

ATR7000 Version 3.21.24 Release Notes

This document summarizes the following firmware release:

Firmware Release Number	Release Date	See page
V3.21.24	10-September-2022	Page 1

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

ATR7000 Release V3.21.24

Release Date: 10-September-2022



In order to update to 3.21.24 the readers must be updated to 3.21.21 first. Once updated to 3.21.24 the reader cannot be downgraded to 3.21.21. However, “revert back” functionality from 3.21.24 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 (v3.20.x or lower) IS NOT SUPPORTED once the reader is updated to 3.21.x
Please review **IMPORTANT NOTES ABOUT FIRMWARE UPDATE** on page 5.



V3.21.x 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, 3.21.24, is applicable to ATR7000 readers.

The features and the issues mentioned in this document are applicable for all ATR7000 SKUs

Note: The version 3.21.24 software update package includes the files required to update ATR7000 RFID Readers.

Contents of the release package:

IMAGE TYPE	VERSION	FILE NAME	DATE
RM Server	3.21.24	platform_3.21.24.0.jffs2	10/10/2022
LLRP Server	3.21.24		
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	2.2.28.0	aar2-rev2.2.28.0.ldr	
FPGA	1.8.0.0 (Spartan 6) 2.0.0.0 (Spartan 7)		
Radio API	2.2.34.0		

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 ATR7000 RFID readers.

Method 1 – 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=PLrcZVTwQp0ldXdysFQHwgI9FyoBNuApfM&index=5&t=0s>

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

Method 2 – 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 3 – 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

- ATR7000 US SKU
- ATR7000 WR SKU

IMPORTANT NOTES ABOUT FIRMWARE UPDATE TO V3.21.24

- **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.

ENHANCEMENTS / CHANGES in 3.21.24 over 3.21.21

- Fix for a timing issue in FPGA update when IoT Connector AutoConnect is enabled.
- Fix for issue with IOT Connector Auto connect / connect when not able to access the root certificates from the internet.

ENHANCEMENTS / CHANGES in 3.21.21 over 2.16.29

- Support for IoT Connector in ATR7000
- Upgraded Linux kernel to 4.9 from 2.6.
- Java virtual machine with Java 1.8 support
- Support for installing multiple certificates.
- Support for Standard ATR7000 SKU (ATR7000-S2100A0-XX) and Premium ATR7000 SKU's (ATR7000-P1100A0-XX, ATR7000-P2100A0-XX)
- Security fixes to remove exe permissions for other users for sensitive applications.
- Support for import CA certs into the reader via RM.
- Ability to disable named services (Avahi/NetBIOS/RDMPAgent)
- Support for the newer ATR hardware model with a new FPGA.

Known Issues

- The Operating Mode page for IoT Connector lists 480 antennas while the set_mode IoTConnector command only accepts 14 antennas. The current antenna behavior will be deprecated in future in favor of a cleaner antenna configuration for ATR7000.
- 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. 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.
- 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.

- Since the Reader will only accept zebra signed firmware, downgrades to previous releases are not supported.
- When updating the reader 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, Syslog.
- User applications installed on older release (2.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.
- Number of rounds stop trigger when more than one antenna is enabled does not stop reads after N rounds
- 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.
- Some of the switches do not respond back to the reader power negotiation request if there is no change in the requested power from the reader. Thus, the reader will consider negotiation is successful only at startup. If the LLDP negotiation setting is changed (Off to on) at run time reader will show power negotiation as failed. In these cases, it is recommended to restart the reader on changing the Power Negotiation Configuration.
- If POE power negotiation is turned off in web console, LLDP power negotiation will not be performed. It may be noted that older version of ATR software prior to 2.15.14 had power negotiation turned off. If ATRs are updated to 2.15.14 from any of the older versions, as reader configurations are migrated and reused, power negotiation will not be enabled by default. User need to either reset readers to factory default settings or explicitly turn on Power Negotiation from 'Configure Reader' link in Web Console.
- Power negotiation requires ATRs to be connected to PoE+ compliant switch and switch to be configured with power negotiation via LLDP enabled. If switch ports are configured to supply PoE+ power levels and power negotiation is disabled in the switch, ATRs need to be configured to turn off power negotiation. Else ATR will attempt power negotiation and as switch will not respond to negotiation attempt, ATR will assume failure to negotiate power and reader operator will not be allowed to run radio operations.
- Maximum power configured for each port on the switch should account for power losses on the connectors, CATx cable used and its length. Typically, 4.5 W/port of loss is normal. As such, configuration for maximum power per port typically needs to be around 30 W such that request from the ATR for 25.4W of power can succeed.
- Power negotiation is not possible with PoE Injectors. If ATR is powered over PoE injectors, user need to ensure PoE injector is rated to supply 25.4 W at a minimum.
- When reader web console is set to secure HTTP mode, 'Read Tags' reader operation demonstration page in web console won't be loaded in some of the browsers (latest Firefox and Internet Explorer) unless trusted certificates are used on the reader or default self-signed certificate is trusted by the browser.
- Regular inventory operations fail after RFSurvey is performed. Reader needs to be restarted to restore regular operation.
- Autonomous mode and RSSI filters are not supported
- Performing changes in the reader and committing the same while LLRP is upgrading the Radio firmware can cause LLRP to shutdown and not start back. To confirm readers are

operational after an update, please check the version page to confirm 'Radio firmware version' shows up with values matching image version number table above

- Moderated Timeout for Portal Directionality Events (Zone Entry, Exit or Transition Events) needs to be atleast 5 seconds or above for the moderation to take effect.

Differences with FXSERIES Readers

ATR7000 RM / Web console differences

ATR7000 web console does not support the following web pages (when compared to FX7500)

Wireless and Bluetooth config is not supported

Number of Antenna's (beams) exposed in ATR7000

ATR7000 exposes 480 antenna's as part of the capability. However, with the current ATR7000 firmware only the following beams are supported

- Beams 101-197
- Beams 201-297
- Beams 301-397

Beams other than the above do not result in Tag reads. These are left unused for future use and will provide appropriate error in a subsequent release.