

REFERENCE MANUAL



> Impact+OCR™



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REFERENCES

CONVENTIONS

This manual uses the following conventions:

"User" refers to anyone using Impact+OCR.

"Camera" refers to the camera that provides the product image.

"You" refers to the System Administrator or Technical Support person using this manual to install, configure, operate, maintain, or troubleshoot Impact+OCR.

REFERENCE DOCUMENTATION

Other reference documentation may be available on the Datalogic web site (www.datalogic.com).

SERVICE AND SUPPORT

DLA provides several services as well as technical support through its website. Log on to www.datalogic.com and click on one of the following links for further information:

PRODUCTS

Search through the links to arrive at your product page which describes specific Info, Features, Applications, Models, Accessories, and specific Downloads.

SUPPORT & SERVICES

- Service Program
- Repair Centers
- On-Line RMA
- Technical Support
- Industrial Automation
- Partner Program
- Downloads

PATENTS

This product is covered by one or more of the following patents:

U.S. patents: 6,512,218 B1; 6,616,039 B1; 6,808,114 B1; 6,997,385 B2; 7,102,116 B2; 7,282,688 B2

European patents: 999,514 B1; 1,014,292 B1; 1,128,315 B1.

Additional patents pending.

COMPLIANCE

For installation, use, and maintenance, it is not necessary to open the camera. Opening the camera will void the warranty.

Connect Ethernet and dataport connections to a network which has routing only within the plant or building and no routing outside the plant or building.

EMC COMPLIANCE

In order to meet the EMC requirements:

- connect the camera chassis to the plant earth ground by means of a flat copper braid shorter than 100 mm.
- for CBX connections, connect the terminal "Earth" to a good Earth Ground.
- for direct connections, connect the main interface cable shield to Chassis.

POWER SUPPLY

ATTENTION: READ THIS INFORMATION BEFORE INSTALLING THE PRODUCT

This product is intended to be installed by Qualified Personnel only.

CE COMPLIANCE

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC COMPLIANCE

Modifications or changes to this equipment without the expressed written approval of DLA could void the authority to use the equipment.

This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

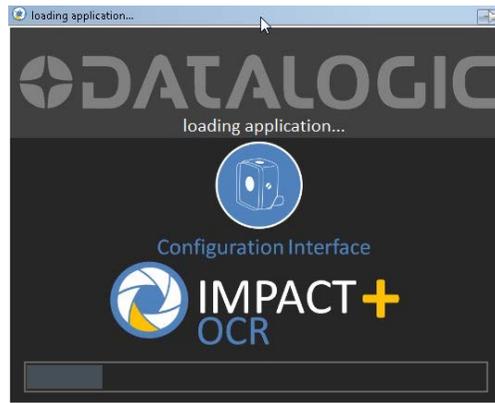
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

STARTING THE CONFIGURATION UI



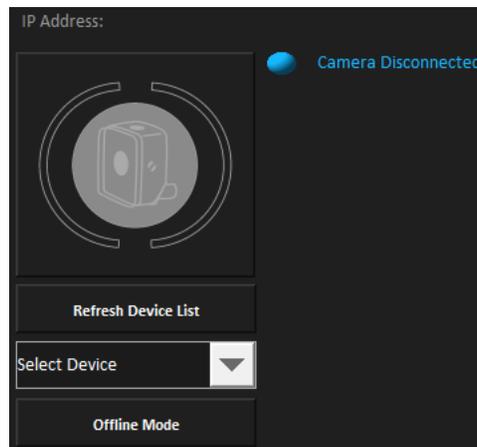
To start the Configuration Interface

1. Find the Configuration UI icon that was installed on your desktop.
2. Double-click the icon.
The Configuration Interface loading screen is displayed while the program is loading.



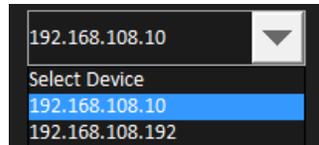
To Connect to a camera

1. When the interface has finished loading, a “Discovering” message is displayed while the program looks for Impact+OCR cameras that are connected to the network. When the Discovering message is no longer displayed, the “Select Device” screen is displayed.

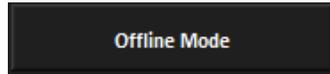


- If there is a camera connected to the PC, click the Select Device drop down to select the camera, then click the Device Connection button to connect to it.

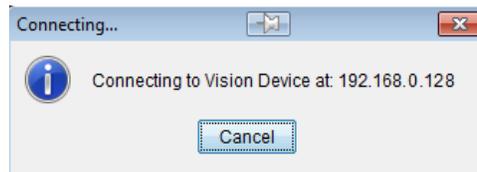




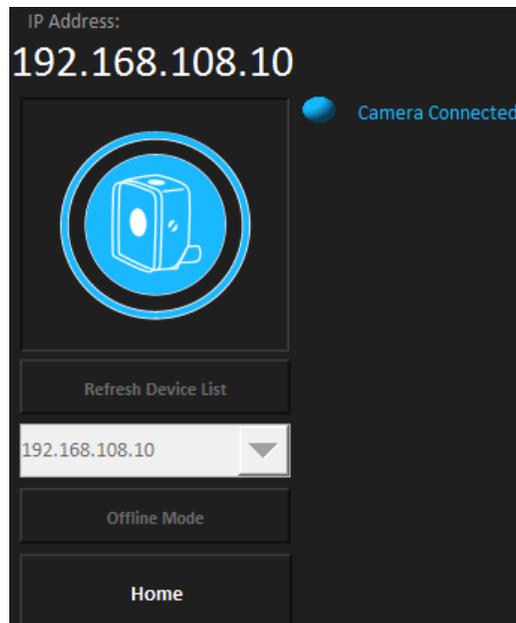
- If there is no camera connected to the PC, click the Offline Mode button to work offline. A camera Emulator is started.



2. During camera or Emulator connection, several “Connecting” messages are displayed.



3. When all the connections are complete, the “Select Device” screen is displayed with the Camera Connected message and the Home button enabled. Click the Home button.

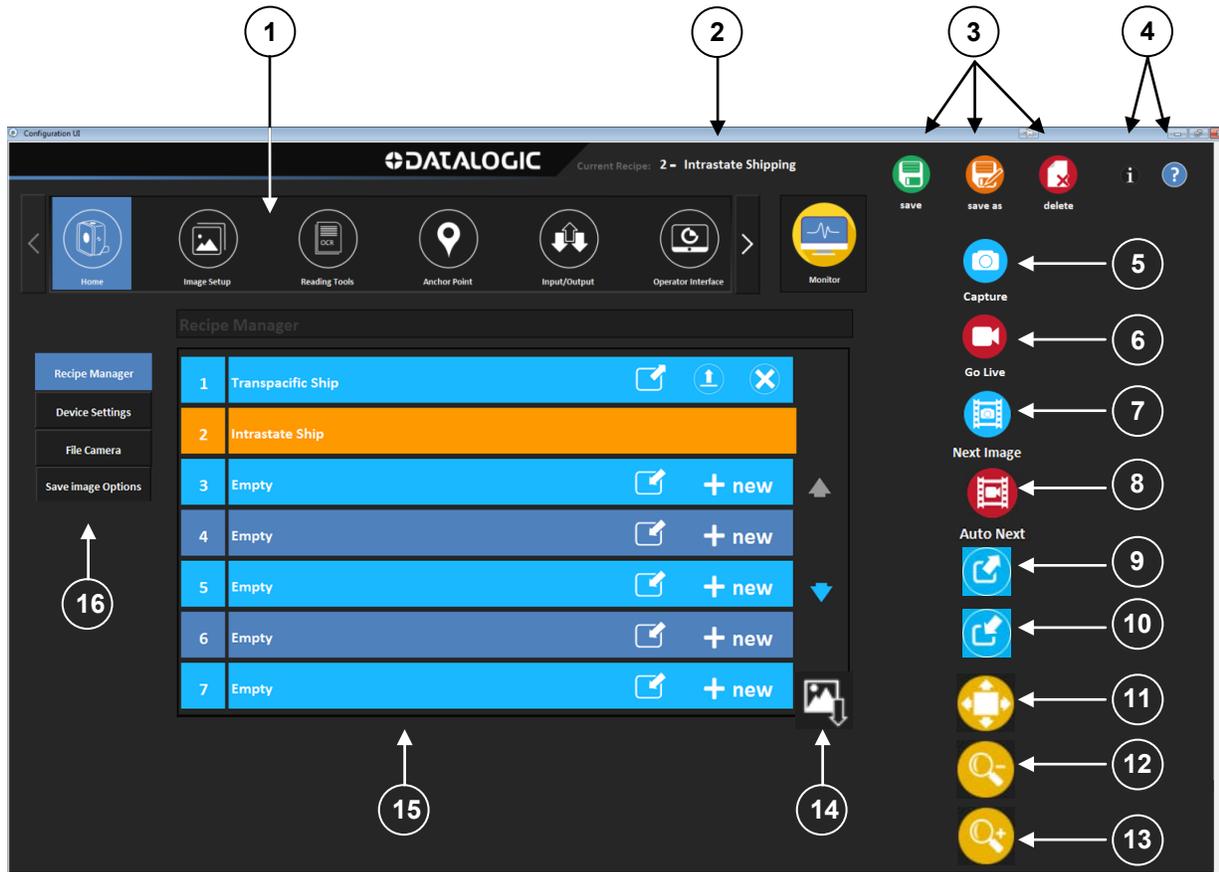


Home Button Enabled

CONFIGURATION INTERFACE

Configuration Interface

Note: Every time the Configuration UI is started, the system monitor's resolution is detected and the scale and position of the screens is automatically calculated. As a result, the layout of some of the screens depicted here may vary. The minimum monitor resolution supported is 1024 x 768. Some resolutions will distort or limit the Configuration UI and are not supported.



Note: Not all icons and functions appear on all screens

1. Main Menu — Click an icon in the menu to select a function.
2. Current Recipe — Displays the name of the currently loaded recipe.
3. Save, Save As, or Delete — Click the appropriate icon to Save or Delete the currently loaded recipe.
4. About Impact+OCR or Online Help — Click one of these icons to display the current software version and camera IP Address or this manual.
5. Capture a single image — Click this icon to capture one image.
6. Capture images continuously — Click this icon to continuously capture images. Click again to stop capturing.
7. Next Image — Click this icon to display the next file camera image.
8. Auto Next — Click this icon to automatically display the next file camera image.
9. Export Recipe – Click this icon to save the selected recipe to the PC.
10. Import Recipe – Click this icon to import a recipe that was previously exported to the PC.
11. Zoom to fit the image to the window — Click this icon to zoom the image to fit in the image

window.

12. Zoom Out — Click this icon to reduce image magnification.
13. Zoom In (magnify) — Click this icon to increase magnification of the entire image. Use the scroll bars to view different areas of the image.
14. Save Image on PC — Save the currently displayed image to a file on the PC.
15. Recipe Select Area, Setup, and Image Display — This area includes the recipe select area on the Recipe Manager screen and the image display and tool setup on other screens.
16. Select Function — Function choices are available on the Home, Reading Tools, Anchor Point, Input/Output, and Operator Interface screens.

HOME



The Home button displays the Home screen.

RECIPE MANAGER

The Recipe Manager lets you define custom-made vision inspections. Each recipe combines the settings from the Reading Tools, Anchor Point, and Input/Output sections. See Recipe Manager on page 10.

Recipe Manager

DEVICE SETTINGS

Device Settings lets you set communication parameters and recipes to load when the camera starts. See Device Settings on page 11.

Device Settings

FILE CAMERA

File Camera is enabled only when in Offline Mode.

File Camera lets you work with saved images. You can select previously captured images in PNG format to be displayed in the image window when the camera is triggered. See page 13.

File Camera

SAVE IMAGE OPTIONS

Save Image Options lets you save images in various ways to the host PC. You can save images automatically, save failed images, or save a single image. See page 14.

Save image Options

IMAGE SETUP



Image Setup is disabled the camera is in File Camera Mode.

The Image Setup button displays the Image Exposure Matrix with manual Shutter Speed and Gain settings, and the Image Setup Wizard.

To switch between the Image Exposure Matrix and the Setup Wizard, click the Switch View button.



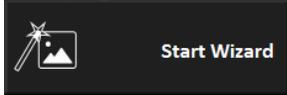
IMAGE EXPOSURE MATRIX

The Image Exposure Matrix lets you choose one of a number of preset combinations of Shutter Speed and Gain settings to provide a correctly exposed image of the inspection. See page 15.

SETUP WIZARD

The Setup Wizard automatically takes images with a variety of camera shutter speed, gain, and integral illuminator to help achieve the optimum image exposure for the inspection.

See page 16.



MANUAL SHUTTER SPEED AND GAIN

These two sliders let you adjust the camera's shutter speed and gain so you can change the exposure combinations provided by the Image Exposure Matrix, if necessary. To expose the sliders, click the lock icon. When you are done making changes, click the icon again to lock it.

See page 15.



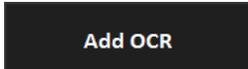
READING TOOLS



The Reading Tools button displays the Add OCR (Optical Character Recognition) and Add CODE READER buttons, and the Region Of Interest (ROI) editing window. If you need a reference point to locate a part of the image for reference, define an Anchor Point.

ADD OCR

The OCR reads characters in the image. See page 18.



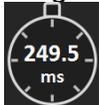
ADD CODE READER

The Code Reader reads various types of product marking codes (page 42). See page 22.



PROCESSING TIME

Processing time includes the amount of time it takes for the camera to capture and inspect the image.



GO ONLINE – GO OFFLINE

Click this button to put the camera online. When it is online, it will capture an image when a trigger input signal is received. When the camera is online, the button changes.



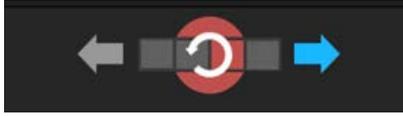
Go Online



Go Offline

VIEW IMAGE HISTORY

Click the left or right arrows to move backward and forward to display failed images from the image history. Failed Image History is enabled in the Device Settings section. See page 12 (Failed Image History) for more details.



ANCHOR POINT



Click the anchor Point button to define Edge Find, Shape Find and Code Find tools. These tools find reference points in the image to use as a locator for the OCR and Code Reader.

