Zebra Aurora Focus™ MV/FIS Configuration Utility

Description

Product Description

Zebra Aurora Focus™ is a host-side application which allows for the configuration Zebra FS10, xS20, xS40, xS70, FS42, NS42 and FS80 devices.

Zebra Aurora Focus™ Deep Learning Editor is companion software for training the Deep Learning Anomaly Detection tool. To use the editor, a physical or emulated NS42 device licensed for Anomaly Detection is required. It is installed independently and available in two versions: CPU and GPU versions. The GPU version is to train models using NVIDIA GPUs.

Device Compatibility

Zebra Aurora Focus™ can be used to program Zebra MV/FIS devices through these programming modes:

- USB connected cable
- M12 Ethernet

Note:

- *If downgrading firmware from newer version to an older version, a factory reset through Aurora Focus, or the HMI must be performed after it completes. Failure to do so could result in device not functioning properly.*
- *After upgrading the FS80 to the 9.3 release, downgrades can no longer be completed with an incremental update package and must be done with the full upgrade package. To downgrade from 9.3, install the 9.1 Full Update Firmware first, and then install the desired firmware if different than 9.1.*

Supported Devices	Supported Device FW
FS40, VS40, FS70, VS70	**9.3.659 -** CAAESS00-006-R33
FS42, NS42	**9.3.659 -** CAAGGS00-006-R33
FS10, FS20, VS20	**9.3.659 -** CAAFFS00-006-R33
FS80	**9.3.159 -** CAAHMS00-001-R36

Release Notes

This document summarizes the following software release:

Software Version Number	Release Date
V9.3.12	June 2025

V9.3.12

RELEASE DATE: JUNE 2025

- Profinet Certification for xS20, xS40, xS42, and xS70
  - The 9.3 release has received Profinet certification for the following products xS20, xS40, xS42 and xS70
- Deep Learning OCR Enhancements
  - Expose character quality
    - A quality metric is now returned for each character returned by OCR tool. The quality metric is available in JavaScript.
  - Expose character height and score
    - A score and height are now returned for each character returned by OCR tool. This information is available in JavaScript.
  - Support for grammar rules
    - Users can now configure grammar rules for the OCR tool, ensuring that the tool only returns results that match the specified pattern.
- Anomaly Detection Enhancements
  - The Anomaly Detection tool now allows the Region of Interest (ROI) to be moved or rotated. Furthermore, the tool can be aligned with other tool based on its results.
  - Deep Learning Editor user experience enhancements
- Support for Connectivity Gateway on the FS80
  - Note that Connectivity Gateway is only available on specific FS80 skus which are not yet available for order. Please contact Product Management and Application Engineering if you have an opportunity that requires this functionality.
- Support for Mailmark Symbology
  - The Mailmark symbology is now available in the barcode tool
- Support for 1D Symbologies in DataCode Tool
  - The DataCode tool now supports several 1D symbologies. This can be used for use cases where the DataCode tool is used to detect 2D DPM codes as well as 1D labels in the same image.
- Additional JavaScript

- o Add support for gradient tool in JavaScript
- o Add support for GPIO output control in JavaScript
- Other Enhancements
  - o Ability to disable ZETI functionality
    - The ZETI protocol on port 23 can now either be disabled or moved to another port number. These setting are now available in the Device Settings – Communication page under ZETI settings.
  - o Connectivity Gateway support for Level start and end control of followers
    - Connectivity Gateway now supports stopping a Level Continuous session early after successfully decoding a barcode.

Known Issues

- Under some conditions, barcode decode performance may be impacted.
    - Workaround(s):
        - Disable unused symbologies
        - Disable configuration barcodes (if not used) from the General menu
        - Set expected module size appropriately.
- On occasion, dual update option on firmware update will fail.
    - Workaround: Update firmware without using dual update. Then repeat same firmware version update using "Force Update" along with "Dual Update" checked
- When user_data_control is enabled with the appropriate data and data length in AOI, it returns an error code
    - Workaround: Ignore the error code
- Sometimes HMI, after removing a license, screen will not update.
    - Workaround: Refreshing or switching tabs will update the screen
- Reboot is required to see Anomaly Detection tool in Aurora Focus after the upgrade license is applied
- Rarely, it may take a few seconds for the UI to update after selecting or deselecting all symbologies
- When adding a very large number of tools to the VS flow builder, sometimes the ROI boundaries will not be visible, or performance issues may be seen
- When using Connectivity Gateway and configuring to use more than one GPIO, changes may not take effect immediately.
    - Workaround: Restart Runtime.
- WebHMI objects may not always load properly when opening the WebHMI page
    - Workaround: Refresh page
- WebHMI objects may not always load properly on reboot
    - Workaround: Refresh page
- If Factory Resetting the device on a USB connection, or where NTP is not available, the device real time clock may be reset.
    - Workaround: Open up the WebHMI screen and navigate to the license page to sync the time with the browser host or set the time manually.
- When saving images over FTP using a hostname, delays in transfer sometimes occur and the image is not transferred.
    - Workaround: Use IP address of FTP server instead.
- When using the Object Plus tools, it will sometimes fail due to the contrast value.

