OMRON

MICROSCAN

LVS® 7500 External System Operations Manual

GS1 Solution Partner

Disclaimer
The information and specifications described in this manual are subject to change without notice.

Latest Manual Version
For the latest version of this manual, see the Download Center on our web site at:
www.microscan.com.

Technical Support
For technical support, e-mail: **helpdesk@microscan.com**.

Warranty
For current warranty information, see: **www.microscan.com/warranty**.

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Safety Instructions

This unit has been carefully designed to provide years of safe, reliable performance. However, as with all electrical equipment, there are some basic precautions that you should follow to avoid personal injury or damage to the system:

- Before using the system, carefully read all the installation and operating instructions.
- Observe all warning instruction labels on the system.
- To protect your system from overheating, make sure no openings on the system are blocked.
- Never insert anything into the openings of the system.
- Do not use the system near water or spill liquid into it.
- All components used to create your system are UL and CE approved. All circuits were designed to incorporate maximum safety. However, any equipment using electrical voltages may cause personal injury if improperly handled.
- Do not attempt to work on the system with the main power lines connected.
- Ensure that the AC power source matches the ratings listed for the system. If unsure, check with your dealer or local utility provider.
- Do not place the AC power cord where it can be stepped on. If the AC power cord becomes damaged or frayed, replace it immediately.
- Avoid looking directly into any system lights. If you need to examine the lights, or look at any component near the lights, be sure to first turn off the lights. If the lights cannot be turned off, then wear polarized sunglasses while examining the lights.
- To avoid damaging the system, turn off and unplug the system before cleaning.
- If the system ever needs repair, consult Omron Microscan or your Omron Microscan Distributor.

Important Information

- Due to continual product improvements, the product you receive may differ from the content outlined in this guide. If you have questions about your product that are not covered in this guide, please contact your Omron Microscan representative or Omron Microscan headquarters at +1-800-762-1149 or helpdesk@microscan.com.
- The LVS-7500 External System arrives to your site packaged in specially designed shipping cartons. Do not discard the shipping cartons in case you must ship or store the system for any reason. Failure to use these cartons when returning your product to Omron Microscan will void warranty.

Introduction

The LVS-7500 External System offers 100% print quality inspection and barcode verification for Thermal and Thermal Transfer Printers. Features include:

- Barcode Validation (Reading of 1D and 2D codes)
- Barcode Verification (Grading of 1D and 2D codes to ISO/IEC Standards)
- Master-to-Label Comparison (Blemish Detection)
- Optical Character Recognition (OCR)
- Optical Character Verification (OCV)
- Number Validation
- Data and Code Matching

The LVS-7500 External System is a modular system, which means that you can check the print quality for *any* of the aforementioned areas, or for *all* of the areas. The features are listed below.

> **IMPORTANT:**
>
> The maximum system speed is 12 inches per second.
>
> The LVS-7500 External System uses a monochrome camera to capture images, which makes images appear in black and white. Some images in this guide were captured with a color camera, so you will notice some images with color.

Barcode Validation

The LVS-7500 External System decodes 1D (linear) and 2D (two-dimensional) codes (including ECC-200 Data Matrix, Composite, QR Code, PDF-417 and Micro PDF) and determines if the code is "readable." No attempt is made to grade the codes according to any standard.

Barcode Verification

The LVS-7500 External System verifies (decodes and grades) 1D (linear) and 2D (two-dimensional) codes including ECC-200 Data Matrix, Composite, QR Code, PDF-417 and Micro PDF symbologies according to the internationally accepted rules of the applicable symbology specifications and ISO 15415 and 15416.

The LVS-7500 External System displays a "real-time" graph indicating the overall ISO grade, which allows the operator to see trends in print quality for several hundred labels that were just inspected. When an error is detected, the "real-time" graph changes color. The system can also be programmed to "stop the press" when an error occurs (the appropriate hardware must be purchased for this feature).

Master-to-Label Comparison (Blemish Detection)

The Master-to-Label Comparison module, also referred to as blemish detection, identifies and tracks potential print errors such as die cut errors, broken letters, skews, smears, spots, voids, wrinkles, missing copy, and other print quality defects. The Master-to-Label Comparison module also includes an "ignore area" function which accounts for variable image data within a pattern-matching zone and does not report them as blemishes. All inspection is completed at thermal printer speed. Minimum point size is based on your system's resolution.

> **Note:** The LVS-7500 External System uses red light (660 nm) to detect blemishes; thus, color blemishes in the red spectrum may not be properly detected.

> **IMPORTANT:** The LVS-7500 External System is designed to inspect labels, record and display the results, and supply optional signals to the printer or other external system. The LVS-7500 External System cannot "stop", "score out void" or "reprint" labels; these are functions that are the responsibility of the printer. Be sure your printer has these necessary capabilities and interface connections to utilize the output capabilities of the LVS-7500 External System.

Optical Character Recognition (OCR)

Unlike the OCV Module, this module "reads" characters and reports the data content. This data is typically variable and the content remains unknown until it is read. It is important to note that the system can be trained to know what to expect for every character position. In other words, the software can be programmed on what characters to expect: alpha, numeric, or special characters. Many fonts are used in the printing industry. The LVS-7500 External System is designed to learn new fonts as necessary.

> **IMPORTANT:** The LVS-7500 External System does not distinguish between touching/overlapping characters; thus, characters must not touch or overlap. The LVS-7500 External System reads and/or verifies uppercase characters only.

Optical Character Verification (OCV)

The OCV module verifies human readable characters at unparalleled speeds at point sizes as low as four printer points (one printer point is defined as $1/72^{nd}$ of an inch or .35 mm). The LVS-7500 External System OCV module ensures that a string of sequential alpha-numeric characters is verified against a known field or database. In other words, you program the software to detect what characters should appear and the software reports if the characters actually appeared. The software will also return a percentage score as to how well the character(s) matched to the trained character(s).

> **IMPORTANT:** The LVS-7500 External System does not distinguish between touching/overlapping characters; thus, characters must not touch or overlap. The LVS-7500 External System reads and/or verifies uppercase characters only.

Number Validation

Verifies the expected order of any numerical series, detects duplicates and sequence errors, and matches variable numbers with external data files.

Data and Code Matching

Verifies encoded data that represents human readable information and ensures synchronicity of multiple fields within a label.

Log In

Follow the steps below to log in to the LVS-7500 External System.

1. Start the LVS-7500 External System software. The **Welcome** screen appears.

    Users with the "Automatic Login" feature enabled bypass the screen below and automatically access the screen where they are able to create a new job or load an existing job (as shown in step 3 below). Refer to "Appendix F: Automatic Login" for more information on using the "Automatic Login" feature.

2. Click the **Log In** button. The Login box appears (see below). Enter the **Operator ID** and **Password**, and click **OK**.

    *   When using the LVS-7500 External System for the first time, enter **Admin** in the **Operator ID** field and **Admin** in the **Password** field.
    *   Each password must consist of the following:
        o At least 8 characters
        o At least 1 letter from A to Z
        o At least 1 number from 0 to 9

3. Click the **Create a NEW job** button to create a new job. Refer to the "Create a New Job" section for complete instructions on creating a new job.

   Click the **Load an EXISTING job** button to load an existing job. Refer to the "Load an Existing Job" section for complete instructions on loading an existing job.

Welcome Screen Overview

When starting the LVS-7500 External System software, the **Welcome** screen appears (see below). This screen allows you to log in to the LVS-7500 External System (as described in the previous section) and access the following menu bar functions:

- Administration
- Log On
- About

Refer to the following sections for more information about each menu bar function.
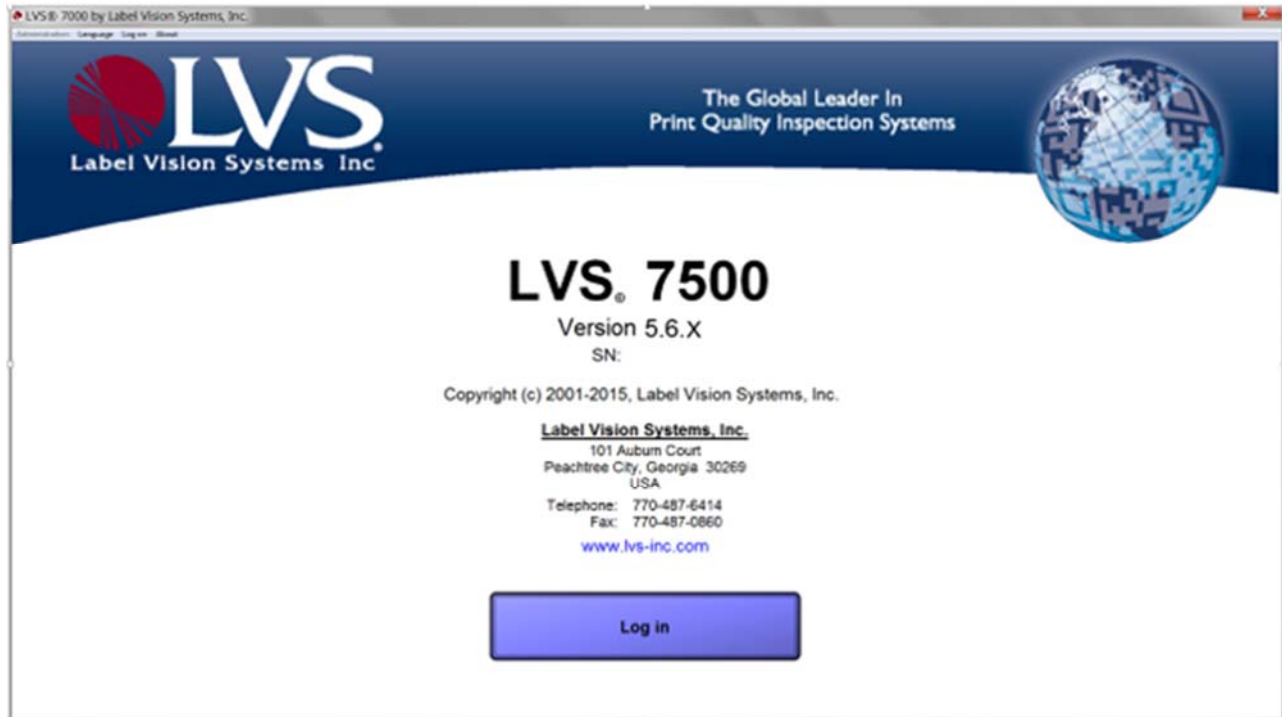
Administration

The **Administration** menu bar feature allows you to choose from the following options.
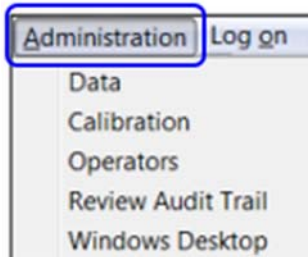
Option	Description
Data	Backup or restore jobs.
Calibration	Calibrate the LVS-7500 External System.
Operators	Select operator permissions.
Review Audit Trail	Review an audit trail of all activity performed on the LVS-7500 External System.
Windows® Desktop	Access the Windows® desktop (operator must have access rights to perform this feature).

Refer to the following sections for more information about each feature.

Data

The **Data** feature allows you to backup or restore jobs. All jobs are saved in the following directories:

- For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: C:\LvsData\LVS 7500\Jobs
- For systems that are upgrading from a previous software version to version 5.6.3 or higher:
  - **Windows® XP**: C:\Program Files\Label Vision Systems\LVS 7500\Jobs
  - **Windows® 7**: C:\Users\[User Login Name]\AppData\Roaming\Label Vision Systems\LVS 7500\Jobs
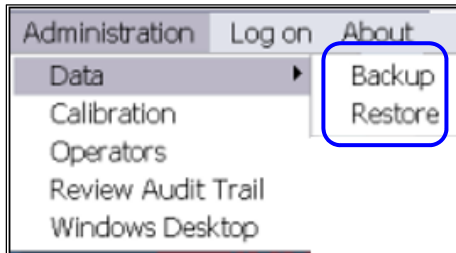
Data Backup

To backup (copy) jobs from the "Jobs" directory to a different folder, drive or network location, follow the steps below.

1. Select **Administration** | **Data** | **Backup**. The following screen appears.
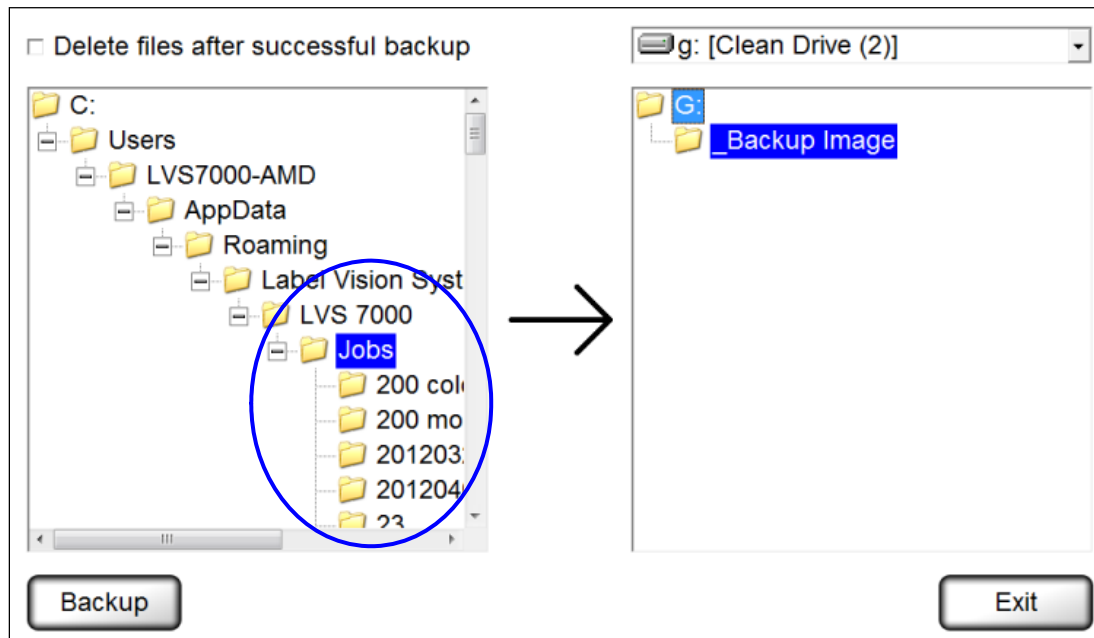
2. On the left side, select the folders within the "Jobs" folder that you want to backup. Multiple folders can be selected at one time by pressing and holding the **CTRL** keyboard button, and then clicking each folder.
3. On the right side, select the folder where the files should be saved.
4. If you want to delete the files after backup, click the **Delete files after successful backup** checkbox.
5. Click **Backup**.

Data Restore

To restore (copy) jobs from a folder, drive or network location to the "Jobs" directory, follow the steps below.

1. Select **Administration > Data > Restore** from the menu bar. The following screen appears.
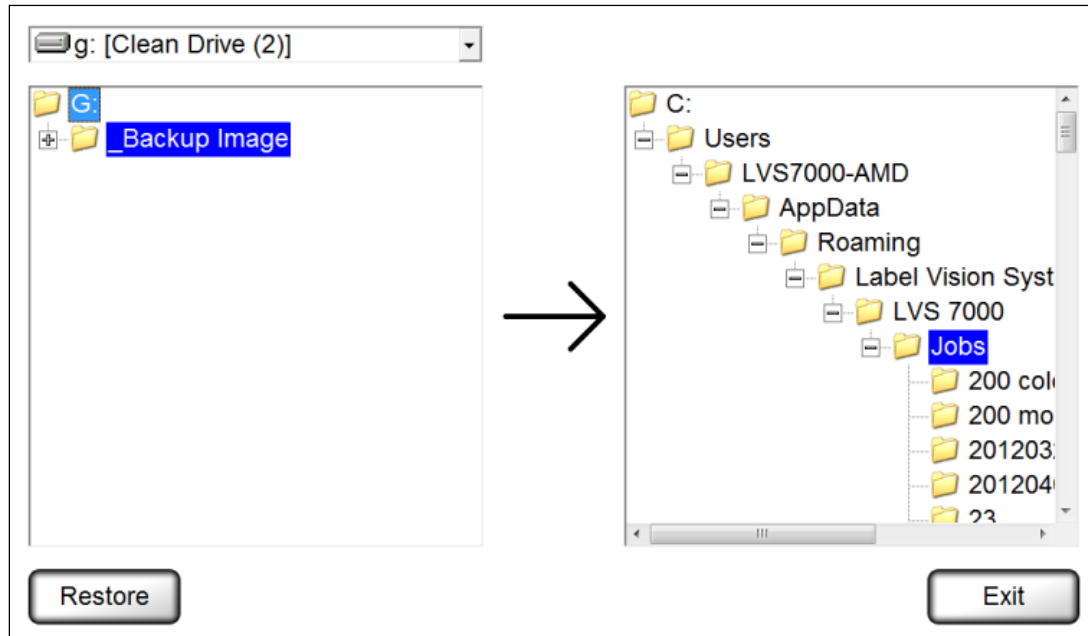
2. On the left side, select the folder(s) you want to restore. Multiple folders can be selected at one time by pressing and holding the **CTRL** keyboard button, and then clicking each folder.
3. On the right side, select the "Jobs" directory.
4. Click **Restore**.

Calibration

The **Calibration** feature allows you to calibrate the LVS-7500 External System. Calibration is required to keep the LVS-7500 External System in a standard imaging configuration.

To calibrate the LVS-7500 External System, you need an Omron Microscan calibration card in perfect condition with all of the calibration information filled out on the card.

1. Select **Administration**, and then **Calibration** from the menu bar.
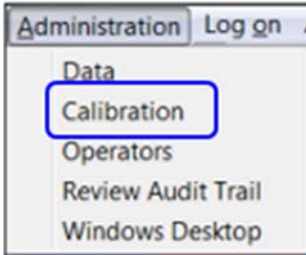
2. Click the **Start calibration procedure** button. The following screen appears.
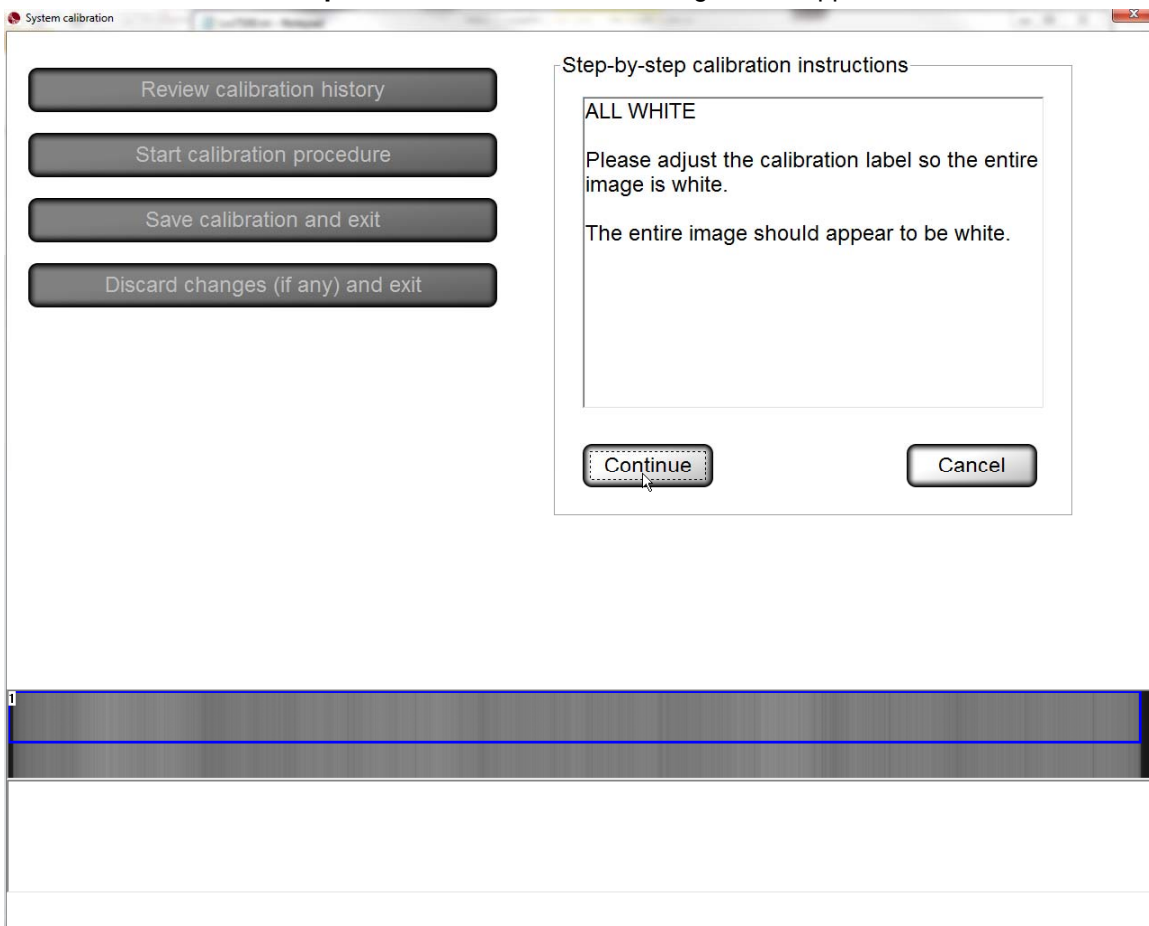
3. Place the white portion on the calibration card in the field of view. The entire image should appear white. Click **Continue**. The following page appears.