NONE

Select this to remove all Anchor Point tools.

EDGE FIND

This tool finds one or more sharply defined edges on the image. See page 27.

SHAPE FIND

This tool finds a unique shape in the image. See page 28.

BLOB FIND

This tool finds the center of an amorphous shape or the entire image. See page 28.

CODE FIND

If there is a code in the image, use this tool to find its center. See page 29.

INPUT/OUTPUT



The Input/Output button lets you define messages that are sent and received and can be used to load recipes. Outputs can control external equipment.

VERIFY STRING

Turn on the Verify String function to read a string from an external device, then have the selected tool compare that string to the string read from the image. See page 31.



LOAD RECIPE

The Load Recipe button lets you load a selected recipe when an external device sends a command to the camera. See page 31.



OUTPUT MESSAGE

In the Output Message section, you define a message to send to an external device for each image inspected. See page 35.

A blue rectangular button with the text "Output Message" in white.

DIGITAL OUTPUT

In the Digital Output section, you define when and how the camera outputs operate, based on the inspection results. See page 36.

A blue rectangular button with the text "Digital Output" in white.

OPERATOR INTERFACE



The Operator Interface button lets you define how and when the operator can change and view system settings on the Operator User Interface.

EDIT OPTIONS

Use the Edit Options section to provide the operator access to various settings, such as ROIs and recipes, in the inspection. See page 38.

A blue rectangular button with the text "Edit Options" in white.

DISPLAY OPTIONS

In the Display Options section, you can allow the operator to view various outputs from the inspection. See page 39.

A blue rectangular button with the text "Display Options" in white.

MONITOR

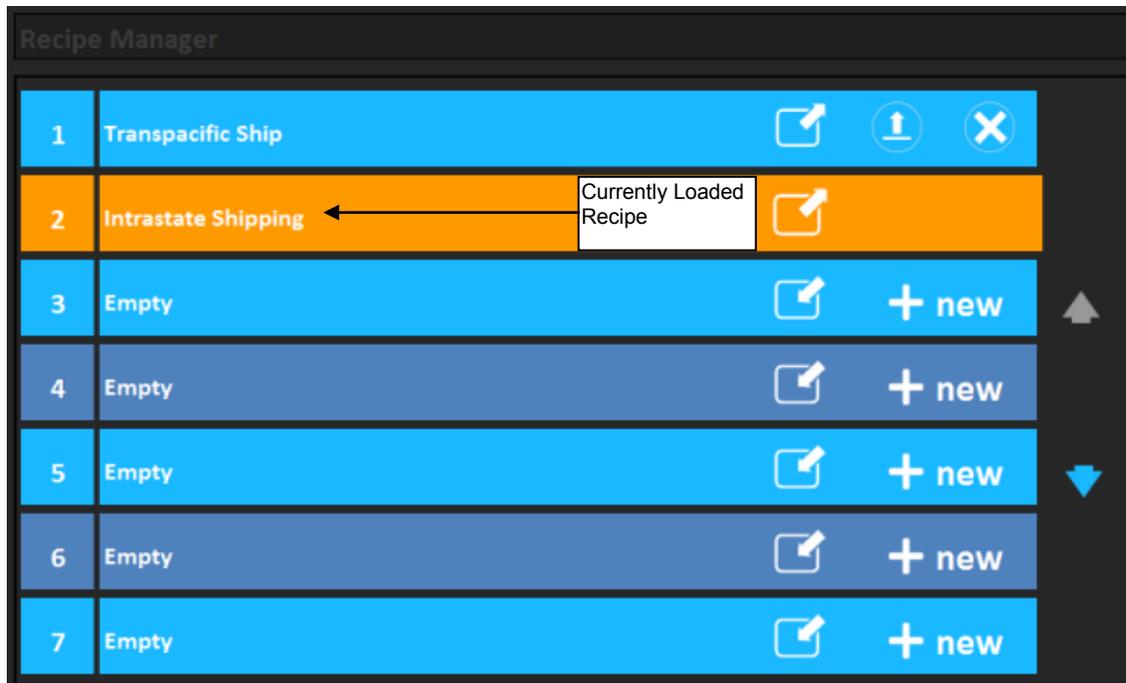


The Monitor button lets you view the inspection results. See page 40.

HOME SCREEN

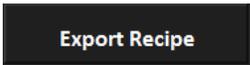
RECIPE MANAGER

A recipe is a collection of settings that reside on the camera, including Reading Tools, Anchor Points, Input/Output, and Operator Interface settings. The Recipe Manager screen lets you create, load, and delete recipes. The currently loaded recipe line is colored orange.



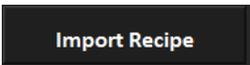
Recipe Manager

To Export an Existing Recipe

1. Click the scroll arrows to find the desired recipe.
2. Click the Export Recipe icon on the desired recipe. 
3. Click the Select file icon. 
4. In the Save dialog, navigate to the desired folder, then click Save.
5. Click the Export Recipe button. 

To Import a Recipe

You can import only to an empty recipe.

1. Click the scroll arrows to find an empty recipe.
2. Click the Import Recipe icon. 
3. Click the Select file icon. 
4. In the Open dialog, navigate to the desired folder, select the desired recipe file, then click Open.
5. Click the Import Recipe button. 

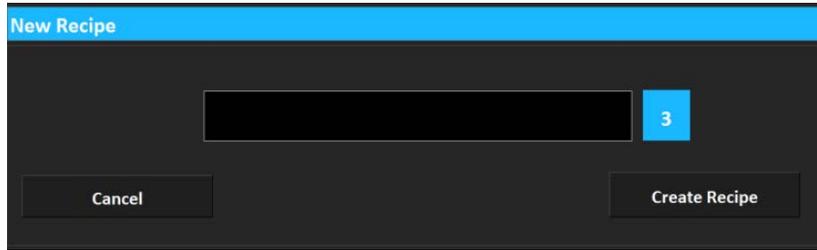
To Load an Existing Recipe

1. Click the scroll arrows to find the desired recipe.
2. Click the Load Recipe icon for the recipe. 

To Create a New Recipe

1. Click the New Recipe icon. 
2. Enter the recipe name in the name field.
3. Click the Create Recipe button.

 Be sure to Save the recipe after you make changes.



New Recipe

To Delete an Existing Unloaded Recipe

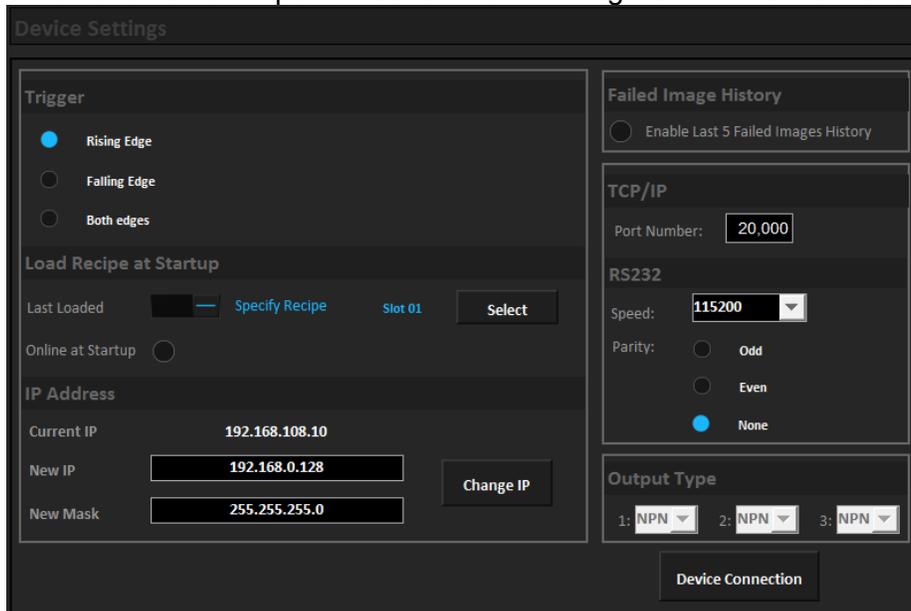
1. Click the scroll arrows to find the desired recipe. 
2. Click the Delete Recipe icon for the recipe. 

To Delete a Currently Loaded Recipe

1. Click the Delete Recipe icon. 

DEVICE SETTINGS

This section contains the IP Address and settings that control how the camera responds to Trigger input signals and how it communicates with other devices on the network. You can access this section even if no recipe is loaded. These settings are not saved with the recipe.



Device Settings

Trigger

The Trigger type determines how the camera responds to hardware Trigger input signals.

Rising Edge: An input signal is indicated by a trigger input voltage increase.

Falling Edge: An input signal is indicated by a trigger input voltage decrease.

Both Edges : An input signal is indicated by a trigger input voltage increase and decrease (two triggers per input cycle).

Load Recipe at Startup

Here you can select the recipe to be loaded the next time the camera starts and indicate if the camera should go Online when it starts..

Last Loaded: If selected, the currently loaded recipe is loaded when the camera starts.

Specify Recipe: If selected, click the Select button to display the Select Recipe drop down.

From the drop down, choose the recipe to be loaded when the camera starts.

Online at Startup: If selected, the camera will go Online when it starts and the Configuration Interface will automatically display the Monitor screen.

IP Address

Here you can set the camera's IP Address and Mask. After the Address or Mask are changed, the camera will restart. You will need to reconnect after the restart is complete. The camera's factory default IP Address is 192.168.0.128 and the mask is 255.255.255.0.

Current IP Address: The camera's current IP Address.

New IP: Enter a valid IP Address (e.g. 192.168.0.128).

New Mask: Enter a valid Mask (e.g. 255.255.255.0).

Change IP: After the new IP Address and Mask are entered, click the Change IP button to complete the change.

Failed Image History**Enable Last 5 Failed Images History**

If the box is checked, the camera will store the previous five images that failed the inspection. These images can be viewed on the Reading Tools screen and can be used to fine-tune the inspection. This history is cleared when a recipe is loaded or the camera is restarted. (See View Image History on page 7 and File Camera on page 5.) You can also save these images to a folder. (See Export History of Failed Images on page 14.)

TCP/IP

Port Number: This is the camera Ethernet input port number where the camera "listens" for a TCP/IP command. When a command is received on this port, the command processor evaluates and executes it. The camera is always configured as a server.

RS232

The camera's data transmission rate and the parity type for serial communication. Speeds supported: 300; 2,400; 9,600; 19,200; 38,400; and 115,200.

Output Type

Select the electrical configuration to match each of the outputs to the type of external load (i.e. whether the load is sourcing or sinking).

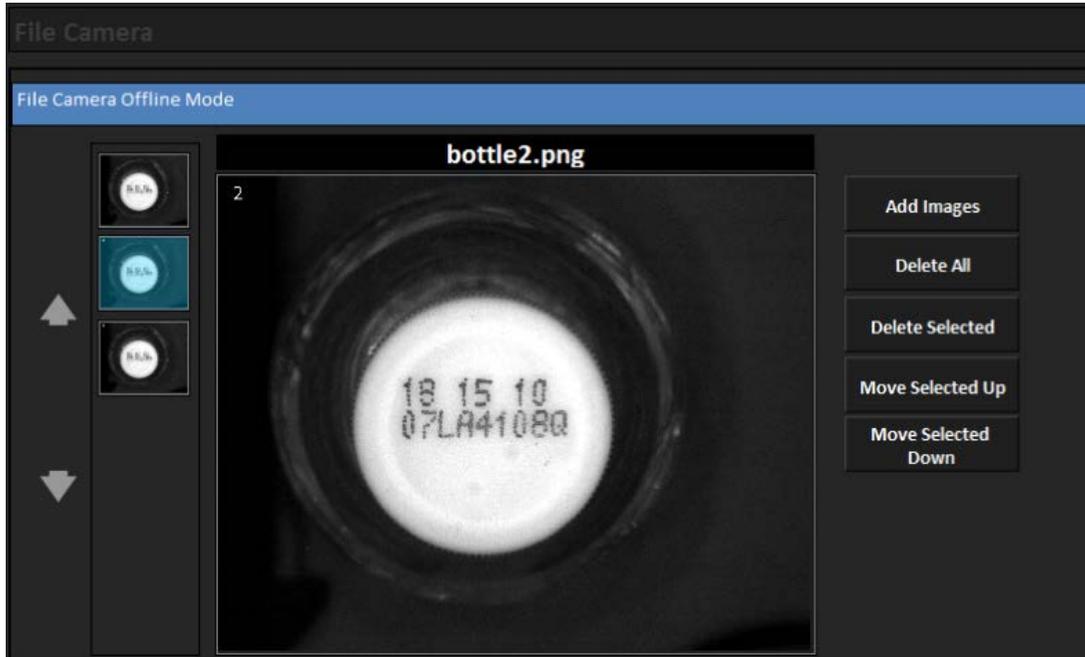
Device Connection

Click this button to display the camera connection dialog. See "To Connect to a camera" on page 1.

FILE CAMERA

File Camera is enabled only when in Offline Mode.

This section contains the functions to load images that were saved to the host PC. These images are displayed in the image window when the camera is triggered. This provides an easy way to define recipes with known good parts, then test the recipes with bad parts. Click the On button to enable the File Camera.



File Camera

Add Images

Click to add up to two hundred images to the File Camera. Navigate to the images on the host PC using the file directory. Images must be greyscale in PNG format and exactly 1280 pixels wide by 1024 pixels high. Once they are added, thumbnails of the images are shown to the left of the file camera image window. The images are “snapped” and presented for inspection in the order they are listed.

Delete All

Click to delete all the images from the File Camera. The images are only deleted from the file camera, not from the source directory.

Delete Selected

Select one or more images from the thumbnails to the left of the file camera image window. Click the button to delete the selected images from the File Camera.

Move Selected Up/Down

The images are “snapped” and presented for inspection in the order they are listed to the left of the file camera image window. To move an image up or down in order, select the image from the list, then click the Move Selected Up or Move Selected Down button.

SAVE IMAGE OPTIONS

This section contains the functions to save passed, failed, or all images to the host PC. Click the On button to enable automatic image saving.

Save Image Options

Folder Path

Click the Folder Search icon to navigate to the default Image Repository folder where the images are saved. You may also choose a different folder. The camera's IP address is included in the folder name. There is a separate folder where the images from the History of Failed Images are exported. (See Failed Image History on page 12).