- o   Workaround: Adjust contrast value until it succeeds, and the result is satisfactory.
- Some ZETI commands will not work with the command's shortened format.
  - o   Workaround: Use the extended version of the ZETI command
- In some cases, using many image-banks causes slight delays in processing.
  - o   Workaround: If possible, reduce number of image banks
- Device will sometimes not be discoverable in Aurora Focus when starting firmware update in HMI until after update is complete and device reboots.
  - o   Workaround: Wait until firmware update completes.
- Firmware updates will fail if memory consumption is already exceedingly high.
  - o   Workaround: Reboot the device before performing firmware update.
- Uninstalling the InstallShield does not always remove all registry entries.
  - o   Workaround: regedit and manually delete Aurora Focus folder under Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Zebra

Release Notes (Previous Releases)

V9.2.7

RELEASE DATE: APRIL 2025

- Automation Wedge (Feature Preview)
  - Support for Automation Wedge (SSI over USB/CDC connection)
  - This release includes a feature preview of the Automation Wedge feature which allows Zebra Fixed Industrial Scanning (FIS) smart camera to work with Zebra mobile computer through the Zebra DataWedge mobile computer application.
  - Known Limitations:
    - Use a USB C to C cable when connecting a camera to a PC/laptop and setting up Automation Wedge. Some PC/laptop machines do not work well when using USB A to C cables and enabling USB SSI.
    - Automation Wedge does not currently support multi-code barcode decoding
- JavaScript Enhancements
  - JavaScript support to format and customize HID output
    - User can customize output via HID interface and can add special keys into the output for example function keys.
  - Support for additional tools in JavaScript
    - JavaScript now supports using data from the following tools: Anomaly Detection, Contrast, Edge and OCR
  - Support for FTP filename customization via JavaScript
- Tool Enhancements
  - DataCode tool now supports Presentation and Presentation Aggregation Trigger modes
  - DataCode tool now support Continuous and Level Continuous Trigger modes
- FS80 Enhancements
  - Support (USB to) Serial port cables
    - Use of this feature requires third-party USB to serial cables/dongles
- Other Enhancements
  - Improvements to Match String features
    - A different Match String can be used for each tool in a job
    - Add option co configure Match Mode (Disabled, Exact, Contain, Regex) in Aurora and using communication channels
    - Add option to provide Match String as Base64
    - Add full support for Match String to OCR and DataCode tools
  - ZETI Commands:

- match_string_get
- match_string_update
    [match_mode=STRING_EXACT/DISABLED/STRING_CONTAINS/REGEX"]
    [persistent=true/false] [format=PLAIN/BASE64] [tool=toolname/friendly name]
    [value=newstring{}]
    - TCP/IP Connection Test Feature
        - The TCP/IP Connection Test feature allows the user to test both the TCP output and TCP control ports to make sure the connection works.

V9.1.6

RELEASE DATE: FEBRUARY 2025

- Support for new FS42 5MP resolution camera
- JavaScript enhancements
    - Support for sending raw bytes in addition to sending text data in results output
    - Serial port output control and sending unique output to the serial port
    - TCP output control and sending unique output to the TCPIP connection
    - Control of job pass fail results
    - Support JavaScript on the FS80
    - Additional device, inspection and performance metric information is now available for use in JavaScript
- Tool enhancements
    - Fixturing from Barcode and Datacode tools
    - Contrast tool improvements
- FS80 enhancements
    - APIPA: Automatic private IP fallback when DCHP fails to assign IP address on FS80

V9.0.12

RELEASE DATE: DECEMBER 2024

- Support for the NS42 Camera
- Support for the FS80 Camera. Note the following will be supported in future releases
    - JavaScript
    - FS80 Connectivity Gateway (Leader/Follower), GS20 is required
    - Image banks (Image Perfect)
    - Presentation mode
    - Communication with PLCs (Ethernet EIP, Modbus, Profinet)