    Step-by-step calibration instructions are also listed on the right side of the screen.
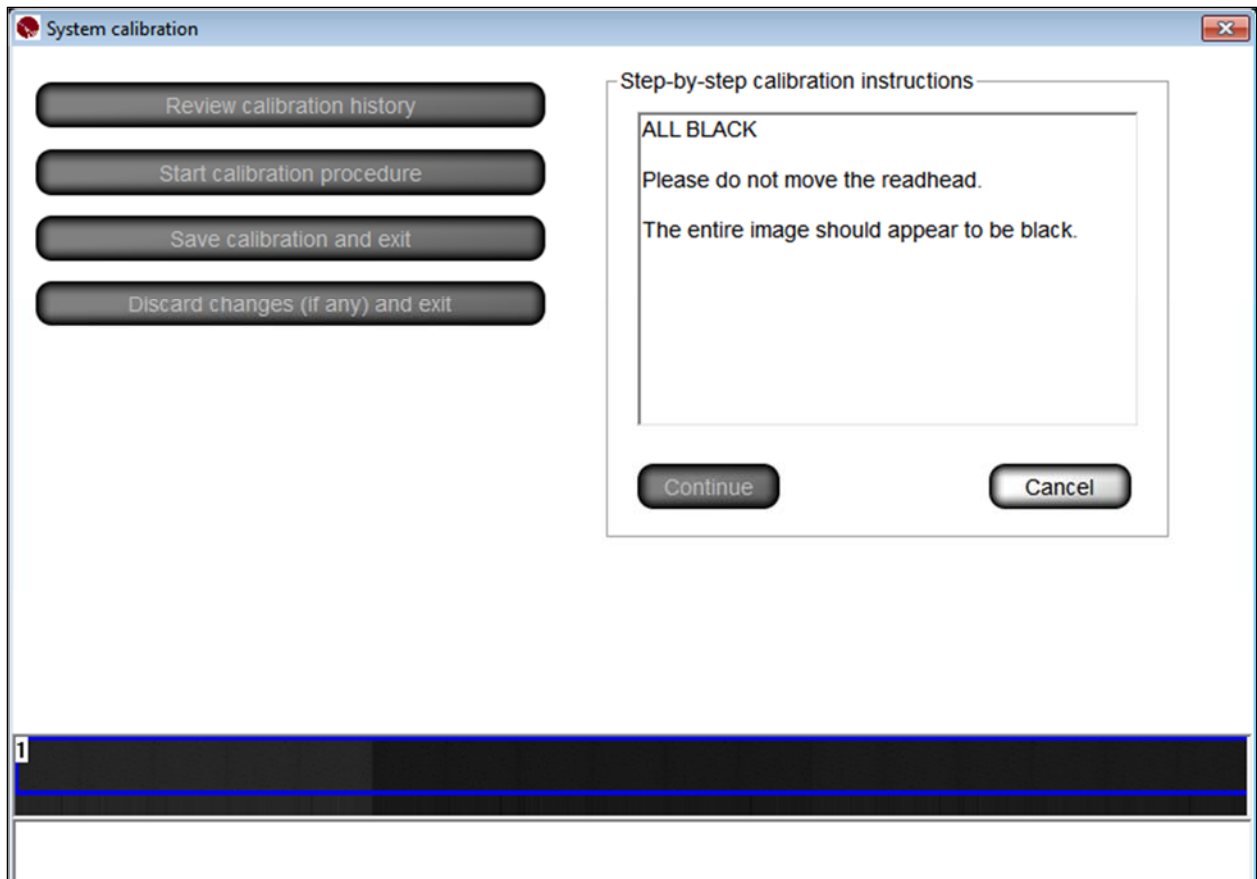
4. Place the calibration card under the camera so that as many barcodes are within the field of view as possible. The system displays the ANSII parameters of all the decoded barcodes that the camera detects.
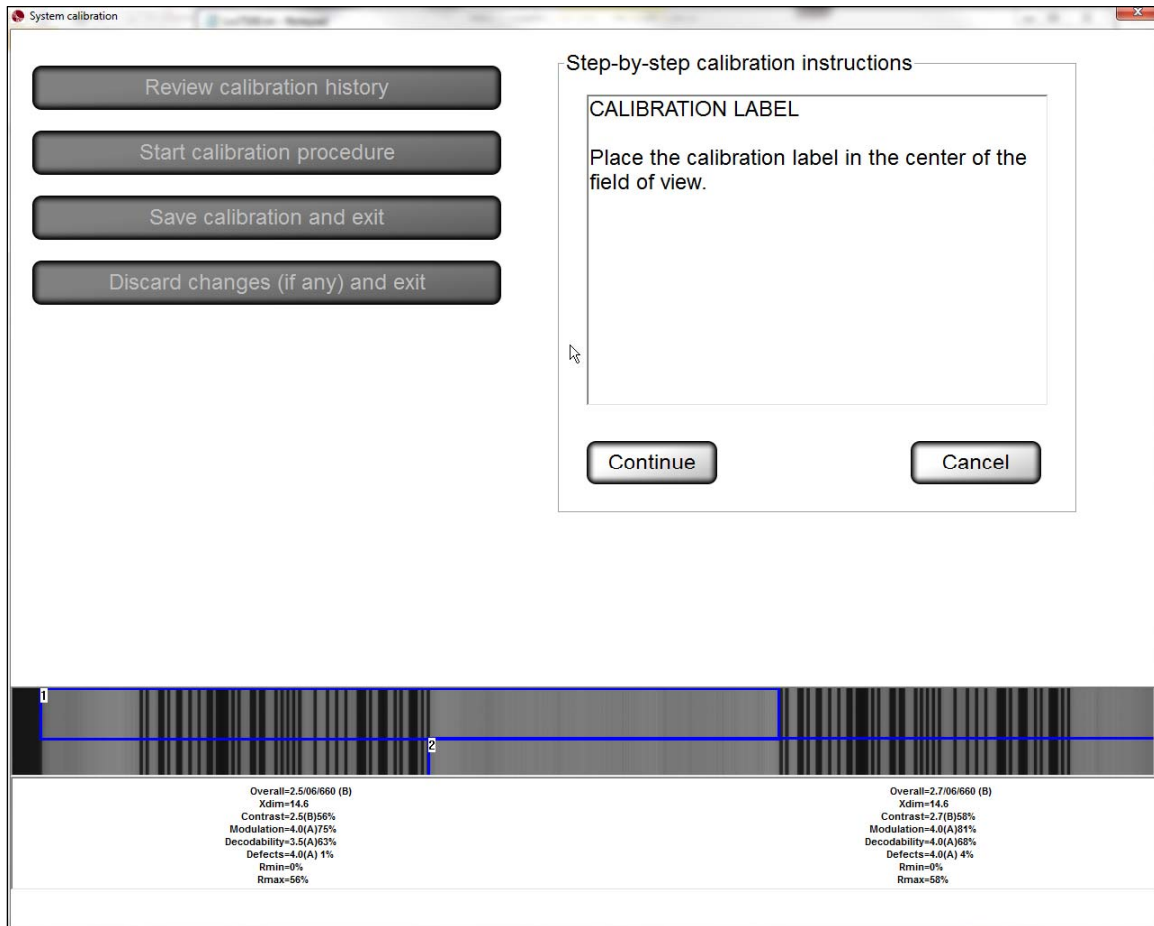
5. Click **Continue** to calibrate. The following page appears.
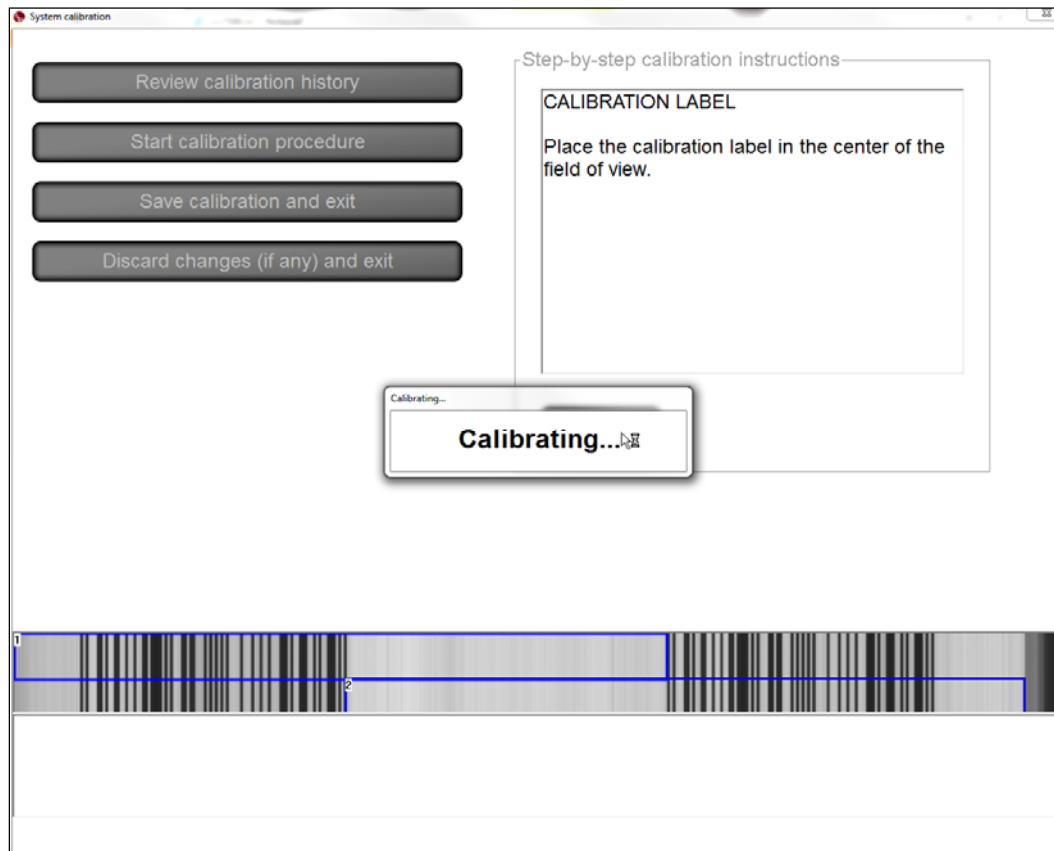
6. Calibration is complete. The ANSI values of the barcodes now match the recorded values on the card within a few points (+/- 8%).
   If calibration fails, repeat the calibration process. Be sure to inspect the calibration card carefully for damages and impurities. If the problem still persists, contact Omron Microscan for technical assistance.
7. Click the **Save calibration and exit** button to save the calibration results and return to the **Welcome** screen. After saving the calibration results, the system automatically saves the Operator ID in the calibration history log (see the section entitled "Review Calibration History" for more information).
   Click the **Discard changes (if any) and exit** to discard the calibration results and return to the **Welcome** screen.

Review Calibration History

1. Click Review calibration history.
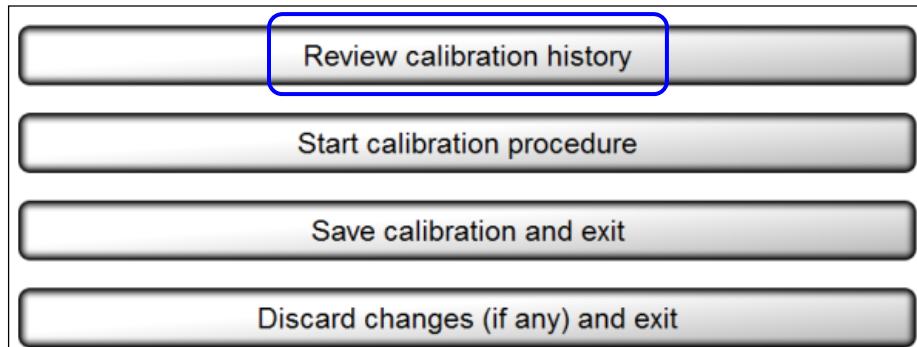
2. The CSV file viewer page appears (see below), which is time stamped, provides the operator ID, and displays the "before" and "after" calibration image readings. The fields are not user editable in the viewer; they are printable if desired.

Time	Operator	Target Rmax	Target Rmin	Actual Rmax	Actual Rmin
10-Aug-2009 08:41:25	Admin (Administrator)	89	5	87.5	2.5

Operators

The **Operators** feature allows you to establish operator permissions.

1. Select **Administration**, and then **Operators** from the menu bar.
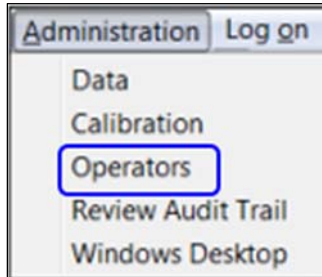
2. The following screen allows you to setup operators and operator permissions.

The buttons at the bottom of the screen are described below:

Option	Description

Add new operator	Click the **Add new operator** button to add a new operator, and then complete the following fields:
	
	• **Operator ID** (short name)
	• **Operator name** (full name)
	• **Password**. Each password must consist of the following:
	   o At least 8 characters
	   o At least 1 letter from A to Z
	   o At least 1 number from 0 to 9
	• Select the desired permissions
	• Click **Save changes** to save your changes or **Discard changes** to discard and not save your changes

Change this operator	Allows you to make changes to an operator's permissions. • Select the operator's name from the Operators list • Click the **Change this operator** button • Make any necessary changes • Click the **Save Changes** button to save your changes or the **Discard Changes** button to not save your changes
Delete this operator	Select the operator's name from the Operators list, and then click the **Delete this operator** button.

Option	Description
Discard changes	Click this button to discard any changes made to any operator details.
Save changes	Click this button to save changes made to any operator details.
Done	Click this button after all changes are complete.

Permissions

Operator permissions are described in the table below.

Permission	Description
Allow Create NEW Job	Allows the operator to create/edit/delete a job.
Allow Load EXISTING Job	Allows the operator to load existing jobs. Note that you are not allowed to edit existing jobs.
Allow Calibration	Allows the operator to perform calibration.
Allow Administration	Allows the operator access to the "Administration" menu bar feature where operators and operator permissions are set up. See the "Administration" section for more information.
Allow Accept / Replace Errors	Allows the operator to accept or replace errors.
Allow Bypass / MakeReady	Allows the operator the ability to use the "Bypass" and "MakeReady" buttons on the "Operate Screen: Running the Job."

Review Audit Trail

The **Review Audit Trail** feature allows you to monitor user activity.

- Click **Print all** to print the audit trail report.
- Click **Exit** to exit the audit trail report and return to the Welcome screen.

Date	Time	Operator	Action
30-Mar-2012	11:19:20	Admin (Administrator)	Loading information for job LVS000019
30-Mar-2012	11:19:44	Admin (Administrator)	Program stopped
30-Mar-2012	11:19:56		Program started
30-Mar-2012	11:20:05	Admin (Administrator)	Logged in
30-Mar-2012	11:20:06	Admin (Administrator)	Load EXISTING Job selected
30-Mar-2012	11:20:18	Admin (Administrator)	Program stopped
30-Mar-2012	13:37:19		Program started
30-Mar-2012	13:37:30	Admin (Administrator)	Logged in
30-Mar-2012	13:37:32	Admin (Administrator)	Create NEW Job selected
30-Mar-2012	13:37:42	Admin (Administrator)	Program stopped
30-Mar-2012	13:38:15		Program started
30-Mar-2012	13:38:24	Admin (Administrator)	Logged in
30-Mar-2012	13:38:26	Admin (Administrator)	Create NEW Job selected
30-Mar-2012	13:44:35	Admin (Administrator)	Program stopped
30-Mar-2012	13:46:22		Program started
30-Mar-2012	13:46:30	Admin (Administrator)	Logged in
30-Mar-2012	13:46:36	Admin (Administrator)	Create NEW Job selected
30-Mar-2012	13:47:19	Admin (Administrator)	Saved configuration for job test
30-Mar-2012	13:47:21	Admin (Administrator)	Starting run 5 of job test
30-Mar-2012	13:48:18	Admin (Administrator)	Stopping run
30-Mar-2012	13:48:28	Admin (Administrator)	Saved configuration for job test
30-Mar-2012	13:48:31	Admin (Administrator)	Load EXISTING Job selected
30-Mar-2012	13:48:33	Admin (Administrator)	Loading information for job test
30-Mar-2012	13:48:46	Admin (Administrator)	Program stopped
30-Mar-2012	13:48:52		Program started
30-Mar-2012	13:48:59	Admin (Administrator)	Logged in
30-Mar-2012	13:49:01	Admin (Administrator)	Create NEW Job selected
30-Mar-2012	13:49:54	Admin (Administrator)	Saved configuration for job test
30-Mar-2012	13:49:55	Admin (Administrator)	Starting run 6 of job test
30-Mar-2012	13:50:55	Admin (Administrator)	Stopping run
30-Mar-2012	13:54:58	Admin (Administrator)	Calibration selected
30-Mar-2012	13:55:55		Program started
30-Mar-2012	13:56:03	Admin (Administrator)	Logged in
30-Mar-2012	13:56:06	Admin (Administrator)	Calibration selected
30-Mar-2012	13:58:13		Program started
30-Mar-2012	13:58:22	Admin (Administrator)	Logged in
30-Mar-2012	13:58:31	Admin (Administrator)	Calibration selected
30-Mar-2012	13:59:08	Admin (Administrator)	Program stopped
30-Mar-2012	14:02:07		Program started
30-Mar-2012	14:02:18	Admin (Administrator)	Attempt to log in using an invalid password for Admin (Administrator)
30-Mar-2012	14:02:21	Admin (Administrator)	Logged in

Print all

Exit

Windows Desktop

When enabled, Windows® desktop allows a user who has been granted permission rights to access the Windows® desktop from the LVS-7500 External System.

Accessing the Windows® desktop from the LVS-7500 External System is normally disabled due to CFR-21 part 11.

For further information, please contact Omron Microscan about CFR-21 part 11.

Log On

The **Log On** menu bar feature allows you to log in or log out of the LVS-7500 External System.

About

The **About** menu bar feature allows you to view the LVS-7500 External System software version and contact information.

Create a New Job

Two setup options are available when creating a new job:

- **Automatic Setup** - Utilizing a box drawn around one label, the LVS-7500 External System finds all labels across the roll and automatically draws blemish and barcode sectors with the default setting stored for the corresponding sector types. After this automated process is complete, the system will be at the "Step 7: Save Job to Disk" screen where the user is able to enter a job name and description.

- **Manual Setup** – Guides the user through each step in creating a new job. The user must manually create sectors around blemishes and barcode sectors.

Each option is described below.

> **IMPORTANT:** In both Automatic Setup and Manual Setup modes, images can be zoomed and magnified by right-clicking in the full resolution image window and selecting either 1X, 2X, 4X or 8X. See examples below.

Automatic Setup:
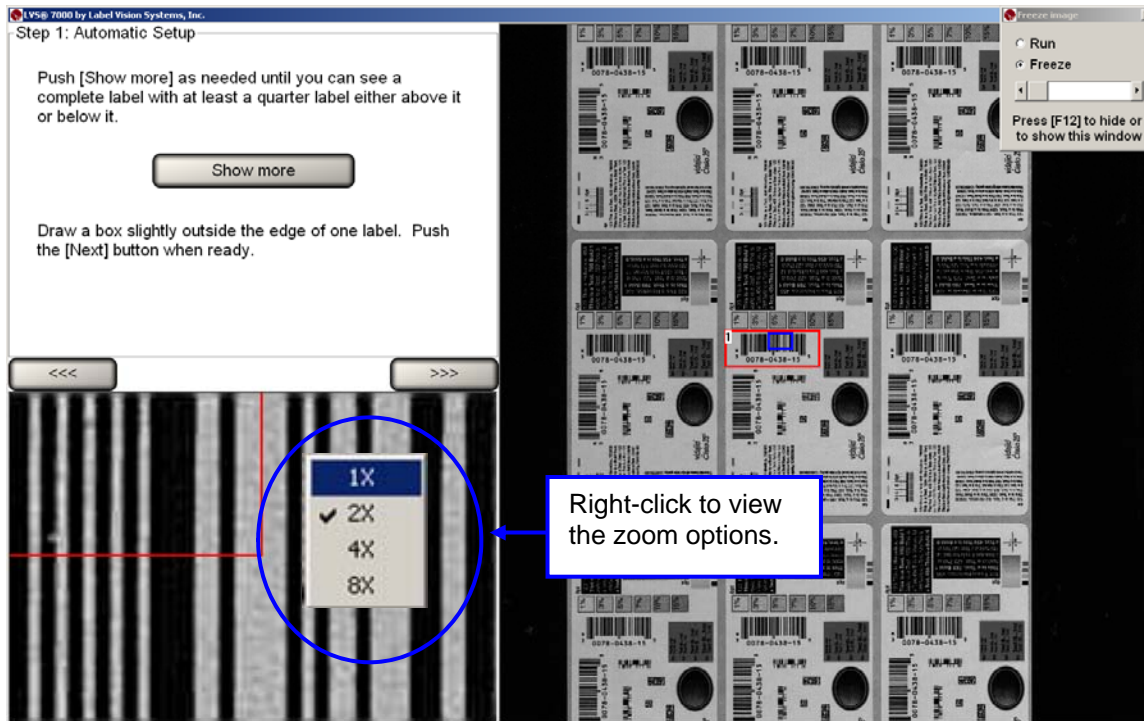
Manual Setup:
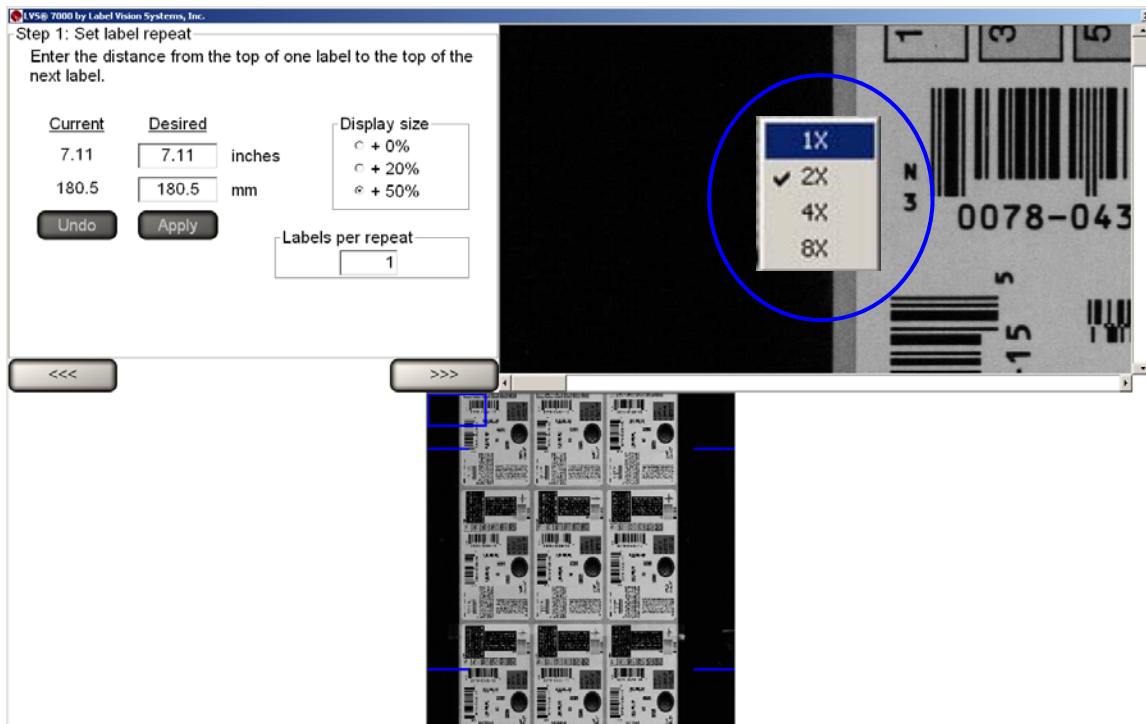
Automatic Setup

Follow the steps below to use the Automatic Setup feature.