Default Image Name and Rollover at

These values are assigned to the saved image's name. The first part of the name is the "Default Image Name." The second part of the name is an incremental number from 001 to the "Rollover at:" value. For example, if the Default Image Name is "Image," and the "Rollover at" value is 999, the saved image's names are from "Image001.png" to "Image999.png."

Image Type

You can choose to automatically save All images, or save images based on their Passed or Failed inspection results. When you change the Image Type, the saved image's name count restarts at "001."

Export History of Failed Images

When you click the Export button, failed images that have been saved in Image History, are saved to a subfolder named "History of Failed Images" in the Image Repository folder. See Failed Image History on page 12.

IMAGE SETUP SCREEN

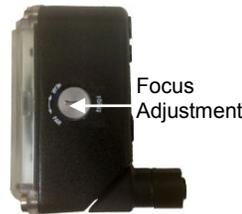
Image Setup is disabled when the camera is in File Camera Mode.

FOCUSING THE CAMERA

You may need to focus the camera in order to snap a clear, readable image.

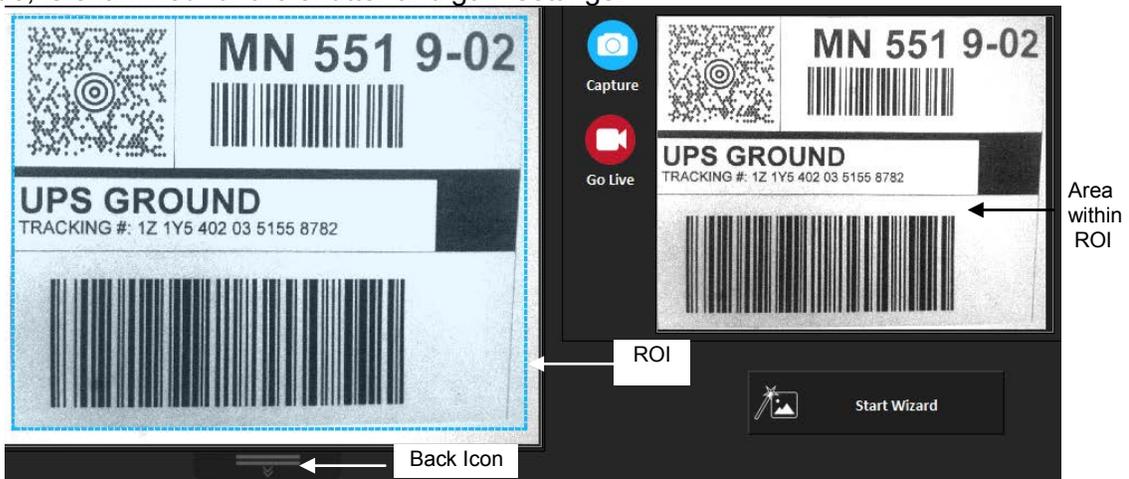
To focus the camera

1. Place the inspected object in front of the camera.
2. Click the Go Live button on the Image Setup screen. The camera will continuously capture images of the object.
3. Move the object or camera until the area you want to inspect is centered and approximately in focus. Secure the object and camera.
4. Turn the focus adjustment on the side of the camera until the image is focused.
5. Click the Stop button to stop continuous image capture.



ROI ADJUSTMENT SCREEN

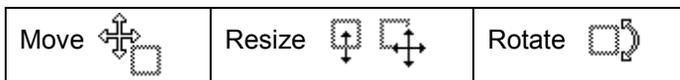
You can adjust the ROI on this screen. The area of the image inside the ROI, displayed on the right side, is examined for the shutter and gain settings.



ROI Adjustment

To adjust the ROI

1. To resize, move, or rotate the ROI, move the cursor around the ROI border. When the cursor changes to one of these types, click and drag the cursor and ROI to the desired place or size.



Start Wizard

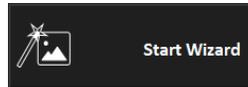
The Wizard is an aid to adjusting the camera’s shutter speed, gain, and integral illuminator to achieve the optimum image exposure for the inspection. A series of images are taken using different settings and then displayed in a matrix.

To use the Wizard

1. Click the Back icon at the bottom of the ROI Adjustment window to switch from the ROI Adjustment screen to the Matrix display screen.



2. Click the Start Wizard button. The interface switches to the Matrix display screen, snaps a series of images, and displays them in the matrix.



Matrix Display

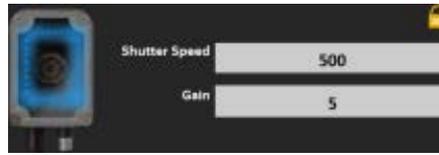
The images taken by the Wizard are displayed in a matrix. The number of images in the matrix depends on the type of illuminator attached to the camera.



Wide Angle Illuminator – 2x2 Matrix



Chain Illuminator – 4x4 Matrix



Shutter Speed, Gain, and Illuminator Settings

Click the image in the matrix that shows the best exposure of the image. This is the image that is used for the inspection. (These settings are saved with the camera, they are not saved with the recipe.)

When you click an image, the Illuminator, Shutter Speed, Gain, and Illuminator settings used for the image are displayed to the right of the matrix. The selected image is shown actual size in the image window. You can manually adjust the settings if necessary.

NOTE: If you click one of the images in the matrix, manual adjustments are overwritten.

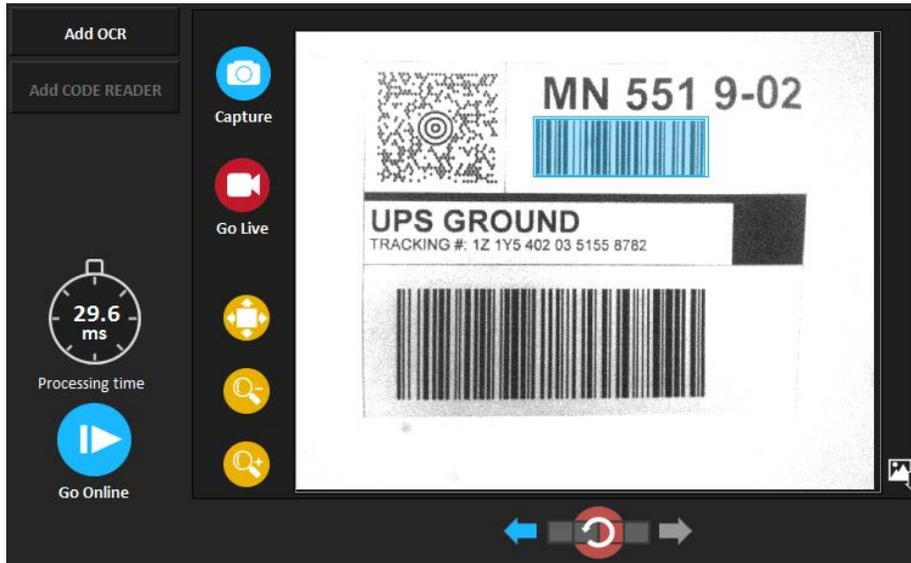
To manually adjust the settings

1. Click the Lock icon. 
2. Slide the Shutter Speed and Gain to the desired position.
3. If available, click the On and Off switches to turn Illuminator LEDs on or off. The Illuminator Status indicates which LEDs are on or off. (Chain Illuminator Only)
4. Repeat steps 2 through 4 as necessary.
5. When the settings are correct, click the Lock icon to lock the settings. 



Manual Adjustments

READING TOOLS SCREEN



Reading Tools

On this screen you can add up to four Optical Character Reader (OCR) tools and one Code Reader tool. The area on the right side of the screen is used to place the tool ROIs on the image and adjust the settings.

ADD OCR

The OCR tool reads one or more characters and, optionally, compares them to one or more characters in a Verify string. The tool fails if it fails to read the code or, the tool fails if a Verify string is used and the read and verify characters don't match. The Verify string can be read from an external device, copied from the current image, or entered from the Operator User Interface. This is option is configured on the Input/Output screen (See page 31). The characters read by the tool can be transmitted to an external device as part of an output message. This is configured on the Input/Output screen (See page 31).

To Add an OCR tool

1. Click the Add OCR button.  An ROI is added to the image. Move and resize the ROI to cover the character or characters you want to inspect. (See "To adjust the ROI" on page 15.)



Initial ROI placed on the image

2. When the ROI is placed where you want it on the image, click the edge of the ROI to display the tool adjustment screen to the right of the image.



ROI correctly placed on image



Be sure to save the recipe after you make changes.

To Delete an OCR tool



1. Click the Delete OCR button.

OCR Tool String Setup

There are two basic entries for the OCR tool, the Train String and optional Verify String.

The screenshot shows the OCR1 tool interface. At the top left is a red 'X' delete button. The title 'OCR1' is in blue. Below the title is a 'Character Display Image' showing two characters, 'M' and 'N'. Below that is a 'Train String' field containing 'MN' and a 'Train String' button. Below the train string is a 'Verify String' field containing 'MN' and a 'Teach' button (a downward arrow with three dots). At the bottom is a 'Character Display Window' showing a grid of characters with 'M' and 'N' highlighted. On the left side of the interface is a vertical toolbar with icons for Save, Load, Delete Character, Delete All, Zoom in/out, and Zoom 100%.

Labels on the right side of the screenshot:

- Advanced Options Button
- Character Display Image
- Train String button
- Teach button
- Character Display Window

Labels on the left side of the screenshot:

- Train String field
- Verify String field
- Save
- Load
- Delete Character
- Delete All
- Zoom in/out
- Zoom 100%

To set up the OCR tool strings

1. Type the characters you want the tool to find into the Train String field.
2. Click the Train String button. The trained characters are displayed in a box above the image. The individual trained characters are displayed in the Font (character) library.
3. During the inspection, the Verify String, if defined, is compared to the characters read by the tool. You can type characters or click the Teach button. Teaching automatically takes the characters that the tool reads when it is trained and copies them into the Verify String field.

A Font Library is a collection of trained characters saved in a file. You can save a Font Library and then load it to use its characters. The buttons on the side of the Font Library character display let you modify the library.

- Save
Click this button to save the characters in the Font Library to a file.
- Load
Click this button to load the characters from a file into the Font Library.

- **Delete Character**
To delete a character from the Font Library, select the character in the Display Window, then click this button to delete it.
- **Delete All**
Click this button to delete all the characters in the Font Library.
- **Zoom In/Out**
Click one of the zoom buttons to increase or decrease the character size in the display window.
- **Zoom 100%**
Click this button to display the character size at 100% (1:1).
- **Character Display Window**
The trained characters in the Font Library are displayed in the Character Display window. To rename a character, select it, then type the new name in the Character Name Field.



Be sure to save the recipe after you make changes.

Advanced Options

If the tool has difficulty reading certain characters, there are several advance settings you can use.

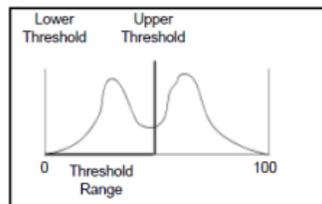
To use the OCR tool Advanced Options

1. Click the Advanced Options button. 

Threshold

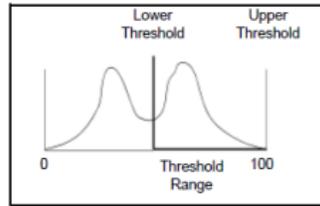
Adaptive Threshold - Dark Characters

This sets the upper and lower thresholds automatically based on all the grey levels in the ROI. The lower threshold is set to 0%, and the upper threshold is set to a value somewhere in the valley between the bright pixel and the dark pixel peaks. The exact value depends on the statistics of the two peaks. Dark pixels are thus considered in-range. This setting is best used when looking for a bright part of an image with non-uniform grey levels. In this example, the lower threshold would be 0% and the upper threshold approximately 50%.



Adaptive Threshold - Bright Characters

This sets the upper and lower thresholds automatically based on all the grey levels in the ROI. The lower threshold is set to a value somewhere in the valley between the bright pixel and the dark pixel peaks. The exact value depends on the statistics of the two peaks. The upper threshold is set to 100%. Bright pixels are thus considered in-range. This setting is best used when looking for a bright part of an image with non-uniform grey levels. In this example, the lower threshold would be approximately 50% and the upper threshold 100%.

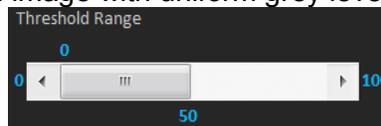


Block Adaptive Threshold – Dark Characters/Bright Characters

The tool breaks the ROI into a number of blocks from left to right and calculates a separate threshold in each block using the Adaptive Threshold method.

Fixed Threshold - Dark or Light Characters

This sets the upper and lower thresholds based on the Fixed Threshold Range slider value. Pixels with grey level values between the thresholds are considered in-range. This setting is best used for an image with uniform grey levels.



Fixed Threshold Range Adjustment

Characters Size

Min Width, Max Width

Enter the range of acceptable character widths. When you hover the cursor over the border of a character box in the character display image, the Actual width is displayed. These values are references to help the tool find and segment the characters.

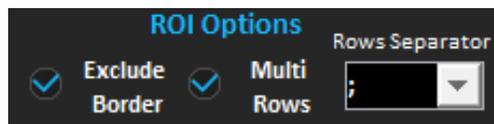
Min Height, Max Height

Enter the range of acceptable character heights. Characters must be a minimum of twenty-eight pixels high for best results. When you hover the cursor over the border of a character box in the character display image, the Actual height is displayed.



Character width, height, match score displayed

ROI Options



Exclude Border

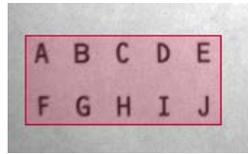
If this is selected, image pixels that touch the border of the ROI are excluded from the inspection.

Multi Rows

If this is selected, the tool will read multiple rows of characters.

To set up to read Multiple Rows of characters

1. Move and size the ROI to include all the rows to be read.



ROI includes all rows

2. Select the Multi Rows check box.
3. Select the Rows Separator character you want to use.
4. Change the Max Height value so that blocks are drawn around just one row of characters.