- - ZETI command to control GPIO
  - SW license upgrade capability
  - Configuration barcodes
- Support for Multi-Function Integrated Light for FS80
- NEW tool: Deep Learning Anomaly Detection
- Deep Learning Editor (for training the Anomaly Detection tool)
- JavaScript Support
  - Output formatting
  - Output over TCP, Serial Port, CDC and basic HID (function keys not supported)
  - Editor with IntelliSense
  - Console logging for basic debugging
- Support for explicit serial trigger command
- Support for Multiple Aurora Focus versions installed on same host
- Option to select USB2 or USB3 for xS40/xS42/xS70
- Support for NPU-accelerated Deep Learning OCR
- Support for AutoTune on DPM with the Datacode tool
- Support for DPM QR code reading
- Support for reading QR Codes in Datacode tool
- Lower selectable heartbeat intervals
- Support for aggregating codes in presentation trigger mode
- Multiple Aurora Focus stability changes and enhancements
- Miscellaneous bug fixes
- Improved debugging for trigger overrun conditions when enabling logging on the camera

V7.0.48000

RELEASE DATE: MAY 2024

- When editing a job for a camera, editing occurs directly on device and then timing values are more realistic.
- Support for the new FS42 camera
- Support for Separate (Explicit) TCP start and stop trigger strings
- Support for TCP control and outport on same port number.
- Connectivity Gateway: Support for backup and restore for configuration (HMI and ZETI)
- Connectivity Gateway: Support for level trigger Mode
- Connectivity Gateway: Separate start and stop TCP/Serial triggers
- Connectivity Gateway: Output at end of level trigger mode

- Connectivity Gateway: UI/UX Improvements
  - Now include helper tips in each section
  - Debugging tools added to bottom of Setup screen
- DL-OCR Match string settable by TCP command via ZETI
- Debug mode to save images in both level and continuous modes
- Support for saving images based on a time interval
- ZETI support for ASCII format when sending match string commands
- Multiple performance improvements
- Multiple Aurora Focus stability changes and enhancements
- Miscellaneous Bug Fixes

V6.2.70000

RELEASE DATE: FEBRUARY 2024

- Support for Liquid Lens focal distance using millimeters or inches.
- 2D Configuration barcode support to perform Autotune (Focus only)
- ZETI Command support to perform Autotune (Focus only)

V6.1.70000

RELEASE DATE: SEPTEMBER 2023

- Performance and Enhancements
  - Datacode Tool Improvements and Optimizations
  - Quantized Deep Learning OCR
  - FTP/SFTP folder storage suffix options
  - FTP/SFTP option to disable JSON results file
- ADF Output Enhancements
  - Support for Function Keys: F1-12
  - Support for Modifier Keys CTRL and ALT
- Option to Disable Tune and Trigger hardware buttons
- ZETI Interface improvements
- Backup and Restore feature improvements
- Miscellaneous Bug Fixes

V6.0.22000

RELEASE DATE: JULY 2023

- 2D Configuration Barcode Generation and Deployment
- Advanced Filtering and Formatting of Decode Data
- Multi-device management (Up to 5 devices at a time)
  - o Firmware Update
  - o Backup/Restore
  - o Device Log Download
- Zebra Connectivity Gateway for Leader/Followers scanner configuration
- ZETI Command Interface Additional Command Support
- Aurora Focus UX Improvements
  - o Improvements to Custom Formatting
  - o Improved Localization
- Performance and Enhancements
  - o Decode performance improvements.
  - o Enhanced Session Based Triggering with Image Save
  - o Additional Localization Enhancements

V5.0.13000

RELEASE DATE: FEBRUARY 2023

- Technology Previews
  - o Aurora Focus and HMI Language Support – Simplified Chinese, Korean, German, French and Spanish
  - o Expanded ZETI Interface Commands
- Tools
  - o Deep Learning Based OCR for Fixed Industrial Scanners
    - ▪ Fully Released – Activated via Licenses
- Performance
  - o Improvements to deployed job run consistency including Barcode tool timeout, decoding, and trigger timing consistency.
  - o Level Trigger Enhancements
  - o Triggered Image Buffering
- UX Improvements
  - o Backup/Restore/Firmware Upgrade in Aurora Focus
- Device Configuration 1D Parameter Barcode Setup

V4.0.22000

RELEASE DATE: DECEMBER 2022

- Added Measure Object Tool
- Added Flaw Detection Edge and Intensity Tools
- Added Object Locate Counting
- Added Image Filters: Gradient, Gradient Horizontal, Vertical and Full
- MV Output Formatting on Supported Interfaces (Global or Interface Specific)
- Added Find and Replace to Barcode Decode Tool
- Improved 1D/2D Barcode Decode Performance
- Setting Barcode Match String via TCP or Serial input
- Added Image Download Capability via HMI
- Enhanced Session Based Triggering for Level, Continuous and Presentation Triggers w/Exit Criteria/Aggregation
- Technology Preview: Device Backup/Restore Functionality
- Performance and Stability Enhancements

V3.1.40000

RELEASE DATE: AUGUST 2022

- Added Reset on Trigger for Do Note Read Same Barcode
- Spanish HID Keyboard support
- Performance and Stability Enhancements