1. Click the **Create a NEW Job** button on the **Welcome** Screen (see below).

2. Select **Yes** when asked, "Do you want to use the automatic setup feature?"

Step 1: Set Label Dimensions

1. Run the roll of labels and stop when reaching the desired label(s). Note that pressing the F12 button on your keyboard allows you to run or freeze images.

2. Click Show more until you can see a complete label with at least a quarter label either above or below the label.
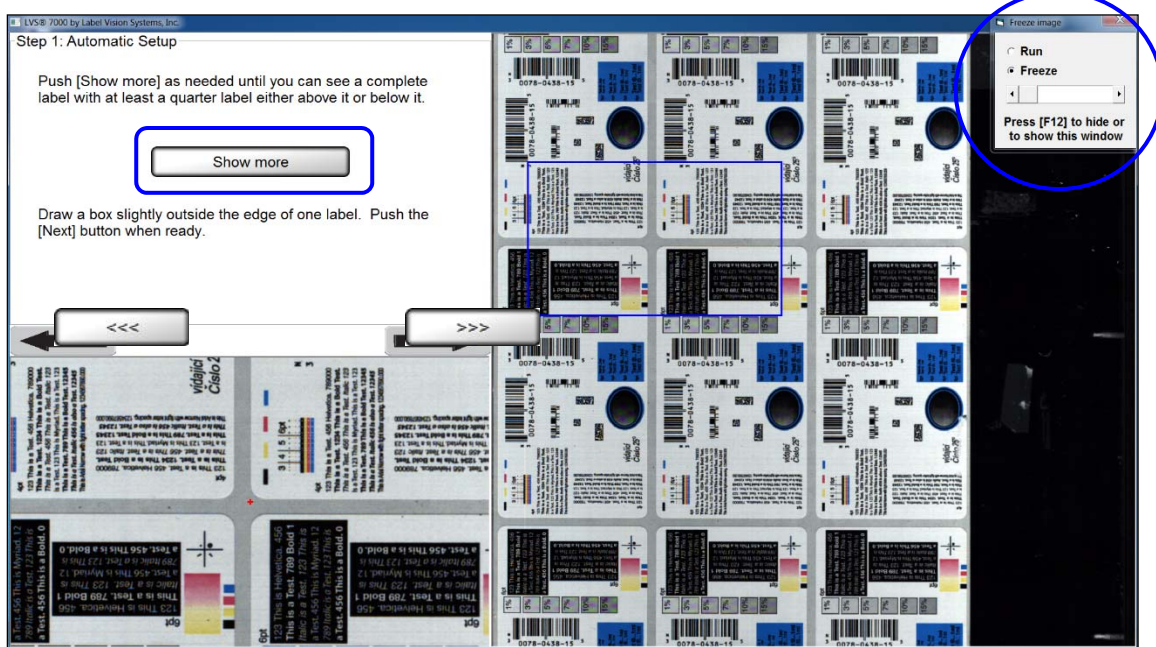
3. Draw a sector around an entire label and then click the **right arrow** button. A "Working" message appears indicating the system is analyzing the label.
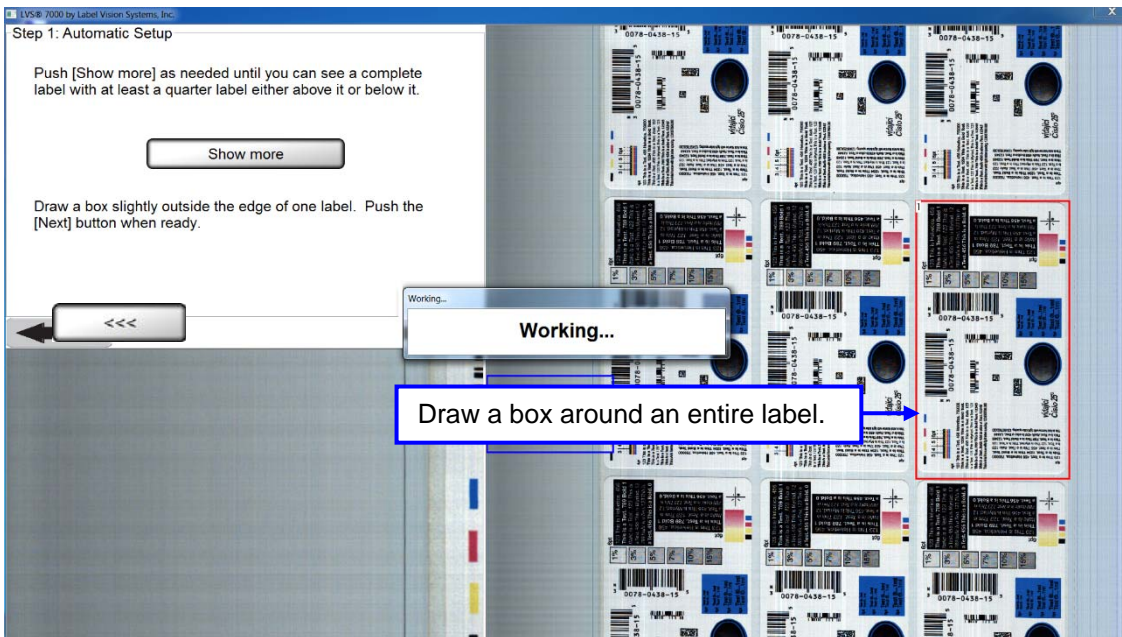
4. The LVS-7500 External System automatically detects and creates blemish sectors around any other labels across the roll, and also detects and creates sectors around any 1D or 2D barcodes in each label.

Sectors created around labels

Sectors created around 1D and 2D barcodes
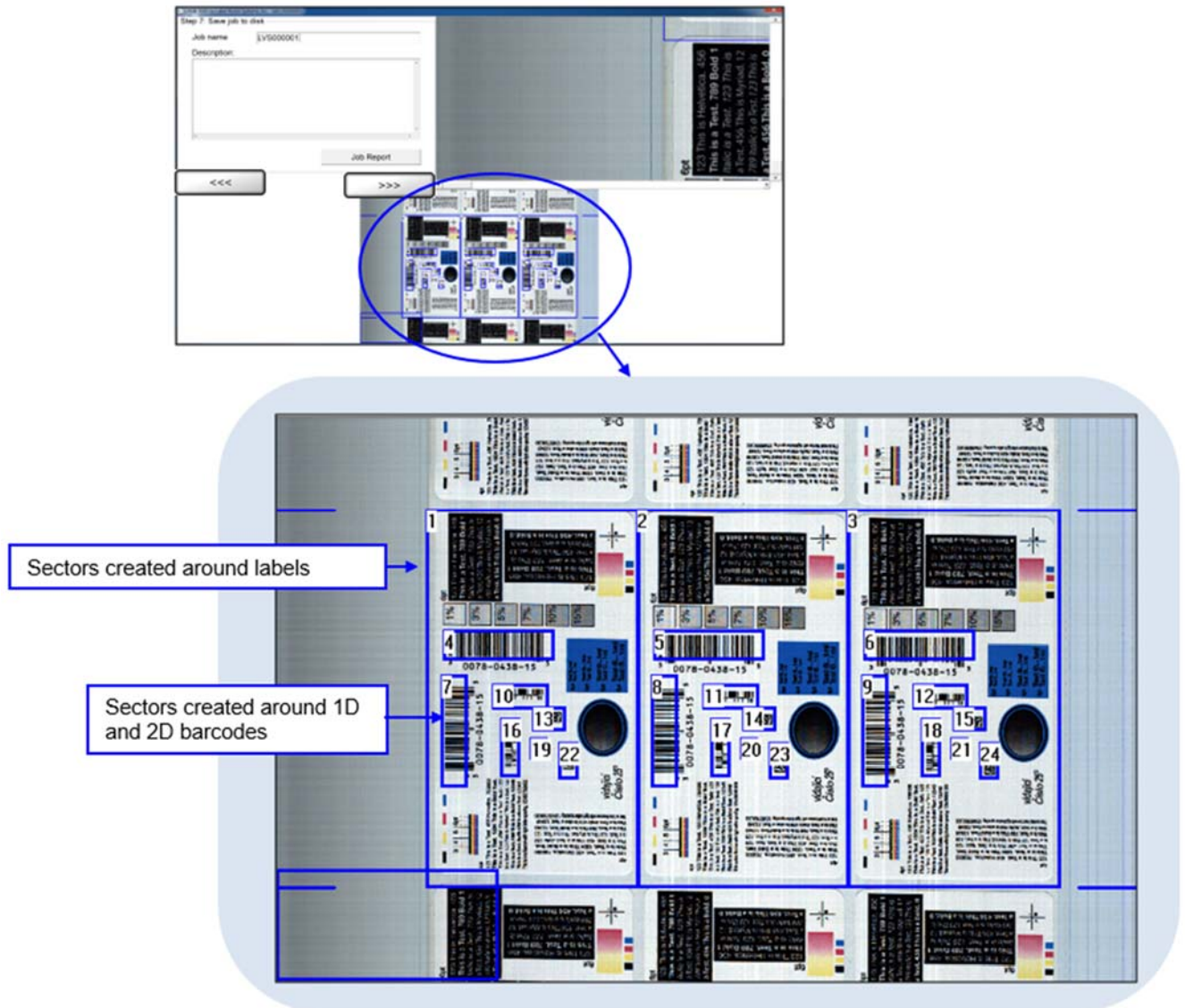
5. Enter the name of the job in the **Job name** field.
6. *Optional:* Enter a job description in the **Description** field.
7. Click **Job Report** to view, print or save the Job Report, which shows the settings for all created sectors. See the section entitled "LVS-7500 Job Report" for more information.
8. Click the **right arrow** button.

Manual Setup

Follow the steps below to use the Manual Setup feature.

Step 1: Set Label Repeat

Note: Setting label repeat and synchronization must be performed while the roll is moving. It is recommended that the roll moves slowly so that waste and uninspected material in minimized.

The LVS-7500 External System uses an encoder to understand when a label is ready to be inspected. In order for this to happen, the operator must choose a label repeat. To do this, follow the steps below:

1. Click the **Create a NEW Job** button on the **Welcome** screen.

2. Select **No** when asked, "Do you want to use the automatic setup feature?" The **Step 1: Set label repeat** screen appears (see below).
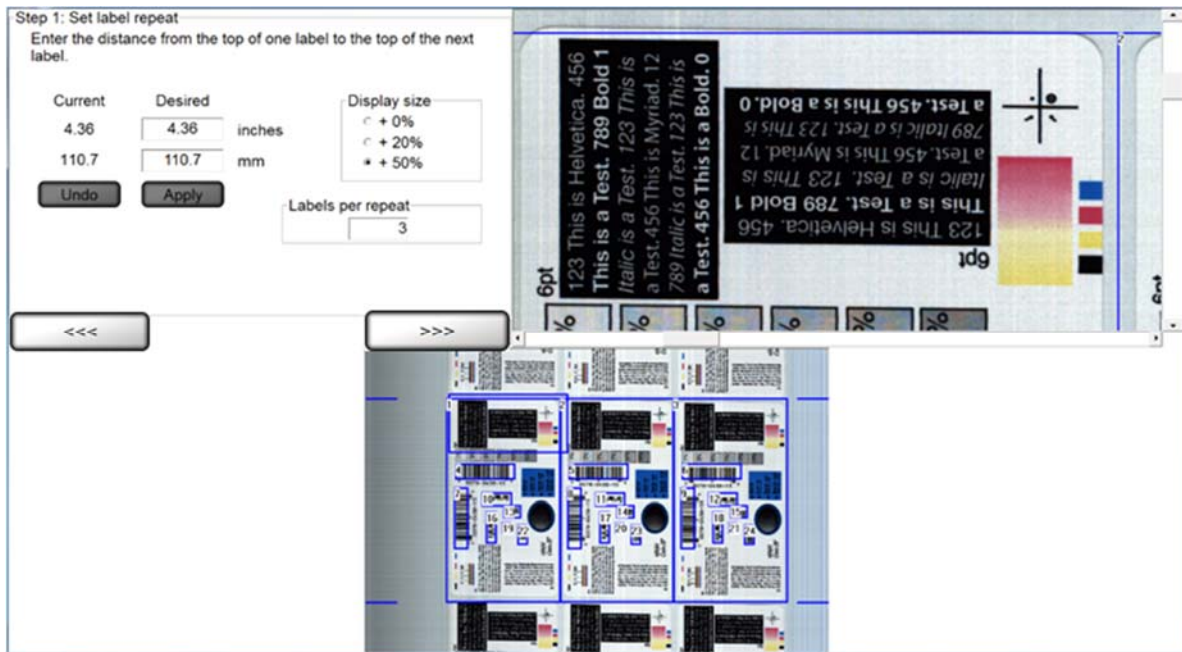
3. In the **Desired** column, enter the desired value into the inches or millimeter (mm) fields.
4. Click the **Apply** button, or click the **Undo** button to clear the values entered into the **Desired** column.
5. You may choose to change the **Display Size**. Options include:
   - 0% (Normal)
   - 20% (Normal + 20%)
   - 50% (Normal + 50%) (Default size)
6. In the **Labels per repeat** field, enter the labels per repeat, which is the amount of labels in one gate. This field is critical for allowing Global Copy capability in Manual setup. See the **Global Copy** section for more information.
7. Click the **right arrow** button.

Step 2: Synchronize

Synchronization Overview

Synchronization of the LVS-7500 External System takes the image and electronically creates a repeating pattern for locking. This process emulates the effect generated by a traditional Photo Optic trigger. The principal is simple enough to understand with some pictorial illustrations. The LVS-7500 External System takes the image and averages all pixels going across in rows, then performs the same averaging for all pixels going down in columns (see example below).
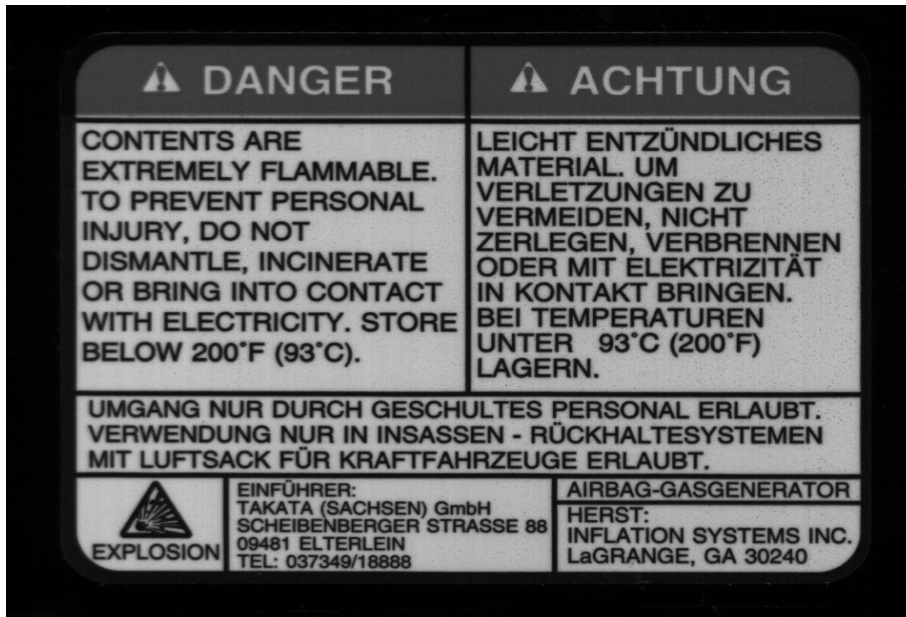
If we were to average all the pixels going across in rows, it would look like a strip added to the right of the picture below.

As you can see there are portions of this image attached to the right (after the red line) that look similar. These portions are the where the text goes across the label. The part we are most interested in seeing are the portions that had the black lines going across the image. The image below shows three definite sharp black lines that are unequally spaced apart. This is good as they cannot be mistaken for one another. The black line closest to the top also has a large darker portion above it since the label had a darker border around the words "Danger" and "Achtung". Solid lines are good to utilize, especially when unevenly spaced.

Now following the same principal going down in columns from top to bottom we get a picture that looks like this (see below).
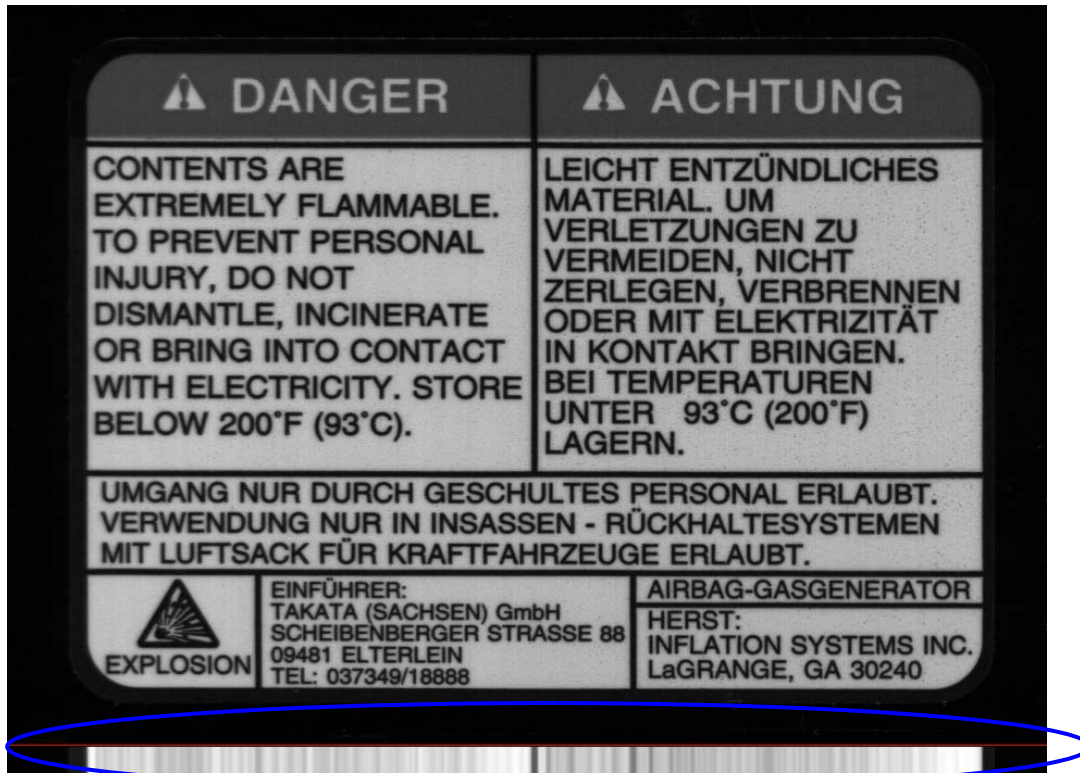
This example has much less definition through the whole image when looking at the average across the bottom of the label (below the red line). The large vertical black line that was through the center has made itself the most obviously defined dark line on the lighter background. Also the spaces between the print through the center of the label have made the average to the left of the center black line very light in contrast.