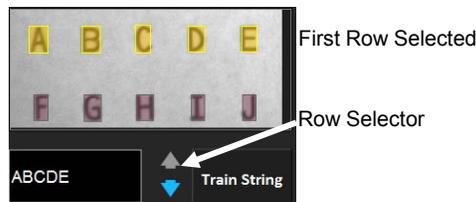


Max Height value too large



Characters segmented correctly

5. Click the Row Selector up or down arrow to select the row of characters that are to be trained. The characters in selected row are highlighted in yellow blocks.
6. In the Train String field, enter the characters to be trained.
7. Click the Train String button.



Train the First Row

8. Repeat steps 5 through 7 to train each of the remaining rows of characters.
9. The output string is displayed in the box above the image window.

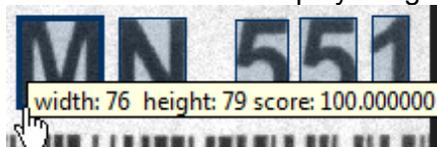
Rows Separator

Select the character that you want added in the output string to separate the rows of characters read. In the example above, the Rows Separator is a comma (,) so the output string is ABCDE,FGHIJ.

Pass/Fail

Minimum Match Score

The minimum match score means that the character must have at least this score to be marked as a successful read (Pass). The Actual Match Score is displayed when you hover the cursor over the border of a character box in the character display image.



Character width, height, match score displayed



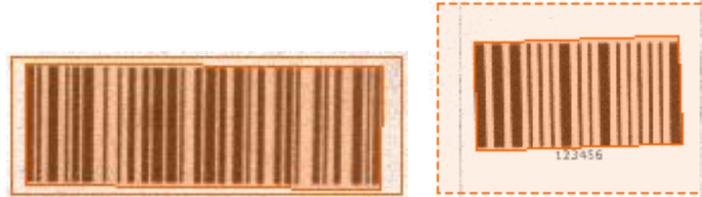
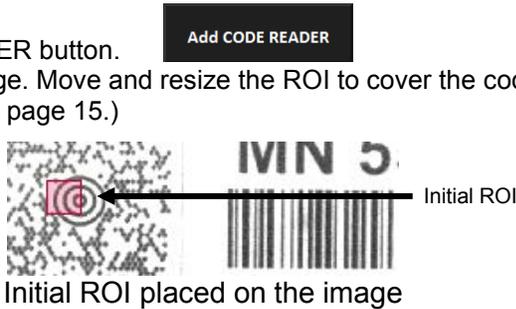
Be sure to save the recipe after you make changes.

ADD CODE READER

The Code Reader tool reads one or more characters and, optionally, compares them to one or more characters in a Verify string. The tool can decode various types of product marking codes (page 42). The tool fails if it fails to read the code or, if a Verify string is used, the tool fails if the read and verify characters don't match. The Verify string can be read from an external device, copied from the current image, or entered from the Operator User Interface. This is configured on the Input/Output screen.

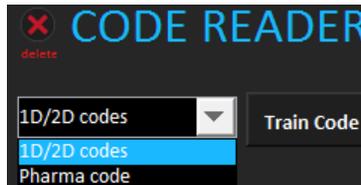
To Add a Code Reader tool

1. Click the Add CODE READER button.
An ROI is added to the image. Move and resize the ROI to cover the code you want to inspect. (See "To adjust the ROI" on page 15.)



Examples of the ROI correctly placed on the code

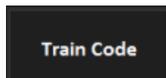
2. When the ROI is placed where you want it on the code, select the code type from the code-type drop down.



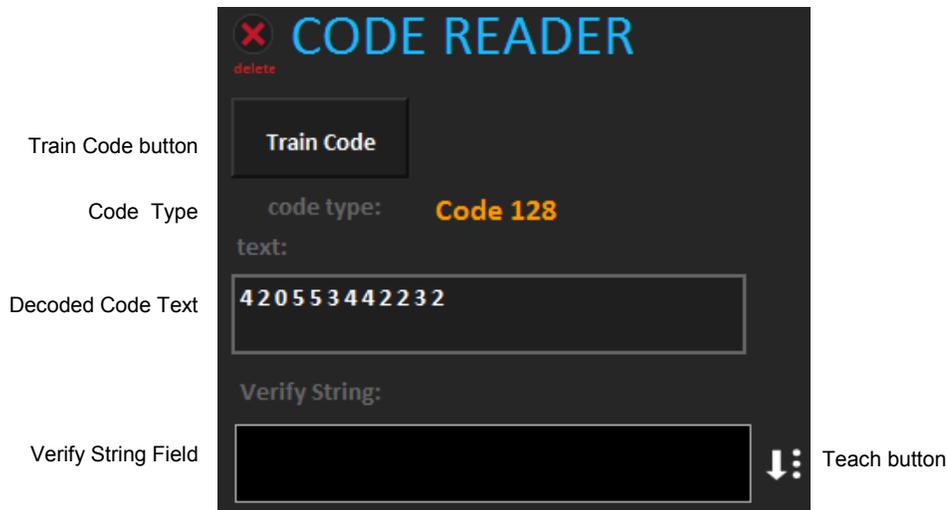
If you are reading a 1D or 2D code type, continue with the following section. If you are reading a Pharma code, go to page 24.

1D/2D CODE TYPE

1. Click the edge of the ROI to display the code type and text box screen to the right of the image.



2. Click the Train Code button.
The decoded text is displayed in the text box to the right of the image and in the box above the image. The type of code found is displayed as Code Type. If the code is not decoded, try resizing or moving the ROI slightly. You may also need to adjust the lighting or camera focus.



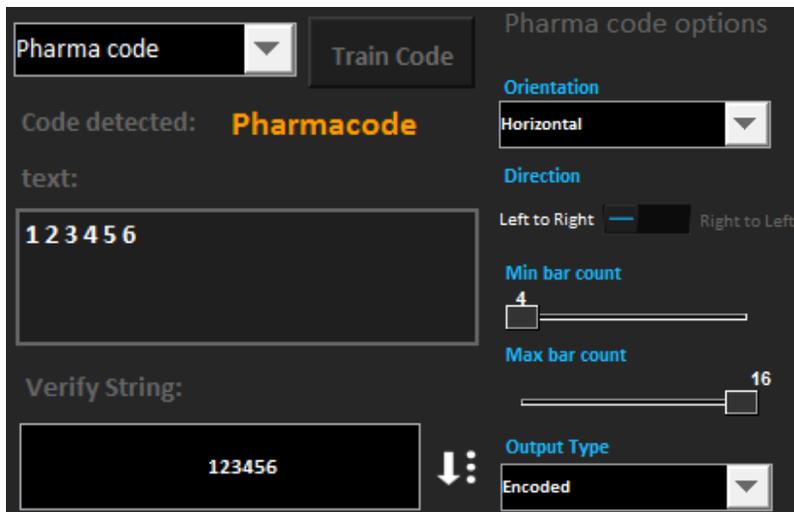
3. During the inspection, the Verify String, if defined, is compared to the read code. You can type characters or click the Teach button. Teaching automatically takes the characters that the tool reads when it is trained and copies them into the Verify String field.



Be sure to save the recipe after you make changes.

PHARMACODE TYPE

1. Click the edge of the ROI to display the code type and text box screen to the right of the image.
2. The code is automatically detected and trained. (The Train Code button is disabled.)



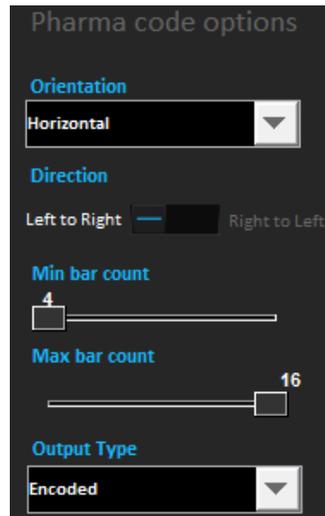
3. The decoded text is displayed in the text box to the right of the image and in the box above the image. The type of code found is displayed as Code detected. If the code is not decoded, try resizing or moving the ROI slightly. You may also need to adjust the lighting or camera focus.
4. During the inspection, the Verify String, if defined, is compared to the read code. You can type characters or click the Teach button. Teaching automatically takes the characters that the tool reads when it is trained and copies them into the Verify String field.
5. The Pharma code options are displayed to the right of the decoded text.

Pharma code Options

The options area is used to adjust the tool for the code orientation and type.

To use the Pharma code Options

1. Click the edge of the ROI to display the options.



Orientation

Horizontal or Vertical

Use this setting to indicate how the code is oriented in the image window.



Orientation: Horizontal Vertical

Direction

Left to Right, Right to Left, Top to Bottom, Bottom to Top

The choices here depend on the Orientation setting. If the code is oriented horizontally, the code can be read starting at the left end (left to right) or the right end (right to left). If it is oriented vertically, it can be read starting at the top (top to bottom) or the bottom (bottom to top).

Min bar count

Adjust this setting to correspond to the minimum number of bars the tool should find in the code. A code with a bar count less than this value will cause the tool to fail.

Max bar count

Adjust this setting to correspond to the maximum number of bars the tool should find in the code. A code with a bar count greater than this value will cause the tool to fail.

Output Type

This setting determines whether the tool provides an Encoded or Binary output. The Encoded setting provides a readable integer output. The Binary setting provides the code as a binary number. For example, Encoded: 123456, Binary: 1110001001000001.



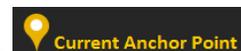
Be sure to save the recipe after you make changes.

To Delete a Code Reader tool

1. Click the Delete OCR button.



NOTE: If the code is used as an Anchor Point, a message is displayed.



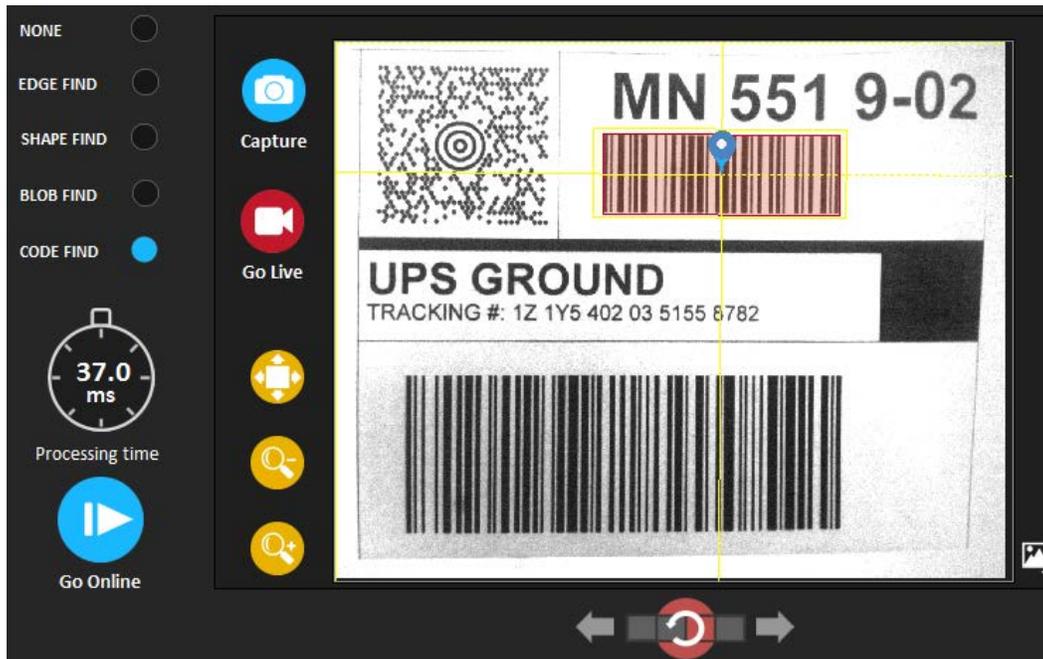
SAVE IMAGE 

Click the Save Image icon to save the currently displayed image (without ROIs). When the File Explorer is displayed, enter a filename and select the desired folder.

IMAGE HISTORY

See [View Image History](#) on page 7.

ANCHOR POINT SCREEN



Anchor Point Screen

On this screen you can add one locator which helps the OCR and Code Reader tools find the correct object on the image and create an anchor point. There are three types of locators. The area to the right of the image is used to place the anchors on the image and adjust their settings.

NONE

To remove all currently defined locator tools

1. Click the None radio button.



EDGE FIND

The Edge Find locator uses two ROIs that find light or dark edges. The lines drawn through the found edges are used by the tool to place the Reading tools.

To add the Edge Find locator

1. Click the Edge Find radio button. 
2. To the right of the image, select whether the Edge Find locator should find a bright edge or a dark edge. 
3. Two ROIs have been added to the image. Move and resize the ROIs to locate the desired edges. (See "To adjust the ROI" on page 15.) If the ROIs are perpendicular, lines are drawn through the found edges. If the ROIs are parallel, lines are drawn through the center of the found edges. The intersection of the lines drawn on the found ROI edges is used as the anchor point.



To Remove the Edge Find locator

1. Click the None radio button.

NONE



Be sure to save the recipe after you make changes.

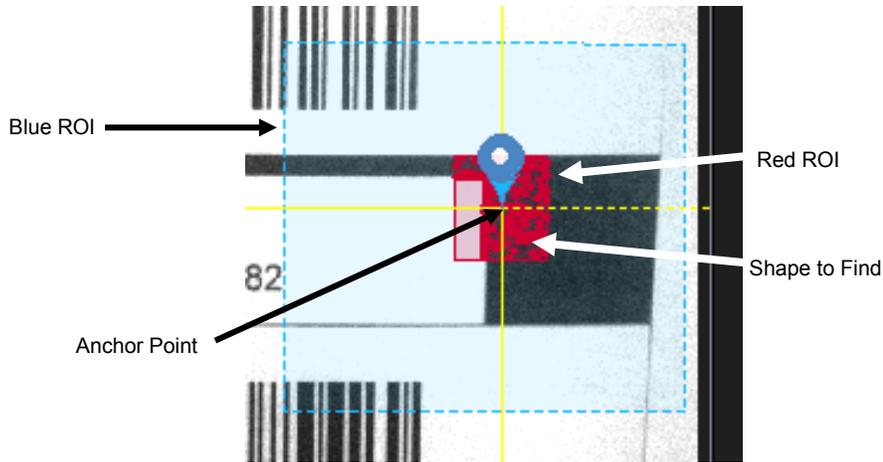
SHAPE FIND

The Shape Find locator uses two ROIs. The red ROI is trained on the desired shape, then the blue ROI is placed on the area of the image where you want to search for the trained shape. The search ROI must be larger than the train ROI. A cross drawn through the center of the found shape is used as the Reading tools anchor point.

