desktop can be downloaded from

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

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

https://www.youtube.com/watch?v=NNDBPghjOg8&list=PLrcZVTwQp0ldXdysFQHwql9FyoBNuApfM&index=5&t=0s

Method 3 – Web Interface:

Copy images to local drive of 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 local PC. Click 'Start upgrade'. This method **should not** be used if updating from an old version. If you must use this method, please ensure to execute a two-step update. First update to version 2.7.19 and then to this new version.

Method 4 – FTP Server:

Copy images to 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.

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

HARDWARE REQUIREMENTS

- FX9600 & FX7500 All SKUs
- A USB drive can also be used directly to initiate the upgrade process. The recommended browsers are Edge, IE11, Mozilla Firefox and Chrome V68

ENHANCEMENTS / CHANGES in 3.7.26 over 3.6.28

- Support for Cloud Connect to "Zebra Data Services" in both FX9600 and FX7500 readers.
- Cloud Connect components are included natively in the reader firmware and is installed during Enrollment.
- Support for Auto Connect (if configured) of reader to cloud during reader restart.
- Support for all the cloud functionality via local REST as well for
  - Management
  - Control
  - Data Path – supported via http post.
- The following cloud connect functionality (via cloud as well as local rest) are supported in this release.
  - Enrollment of the reader to "Zebra Data Services" from the reader web console using claim code.
  - Support for the following Management features for cloud connect
    - Report Version Information
    - Get Reader Status
    - Get Network Information
    - Restart Reader
    - Firmware Update
    - Get Firmware Update Status
    - Get Region
    - Get Config
    - Set Config
    - Get App LED status
    - Set App LED
    - Set GPO
  - Support for the following Control features for cloud connect
    - Start Operation
    - Stop Operation
    - Set Current Operation Mode
    - Get Current Operation Mode
      The following modes are supported
      - Simple
      - Portal
      - Inventory
- Modified the reader and the Cloud Agent to point to the production server for "Zebra Data Services". The configuration needs to be updated manually (for testing purpose) to point to test servers
- Update libcurl to version V7.70 and is built with Openssl V1.0.2j
- Updated Apache server to V2.4.43
- Updated release of the Linux Host C & Java SDK to be compatible with Ubuntu 18.04. The SDK can be used with Ubuntu 16.04, 18.04 and CentOs 8.2

Known Issues

- Idle Mode time out is not used by Cloud Connect 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. Recommend to change this to 0 first to disable the Idle mode before Enrolling to Cloud.
- Rarely "Self Signed Certificate error" is shown in the webpage when in http mode and is a false alarm. There is no loss of functionality due to this and can be ignored.
- Sometime error "Error parsing tag info packet. number of bits not on byte boundary (224 bits)" is seen, when tags are reported after disconnect and connect.
- CPU Usage is higher than V3.6.28 when reading tags due to enablement of high-resolution timer.
- In Cloud Configuration AutoConnect option cannot be changed after Enrollment. This will be moved out of Enrollment in future release.
- Antenna status in web console is not update with the antenna connect status when reader is connected to cloud. The antenna status can be retrieved by the cloud app as part of get status API.
- Cable loss compensation is not used in reader when the reader is in cloud connect mode.
- LED indication is not available for inventory operations done using cloud connect mode.
- RM Server does not indicate that the reader is dis-enrolled or dis-connected from Cloud if it is done outside the reader.
- GPI Debounce time does not support values more than 7 ms.

Issues Addressed

- FXConnect sends empty tag report in rare scenarios with mal formed JSON format. Fixed the format as well as changes to avoid sending empty tag report.
- SPR-40712 FXConnect time stamp formatting has been modified to be consistent in the number of digits in the tagData.
- Fix for loss of pre-filter functionality with RFID3 .NET SDK when setting tag storage settings.
- Fix for Pre-Filters not working when SL option is chosen with State Aware filters by EtherNet/IP application.

ADDITIONAL NOTES

Summary of major issues and limitations are listed below.

- Due to increase of firmware foot print when upgrading/downgrading from/to old versions sometimes firmware update needs to be a 2-step process:

Firmware update support table				
	Upgrade	**File-Based Update**	**FTP-Based Update**	**USB-Based Update**
FX7500	2.6.7 or earlier to 3.7.26	2-step upgrade	Supported	Supported
	2.7.19 to 3.7.26	Supported	Supported	Supported
	Downgrade			
	3.7.26 to 2.7.19 or earlier	2-step downgrade	2-step downgrade	2-step downgrade
	3.7.26 to 3.0.35	Supported	Supported	Supported
FX9600	**Upgrade**	**File-Based Update**	**FTP-Based Update**	**USB-Based Update**
	2.6.7 or earlier to 3.7.26	2-step upgrade	Supported	Supported
	2.7.19 to 3.7.26	Supported	Supported	Supported
	Downgrade			
	3.7.26 to 2.7.19 or earlier	2-step downgrade	2-step downgrade	2-step downgrade
	3.7.26 to 3.0.35	Supported	Supported	Supported

Supported: upgrade/downgrade is supported as usual
2-step upgrade: Use file-based method to upgrade to 2.7.19 first and then upgrade to 3.7.26
2-step downgrade: Use file-based method to downgrade to 3.0.35 and then to downgrade to 2.7.19 or earlier

Firmware update support table (SmartLens FX7500)				
	Upgrade	**File-Based Update**	**FTP-Based Update**	**USB-Based Update**
SmartLens FX7500	1.3.55 to 3.7.26	2-step upgrade	Supported	Not Supported
	2.5.26 or earlier to 3.7.26	Supported	Supported	Not Supported
	Downgrade			

	3.7.26 to 2.5.26 or earlier	Not supported *	Supported	Supported
	3.7.26 to 1.3.55	Not Supported	Not Supported	Not Supported

*Revert back feature can be used to go back to previous reader f/w version.

- 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. If app cannot be recompiled, then user can easily revert back to version 2.7.19 using the revert back feature in the web UI.
- 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.
- If software update fails when downgrading to 2.7.x or earlier, it is likely due to the lack of free RAM. The reader status web page should show more than 120 MB of free RAM before attempting a download to an old version. It is recommended to reset the reader to free up enough RAM before downgrading to an old version.
- File based update via reader web interface does not support platform type validation as such it is not recommended.
- 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.
- Returning FX Connect license requires a reader reset. If an evaluation license expires, the reader needs to be reset to stop any current inventory operation.
- 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.
- RFSurvery is not supported in FXSeries Readers even though the LLRP capability reports true for canDoRFSurvey.