Since the smaller the synchronization portion of an image is, the faster it is to process, we can make a guess at the best area to use as a synchronization slice, which is the smallest portion of the image possible to hold good image registration. Below is the image of where we would want to designate as our "sync slice".
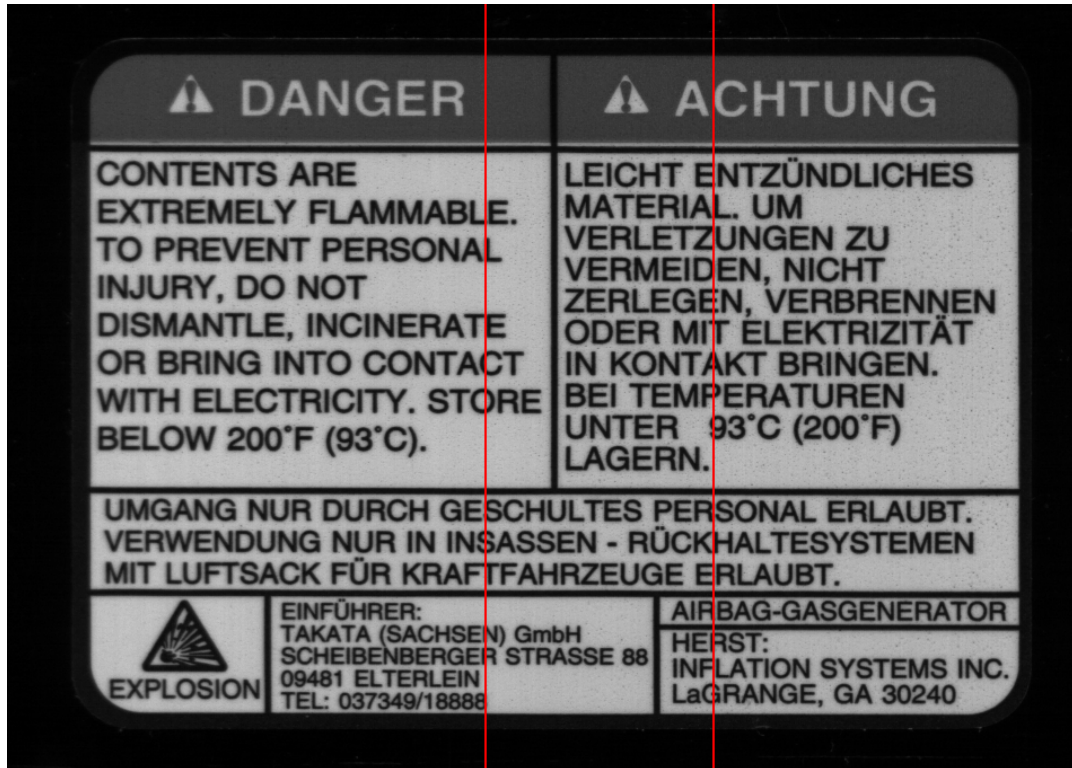
When we average just the portions between the lines, we can process and lock in the repeat much faster than doing the entire image. Keeping it as small as possible is the best rule of thumb, though sometimes it may need to be large in order to accomplish the goal.

As another rule of thumb, if your label has variable data on it, that area should be avoided if possible. If it cannot be avoided you will need to do the inverse, and make the slice as wide as possible to distribute the variation into the average.

Synchronization

1. In order to manually synchronize the system, the operator must adjust the two slide bars. The "slice" is a portion of the label that has the best representation of the labels static (unchanging) portion. To change the Width of the "slice" use the "Sync slice width" slide bar. The minimum size is 128 pixels, and the max is ¼ of the cameras field of view. Next move the "Sync slice position" slide bar to the desired location. Then, press "Synchronize."

    The system can also perform the above steps automatically to find the best sync position and width. Click the "Synchronize Automatically" button. The sync slice will be automatically positioned and sized.

    There is no limit to the number of times that manual and automatic sync can be performed.

2. To perfectly center the label in the display, point and left-click the mouse in the center of the label gap shown on the display. The large (full resolution) or the small (full field of view) image can be used. For very small repeats, the larger image is easier to pinpoint the gap location.

3. Click the **right arrow** button.
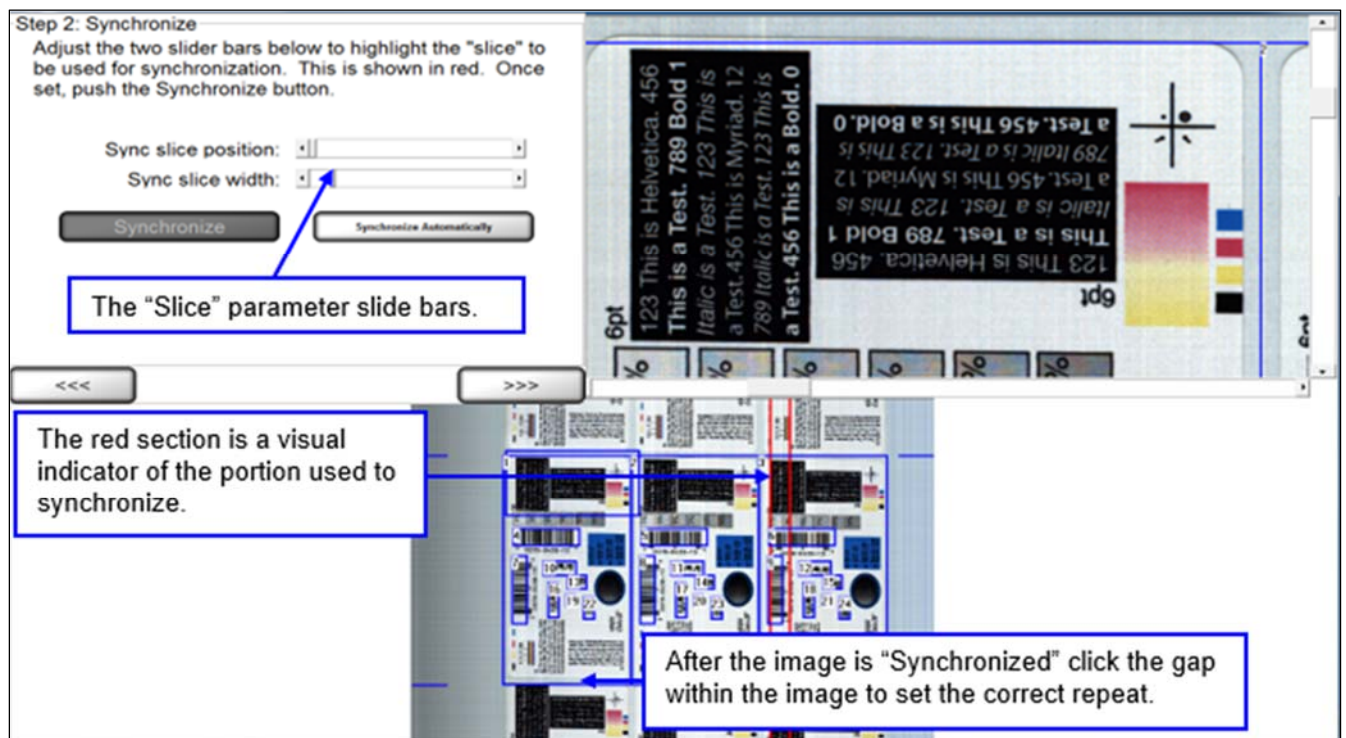
Screen Overview

Two areas on the screen show an image:

The top right image is the full resolution image that has not been altered. The slide bar to the right and below this image will allow the operator to view other parts of the image. Right-click on the full resolution image to zoom in on the image. Zoom options include 1X, 2X, 4X and 8X.

The bottom image is an altered resolution image that has been shrunk in order to show the camera's entire field of view.
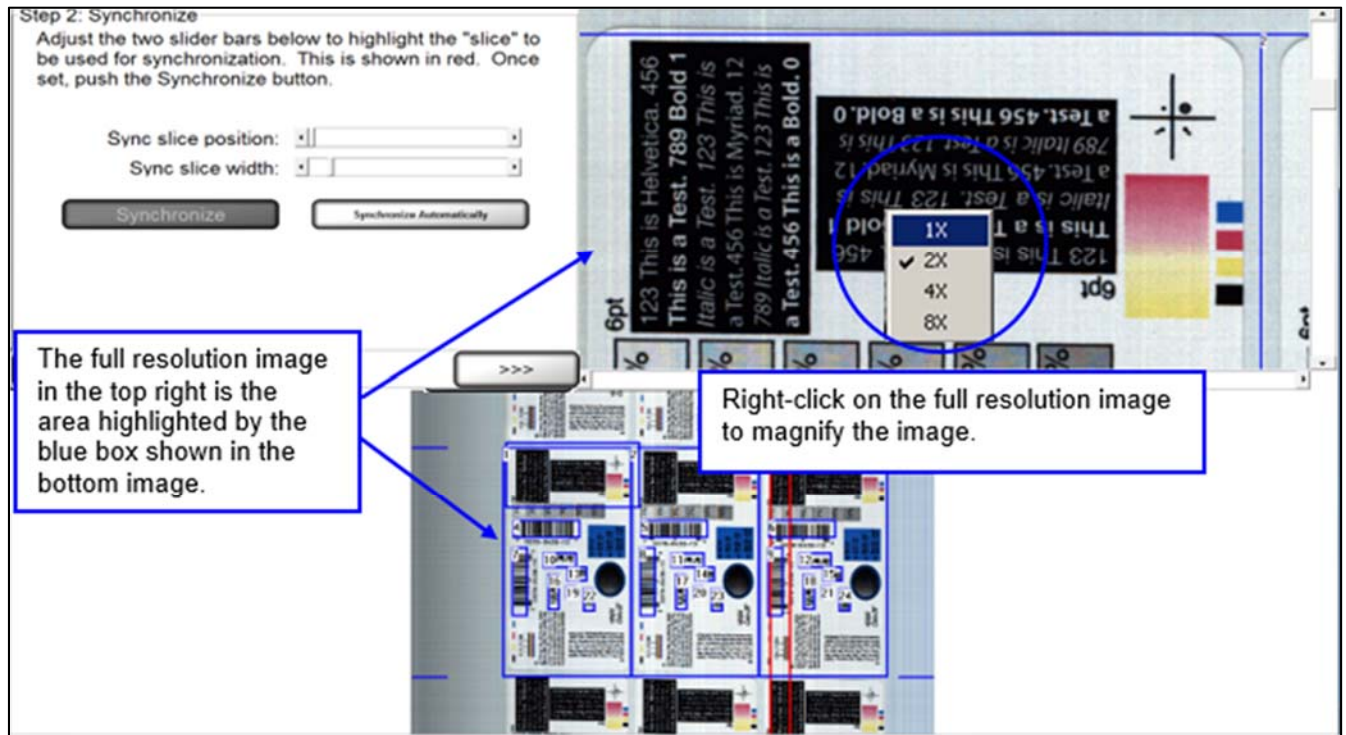
Step 3: Create Sectors

A sector is defined as an area of interest that is to be analyzed. This step prompts the operator to establish this sector. The software will not process anything located outside the sector.

An image must be present to draw a sector. An image can only be created by the camera looking at a *moving* roll. This is because a line scan camera cannot see a stationary image; it must be a moving image. Once a correctly synchronized image is acquired, the operator may stop the roll and work with the still image.
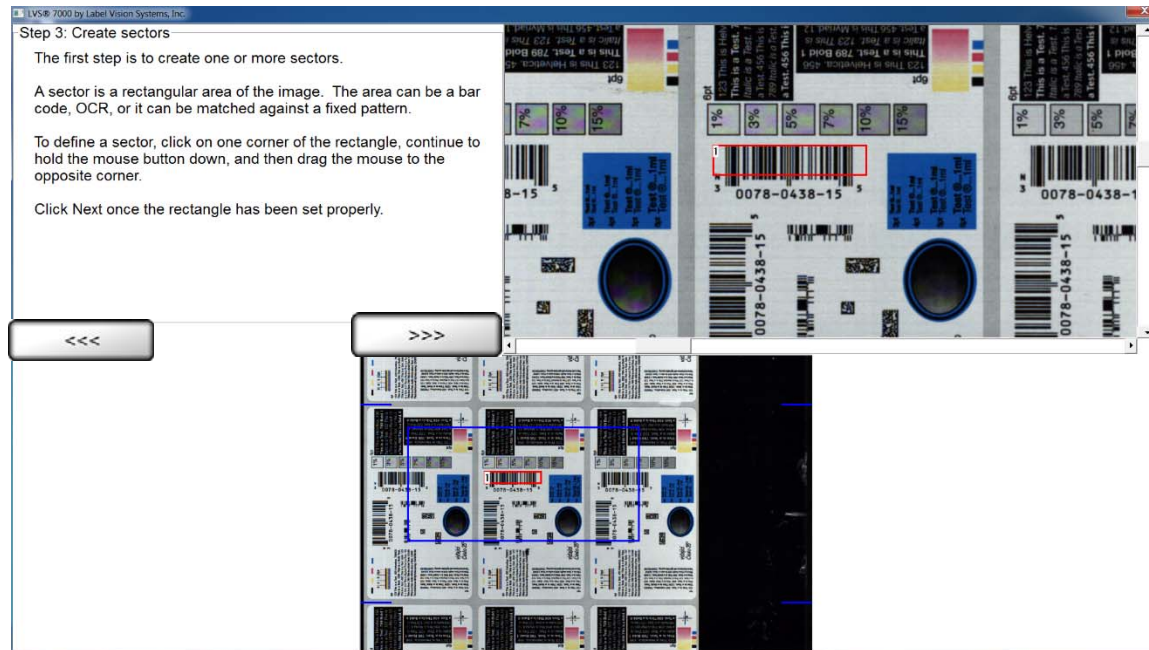
The above image is an example of a sector being drawn around a barcode.

Draw a Sector

1. Click on one corner of the area you wish to inspect and drag the mouse while holding down the left-click button. This action will cause the software to draw a "red" box.
2. After you are satisfied with the sector position and size, click the **right arrow** button. The box location will not be stored until the **right arrow** button has been selected.

> **Note:** The operator may draw a sector in either image.

Edit a Sector

1. Using your mouse, click within the desired sector that is located within a blue box; the sector bounding box then turns red.
2. Click the **right arrow** button to edit the sector.
3. You will be directed to Step 3 where you define the sector type.
4. After you are satisfied with the sector, click the **right arrow** button. The box location will not be stored until the **right arrow** button has been selected.

Copy an Entire Sector

1. Using your mouse, click within the desired sector that is located within a blue box; the sector bounding box then turns red.
2. Right-click inside the desired sector; the sector bounding box turns green.
3. Drag and drop the selected sector to the desired location; this copies the parameters of the selected sector.
4. After you are satisfied with the sector, click the **right arrow** button. The sector location will not be stored until the **right arrow** button has been selected.

> **Note:** If you decide not to copy a sector and would like to exit the copying function, simply move the cursor back to the original sector.

Copy Multiple Sectors

Use the smallest sector when precisely aligning copied sectors. This allows you to view the sector's location more precisely in the full resolution image screen.

1. Using your mouse, click within the desired sector that is located within a blue box; the sector bounding box then turns red.
2. Press the **Ctrl** button on your keyboard while using your mouse to select the additional sectors. Each selected sector is highlighted in a red box.
3. Right-click on any sector; this causes a green box to appear around each sector.
4. Drag and drop the selected sectors to the desired location.
5. After you are satisfied with the sector, click the **right arrow** button. The sector location will not be stored until the **right arrow** button has been selected.

> **Note:** If you decide not to copy a sector and would like to exit the copying function, simply move the cursor back to the original sector.

Shortcuts for Highlighting Multiple Sectors

- [Ctrl] + G: Selects all sectors
- [Ctrl] + Left-Click: Individually selects multiple sectors
- [Shift] + Left-Click: Highlights a range of sectors

Moving Sector(s) with Arrow Keys

Highlight the desired sectors and use one of the actions below.

- Arrow keys only: Moves sector(s) by 1 pixel
- [Alt] + Arrow Keys: Moves sector(s) by 5 pixels
- [Shift] + Arrow Keys: Moves sector(s) by 25 pixels
- [Ctrl] + Arrow Keys: Resizes sector(s) in arrow direction
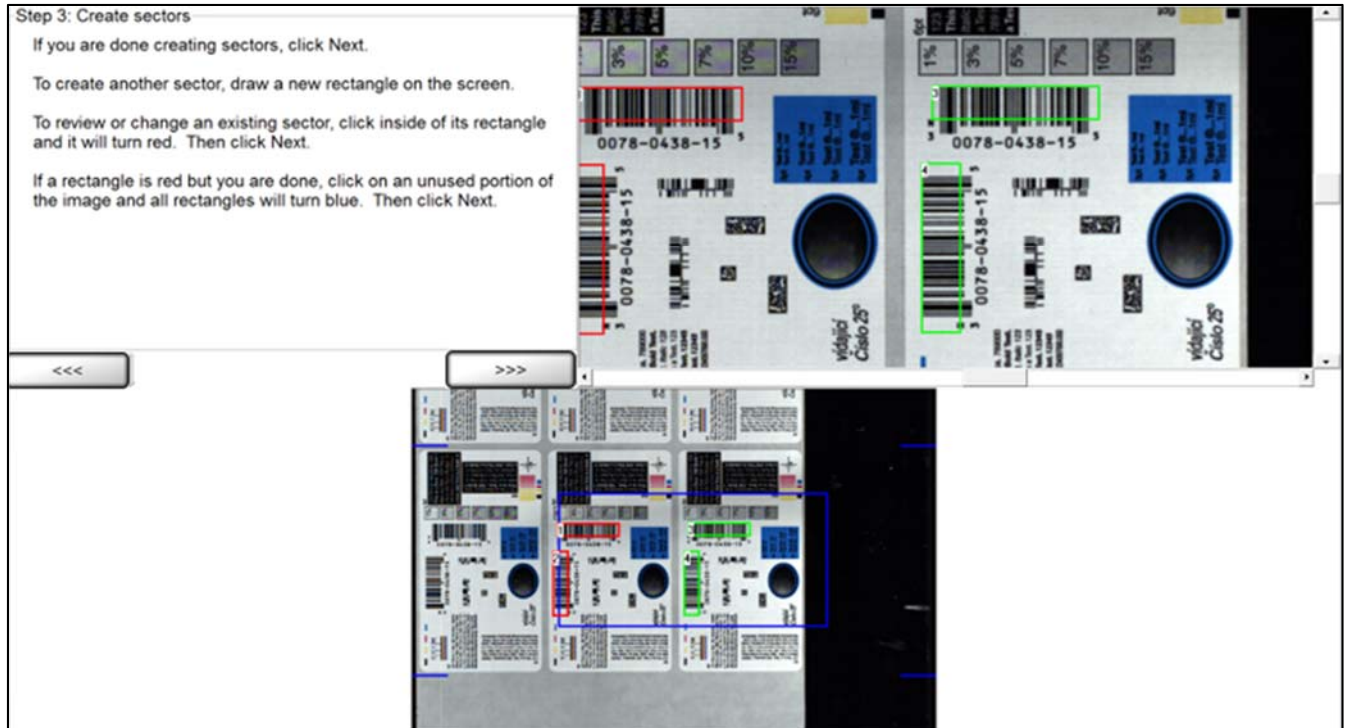
Multiple sectors can be copied and moved to other labels. This is helpful when an operator has to check the same information on different labels within a repeat.

Step 4: Define Sector Type

This step allows you to select the desired sector type that your software is capable of analyzing.
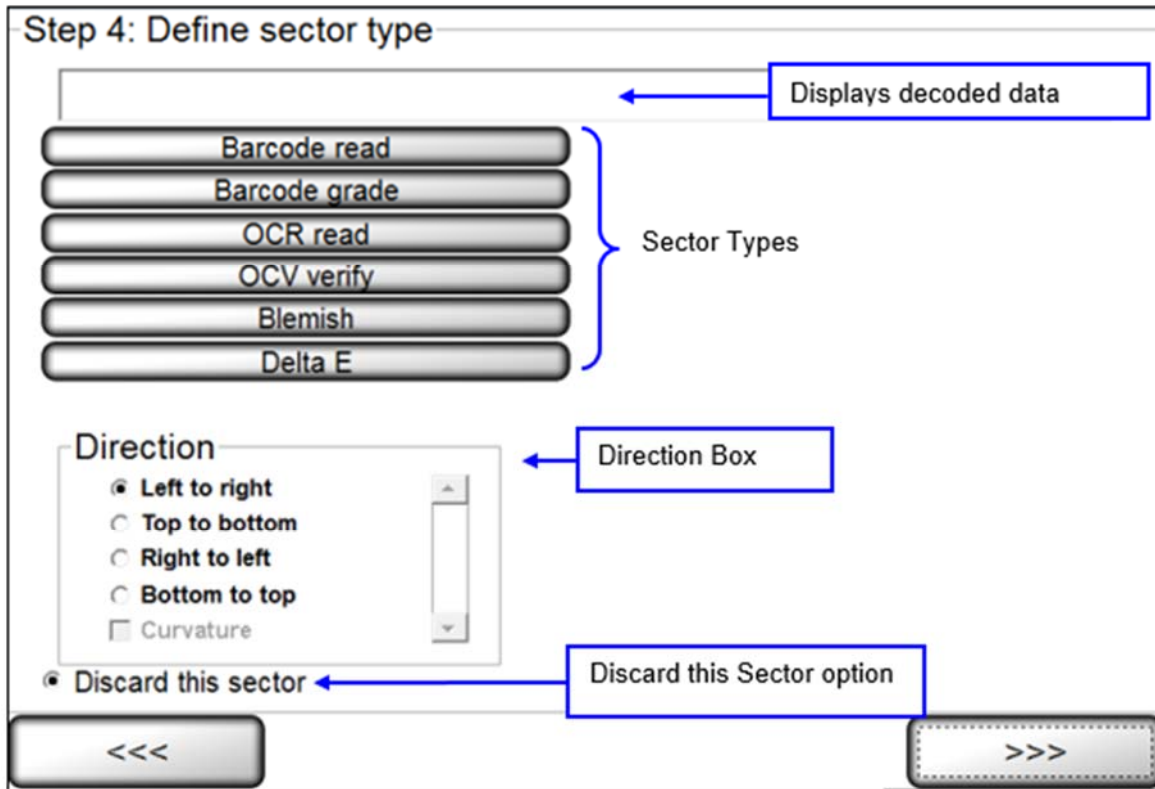
The following sector types are available:

- Barcode read
- Barcode grade
- OCR read
- OCV verify
- Blemish

If a sector is deactivated, please contact your Omron Microscan representative to activate the desired sector type.