To Add the Shape Find locator

1. Click the Shape Find radio button. **SHAPE FIND**
2. Two ROIs have been added to the image. The red ROI is used to mark the shape you want to find. The blue ROI is used to mark the area of the image to search for the shape.
3. Move and resize the red ROI around the shape in the image that you want to find and use as the anchor point. (See "To adjust the ROI" on page 15.)
4. Click the Train Shape button. This will train the locator to find the shape within the ROI. **Train Shape**

5. Move and resize the blue ROI around the area in the image where you want to look for the trained shape. The blue ROI must be larger than the red one. (See "To adjust the ROI" on page 15.) The cross drawn through the center of the found shape is the anchor point.



To Remove the Shape Find locator

1. Click the None radio button.



Be sure to save the recipe after you make changes.

BLOB FIND

The Blob Find locator can be used to find an amorphous shape in the image. A cross drawn through the center of the found shape is used to create an anchor point to place the Reading tools.

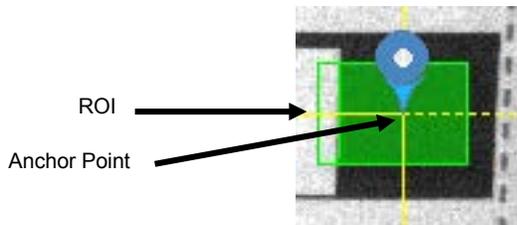
To Add the Blob Find locator

1. Click the Blob Find radio button.



An ROI is automatically placed on the image.

2. Move and resize the ROI around the shape in the image that you want to use as the anchor point. You can include the entire image if desired. (See "To adjust the ROI" on page 15.)

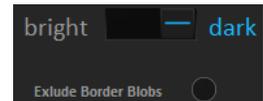


Blob Find Setup

There are two basic entries for Blob Find - Bright or Dark blobs and Exclude Border Blobs.

Bright or Dark Blobs

Select the type of foreground shapes that you want the locator to find. To find white shapes on a black background, select Bright. There must be some contrast (both bright and dark pixels) within the ROI.



Exclude Border Blobs

If this is selected, the locator will ignore any found blobs that touch the ROI.

To Remove the Blob Find locator

1. Click the None radio button.



Be sure to save the recipe after you make changes.

SAVE IMAGE

Click the Save Image icon to save the currently displayed image (without ROIs). When the File Explorer is displayed, enter a filename and select the desired folder. 

CODE FIND

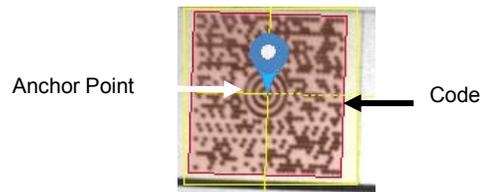
The Code Find locator can be used only when a Code Reader tool has been defined in the Reading Tools screen. A cross drawn through the center of the code is used as the anchor point.

To Add the Code Find locator

1. Click the Code Find radio button.



The anchor point is automatically placed on the found code in the image. You cannot adjust it.



To Remove the Code Find locator

2. Click the None radio button.

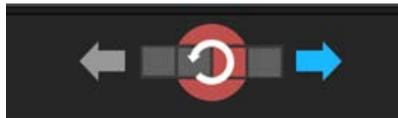


Be sure to save the recipe after you make changes.

SAVE IMAGE

Click the Save Image icon to save the currently displayed image (without ROIs). When the File Explorer is displayed, enter a filename and select the desired folder.

IMAGE HISTORY



See View Image History on page 7

INPUT/OUTPUT SCREEN

This screen lets you define messages that are sent and received and can be used to load recipes. Outputs can control external equipment.

INPUT

VERIFY STRING

Here you can set up a way to receive a Verify string from an external command for the Reading Tools to use. The communication parameters are defined on the Home – Device Setting screen (see TCP/IP and RS232 on page 12).

To set up a Verify string from an External Command



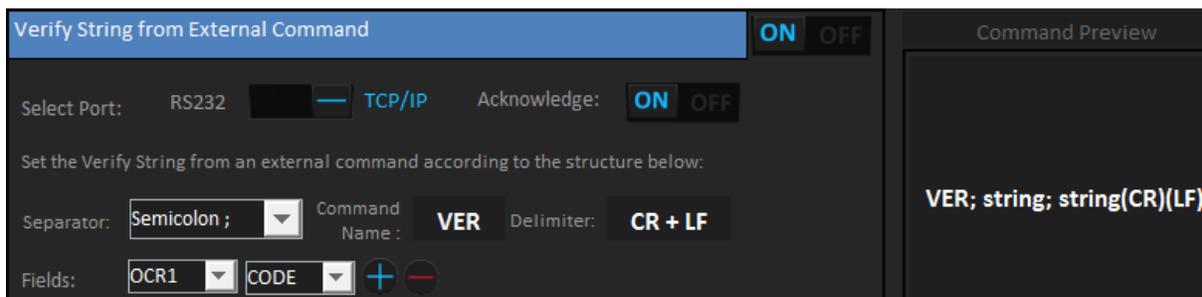
1. Click the On switch for the Verify String from External Command.
2. Select the type of communication port to use, RS232 or TCP/IP. This port is shared with the Load Recipe screen (see page 33).
3. If you want to send an acknowledgement of the command, click the Acknowledge On switch. This setting is shared with the Load Recipe screen (see page 33).
4. Select the Separator character from the drop down list. This character identifies the end of the command. This setting is shared with the Load Recipe screen (see page 33).
5. The Command Name is fixed as “VER” and the Delimiter is fixed as the ASCII characters “Carriage Return” and “Line Feed” (hexadecimal 0D and 0A).
6. The choices available in the Fields area depends on which Reading Tools are defined. Select a Reading Tool from the drop down list in one of the Fields. The Verify strings are applied to the selected tools according to their order in the external command. The command is previewed in the Command Preview to the right.

To add a Field

1. Click the plus button to the right of the Fields list. 

To delete a Field

1. Click the minus button to the right of the Fields list. 



Verify String Screen Example

Verify String Command Structure

Header	Separator	Body	Separator	Delimiter
Fixed	Choose One	(Multiple strings must be in order and separated by a Separator)	Choose One	Fixed
VER	Semicolon	Verify string(s) for selected tool(s)	;	(CR)(LF)
	Comma		,	
	Period		.	
	Underscore		-	

For example, this command sets Verify strings for two tools.

VER;GROUND;42046268(CR)(LF)

Acknowledge

If Acknowledge is turned On, when the Verify String command is received by the camera one of the following acknowledgment responses is returned.

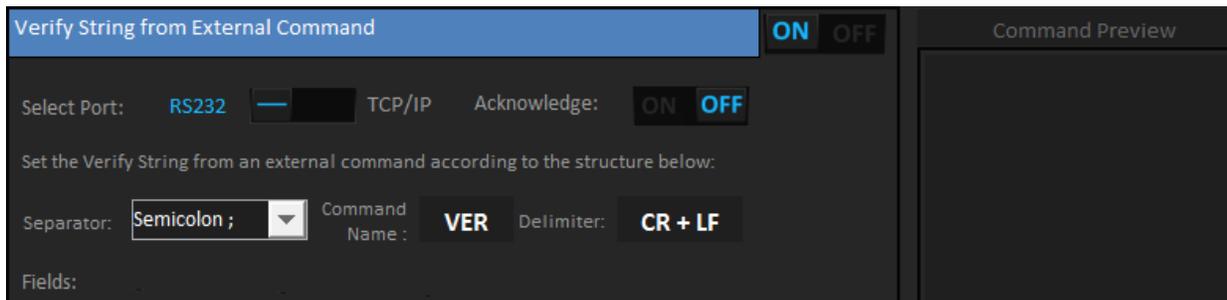
- OK (the correct command was received)
- ERR1: (This means the wrong command (not VER) or the wrong separator was used.)
- ERR2: (This means the amount of data in the command string does match what is defined on the Verify string screen)

SET

With this command, you can load a recipe and set the Verify string for one or more of the Reading Tools in that recipe to use. The communication parameters are defined on the Home – Device Setting screen (see TCP/IP and RS232 on page 12).

To set up a set Command

1. Click the On switch for the Verify String from External Command. 
2. Select the type of communication port to use, RS232 or TCP/IP. This port is shared with the Load Recipe screen (see page 33).
3. Turn Off the Acknowledge switch.
4. The Separator selection is ignored. The Separator is fixed as a comma.
5. The Command Name is fixed as “set” and the Delimiter is fixed as the ASCII characters “Carriage Return” and “Line Feed” (hexadecimal 0D and 0A).
6. The string must contain a defined recipe number (1 through 10).



set Screen Example

set Command Structure

set Fixed: Instruction name, lowercase
 <SP>string Fixed: A space and constant word “string”
 recipeNumber User Variable: Integer number of the slot of the recipe to load (1-10)
 <SP> Fixed: A space
 string User Variable 1: The Verify string for OCR1

,	Fixed Separator: A comma
string	User Variable 2: The Verify string for OCR2
,	Fixed Separator: A comma
string	User Variable 3: The Verify string for OCR3
,	Fixed Separator: A comma
string	User Variable 4: The Verify string for OCR4
,	Fixed: A comma
string	User Variable 5: The Verify string for the Code Reader
(CR)(LF)	Fixed: hexadecimal 0D and 0A

If the number of User Variables is greater than the number of tools in the recipe, the extra User Variables will be ignored. If the number of User Variables is fewer than the number of tools in the recipe, the User Variables not specified will be considered as empty Verify strings.

For example, this command sets Verify strings abcd, 1234, WXYZ, and 5678 for the four OCR tools and 09162023 for the Code Reader in recipe number 5.

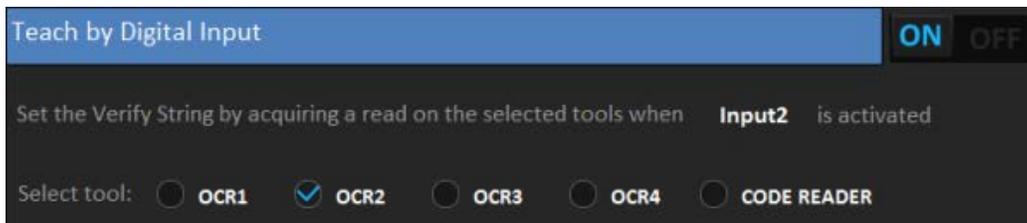
```
Set<SP>string5<SP>abcd,1234,WXYZ,5678,09162023(CR)(LF)
```

TEACH BY DIGITAL INPUT

Here you can set up a way to easily create a Verify string by using Input 2. For example, you can read a code or characters from the first part of a new lot, then use the code or characters as the Verify string in that tool for the remaining items to be inspected.

To Use Teach by Digital Input

1. Click the On switch for Teach by Digital Input. 
2. Select one or more Reading Tools. The code or characters read by those tools are copied into the tool's Verify string when Input 2 is turned on.



1. Trigger the camera so it captures the image containing the desired Verify String (code or characters).
2. Turn on Input 2.
3. Turn off Input 2.
4. For the selected tools, the string that is read by that tool is copied into its Verify string. For example, if OCR2 reads the string "12345" and Input 2 is turned on, the tool OCR2 will automatically have "12345" as its Verify string.

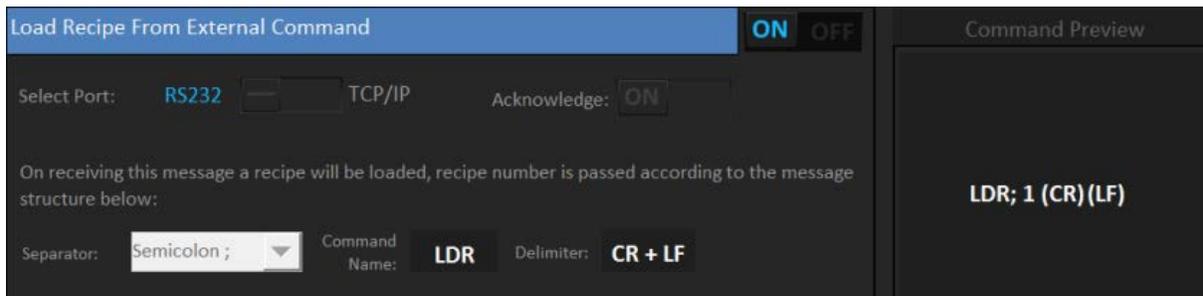
LOAD RECIPE

Here you can set up a way to load a recipe when a command is received from an external device. The communication parameters are defined on the Home – Device Setting screen (see TCP/IP and RS232 on page 12).

To set up a Load Recipe from External Command

1. Click the On switch for the Load Recipe from External Command. 

2. Select the type of communication port to use, RS232 or TCP/IP. This port is shared with the Verify String screen (see page 31).
3. If you want to receive an acknowledgement command, click the Acknowledge On switch. This port is shared with the Verify String screen (see page 31).
4. Select the Separator character from the drop down list. This setting is shared with the Verify String screen (see page 31).
5. The Command Name is fixed as “LDR” and the Delimiter is fixed as the ASCII characters “Carriage Return” and “Line Feed” (hexadecimal 0D and 0A).
6. The message from the external device must contain the appropriate recipe number as represented by the number “1” in the Command Preview to the right.



Load Recipe Screen Example

Load Recipe Command Structure

Header	Separator	Body	Delimiter
Fixed	Choose One	Loads the recipe in the list at the slot number specified by this integer.	Fixed
LDR	Semicolon	Integer number from 1 to 10	(CR)(LF)
	Comma		
	Period		
	Underscore		

For example, this command loads the first recipe in the recipe list (slot number 1).
LDR;1(CR)(LF)

Acknowledge Messages

If Acknowledge is turned On, when the Load Recipe command is received by the camera one of the following acknowledgment responses is returned.

