



## Developing Custom Applications for the DS3600-KD

### **TAP INTO NEW OPPORTUNITIES WITH THE DS3600-KD ULTRA-RUGGED SCANNER WITH KEYPAD AND DISPLAY**

The DS3600-KD Ultra-Rugged Scanner with Keypad and Color Display brings a new level of efficiency and accuracy to warehousing, manufacturing and retail tasks. Customers get the unstoppable performance of Zebra's ultra-rugged 3600 Series, with the versatility of a keypad and color display. It's the ideal solution for customers who prefer the simplicity of a scanner, but also want the flexibility to key in specific data or give workers visual confirmation. While five pre-built applications are ready to use right out of the box, these standard applications may not support every workflow. Select Zebra partners will have the opportunity to develop custom applications to fulfill unique requirements for their customers.

It takes a combination of hardware and software to make workflows better, faster and smarter. By coupling Zebra's DS3600-KD ultra-rugged scanner with your innovative software applications, we can enable warehouses, retailers and manufacturers to automate more tasks, increase accuracy and compete in today's global economy. We recognize the critical role partners play and we strive to empower you to meet your customers' needs and attract new opportunities. This document helps explain the requirements involved to develop custom applications for the DS3600-KD, as well as the resources available to assist you.

The bright color display and ergonomic keypad of the DS3600-KD provide a perfect canvas for your innovative software solutions. Together, we can help your warehouse, retailer and manufacturing customers reach new levels of workflow efficiency.

## Partner eligibility

### Prerequisite skill sets

To be eligible to develop DS3600-KD applications, partners should be aligned with Zebra 3600 Series vertical markets (warehousing, manufacturing, retail) and have the following technical skill sets:

- C++ programming
- Object Oriented Programming concepts
- UI development experience
- Device level programming
- Familiarity with IDEs, software build tools/process
- Debugging on hardware

### Expected skills for customization

Zebra provides comprehensive training to enable eligible partners. After the training, partners are expected to have the following competencies:

- TouchGFX UI creation using widgets (lists, scroll/navigation bars, progress bars, cursors, timer widgets, pop-up message creation, custom containers, etc.)
- Hands-on familiarity with the Model/View/Presenter architecture of TouchGFX-based applications
- Ability to define interactions/functions to be able to interact with data from the scanner and make UI updates accordingly
- Ability to create applications utilizing the APIs, parameters and firmware library

## Required resources and tools

### Required hardware tools

The following hardware resources are required for app customization:

- DS3600-KD Debug hardware with debug connectors, associated cradles, batteries and cables
- Debug Flex to be attached to the Application Micro [STM32 processor]
- JTAG Debug Board attached to the Flex
- USB cable to attach to the Debug Board for viewing debug messages
- ST-Link Probe attached to the Debug Board for debugging and programming the processor

### Required software tools

The following software resources are required for app customization:

- IAR Compiler — IAR Embedded Workbench for ARM (\*License required for EWARM)
- TouchGFX Designer Tool for GUI development
- STM32 ST-Link Utility for programming the binary and hex images
- Zebra CDC Drivers to be installed for viewing the debug messages
- DAT Conversion Utility to be developed by SL team [conversion of hex to DAT file]
- CoreScanner drivers, C++/C# Sample App: for downloading the DAT file onto the Application board

## Available technical resources

### Fast-track your code development with our free developer resources

We provide eligible partners with all the source code, libraries and documentation required to build successful applications for the DS3600-KD and capitalize on customer opportunities. When you develop applications for the DS3600-KD, you can expect the following technical resources to assist your efforts:

- Firmware Library file of the application board
- Documentation of APIs between application and firmware
- Sample application code
- Source code of existing applications
- Application and UI templates
- Macros and application libraries to help with UI development
- Training videos on the customization process

## Get the training you need with custom training paths

Our technical training and educational content will help you arrive at your goals faster. Tiered training paths are tailored to different software development roles and empower your teams to reach their highest level of proficiency.