> **Note:** The field located above the sector type list pre-populates with the string that the system is returning for the sector type. For example, if selecting the **Barcode read** sector type, the field populates with the decoded string.

Direction Box

The box labeled **Direction** is applicable when using the OCR or OCV features; it tells the system the orientation in which to read the characters across the screen. Five types of directions are available:

> **IMPORTANT:** The LVS-7500 External System does not distinguish between touching/overlapping characters; thus, characters must not touch or overlap. The LVS-7500 External System reads and/or verifies uppercase characters only.

Direction	Description
Left to right	Reads characters from left to right. Typically, this is the desired direction.
Top to bottom	Reads characters from top to bottom.
Right to left	Reads characters from right to left.
Bottom to Top	Reads characters from bottom to top.

Direction Examples
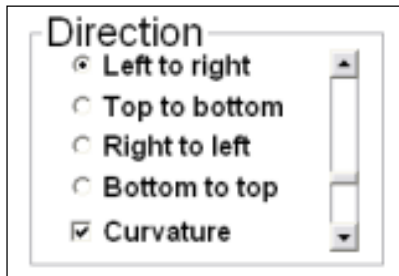
Top to Bottom: Bottom to Top:
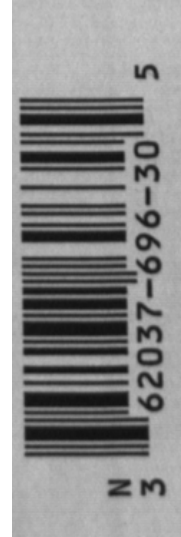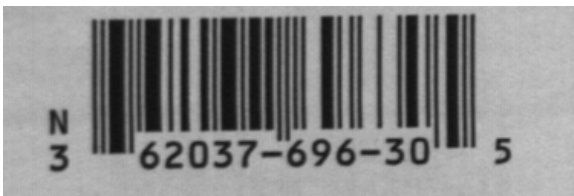
Left to Right: Right to Left:
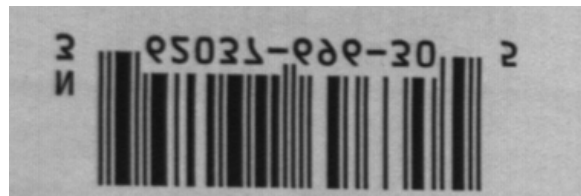
Discard This Sector

If you have incorrectly drawn a sector, click the **Discard this Sector** button and then select the **right arrow** button. The sector is deleted. Sectors can also be removed by hitting the delete key while a sector(s) is active.

Sector Types

The following is a list of sector types with a description on how to set up a job using that specific sector type.

Sector Type 1: Barcode read

This sector is used to validate a 1D or 2D barcode label. The LVS-7500 External System inspects the barcode image to determine if it is "readable."

1. Select **Barcode read**.

2. Select the desired direction. The encoded data is shown in the top right corner of the screen.
3. Click the **right arrow** button.

<u>Sector Type 2: Barcode grade</u>

This sector is used when you want to grade the 1D or 2D barcode image according to ISO/IEC standards.

1. Select **Barcode grade**.

2. Select the desired direction.
3. Choose an acceptable grade in the **Scoring** box (see below).
4. Click the **right arrow** button.

Scoring Box

The Scoring box allows you to choose an acceptable grade from 0.0 to 4.0.

The following fields appear in the Scoring box:

Warning	Indicates an early warning of diminishing quality in the barcode image. The operator must take action to improve the grade score quality.
Passing	Represents what ISO/IEC grade is considered to "pass" and is user-defined to one decimal place.
Actual	Represents what grade is being detected using the setup barcode label.

Sector Type 3: OCR Read

This sector type is used to "read" the human readable characters located within the drawn sector.

> **IMPORTANT:** The LVS-7500 External System does not distinguish between touching/overlapping characters; thus, characters must not touch or overlap. The LVS-7500 External System reads and/or verifies uppercase characters only.

1. Select OCR (read).

2. Select the desired direction.
3. Follow the steps below:
   a. Select the desired font by choosing one of the options below:
      - To choose a specific font, click the **Select font** button and select the desired font.
      - To create, train and edit fonts, click the **Create/Learn/Edit** button. See the section below for more information.
   b. Additional options include:
      - **Invert (white chars on black)** tells the sector to look for white characters on a dark background.
      - **PreProcess (for noise)** reduces noise and background contrast variances.
      - **Dilate (for breaks)** joins characters using a blurring and joining technique; it makes the characters bold and darker. This option is useful for Dot Matrix-type printing.
      - **Compare (font file to actual)** displays an Actual vs. Font File image in the lower half of the screen. The image shows the font file across the top of the image and the actual characters within the sector down the left side. Differences between a font file and an actual character are highlighted in white over black in the center of the screen. Each character is matched against the font file and given a score. The character with the highest score is then used as the result.

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
0078043815

0078043815
99 97 92 98 99 90 92 98 97 96

00ZB065B3S
98 89 70 77 94 38 54 77 34 71

QB2SBQ8SI3
80 75 58 63 79 38 54 62 34 63

Entire set of trained characters.

Actual characters being read by the system.

Top three closest matches to the trained characters.

4.   Click the **right arrow** button.

Create / Learn / Edit Fonts

1. Click the "Create/Learn/Edit" button. The Font Editor page appears.
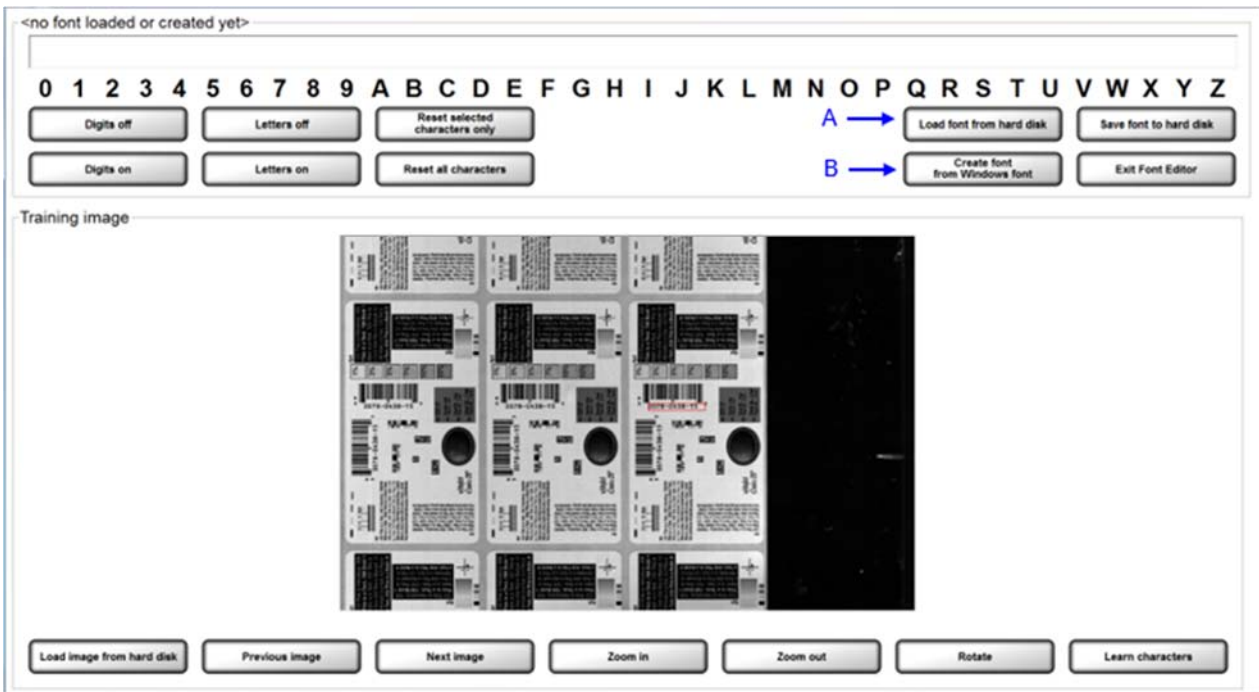
2. The desired font must be loaded or created.

   - To load a font from a specific location, click the "Load font from hard disk" button (see "A" in the above screenshot). Locate the desired font, and then click "Open".

   - To create a font using a Windows font, click the "Create font from Windows font" button (see "B" in the above screenshot). Select the desired font and then click "Ok".

3. The selected font appears in the top text field (see below).
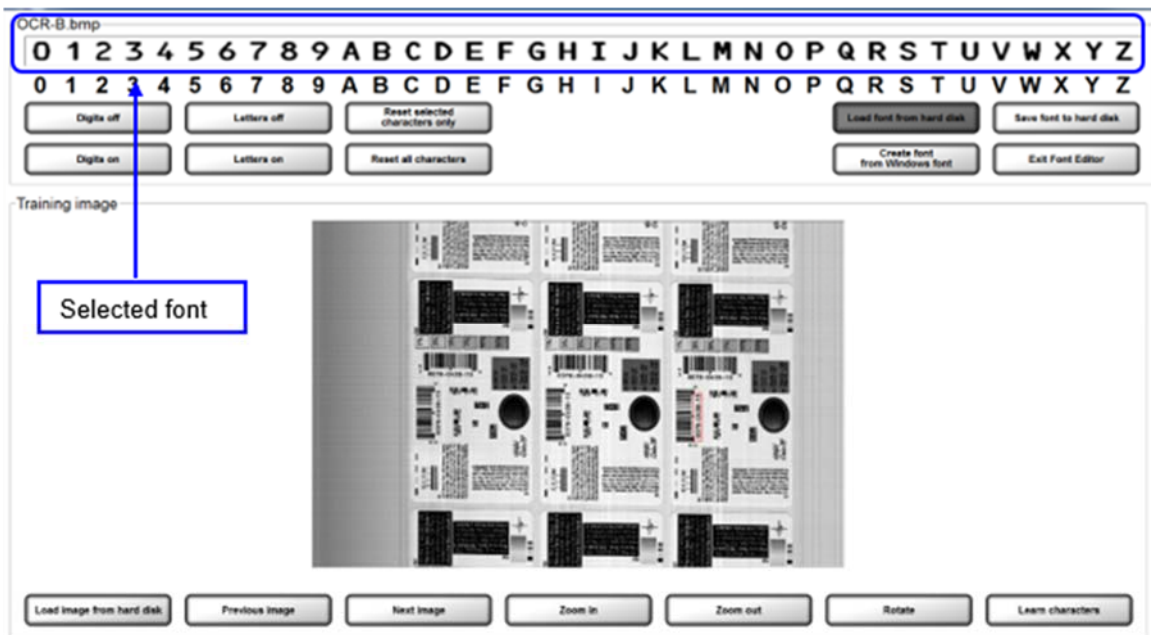
4. Use the buttons at the bottom of the screen to capture the desired image view. Buttons include:

Button	Description
Load image from hard disk	Click to load an image stored on a hard disk.
Previous Image	Click to view the previous image.
Next Image	Click to view the next image.
Zoom In	Click to view a magnified image of the label.
Zoom Out	Click to return to the original image view.
Rotate	Click to rotate the image. The image rotates each time the button is clicked.
Learn Characters	Used when training letters or numbers. This button is described in more detail in the following sections. An image must be in normal orientation (from left to right, and right side up) to be used for training (see example below). Use the **Rotate** button to rotate the image to the desired view.

5. Click the "Exit Font Editor" button in the top right corner of the screen to discard changes.
6. An entire alphanumeric string (0-9 and A-Z), or specific digits or letters, can be trained. Read the sections below for further information.

Train an Entire Alphanumeric String:

- An image comprised of an entire alphanumeric string (0-9 and A-Z) must be present in the training image view.
- Use the left click button on your mouse to draw a box around the alphanumeric string in the training image view.
- Click the "Learn characters" button. The trained alphanumeric string appears in the top field.
- When all changes are complete, click the "Save font to hard disk" button. In the window, save the font to the desired folder.

Train Specific Digits or Letters:

- All digits and letters must be shaded in gray. Do this by selecting the "Digits off" button and "Letters off" button; this shades all digits and letters (see below).

Digits and letters are shaded in gray.
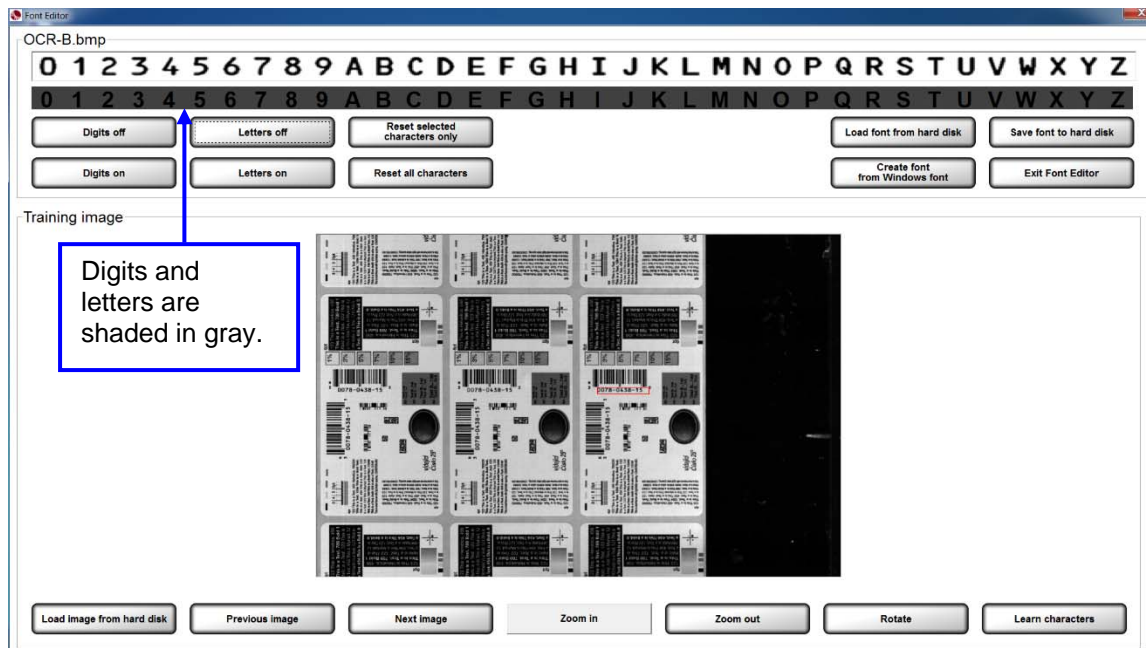
- Click on the desired digit or letter; the gray shade is removed from the selected digit or letter. See example below.
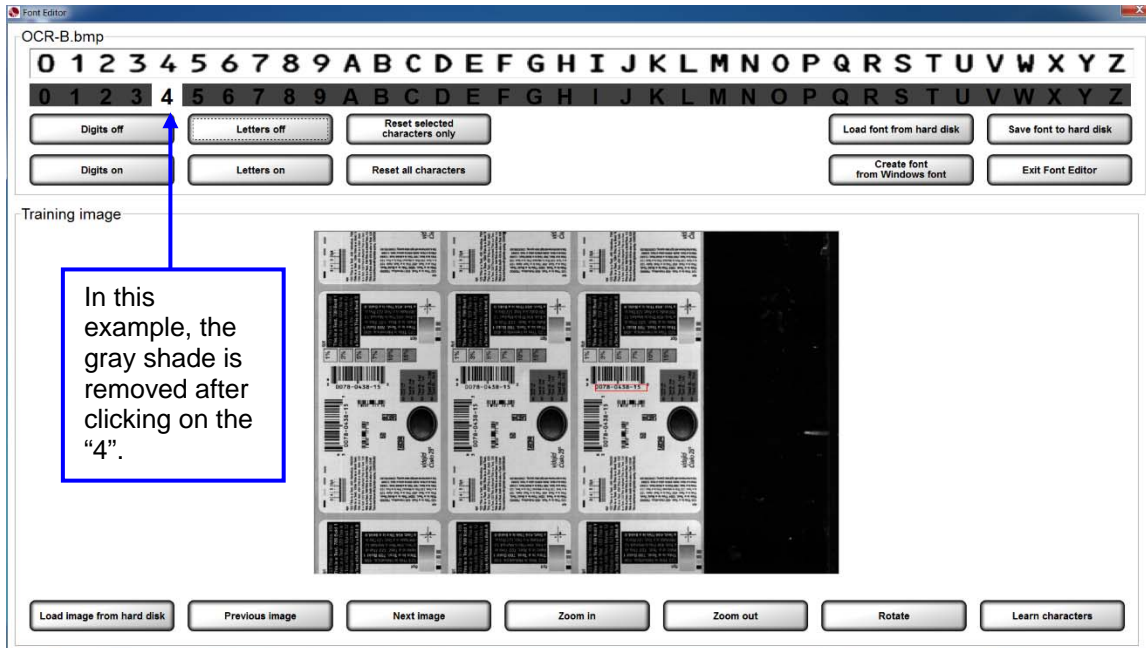
In this example, the gray shade is removed after clicking on the "4".

- Click the "Reset selected characters only" button. The character disappears (see below).
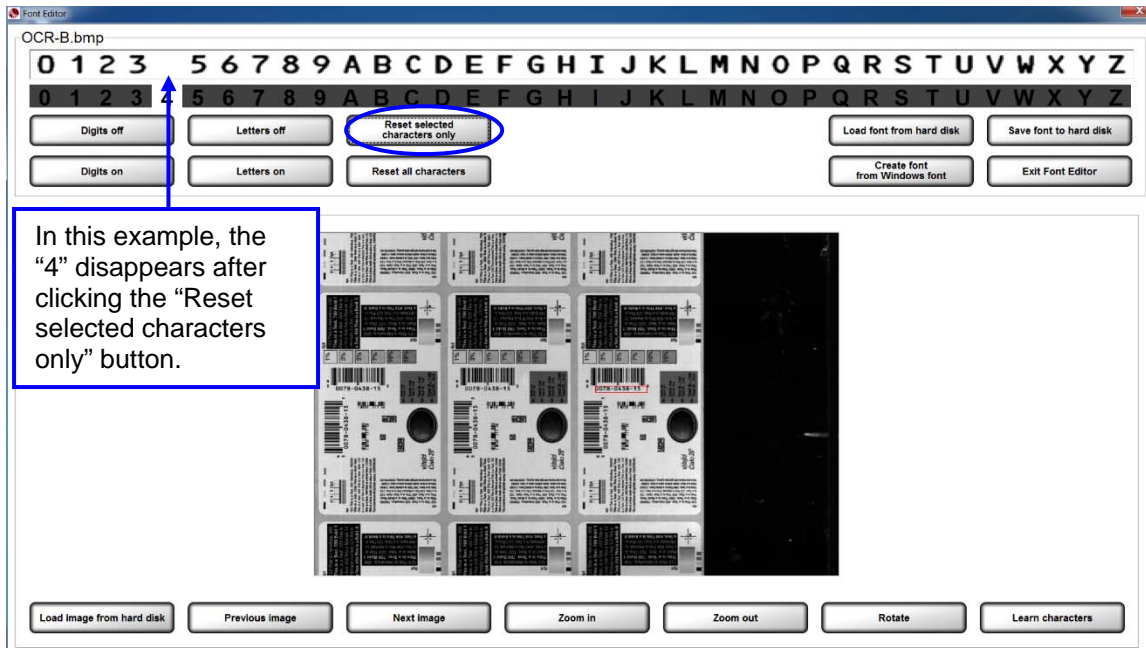
In this example, the "4" disappears after clicking the "Reset selected characters only" button.

Note: If you do not select this button, the software averages the character in the top text field with the character in the training image.

- Use the left click button on your mouse to draw a box around the letter or digit in the training image view (see below). Note that the training image in the screenshot below appears larger after clicking the "Zoom In" button.

Using your mouse, draw a box around the desired letter or digit. The box appears in red.

- Click the "Learn characters" button. The trained character appears in the top field (see below).

The trained character appears in the top field.