- OK (the correct command was received)
- ERR1: (This means the wrong command (not LDR) or the wrong separator was used.)
- ERR3: (This means there was more than one parameter in the command)
- ERR4: (This means the first character in the parameter was not a number)

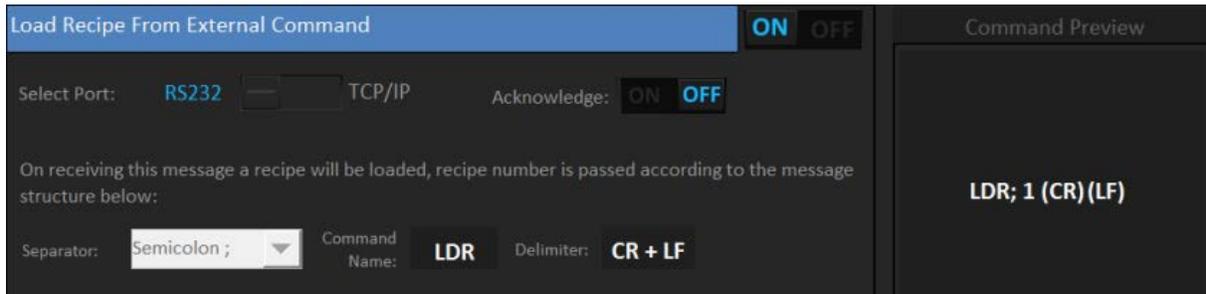
JOBLOAD

Here you can set up a way to load a recipe when a command is received from an external device. The communication parameters are defined on the Home – Device Setting screen (see TCP/IP and RS232 on page 12).

To set up a jobload from External Command

1. Click the On switch for the Load Recipe from External Command. 
2. Select the type of communication port to use, RS232 or TCP/IP. This port is shared with the Verify String screen (see page 31).

3. Turn Off the Acknowledge switch.
4. The Separator selection is ignored. The Separator is fixed as a Space <SP>.
5. The Command Name is fixed as “jobload” and the Delimiter is fixed as the ASCII characters “Carriage Return” and “Line Feed” (hexadecimal 0D and 0A).
6. The message from the external device must contain a defined recipe number (1 through 10).



jobload Screen Example

jobload Command Structure

Header	Separator	Body	Separator	Switch	Delimiter
Fixed	Fixed	Loads the recipe in the list at the slot number specified by this integer.	Fixed	Fixed	Fixed
jobload	<SP>	Integer number from 1 to 10	<SP>	-r	(CR)(LF)

For example, this command loads the first recipe in the recipe list (slot number 1).
 jobload<SP>1<SP>-r(CR)(LF)

OUTPUT

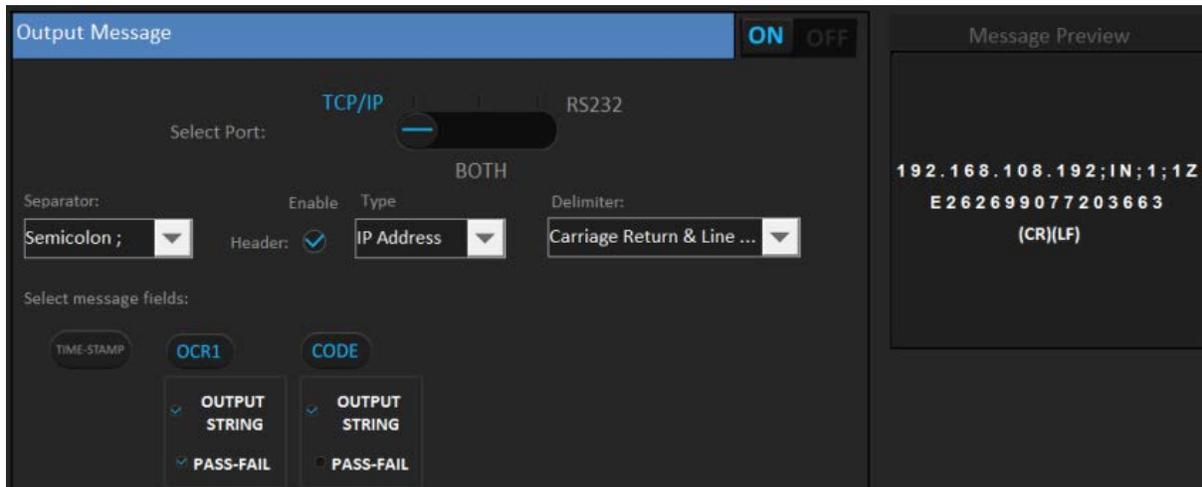
OUTPUT MESSAGE

Here you can define a message that is sent to an external device. The communication parameters are defined on the Home – Device Setting screen (see TCP/IP and RS232 on page 12).

To set up an Output Message

1. Click the On switch for the Output Message. 
2. Select the type of communication port to use, RS232, TCP/IP, or both.
3. Select the Separator character from the drop down list. This character is inserted in the output message between the message parts.
4. If you want text inserted at the beginning of the message, click the Enable Header radio button.
5. If you selected Enable Header, select the type of header from the Type drop down.
6. Select the desired Delimiter is fixed as the ASCII characters “Carriage Return” and “Line Feed” (hexadecimal 0D and 0A).
7. Select the type of delimiter characters to add to the end of the message. This can be None, the ASCII character “Carriage Return” (hexadecimal 0D), the ASCII character “Line Feed” (hexadecimal 0A), or both “Carriage Return” and “Line Feed”. The delimiter must match the type of delimiter the external device is expecting.
8. If you want the current time and date added to the beginning of message, click the Time Stamp button in the Select Message Fields area. The format is MM-DD-YY HH-MM-SS (e.g. 01-01-16 11-42-40).

- The choices available in the Select Message Fields area depends on which Reading Tools are defined. Click the button to choose the Reading Tools results that you want in the Output Message. You can choose to add the Output String and/or the Pass-Fail results of the inspection (Pass=1, Fail=0). The message is shown in the Message Preview to the right.



Output Message Screen Example

Output Message Structure

Header	Separator	Body	Delimiter
Choose One	Choose One	(Output strings are in order and separated by a Separator)	Choose One
None MSG IP Address	Semicolon Comma Period Underscore	Output string(s) of selected tool(s)	None (LF) (CR) (CR)(LF)

For example, this output message can be sent from the camera.

- Camera’s IP Address (192.168.108.192).
- OCR tool with decoded string (“IN”) and the pass/fail status (1 or 0).
- Code Reader tool with the output string (the decoded code 1ZE262699077203663).
- Separator is Semicolon (;)
- Delimiter is Carriage Return & Line Feed.

The message that the camera will send is

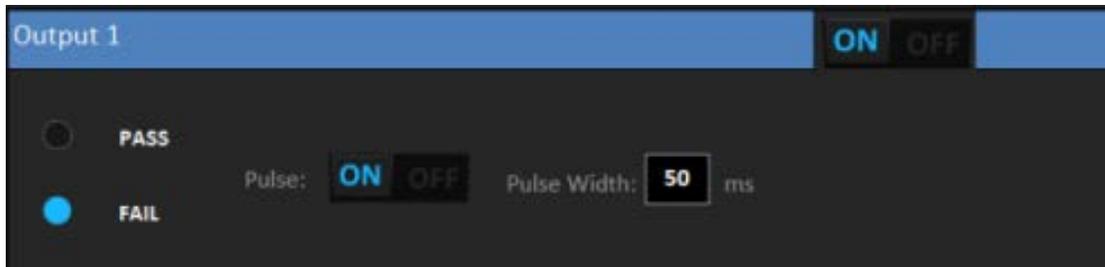
192.168.108.192;IN;1;1ZE262699077203663(CR)(LF)

DIGITAL OUTPUT

Here you can enable one or more of the camera outputs to turn on, off, or pulse.

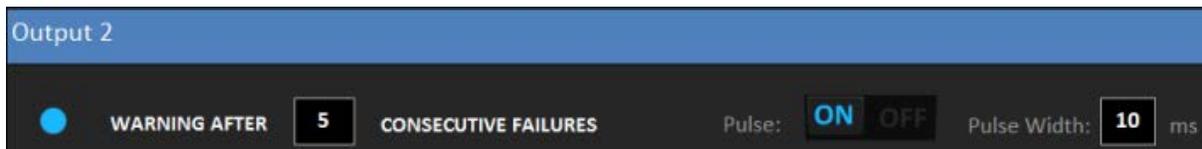
To set up Output 1

1. Click the On switch for Output 1. 
2. Select the condition, Pass or Fail, for when the output should turn on. For instance, if you select Fail, the output will turn on when an inspection fails (then turn off when the next inspection starts).
3. If you want the output to pulse on, then off, click the Pulse On switch.
4. If you selected Pulse On, enter a value for how long (in milliseconds) Output 1 will stay on.



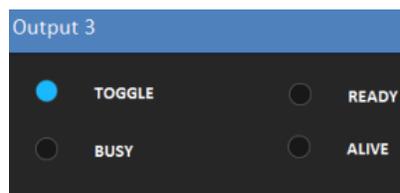
To set up Output 2

1. Click the On switch for Output 2. 
2. This output will turn on after the inspection fails the number of times entered. For example, if you enter 5, the output will turn on after 5 inspections fail (then turn off when the next inspection starts).
3. If you want the output to turn on, then off, click the Pulse On switch.
4. If you selected Pulse On, enter a value for how long (in milliseconds) Output 2 will stay on.



To set up Output 3

1. Click the On switch for Output 3. 
2. This output will turn on and off based on the selected state of the camera.
 - Toggle: The output turns on during one inspection and off during the next inspection.
 - Busy: The output turns on while the camera is busy capturing an image and inspecting it.
 - Ready: The output turns on when the camera is ready to capture an image. (The opposite of Busy.)
 - Alive: The output turns off during a system reboot. It turns on after the reboot is complete and remains on until the next reboot.



CAMERA NOT RESPONDING

Occasionally the Configuration UI may display this message. This can occur when one of the following conditions exist.

- The camera trigger rate is close to or exceeds the inspection processing time.
- The camera cable has become disconnected.
- The camera power has been turned off.

OPERATOR INTERFACE SCREEN

On this screen you can define what the user can edit or display in the Operator User Interface.

EDIT OPTIONS

This section lets you control which settings the operator can change. These settings are turned off by default.

Password

If this is turned on, the operator is required to enter a password before they can edit any settings through the Operator User Interface.

To set up password protection

1. Click the On switch for Protect Editability with Password. 
2. Enter the desired Password in the Enter Password field. The password must be from six to thirty characters, with no spaces.

OCR Readers

You can allow the operator to move and resize OCR tool ROIs and enter a Verify string for the OCR tool.

To allow ROI editing and Verify String entry

1. Click the On switch for Editable ROIs.
2. Click the On switch for Set Verify String from Operator Interface

Code Readers

You can allow the operator to edit Code Reader tool ROIs and enter a Verify string for the Code Reader tool.

To allow ROI editing and Verify String entry

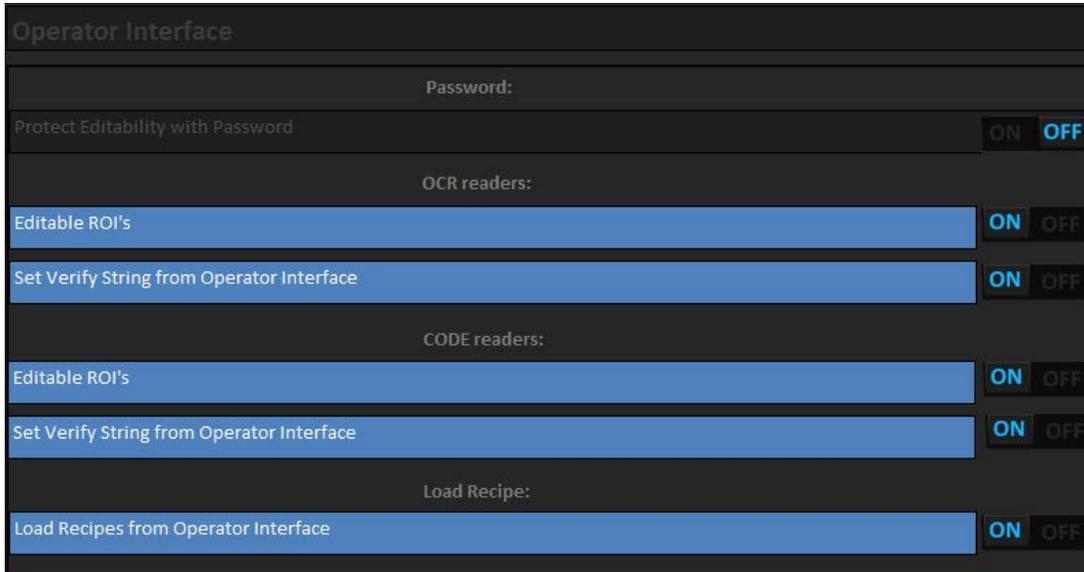
1. Click the On switch for Editable ROIs.
2. Click the On switch for Set Verify String from Operator Interface

Load Recipe

You can allow the operator to load recipes.

To allow recipe loading

1. Click the On switch for Load Recipes from Operator Interface.

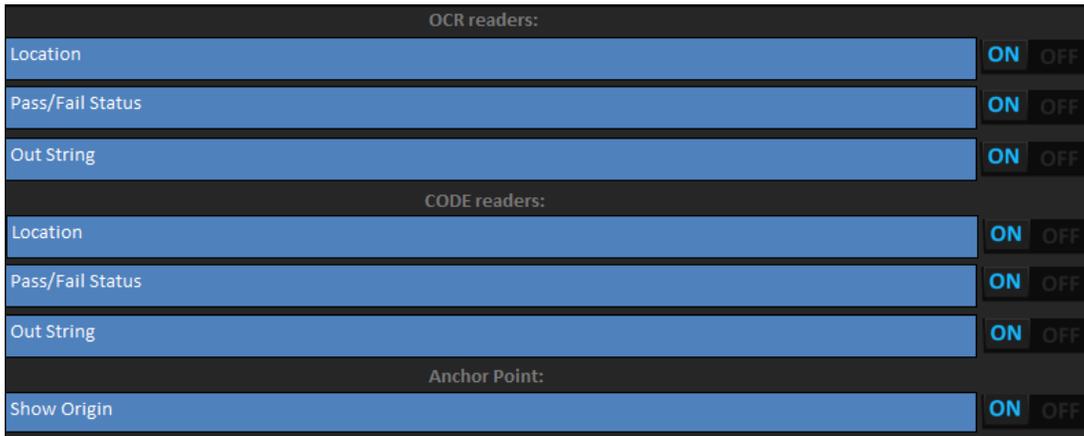


DISPLAY OPTIONS

This section lets you control which settings the operator can view in the Operator User Interface. These settings are turned on by default.