V3.0.10000

RELEASE DATE: JUNE 2022

- Added Edge Counting
- Added Deep-Learning Based OCR Tool (*in Beta*)
- Added Circle Find Tool
- Added Circle Diameter Measurement Tool
- Added a Circle ROI Type
- Added Open and Close Filters
- Added Erode Filter
- Added RS-232 Input Trigger

- Additional 2D Barcode Performance Improvements
- Added ADF to include Pass/Fail Data Types
- Added ADF to include Barcode Quality Metrics Data
- Performance and Stability Enhancements

V2.0.8000

RELEASE DATE: APRIL 2022

- Performance and Stability Enhancements

V2.0.7000

RELEASE DATE: MARCH 2022

- Performance and Stability Enhancements
- 1D Barcode Quality Metrics
- Added Object Locate Plus
- Added Blob Tools
- Added Binarize Filter/Tool
- Added Dilate Filter/Tool
- ImagePerfect(+) fixes & improvements
- Added Scale Calibration for Distance tool
- Added Advanced Pass/Fail Configuration (AND/OR logic for Job results)
- HID Keyboard Expansion – added French and German KB
- Added support for Codabar symbology
- Added Encoding type (Text/Base64) for ADF Full String data type and added option to show non-printable characters as hex values
- For xS10/20, added external illumination support
- Added "File Path" option when using (S)FTP to Save images
- Added Ability to Open a Local Job (created with emulator) On a Real Connected Camera

V1.200.2001

RELEASE DATE: DECEMBER 2021

- Performance and Stability Enhancements
- Support for 5MP xS40 and xS70 models

- ImagePerfect(+) for FS models

- Option to output Barcode Location Co-ordinates

- Option to not read last n number of barcodes

- Device can be a TCP/IP Client

- Configurable RS-232 settings

- Ability to configure GPIO Trigger delay

- Support for Fast Hardware Trigger (2.3 MP models only)

- Ability to set GPIOs to static high or low

- Added Job controls to clone, rename and delete jobs

- Support for Conditional Regular expressions for Barcode String Match

- Barcode String Match Regular expression support for ManyCode

- Backwards compatibility of Job files

- Decode and MV statistics in Aurora Focus and HMI stored and queried from device

V1.148.0001

RELEASE DATE: OCTOBER 2021

- Performance Enhancements

- Stability Improvements

- Implementation of licensing error messages in Web HMI

- Fixed issue of Job pausing on refresh of Web HMI

- Fixed issue of crash when clicking on "Communications" tab

- Fixed inability to "View" active Jobs from Job menu when Job utilizes a trigger that is automatic in nature.

- Fixed issue of slow decode rate when "Fast 1D/2D" license is enabled

- Added Configurable TCP/IP – results port and trigger string can be configured

- Support for GPIO > Hardware trigger (normal speed)

- Allow setting a job as Startup / Power up job

- Emulators now have license level

- Supports a total of 21 emulators

- ZJOB backwards compatibility and auto conversion of old job files (Windows only)

- Seamless (live) tool changes when Upgrade licenses are applied

V1.134.0001 – Initial Product Release

RELEASE DATE: JULY 2021

- Bug Fixes
- Stability Improvements

Components

SW Component	Version
InstallShield	9.3.12
Aurora Focus™	9.3.12
Aurora Focus Deep Learning Editor	9.3.10814
BSP (xS40/70)	9.3.659 - CAAESS00-006-R33
BSP (FS42/NS42)	9.3.659 - CAAGGS00-006-R33
BSP (FS10/xS20)	9.3.659 - CAAFFS00-006-R33
BSP (FS80)	9.3.159 - SAAHMS00-001-R36
Aurora Focus™ HMI	10.0.17
Connectivity Gateway	1.3.3

The components are installed in the following folders:

Component	Location
Application	Program Files\Zebra Technologies\Aurora Focus*version*
Job/Configuration Files	Users\Public\Documents\ZebraAurora*ModelType*\Jobs
Saved Images	Users\Public\Documents\ZebraAurora\Captures*xSxxxxxx* Camera

Minimum PC Requirements

Component	Location
CPU	Intel or AMD 64-bit processor
Random Access Memory Files	4 GB | Recommended: 8GB
GPU	GTX 1030, Intel UHD 620 or equivalent
Graphics Memory	2GB | Recommended: 4GB
Disk Space	4GB free disk space
Monitor Resolution	1280 x 800 | Recommended: 1920 x 1080
Operating System	Windows 10
Internet Connection	Required for software activation

Installation

Aurora Focus™ can be launched from the Windows 10 Start button.

- Start / All Programs / Zebra Scanner / Zebra Aurora Focus <*version*>