- When all changes are complete, click the "Save font to hard disk" button. In the window, save the font to the desired folder (see below).
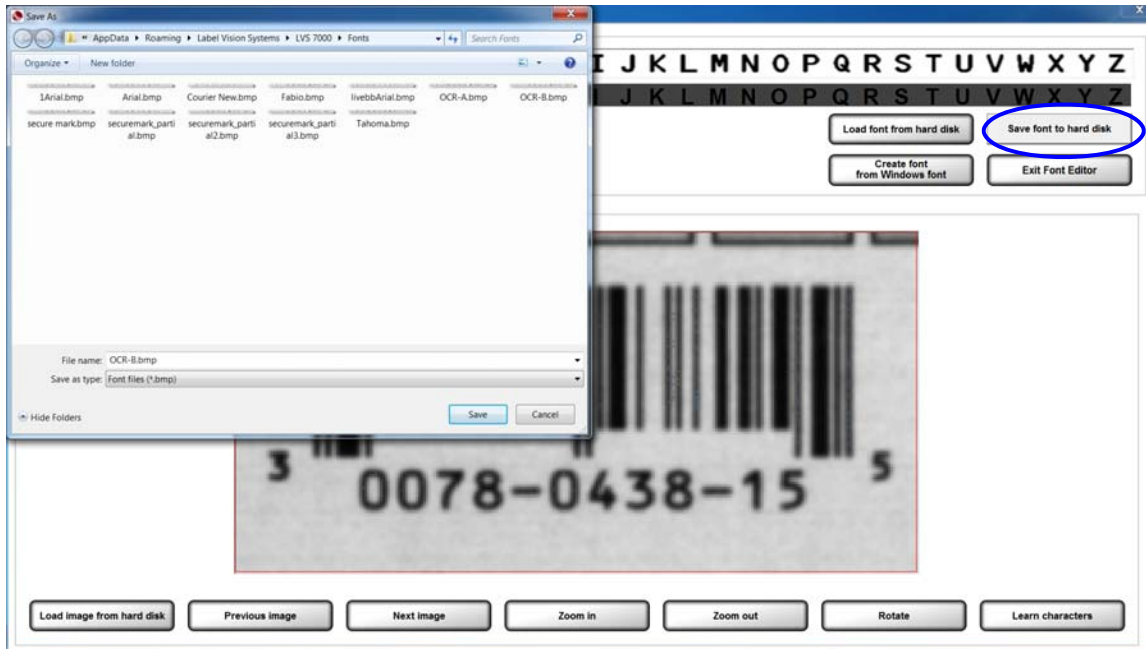
Sector Type 4: OCV Verify

The OCV (Optical Character Verification) sector type is used to score the print quality of the human readable characters within a drawn sector.

1. Select OCV verify.
2. Select the desired direction.
3. Follow the steps below:
   a. Select the desired font by choosing one of the options below:
      - To choose a specific font, click the **Select font** button and select the desired font.
      - To create, train and edit fonts, click the **Create/Learn/Edit** button. See the section above entitled "Create / Learn / Edit Fonts" for more information.
   b. Additional options include:
      - **Invert (white chars on black)** tells the sector to look for white characters on a dark background.
      - **PreProcess (for noise)** reduces noise and background contrast variances.
      - **Dilate (for breaks)** joins characters using a blurring and joining technique; it makes the characters bold and darker. This option is useful for Dot Matrix-type printing.
      - **Compare (font file to actual)** displays an Actual vs. Font File image in the lower half of the screen. The image shows the font file across the top of the image and the actual characters within the sector down the left side. Differences between a font file and an actual character are highlighted in white over black in the center of the screen. Each character is matched against the font file and given a score. The character with the highest score is then used as the result.

4. Determine a score (see **Scoring Box** below for additional information).

    Scoring Box

    The OCV Scoring box allows you to choose an acceptable score ranging from 0 to 99.

    Three scores are available:

Score	Description
Passing	The **Passing** number is a threshold setting. All "Actual" scores greater than the "Passing" score is said to pass inspection (and vice versa). If the "Actual" score is less than the "Passing" score, then the inspection has failed and alarms can be set to alert the operator.
Actual	The **Actual** number represents a percentage of confidence. A 95 would indicate that there is a good chance that the characters within the drawn sector are correct. A 20 would indicate that there is a better chance that the characters do not match what was intended.
Warning	Indicates an early warning of diminishing print quality. The operator must take action to improve the grade score quality.

5. Click the **right arrow** button.

<u>Sector Type 5: Blemish</u>

To use the Blemish sector type, follow the steps below.

1. Select **Blemish** on the **Step 4: Define Sector Type** screen; the following screen appears.
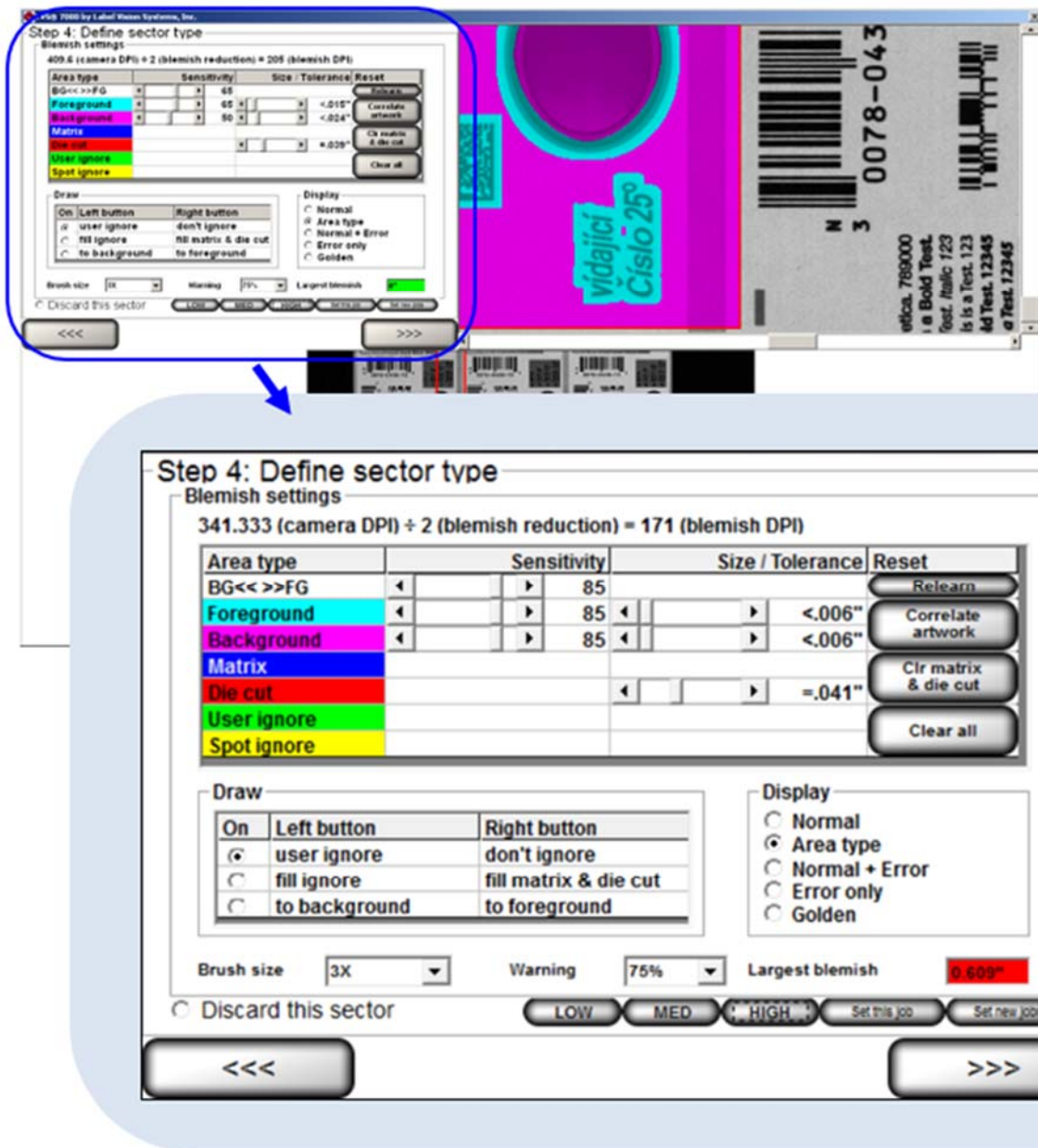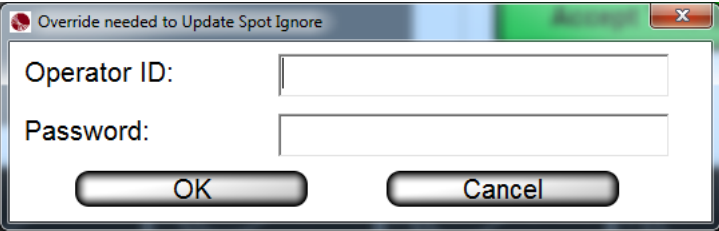
2. The software automatically learns the first image it sees after the first sector has been drawn. If the image is not the correct one, or you would like to put a different image into the field of view, click the **Relearn** button and the software will accept the next image it sees within that sector. This saved image is called the "Golden image". The entire process of understanding blemishes is done by comparing the "Golden image" to the Job image.

Note: Ctrl+L is a keyboard shortcut for the **Relearn** button. After pressing **Ctrl+L**, the system will accept the next image it sees within each Blemish sector and saves the image as the Golden image. This shortcut is available only when the system is in Run mode.

After pressing Ctrl+L, a popup message will appear for users without administrative rights. The user must enter an administrator user name and password for the command to take effect. The golden image that is recorded is the image after the authorized user name and password is entered.

3. Within the Blemish Settings box (see above), adjust the following fields as needed:

Field	Description
BG<< >>FG << Background >> Foreground	Separates the Foreground from the Background. Increasing this number will define more print as Foreground and less as Background. Decreasing this number will define more of the label as Background and less as Foreground. A sensitivity of 0 will call everything Background and 100 will call everything Foreground.
Foreground Sensitivity	The Foreground Sensitivity setting is the system's allowable deviation in print color contrast after converting to gray scale. A sensitivity of **0 will accept all variations** from the original pixel's gray scale value, while **100 will allow no variation** of the gray scale values. In other words, a setting of 0 will pass everything that is defined as Foreground print and a setting of 100 will pass nothing. The operator will need to adjust this setting to find an acceptable value that does not cause false errors in the print. Foreground is shown in the light blue color when the Display is set to Area type. Label sections can be sent to the background or foreground through the Draw tool.
Background Sensitivity	The Background Sensitivity works the same way as Foreground but it is meant to find contrast differences in the label's background. Background is shown in the light purple color when the Display is set to Area type.
Size/Tolerance	These settings allow the user to increase or decrease the size of detected Blemishes. It is important to test the software so that a user understands what size Blemishes are acceptable.
Preset Configuration Settings	The Preset Configuration Settings buttons allow a user to adjust the following six blemish settings and to apply the settings to a particular job or to all new jobs created (based on administrator rights). See the "Preset Configuration Settings" section for more information on using the Preset Configuration Settings buttons. 1. BG<< >>FG sensitivity 2. Foreground sensitivity 3. Background sensitivity 4. Foreground Size/Tolerance 5. Background Size/Tolerance 6. Die Cut Size Tolerance
Matrix	Matrix detects the roll section between labels to insure the waste material is removed. Matrix is shown in Blue when the Display is set to Area type.

Field	Description
Die cut tolerance	This setting changes the size of the Red line that wraps around each label when using "fill here" under the Draw section. This area measures the movement of the outside edge of the label compared to the printing within for die movement.
User ignore	This option is enabled in the Draw section and allows the user to draw green ignore areas within the Blemish sector. This tool is useful when there is incrementing data or differences between each label.
Spot ignore	Ignore areas appear in yellow when the "Update Spot Ignore" button is used in the Operate Screen. Only operators granted the **Allow Accept / Replace Errors** permission are allowed to use the Spot ignore feature. When an operator without Administrator permissions clicks the "Update Spot Ignore" button, the following message appears: The operator must enter an Administrator's Operator ID and Password to continue, or the Spot ignore feature cannot be used. See the **Permissions** section, within the **Operators** section, for more information on permissions.
Brush Size	Allows the user to change how large or small the brush stroke will be when ignoring an area.
Warning	Select the warning percentage. If the current blemish is less than the Blemish Size / Tolerance setting and if the ratio of the current blemish size to the Blemish Size / Tolerance setting is greater than the warning percentage, then the inspection passes but a warning is flagged. For example, suppose you decide that a .25" blemish is considered an error. If the warning percentage is 75%, then a blemish of .25" x 75% = .1875" or larger is a warning. Blemish sizes less than .1875" is acceptable and passes the inspection. Blemish sizes .25" and greater will flag an error.
Largest blemish	Shows the largest blemish in inches
Discard this sector	Click this button to delete the sector. After this button is clicked, the "Step 4: Define Sector Type" screen appears allowing you to select another sector. Sectors can also be removed by pressing the "Delete" keyboard button while a sector(s) is active.
Relearn Button	The Relearn Button will re-train the Golden image with the image that is present. **Note: Ctrl+L** is a keyboard shortcut for the **Relearn** button. After pressing **Ctrl+L**, the system will accept the next image it sees within each Blemish sector and saves the image as the Golden image. This shortcut is available only when the system is in Run mode. After pressing Ctrl+L, a popup message will appear for users without administrative rights. The user must enter an administrator user name and password for the command to take effect. The golden image that is recorded is the image after the authorized user name and password is entered.

Field	Description
Clr matrix & die cut	Click this button to clear all matrix and die cut filled sections.
Clear all	Click this button to **Clear all** ignored and auto filled sections within a chosen sector.

4. The options in the **Display** box are shown below:

Field	Description
Normal	Shows the Actual image only.
Area Type	This view shows the label using the color codes for each blemish feature.
Normal + Error	This view allows the user to see errors as they occur. The user usually uses this screen to find the errors, and then goes to the Normal+Ignore screen to draw the ignore sections.
Error Only	This is a tool for the operator to use in order to understand what the software views as a difference between the Golden image and the Actual image. When this option is selected, the image will turn black and errors will be highlighted in white.
Golden	Shows an overlay of the Golden Image over the Actual Image.

5. Click the **Global copy** button to replicate the setting changes in the same sector across all labels. See the "Global Copy" section for more information.

6. Click the **right arrow** button.

Preset Configuration Settings

The preset configuration settings allow a user to adjust the following six blemish settings on the "Step 4: Define sector type (Blemish settings)" screen:

1. BG<< >>FG sensitivity
2. Foreground sensitivity
3. Background sensitivity
4. Foreground Size/Tolerance
5. Background Size/Tolerance
6. Die Cut Size Tolerance
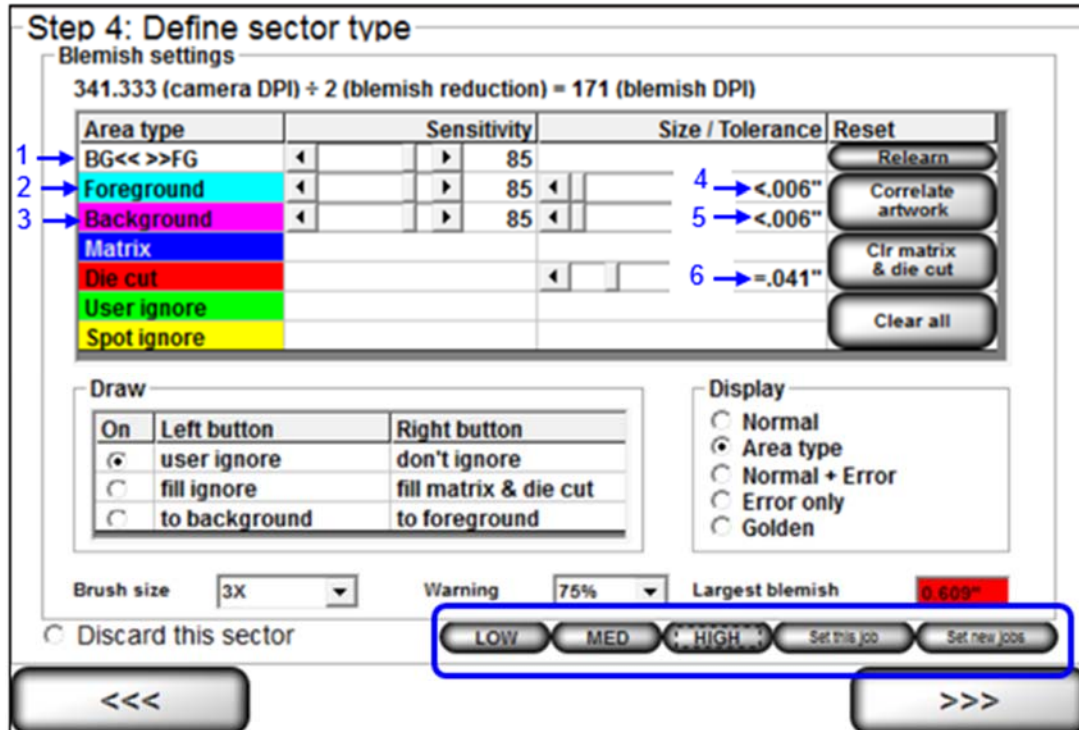
The functionality of the preset configuration settings varies based on user permissions.

- Users with administrator rights can configure the preset configuration settings and apply the settings to a particular job or to all new jobs created. See the "Permissions" section for more information on administrator permissions ("Welcome Screen Overview" section > "Administration" section > "Operators" section > "Permissions" section).

- Users without administrator rights cannot configure preset configuration settings and can only select the "Low," "Medium," and "High" preset buttons to adjust the blemish settings on the "Step 4: Define sector type (Blemish settings)" screen.

See the sections below for more information on configuring and using the preset configuration settings.

Note: The preset configuration settings buttons are enabled in the LVS7500.ini file > [Preset] section > UseFeature setting.

- UseFeature=0 (default) – Disables the preset configuration settings buttons
- UseFeature=1 – Enables the preset configuration settings buttons

Configure the Preset Settings

Follow the steps below to configure the blemish settings for the low, medium and high preset configuration settings. **Only users with administrator rights can configure the preset configuration settings.**

1. Use the slider bar to adjust the sensitivity or size/tolerance settings for the foreground, background, and die cut settings.
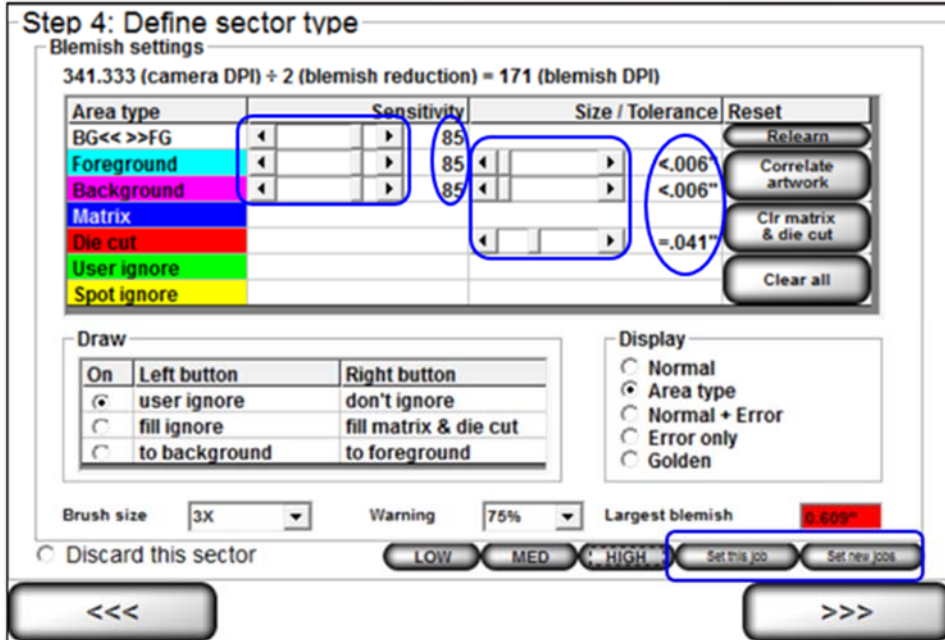
2. When settings are complete, click either the "Set this job" button to apply the settings to only that job, or click the "Set new jobs" button to apply the settings to all new jobs created. These buttons appear only to users with administrator rights.

3. The preset buttons (Low, Medium, High) turn red.
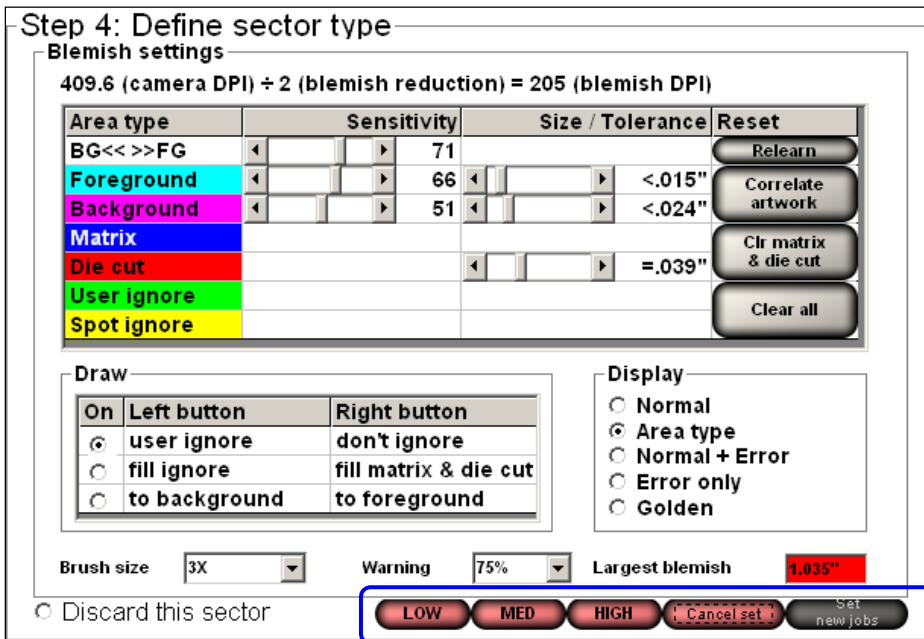
- Click "Low" to apply the blemish settings to the low preset configuration setting.
- Click "Med" to apply the blemish settings to the medium preset configuration setting.
- Click "High" to apply the blemish settings to the high preset configuration setting.
- Click "Cancel set" to cancel the blemish configuration settings.