To allow display of a setting

1. Click the On switch for the desired setting.



MONITOR SCREEN

This screen provides an overview of the inspection results.



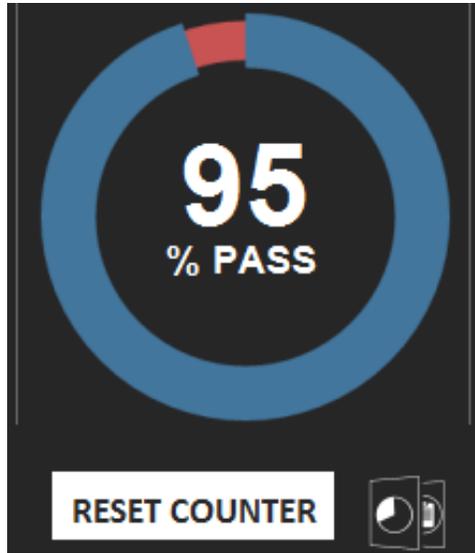
The Image window displays the image currently being inspected. Reading Tool ROIs turn red if a code or character tool read fails. The Pass/Fail Indicator turns red if any part of the inspection fails. Processing time includes the amount of time it takes for the camera to capture and inspect the image.



The Go Online puts the camera online or offline. When it is online, it will capture an image when a trigger input signal is received.

The Message In and Message Out windows show the messages that have been defined in the Input/Output screen.





Pass Percentage

The Pass Percentage is the accumulated percentage of passing inspections since the last time the counter was reset or the current recipe was loaded. The inspection is considered as passing only if all the tools in the inspection pass.

Click the Display Change icon to change to the numerical display.



		Pass		Fail	
		%	#	%	#
Fail #	51				
Pass #	1097				
Total #	1148				
OCR1		100	1148	0	0
OCR2		100	1148	0	0
OCR3		95.55	1097	4.442	51
OCR4		100	1148	0	0
CODE		100	1148	0	0

RESET COUNTER [Monitor Icon]

Numerical Display

The numerical display shows a Pass/Fail percentage and numerical count for each tool, as well as an overall Pass/Fail and Total Run count.

Click the Display Change icon to change to the graphical Pass Percentage display.



Click Reset Counter to reset all values to zero.

CODE READER CODE TYPES

The Code Reader can decode the following 1D/2D code types.

Aztec	Codabar	Code 39
Code 39 Full ASCII	Code 32	Code 93
Code 128	Code128 Composite	Datamatrix ECC200
EAN-8	EAN-8 Add On 2	EAN-8 Add On 5
EAN-13	EAN-13 Add On 2	EAN-13 Add On 5
GS1 128	GS1 Databar (RSS)	GS1 Databar Composite
GS1 Databar Stacked (RSS)	GS1 Databar Stacked Composite	GS1 Databar Limited (RSS)
GS1 Databar Limited Composite	GS1 Databar Expanded (RSS)	GS1 Databar Expanded Composite
GS1 Databar Expanded Stacked (RSS)	GS1 Databar Expanded Stacked Composite	GS1 Datamatrix ECC200
Maxicode	MicroPDF	MicroPDF CCA Composite
MicroPDF CCB Composite	MicroPDF CCC Composite	MicroQR
PDF417	QR	UPC-A
UPC-A Add On 2	UPC-A Add On 5	UPC-E
UPC-E Add On 2	UPC-E Add On 5	

The Code Reader can decode the following Pharma code type: Pharma code (one-track).

STARTING THE OPERATOR UI



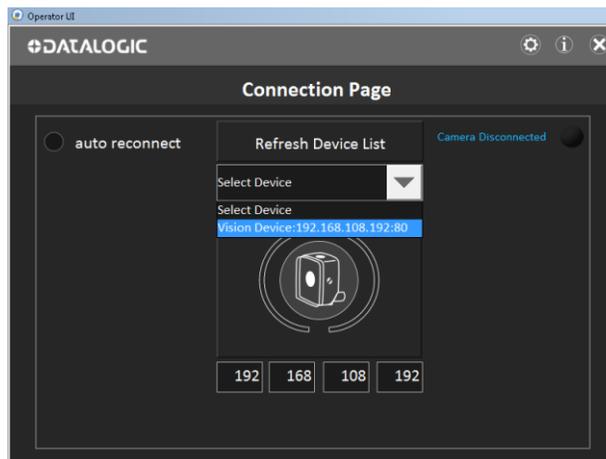
To start the Operator Interface

1. Find the Operator UI icon that was installed on your desktop.
2. Double-click the icon.
The Operator Interface loading screen is displayed while the program is loading.

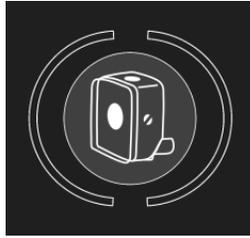


To Connect to a camera

1. When the interface has finished loading, the Connection Page screen is displayed with the "Discovering" message. Click the Select Device drop down to choose the desired device. If the device is not listed, click Refresh Device list to try again.

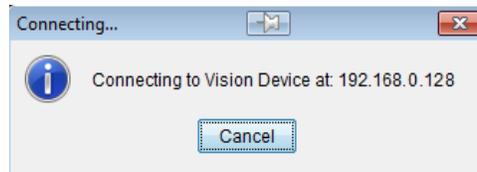


2. After you have chosen the desired device, click the Camera Connect button in the center of the dialog.
NOTE: If you want to automatically reconnect to the selected device when the Operator Interface starts, check the auto reconnect check box.

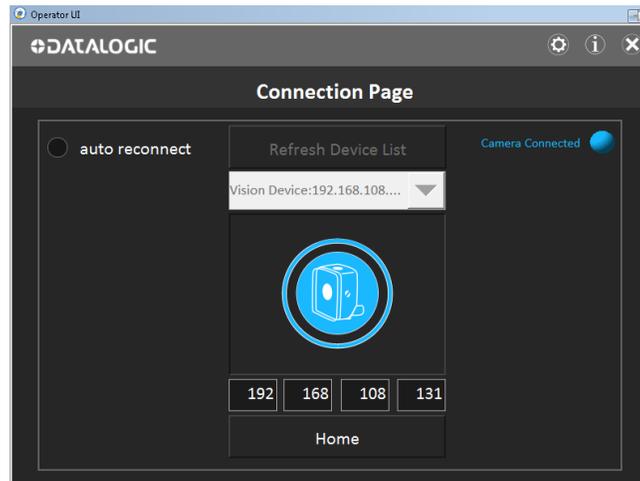


Camera Connect Button

3. During camera connection, several Connecting messages are displayed.



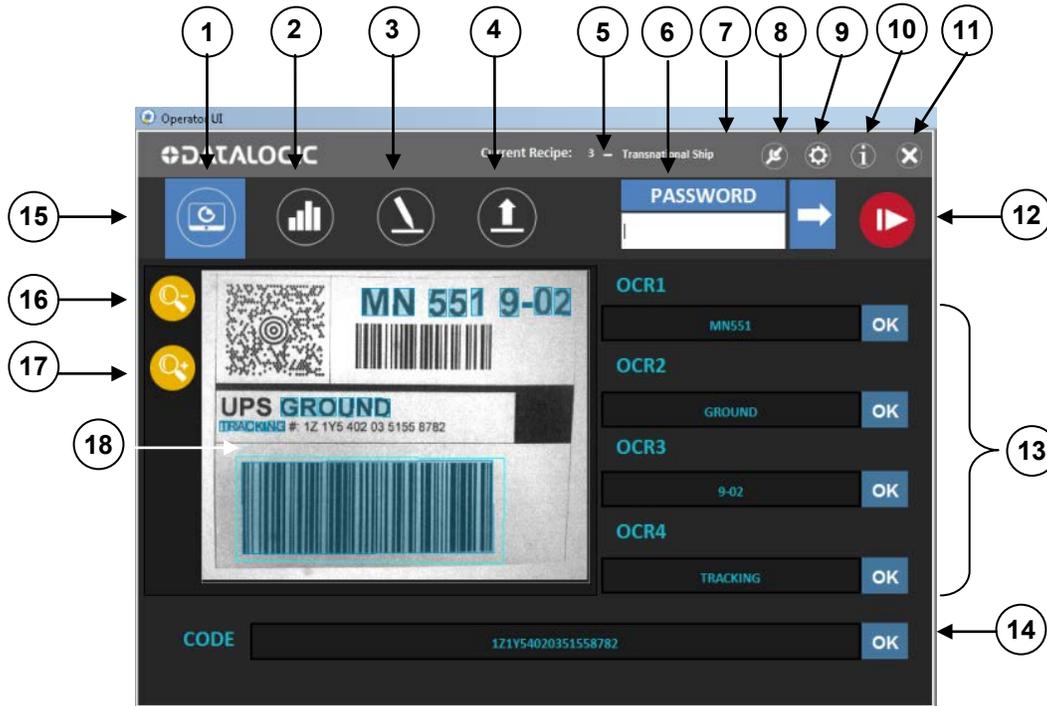
4. When all the connections are complete, the "Select Device" screen is displayed with the Camera Connected message and the Home button enabled. Click the Home button.



OPERATOR INTERFACE

OPERATOR USER INTERFACE

Note: The screens shown in this Operator Guide use the Standard theme as defined in the Operator UI (see page 49).



**Note: Some functions are limited based on Configuration UI settings
Not all icons appear on all screens**

1. Home Screen
This screen displays the results of all the inspection tools.
2. Statistics Screen
This screen displays the inspection pass and fail percentages.
3. Edit Screen
Here you enter Verify strings and adjust ROIs for inspection tools.
4. Load Recipe Screen
This screen allows you to load recipes.
5. Current Recipe
This is the name of the currently loaded recipe.
6. Password
If password protection has been enabled in the Configuration UI, the password entry field is displayed.
7. Disconnect
Click this to disconnect from the current camera so you choose a different one.
8. Settings
This button allows you to define automatic image saving and select the interface color scheme.
9. Home
This button returns to the Home screen from the Settings screen.

10. About Impact+OCR

Click this icon to display the current software version and camera IP Address.

11. Exit

Click to close the Operator User Interface.

12. Go Online – Go Offline

Click this button to put the camera online. When it is online, it will capture an image when a trigger input signal is received. When the camera is online, the button changes.



Go Online Go Offline

13. OCR tool text

The text read by the OCR tools (if any are present)

14. Code Reader tool text

The code text read by the Code Reader tool (if one is present).

15. Main Menu

Click an icon in the menu to select a screen.

16. Zoom Out

Click this icon to reduce image magnification.

17. Zoom In (magnify)

Click this icon to increase magnification of the entire image. Use the scroll bars to view different areas of the image.

18. Setup and Image Display Area

This area includes the image display and tool setup on the Home and Edit screens.

DISCONNECT

Click this button to display the camera connection dialog. See “To Connect to a camera” on page 43.

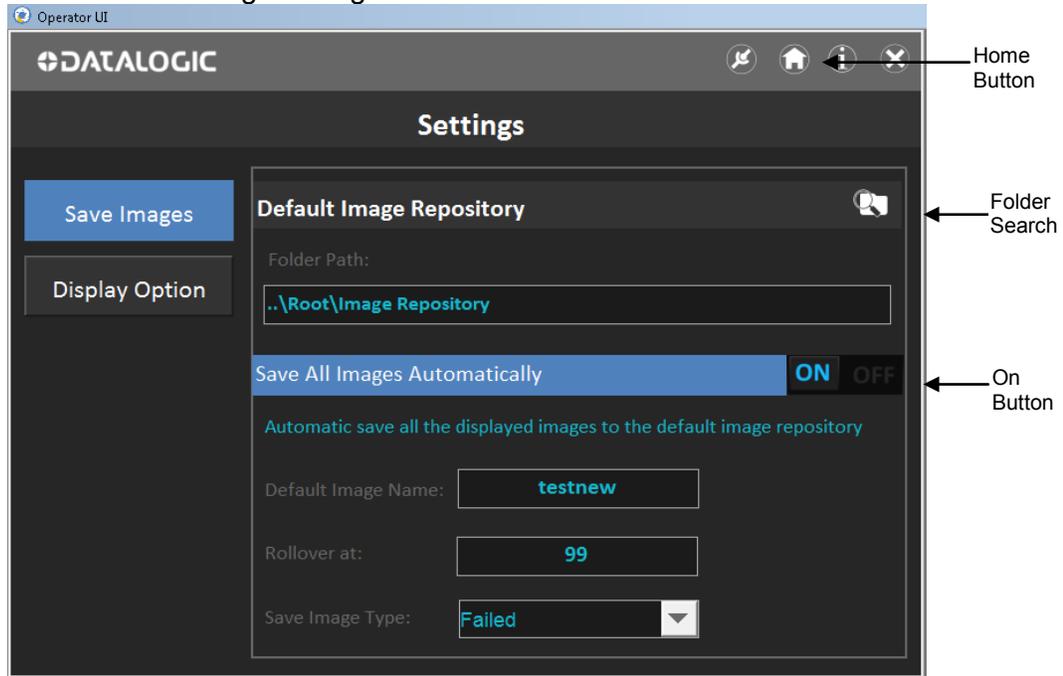
SETTINGS



This button allows you to define automatic image saving and select the interface color scheme.

SAVE IMAGES

This screen provides the ability to save passed, failed, or all images to the host PC. Click the On button to enable automatic image saving.



Save Images Screen

Folder Path

Click the Folder Search icon to navigate to the default Image Repository folder where the images are saved. You may also choose a different folder. There are multiple folders under this folder for all, failed, and passed images. The camera's IP address is included in the folder name.

Default Image Name and Rollover at

These values are assigned to the saved image's name. The first part of the name is the "Default Image Name." The second part of the name is an incremental number from 001 to the "Rollover at:" value. For example, if the Default Image Name is "Image," and the "Rollover at" value is 999, the saved image's names are from "Image001.png" to "Image999.png."