### Training track one



### Graphics Customization

*Online, self-guided and self-paced*

Graphics Customization training helps designers become more familiar with the TouchGFX Designer Tool in order to create custom graphics and implement other graphics/presentation changes. GUI designers will learn how to create and modify the UI using widgets: lists, scroll/navigation bars, progress bars, cursors, timer widgets, pop-up message creation, custom containers, etc.

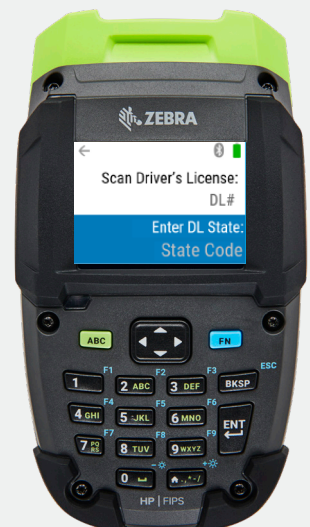
### Training track two

### Application Development

*Online, self-guided and self-paced*

Application Development training will help developers learn how to create applications, both from existing Zebra templates and from scratch. Participants will gain a hands-on familiarity on interacting with data received from the handle board and practice creating sample applications such as “Scan and Enter Quantity.”

Training includes access to the customization tools and de-bug hardware. Participants will receive Zebra application templates, along with a toolbox of TouchGFX widgets: lists, scroll/navigation bars, progress bars, cursors, timer widgets, pop-up message creation, custom containers, etc.



## Sample workflow: simple customization

Do you want a better understanding of how the customization process works? The following workflow provides a high-level overview of the steps involved in performing a simple customization for the DS3600-KD.

### Simple customization

**1****Download the Scanner Application Software Project.**

The project file includes Zebra's Scanner Application source code integrated with the firmware library.

**2****Customize the application.**

Import the TouchGFX application code and GUI onto the TouchGFX Designer Tool and modify to meet the customer's needs. Then, generate the C++ code from the Designer Tool and make further updates if necessary.

**3****Rebuild the updated code.**

Build the updated code, along with the firmware library using IAR development tools.

**4****Validate the solution on debug hardware.**

Load the code onto the DS3600-KD debug hardware. Using ST-Link probe, validate the changes. Repeat steps 2-4, as necessary, to resolve any issues and validate.

**5****Convert to a DAT file.**

Convert the hex image generated from IAR to a DAT file, using the DAT generation utility from Zebra.

**6****Validate the solution on production hardware.**

Load the DAT file onto production hardware using the Windows SDK C# sample app and validate the functionality.

**7****Deploy the custom application.**

Load the custom application to DS3600-KD scanners using the C# Sample App.

## Sample workflow 2: new application

The following workflow provides a high-level overview of the steps involved in developing a brand new application for the DS3600-KD.

### New application

**1****Create the application.**

Launch the TouchGFX Designer Tool with the suitable application template and UI template from Zebra. Create the UI for the application using the TouchGFX widgets and Zebra's custom widgets. Then, generate the C++ code from the Designer Tool and make further updates if necessary. Modify the code to work with the firmware layer by interfacing with APIs and the firmware library.

**2****Rebuild the updated code.**

Build the updated code, along with the firmware library using IAR development tools.

**3****Validate the solution on debug hardware.**

Load the code onto the DS3600-KD debug hardware; using ST-Link probe, validate the changes. Repeat steps 1-3, as necessary, to resolve any issues and validate.

**4****Convert to a DAT file.**

Convert the hex image generated from IAR to a DAT file, using the DAT generation utility from Zebra.

**5****Validate the solution on production hardware.**

Load the DAT file onto production hardware using the Windows SDK C# sample app and validate the functionality.

**6****Deploy the custom application.**

Load the custom application to DS3600-KD scanners using the C# Sample App.

## FACT SHEET

DEVELOPING CUSTOM APPLICATIONS FOR THE DS3600-KD

**Ready to develop custom applications for the DS3600-KD Ultra-rugged Scanner with Keypad and Color Display? For more information, visit [www.zebra.com/ds3600-kd](http://www.zebra.com/ds3600-kd)**



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