4. Follow the above steps to set the configuration settings for each of the present configuration buttons (Low, Medium and High).

Use the Preset Settings:

Users without administrator rights can select the "Low," "Medium," and "High" preset buttons to view the image(s) on the "Step 4: Define sector type (Blemish settings)" screen.

- Click "Low" to adjust the blemish settings to the "Low" configuration settings as defined by a user with administrator rights.
- Click "Med" to adjust the blemish settings to the "Medium" configuration settings as defined by a user with administrator rights.
- Click "High" to adjust the blemish settings to the "High" configuration settings as defined by a user with administrator rights.

Step 5: Setup Matching

Step 5: Setup Matching is used to set up sequential, matching or incremental information checking. This step does not apply to Blemish modules.

Complete the applicable fields and then click the **right arrow** button. Each field description is listed in the table below. The software reverts back to STEP 1 prompting you to set up another sector if desired. If another sector is not required, click the **right arrow** button and proceed with the next step.

Field	Description
Number of characters	Ensure the number of characters is correct for the string length or a "Wrong Length" error will constantly be encountered.
Field Mask	Teaches the sector what type of character to expect for each position within a string. There are three possibilities for each character: numeric (#), alphabetic (@), and alpha/numeric (*). Special characters can also be used by typing the exact character in the position where it will be present. The following informational format is to be used: Sample: = (AB)8C23 = (@@)*@## @ means 'A' to 'Z' * means 'A' to 'Z' or '0' to '9' # means '0' to '9' ( ) means ' (' and ') ' - Any characters that are not @ * # are assumed to be special characters. **IMPORTANT!** Do not include a space inside the mask. Also, OCR/OCV can handle up to 40 characters and an error will occur if there are more than 40 characters in the field mask box.
Accept everything (do not match)	If sequential or matching checking is not required, click the **Accept everything (do not match)** option and leave all other

Field	Description
	options on this page alone. This option will be grayed out when using OCV.
Match this text	To match a static (unchanging) number, select **Match this text** and enter the desired string into the text box.
Match data in sector	If you are using multiple sectors, you may wish to match the data in one sector to the data in another sector. To accomplish this, select **Match data in sector** and choose the desired sector from the drop-down list of previously trained sectors. The **Majority** feature looks at all sectors that are set to majority, takes the most popular result, and then matches the sectors to that popular result. The **At Position** feature tells the software where to start reading data within a sector. Take the string A1234 as an example, if you change **at position** to 3 then the software will only read 234. The **Global copy** feature will copy the logically located sector as compared to the original "From" and "To" sectors' positional relationship. Refer to the diagram below in the "Global Copy Diagram" section.
Ascending or Descending	When checking sequential data, you must select **Ascending** or **Descending**. • If the numbers are incrementing by a different amount, you can select the amount to increment in the **Step** list box. • If the sequence is a combination of alpha and numeric, then select the **Base** numbering system.
Prompt When Run is Started	When selected, this feature allows a "Match this text" string to be entered by the operator at the time of starting a run, allowing the "Match To" text to be changed without allowing job editing to that operator's permissions. When this option is selected the system will prompt at run time for the "Match to" string. Enter the string in the available text field. Note that each sector is labeled accordingly.
Match to File	This feature compares the data decoded within a sector to the data on a file created by the user. Options include: • Duplicates allowed – The system allows for repeated data within the same sector and/or file. • Unique per sector – The system does not allow any repeated data within the same sector and/or column within a file. • Unique per job – The system does not allow any repeated data within the same sector and/or file. See the **Match to File** section below for additional details about this feature. Click **Enter Location** to select the location of the file being matched.
Check for Duplicates	Checks data for any duplicates. Options include: • Unique per sector – The system does not allow any repeated data within the same sector. • Unique per job – The system does not allow any repeated data within the same sector or job/roll.

Field	Description
Report Label	Use this field to enter a report label, such as a name for the sector. The name entered in this field appears on the Summary Report and acts as a unique user-defined identifier of that particular sector.
	This field is not available for Blemish or Delta E sectors.
Global Copy	Click the **Global copy** button to replicate the setting changes in the same sector across all labels.

Global Copy Diagram

Labels BEFORE Global Copy

- In Label 1 below, sector 3 is matched to sector 1.
- In Label 2 below, there are no sectors matched to sector 2.
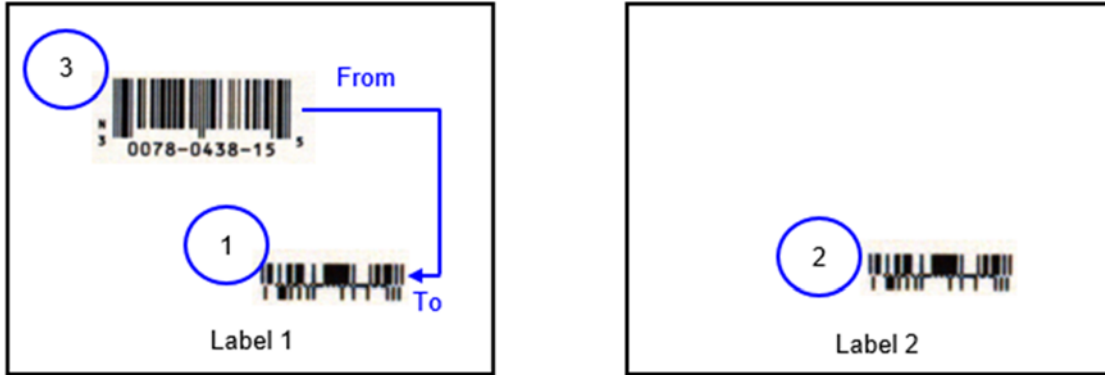
Labels AFTER Global Copy

- After sector 3 is copied to Label 2, sector 4 is created and matched to sector 2, which is the logically located sector as compared to the "From" and "To" sectors' relationship in Label 1.
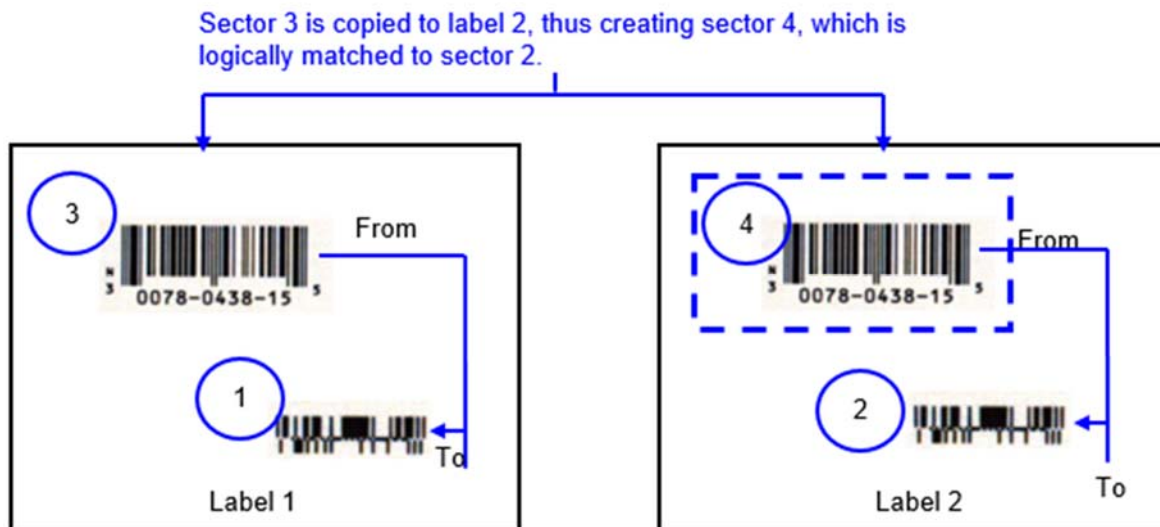
Match to File

This feature compares the data decoded within a sector to the data on a file created by the user. Note that the format of the file must be a comma-separated values (CSV) file.

Any number of sectors can be set to use "match to file". If all "Match to file" sectors are marked as "Duplicates allowed", the system will not be able to relocate within the data file if stopped during a run. This means the LVS-7500 External System is not able to automatically find its place within a run on a job if stopped and restarted. If this occurs, you must access your file and make the first number in the file be the first expected number in the camera's field of view after pressing the run button. The associated hash files within the job heading must be deleted so they can be recompiled at run time.

> **IMPORTANT:** The "Match to file" feature has associated processing overhead; thus, it is recommended to review all your options and use the "Match to file" feature as a last resort.

You must create the file to "Match To" on a **per job basis**. Tools are not provided in the LVS-7500 External System software to accomplish this.

The format of the file must be as follows:

- The format of the file must be a comma-separated values (CSV) file.
- The order in which the data is stored is matched to the sector number in lowest to highest order that has been selected to "Match to file".
- Headers are not allowed.

Example 1:

In the sample below, the LVS-7500 External System would expect to have two sectors per repeat that are "Matching to File". The file would show that it expects only 11 repeats of the label. Neither sector is expected to have duplicates. Due to the processing overhead of "Matching to File", the second sector could be set to perform a sequential check instead of "Matching to File".

01111110, 11111110
01111117, 11111111
01111120, 11111112
01111142, 11111113
01111137, 11111114
01111101, 11111115
01111129, 11111116
01111138, 11111117
01111199, 11111118
01111172, 11111119
01111122, 11111120

Example 2:

In this sample, the LVS-7500 External System would expect to have two sectors per label repeat that are "Matching to File". As with the above sector, only 11 repeats of the label are expected; however, this sector has duplicates. The LVS-7500 External System has processing penalties for "Matching to File". Thus, with this example, it would be more cost effective to match only the first sector to a file, as the second sector can be set to a fixed match string without the extra processing required.

01111110, 11111110
01111117, 11111110
01111120, 11111110

01111142, 11111110
01111137, 11111110
01111101, 11111110
01111129, 11111110
01111138, 11111110
01111199, 11111110
01111172, 11111110
01111122, 11111110

Step 6: Alarm Matrix

The "Step 6: Alarm Matrix" screen has two different modes, depending on your setting in the LVS7500.ini file.

- The "Alarm Matrix: Error Condition View" (Figure 1) is the default configuration and displays error-specific I/O information. If using this configuration, see the "Alarm Matrix: Error Condition View" section below.

  This view is configured in the LVS7500.ini file > [Alarm matrix] section > UsePassFailMethod=0 (default setting).

- The "Alarm Matrix: Pass/Fail View" (Figure 2) is I/O based on the pass or fail status of the entire inspection. If using this configuration, see the "Error Condition: Pass/Fail View" section below.

  This view is configured in the LVS7500.ini file > [Alarm matrix] section > UsePassFailMethod=1.

Step 6: Alarm matrix

Condition	Code	Trigger	Dwell	Stop motion
Good read		I/O line 1	100ms	
Stop motion		I/O line 4	100ms	
Grade warning		I/O line 2	100ms	
Background	!BG	I/O line 3	100ms	do not stop
Bypass mode	!BP	I/O line 3	100ms	do not stop
Database engine	!DB	I/O line 3	100ms	immediately
Delta E	!DE	I/O line 3	100ms	do not stop
Die cut	!DC	I/O line 3	100ms	do not stop
Duplicate	!DU	I/O line 3	100ms	do not stop
Foreground	!FG	I/O line 3	100ms	do not stop
Gap	!GP	I/O line 3	100ms	do not stop

Click on a setting to cycle through all possible values.

Stop motion delay in inches: 40 [Record]

Recent ramp down distances in inches: 6.0 6.0 6.0

Figure 1: Alarm Matrix: Error Condition View

Step 6: Alarm matrix

Trigger input	PASS output	PASS duration	FAIL output	FAIL duration	Reset input
n/a	1	10ms	2	10ms	3

Click on a setting to cycle through all possible values.

Figure 2: Alarm Matrix: Pass/Fail View

Alarm Matrix: Error Condition View

After all sectors have been established, you are prompted to determine an error condition. See the section below entitled "Error Conditions" for more information.

Depending on the supplied hardware, the following relay outputs can be triggered by any of the listed error conditions:

Line 1	Connected to the Green light, indicating a "good read". It is not connected to a relay
Line 2	Connected to the Yellow light
Line 3	Connected to the Red light
Line 4	Connected to the Blue light

The 5 columns on this screen are listed below:

Column	Description
Condition	Lists the various error conditions that the system can detect.
Code	Lists the abbreviation of the error conditions detected by the system and used throughout the final reports. See the Troubleshooting section for more information on error codes.
Trigger	Lists any of the 4 Input/Output lines. Any listed error condition can be trained to activate any I/O line by clicking on the appropriate row box; this will change the path to another line. You can also choose "None".
Dwell	Lists the duration of the output signal. You can choose from "10 ms" to "hold".

Column	Description
Stop Motion	States when to activate the "Stop Motion" error condition. You can choose to stop immediately or to not stop at all. Or, you can choose to stop after a certain number of errors occur contiguously (from 1 to 10 errors in a row).

Additional options include:

Stop Motion Delay in Inches	This is a set distance that the LVS-7500 External System will output the stop motion signal. It has a minimum of 40" beyond where the read head is looking. This is used for precision placement of found errors and may increase if a high processing workload is present.
Record button	Clicking this button records the rewinder/printer activity and saves the findings to the LVS7500.ini file.
Recent ramp down distances in inches	These distances are used for setup and troubleshooting; they indicate how long it took the rewinder/printer to stop after the stop motion signal was given.
	Example 1: The stop motion was output at 250 fpm (feet per minute) and the following ramp down distances occurred:
	• Ramp down = 20
	• Ramp down = 20.5
	• Ramp down = 19.5
	The above example shows a one inch (1") variance in stop distance.
	Example 2: The stop motion was output at 500 fpm and the following ramp down distances occurred:
	• Ramp down = 35
	• Ramp down = 40
	• Ramp down = 45
	The above example shows an increase in variances, as well as taking longer to stop. This is an example of a rewinder/printer that does not deal with variable speed stopping.

Error Code Definitions

Error Code		Definition
N/A	Good Read	When the system is triggered, the camera takes a picture of the label. The system reads all sectors within the image and compares to the associated sector data in the data file. All sectors match. The system logs to the report the data read from each sector with no error codes attached.
N/A	Stop Motion	This output is used as a special I/O that is sent at a fixed distance beyond the located error. It is used for machines that have accurate error placement capabilities.
N/A	Grade Warning	This output is used most commonly for the yellow light. It is triggered in conjunction with !QU (quality errors). When something falls into the quality warning zone this output is activated.
!BG	Background	This is a blemish error. The background is defined in the blemish sector setup. This means it is in the background portion of the sector.
!DC	Die Cut	Die Cut checks the print as compared to the outside edge of the label to track how much it moves.
!DE	Delta E	Represents a Delta E error which occurs when the color measured deviates too far from the predetermined Golden color threshold. Delta E settings are defined in the "Sector Type 8: Delta E" section.
!DU	Duplicate	A !DU appears when the character string has been read before in the job that you are running. The Check for Duplicates option in the Matching screen will enable this error.
!FG	Foreground	This is a blemish error. The foreground (!FG) is defined in the blemish sector setup. This means it is in the foreground portion of the sector.
!GP	Gap	When the system is triggered, the camera takes a picture of the label. The system does not read any of the sectors within that image. The system does not continue to increment the next expected record within the datafile. The system logs to the report the !GP error code to the associated data.
!MX	Matrix	Matrix searches the areas between labels for unstripped waste.
MM!	Mismatch	When the system is triggered, the camera takes a picture of the label. The system reads all sectors within the image and compares to the associated Job/Sector data in the datafile. One or more sectors do not match to what the Job/Sector settings dictate that it should be. The system logs to the report the data read from each sector attaching the MM! error code to the associated sector's data. **Note:** Mismatch only applies when comparing the data to a match source. If running a Sequential type match, then a Mismatch error will be reported as a Sequence error.
!NA	Not Assessed	The incoming data is not being assessed due to a separate error.

Error Code		Definition
!NS	Not Synced	The system has lost synchronization, and is therefore not processing any data outside of looking for a re-sync lock. It will auto log this run portion as "requested to splice"
!NR	No Read	When the system is triggered, the camera takes a picture of the label. The system does not read/decode one or more sectors within the image. The system compares to the associated Job/Sector data in the datafile. The system logs to the report the data read from each sector attaching the !NR error code to the associated sectors' data.
!QU	Quality	When the system is triggered, the camera takes a picture of the label. The system reads all sectors within the image. The system compares to the associated Job/Sector settings in the data file. If one or more characters/barcodes within a sector are found to be outside the pre-determined acceptable quality threshold, then the repeat is marked as an error and displayed in red in the log file. The actual score is appended to the end of the read data.
!RG	Range	The associated datafile is loaded the system then reads the first and last record in the sequential datafile. The system stores these values. When the system is triggered the camera takes a picture of the label. The system reads all sectors within the image. The system compares to the associated record in the datafile. Not only did the record not match the datafile, but it was also out of the range of numbers that the datafile contains. The system logs to the report the data read from each sector attaching the !RG error code to the associated sector's data.
!SQ	Sequence	When the system is triggered, the camera takes a picture of the label. The system reads all sectors within the image. The system compares to the associated Job/Sector in the datafile. One or more sectors are found to be out of numerical sequence as compared to the associated record in the datafile. The system logs to the report the data read from each sector attaching the !SQ error code to the associated sector's data. Sequence only applies when comparing the data to a known sequence of numbers. If running a Mismatch type match, then an error in Sequence will be reported as a Mismatch error.
!WL	Wrong Length	When the system is triggered, the camera takes a picture of the label. The system reads all sectors within the image. The system compares to the associated Job/Sector data in the datafile. One or more sectors do not match to the specified length of the character string that the Job/Sector settings dictate that it should be. The system logs to the report the data read from each sector attaching the !WL error code to the associated sector's data.

With the exception of **Good Read**, all above error conditions can be made to trigger the Stop Motion Relay immediately, or after a predetermined number of consecutive errors.

Common Causes for Error Conditions

Error Condition	Possible Cause
Mismatch	The data read did not match to what was expected to be read. This can be caused by poor quality of print causing the system to identify one or more characters as good quality, yet still incorrect. It could also be caused by a character being gone. Either not printed, or somehow has gone outside the sector borders within the image.
No Read	The data within a sector was not read at all. This can be caused by missing print, poor contrast of print, or the expected data was outside of the sector borders within the image.
Quality	The character(s) within a string do not qualify to the standard entered into the OCV Threshold, or the barcode grade is not above the minimal passing score allowed. This can be caused by missing character portions, bad line definition of characters, or stretched/skewed characters, or any of the ISO/ANSI barcode grading parameters being below the acceptable level entered in the "PASS if ACTUAL >=" sector setting parameters.
Sequence	The data does not match to the previous number +/- one. This is most often caused be a miscommunication that causes one or more numbers within a sequence to be skipped or repeated, an unconnected RS-232 cable, or user error on starting number.
Range	The read number is larger or smaller than the file covers. This is usually caused by the incorrect datafile being loaded to compare to.
GAP	No data was discernible in any sector. Most common causes are blank media coming through the line, or an erroneous triggering mechanism.
Wrong Length	For barcode reading the code has too many/few characters encoded. This could be from the incorrect code being printed, or the trained in length for the job was incorrectly set. For OCR/OCV characters the same conditions apply, with the addition of the possibility of characters being broken or touching. If a broken character is detected, then one character will become two. If two characters are touching, they will become one combined character. Also be sure that no characters are touching the sector box. The system will ignore any characters that touch the sector box.
Not Assessed	Rewinder/Printer is going faster than what the Camera and PC can handle. LinesperInch or Camera MaxSpeed may be incorrectly set in the ini file. INI settings must only be changed by an Omron Microscan representative.
Duplicate	Character string has previously been seen in this job.

Alarm Matrix: Pass/Fail View

The Alarm Matrix Pass/Fail view displays the pass/fail status of the entire inspection. Click on a setting to cycle through all possible values. Each setting is described in the table below.

The Alarm Matrix Pass/Fail view is configured in the LVS7500.ini file > [Alarm matrix] section > UsePassFailMethod=1.

```
┌─Step 6: Alarm matrix──────────────────────────────────┐
│  ┌─────────┬────────┬─────────┬────────┬─────────┬────────┐ │
│  │ Trigger │ PASS   │ PASS    │ FAIL   │ FAIL    │ Reset  │ │
│  │ input   │ output │ duration│ output │ duration│ input  │ │
│  ├─────────┼────────┼─────────┼────────┼─────────┼────────┤ │
│  │   n/a   │   1    │  10ms   │   2    │  10ms   │   3    │ │
│  └─────────┴────────┴─────────┴────────┴─────────┴────────┘ │
│                                                            │
│  Click on a setting to cycle through all possible values.  │
└────────────────────────────────────────────────────────────┘
```

Setting	Description
Trigger input	This feature is currently unavailable.
PASS output	If the inspection passes, it will output on the specified I/O line for the specified duration.
PASS duration	The dwell time of the PASS output.
FAIL output	If any sector in the inspection fails for any reason, it will output a FAIL output on the specified channel for the specified duration.
FAIL duration	The dwell time of the FAIL output.
Reset input	If a pulse is detected on this channel, all outputs are deactivated.