Image Type

You can choose to automatically save All images, or only save images based on their Passed or Failed inspection results. When you change the Image Type, the saved image's name count restarts at "001."



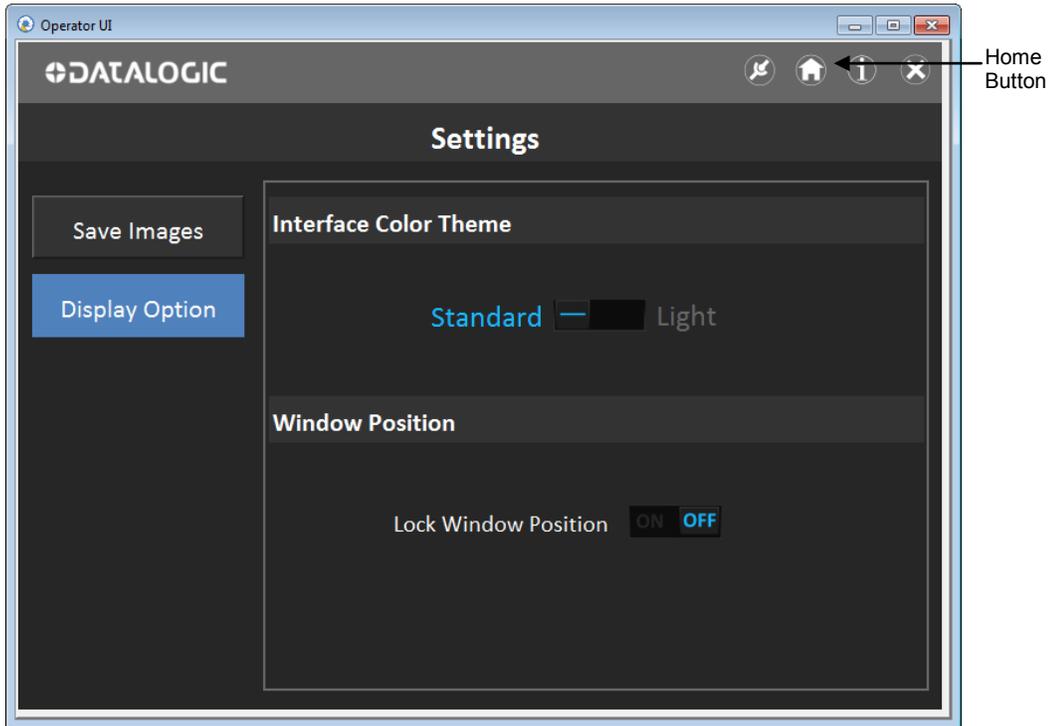
To return to the Home screen, click the Home button.

DISPLAY OPTION

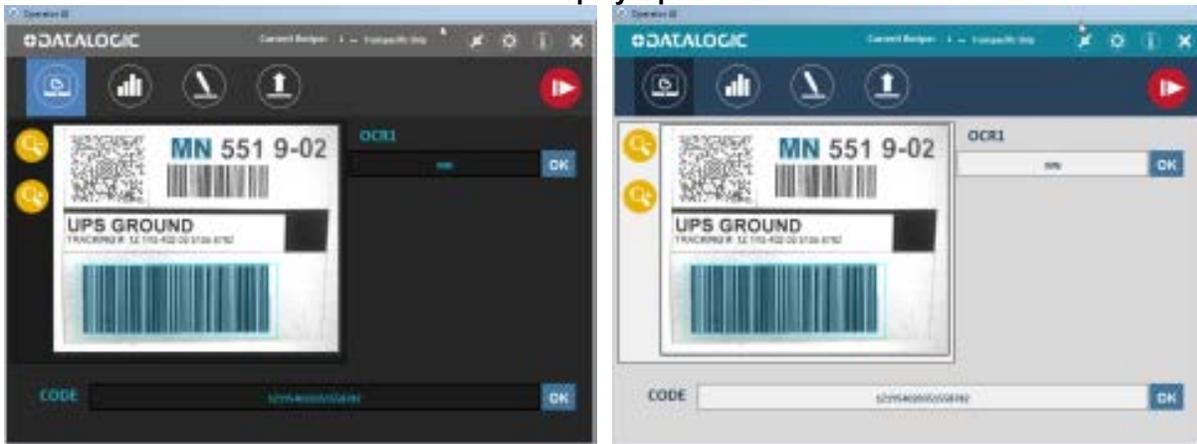
This screen provides the ability to choose the text and background display colors for the Operator Interface and unlock the Operator UI position.

Interface Color Theme

This setting determines the text and background display colors for the Operator User Interface.



Display Option



Standard Theme

Light Theme

Window Position

This setting determines whether the Operator User Interface window is locked in position on the monitor or it can be moved.

To return to the Home screen, click the Home button.



HOME SCREEN



The Results button displays the screen that contains the results of all the inspection tools. The tool ROIs are overlaid on the image, and the inspection results are listed.



1. Image and Tool ROI display area
The image and tool ROIs are displayed here. If an inspection fails, the ROI is marked.
2. Current Recipe
Displays the name of the currently loaded recipe.
3. Password
If password protection has been enabled in the Configuration UI, the password entry field is displayed. (See Password Protection on page 53.)
4. Go Online – Go Offline
Click this button to put the camera online. When it is online, it will capture an image when a trigger input signal is received. When the camera is online, the button changes. If password protection is enabled, the password must be entered to go online or offline.
 
 Go Online Go Offline
5. OCR Tool text and Inspection results
Displays the inspection results of any OCR tools. The Code or OCR text is displayed, as well as the Pass (OK) or Fail (NOK) status of the inspection.
6. Code Reader Tool text and Inspection results
Displays the inspection results of any Code Reader tools. The Code text is displayed, as well as the Pass (OK) or Fail (NOK) status of the inspection.
7. Zoom Out

Click this icon to reduce image magnification.

8. Zoom In (magnify)

Click this icon to increase magnification of the entire image. Use the scroll bars to view different areas of the image.

PASSWORD PROTECTION



Password protection is enabled and disabled in the Configuration UI on the Operator Interface Screen.

If password protection is enabled, you will need to enter a password to log in and put the camera online or offline.

To Log In

1. Click in the password login field and type the password.
2. Press Enter or click the right pointing arrow.
If you enter an invalid password, the Invalid Password message is displayed in the title bar.
3. If the login is successful, the Log Out button is displayed.



INVALID
PASSWORD!



To Log Out

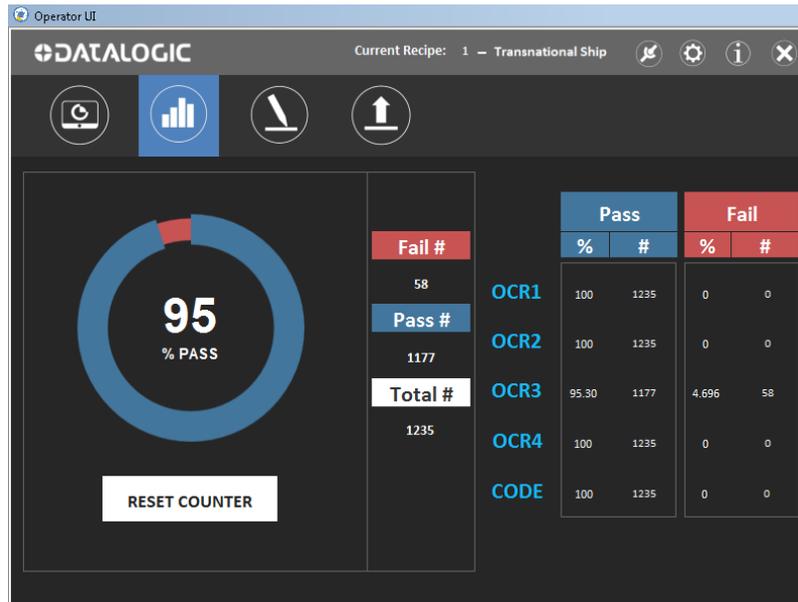
1. Click the Log Out button.



STATISTICS SCREEN



The Statistics button displays the screen that shows the inspection pass and fail percentages.



% Pass

The % Pass is the percentage of all inspections that have passed. The inspection passes only if all tools pass.

Fail #, Pass #, Total

This column lists the Total number of inspections, as well as the total number of inspections that have passed and failed.

Pass %, Pass

This column lists the percentage and count of each of the tool inspections that have passed.

Fail %, Fail

This column lists the percentage and count of each of the tool inspections that have failed.

Reset Counter

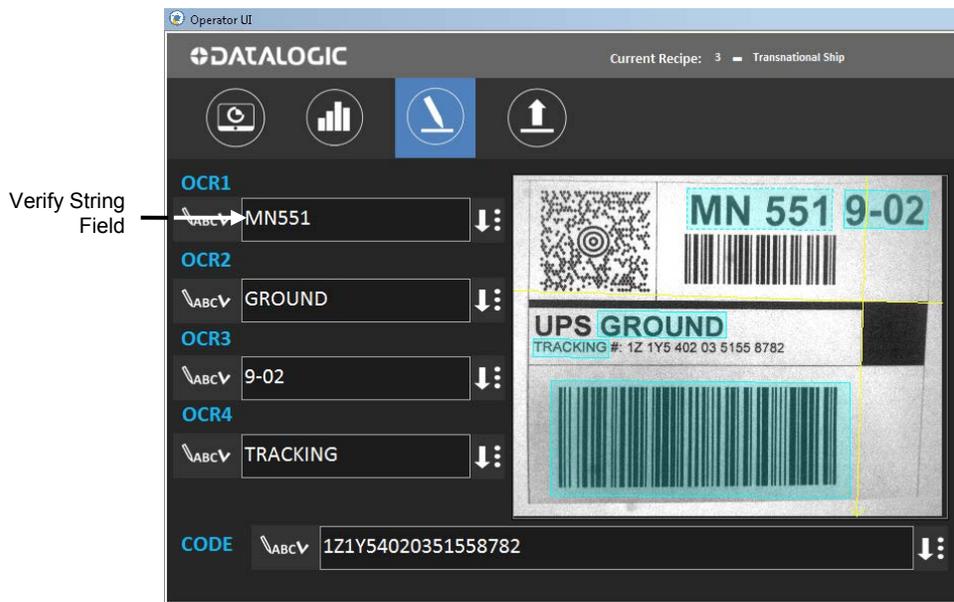
Click Reset Counter to set the % Pass and all the Pass and Fail percentages and counts to zero.

EDIT SCREEN



The Edit button displays the screen that lets you enter Verify Strings and adjust tool ROIs.

Note: This function may be disabled based on Configuration UI settings



Verify Strings

On this screen you can enter Verify strings for the OCR and Code Reader tools that are in the inspection. The tool fails if it fails to read the code or, if a Verify string is used, the tool fails if the read and verify characters don't match.

To enter a Verify String

1. Type the Verify String text into the Verify String field for the desired tool.
2. You can type characters or click the Teach button. Teaching automatically takes the characters that the tool reads and copies them into the Verify String field.

Adjust ROIs

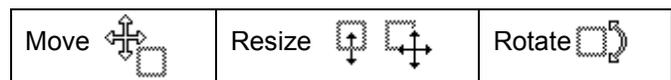
On this screen you can adjust tool ROIs to change the inspection area.

To adjust the ROI

1. To resize, move, or rotate the ROI, move the cursor around the ROI border. When the cursor changes to one of these types, click and drag the cursor and ROI to the desired place or size.



ROI selected with Move cursor

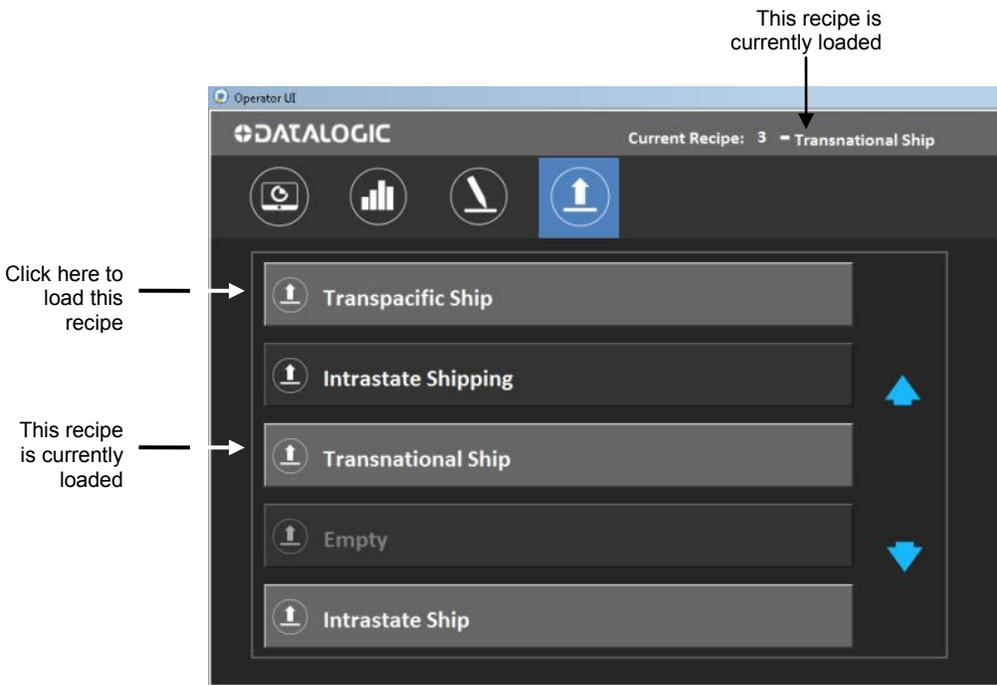


LOAD RECIPE SCREEN



The Load Recipe button displays the Load Recipe screen. A recipe is a collection of settings that are defined in the Configuration UI. This includes Reading Tools, Anchor Points, Input/Output, and Operator Interface settings. The Load Recipe screen lets you load an existing recipe. The currently loaded recipe's name is displayed at the top of the screen.

Note: This function may be disabled based on Configuration UI settings



To see more recipes, click the blue scroll buttons to scroll up and down.



To load a recipe, click the button with the desired recipe's name.

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 **DATALOGIC**

www.datalogic.com