Below is a graphical representation of the Alarm Matrix Pass/Fail view settings:

	Repeat 1	Repeat 2	Repeat 3	Repeat 4	Repeat 5	Repeat 6	Repeat 7
Overall Inspection Results for Repeat Number	PASS	FAIL	PASS	PASS	PASS	FAIL	PASS
PASS Output	On	Off	On	On	On	Off	On
FAIL Output	Off	On	Off	Off	Off	On	Off

Within the Alarm Matrix Pass/Fail view, additional functionality is available when the following settings are enabled in the LVS7500.ini file: **UsePassFailMethod=1 5**and **UseAcknowledgementIO=1**. Example:

```
[Alarm matrix]
UseAcknowledgementIO=1
UsePassFailMethod=1
```

When the above settings are enabled, the Alarm Matrix appears as shown below.

Each column is described in the following table:

Setting	Description
Ack Input	This input is a request for the LVS-7500 External System to indicate the Ack Output channel and current run status.
Ack Output	This output is activated as long as the following conditions are met: • The Ack Input is active

Setting	Description
	• The roll is moving • The LVS-7500 External System is actively inspecting (that is, the "Start New Run" button has been clicked on the "Operate: Running the Job" screen).
PASS Output	If the inspection passes, it will output on the specified I/O line for the specified duration.
PASS Duration	The dwell time of the PASS output.
FAIL Output	If any sector in the inspection fails for any reason, it will trigger a FAIL output on the specified channel for the specified duration. The PASS Output will be deactivated automatically once a fail is triggered. Additionally, once a fail has been triggered, every subsequent inspection will trigger a FAIL Output until reset is triggered. Even if the subsequent inspection passes, only the FAIL Output will be triggered until a Reset Input signal is detected.
FAIL Duration	The dwell time of the FAIL output.
Reset Input	If a pulse is detected on this channel, all outputs are deactivated and the Pass Output is enabled again.

Below is a graphical representation of the Alarm Matrix Pass/Fail view settings when **UsePassFailMethod=1** and **UseAcknowledgementIO=1** are set in the LVS7500.ini file.

	Repeat 1	Repeat 2	Repeat 3	Repeat 4	Repeat 5	Repeat 6	Repeat 7
Overall Inspection Results for Repeat Number	PASS	FAIL	PASS	PASS	PASS	FAIL	PASS
PASS Output	On	Off	Off	On	On	Off	Off
FAIL Output	Off	On	On	Off	Off	On	On
Reset Input	Off	Off	Off	On	Off	Off	Off

Step 7: Save Job To Disk

1. Enter a job name in the **Job Name** field; this saves the current setup.

2. If desired, enter a description or additional job details in the **Description** field.
3. If desired, click the **Job Report** button to generate an LVS-7500 Job Report which shows the settings for all created sectors. See the next section entitled "LVS-7500 Job Report" for more information on the Job Report.
4. Click **Next**. The **Ready to Run** screen appears. See the section **Operate Screen: Ready to Run** for more information on this step.

LVS-7500 Job Report

The LVS-7500 Job Report shows the settings for all created sectors.

The LVS-7500 Job Report appears only in Internet Explorer or Firefox web browsers; no other web browser is supported.

Global Copy

The Global Copy feature allows you to replicate the setting changes in the same sector across all labels. Global copy works with Automatic or Manual setup.

Location of Global Copy button

The "Global Copy" button is visible on the following screens:

- When using the **Blemish** sector type, the **Global copy** button is visible on the "Step 4: Define Sector Type" screen (see below).

- For all sector types other than **Blemish**, the **Global copy** button is visible on the "Step 5: Setup Matching" screen (see below).

Global Copy Requirements

The Global copy button appears only if:

- There is more than one label per repeat.
- There are at least two sectors.
- There is at least one pair of comparable sectors (same sectors in different lanes)
- The user is on the final step of setting up the sector type.

To define comparable sectors (the same sectors in different lanes), the sectors must:

- Have the same sector type (such as Barcode Read, etc)
- Have the same width (within 20 pixels)
- Have the same height (within 20 pixels)
- Have the same distance from the top of the label (within 20 pixels).

> **Note:** A simple solution to meet the above requirements is to copy and paste the first sector to the second sector. See the "Copy an Entire Sector" section (within the "Step 3: Create Sectors" section) for steps on copying sectors.

Use Global Copy to Add Sectors to All Labels Across the Screen

1. Create a sector in the left-most lane.
2. Click the **Global Copy** button.
3. A new sector is created with matching parameters of the first sector.

The LVS-7500 External System only creates the number of labels defined in the "Labels per repeat" field on the "Step 1: Set label repeat" screen (see below).

Use Global Copy to Edit Sectors

The example below displays three blemish sectors (1, 2 and 3). The Global copy feature allows you to make the same change to all three sectors without making the changes to each sector individually,

If making a change to a sector in the first label, the same sector in the other two labels will automatically be updated.
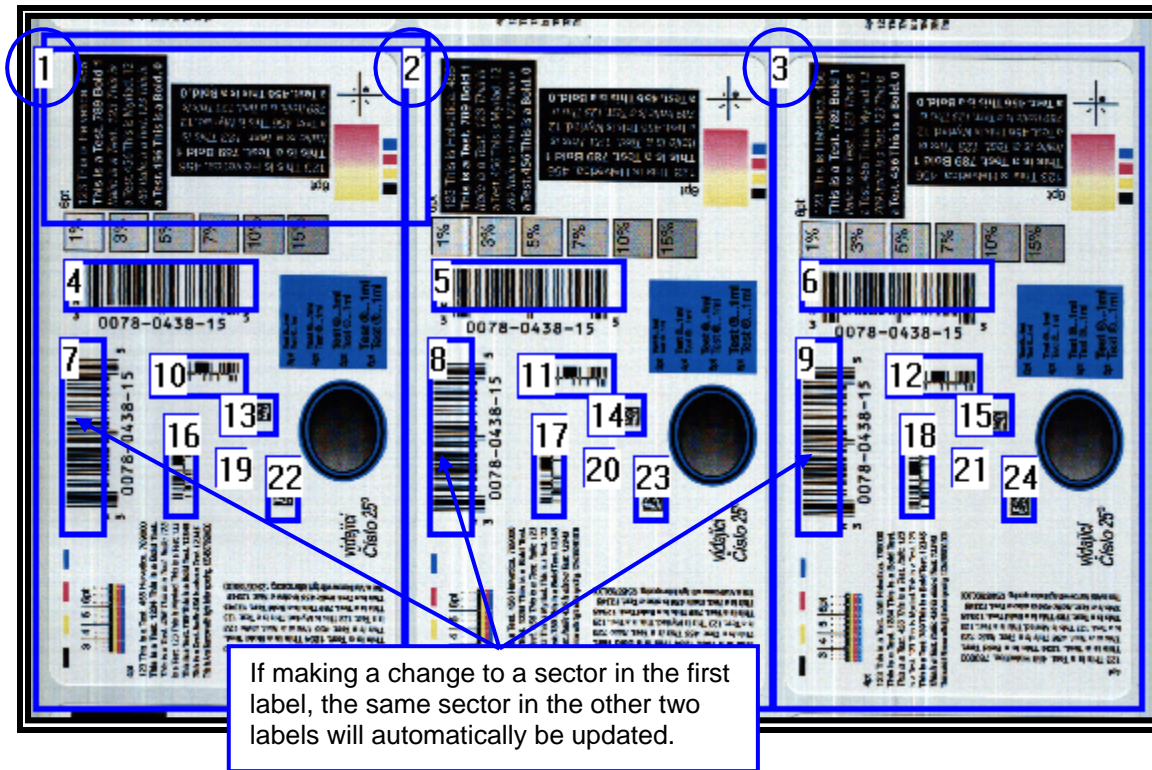
Load an Existing Job

1. To load an existing job, click **Load an Existing Job** on the Welcome screen.
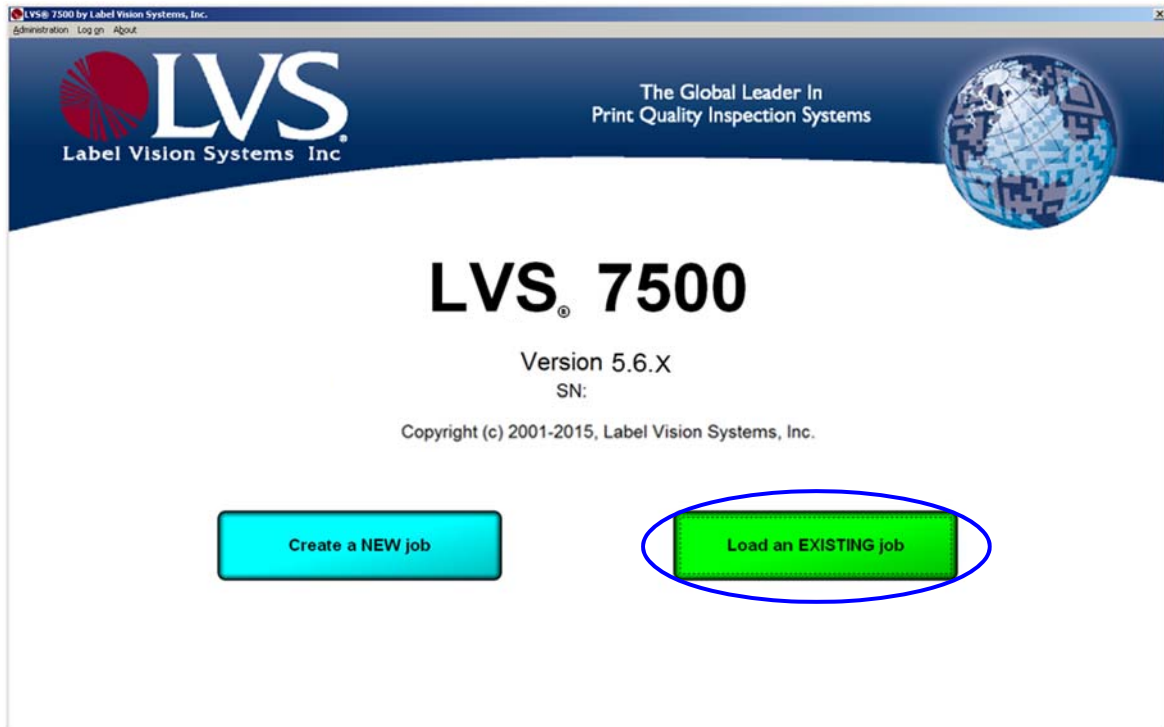
2. A list of existing jobs appears. Each column is described in the table below.

Column	Description
Job file	List of the job file names.
Description	Description of each job file.
Job file date	The date the job file was created.
Last run file	Highest run number in the existing job.
Last run file date	Last run file date for the job.

3. Choose the job you want by double-clicking the job name.
4. You can sort by any column by clicking on the column header.
5. The **Ready to Run** screen appears with the same job parameters that were originally set for that job.
6. See the next section entitled **Operate Screen: Ready to Run** for further steps.

Operate Screen: Ready to Run

Each button on the **Operate Screen** (**Ready to Run)** is described in the table below.

Button	Description
Delete This Job	Click to delete the job. Only operators who are granted the **Allow Create NEW Job** permission is allowed to delete a job. Refer to the **Permissions** section, within the **Operators** section, for more information on permissions.
View Logs	A Report Log is created for every job. Click this button to view all previous Reports. (See the Reports chapter for more information on reports.)
Edit Job	Click to change the current job settings. If a password was used, you must enter the correct password for the job. Only operators who are granted the **Allow Create NEW Job** permission is allowed to edit a job. Refer to the **Permissions** section, within the **Operators** section, for more information on permissions.
Exit to Main	Click to change to a previously set up job; this will bring you back to the Welcome Screen where you may select **Load a Job**.
Make Ready	Make Ready operates exactly as if the system were running normally with the exception that no data is stored and no I/O is triggered. See the section below titled "Make Ready Mode" for more information.
Continue Last Run	Select this option if you desire to append to the most recent run's CSV file.
Start New Run	Click to begin a new run and new CSV file.

Make Ready Mode

Clicking the "MakeReady" button allows an operator to:

- Simulate how inspections will perform
- Simulate how the job created will work in live setting
- Test any changes made
- Test the system without triggering any output signals that might affect the rewinder/thermal printer

After clicking the "MakeReady" button, the screen flashes between red and white (see below) and the words "NOT RUNNING / Make Ready" scroll across the top, left corner of the screen indicating the system is in MakeReady mode.
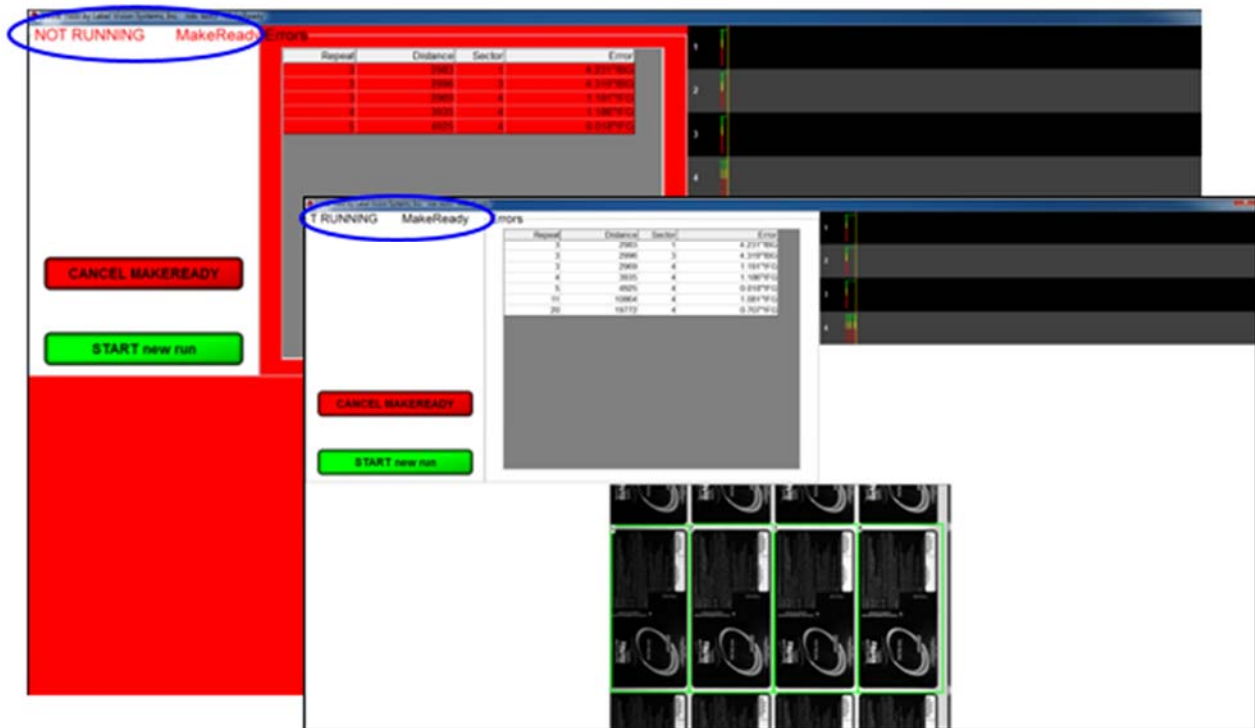
Operate Screen: Running the Job

The **Operate Screen (Running the Job)** is typically what you monitor at all times. The features on this screen are described in the table below:
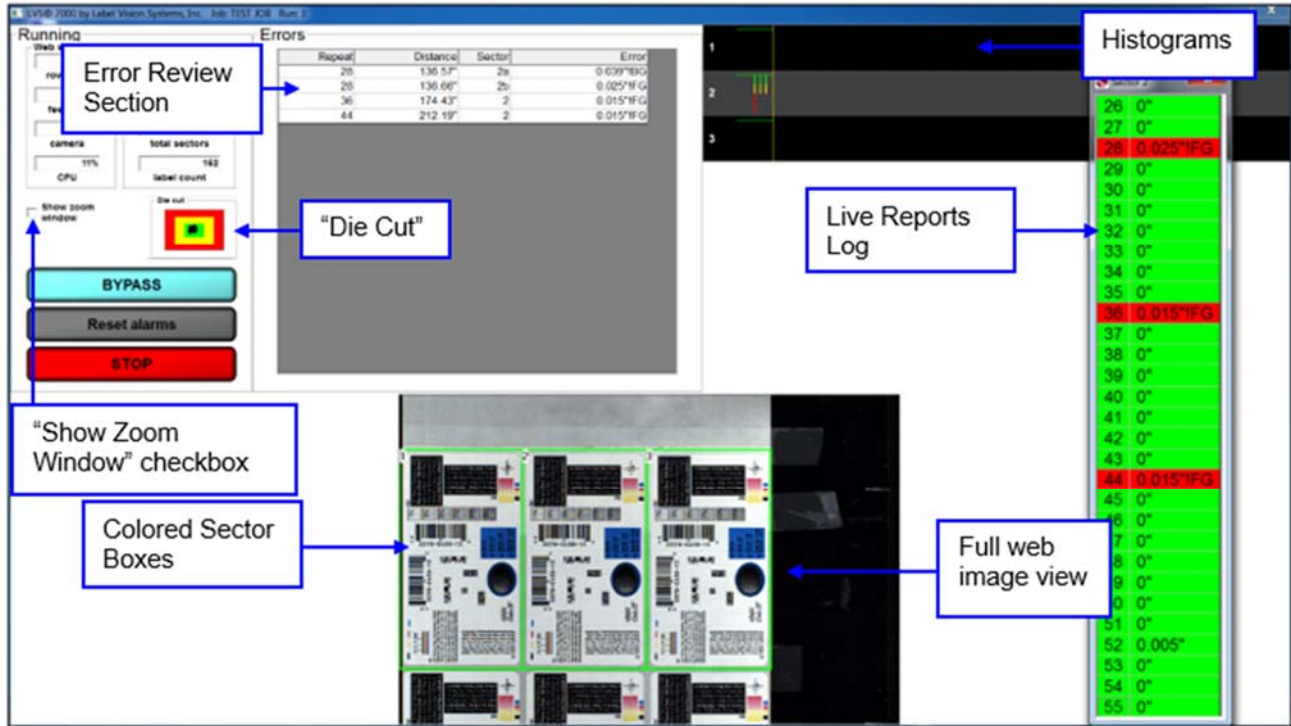
Field	Description
Web Speed	This gives the operator how many rows per second are being analyzed as well as how many feet per minute the roll is traveling. This calculation is based upon the Label Repeat data entered in Step 1.
Counters	There are two conditions being counted: All "passed" sectors and all "failed" sectors. These two conditions are totaled at the bottom of this column.
Camera	Shows a percentage of the Camera Speed. A warning message will pop-up if the speed is too high.
CPU	Shows the CPU Usage. A warning message appears if the CPU usage is too high.
Die Cut	The Die Cut is tracked for movement from the original position; this is in the green center. Movement is visually depicted by the moving black dot away from dead center. Movement in the yellow is ok as it is inside the set allowable movement. Movement out to the red zone will cause a !DC (Die Cut) error.
Reset Alarms	On the Alarm matrix, there is a "hold" function if/when an error occurs; this is indicated by the term "Hold" appearing in the "Dwell" column on the Alarm matrix. The **Reset Alarms** button releases the error condition and is visible only when the "Hold" function is activated in the Alarm matrix.
Stop	Press the **Stop** button to stop the roll. **Important:** A Warning message will appear if the LVS-7500 has been setup to not allow the roll to stop while in motion; this feature is enabled in the LVS7500.ini file. See example below.

Field	Description
	WARNING Cannot stop while the web is in motion.
Error Display	This is a very helpful feature for the operator to analyze only the errors as they happen. Or, the operator may choose to study one error condition at a time. This feature is activated by clicking on the error. This causes the software to show an image of the next error as superimposed thumbnail images. The process of showing this error image can be performed while the system is in the Operate condition. A series of error images are stored in the log file of each job. Thumbnails of the actual errors can be viewed "offline". See the **Error Display** section below for more information.
Full Web Image	The image at the bottom of the Operate Screen is the entire field of view and will update up to 10 images per second as the printer is running.
Live Reports Log	A log will appear overlaid onto the Operate Screen when the operator clicks inside a sector. This log represents what the software sees inside this sector. • A green box indicates a good read. • A red box indicates an error condition has occurred. This log can be moved to any position on the Operate Screen by left click and hold at the very top of the log screen. To get a *freeze frame* of this box click on any other non-sector part of the image. This will cause the box to stop updating. To resume the update, just click in the desired sector. If it is no longer wanted, it can be closed by clicking the red X (Close) box in the top right corner.
Histograms	At the top of the Operate Screen is a section for displaying a histogram for every error condition the software is trained to analyze. It is color coded. • Green is "good' • Red is "bad" Each sector "Type" will have its own graph. All sectors of a given type will be displayed within the graph designated for that "Type".

Show Zoom Window

Check the "Show Zoom Window" box to view a magnified image of the label. After checking this box, a blue box appears in the full web image view. Use your mouse to move the blue box over any portion of the label, and then a magnified image appears in the top right corner of the screen.

Magnified image of the area the blue box below.

Using your mouse, drag the blue box over the label. The magnified image appears in the top right corner.
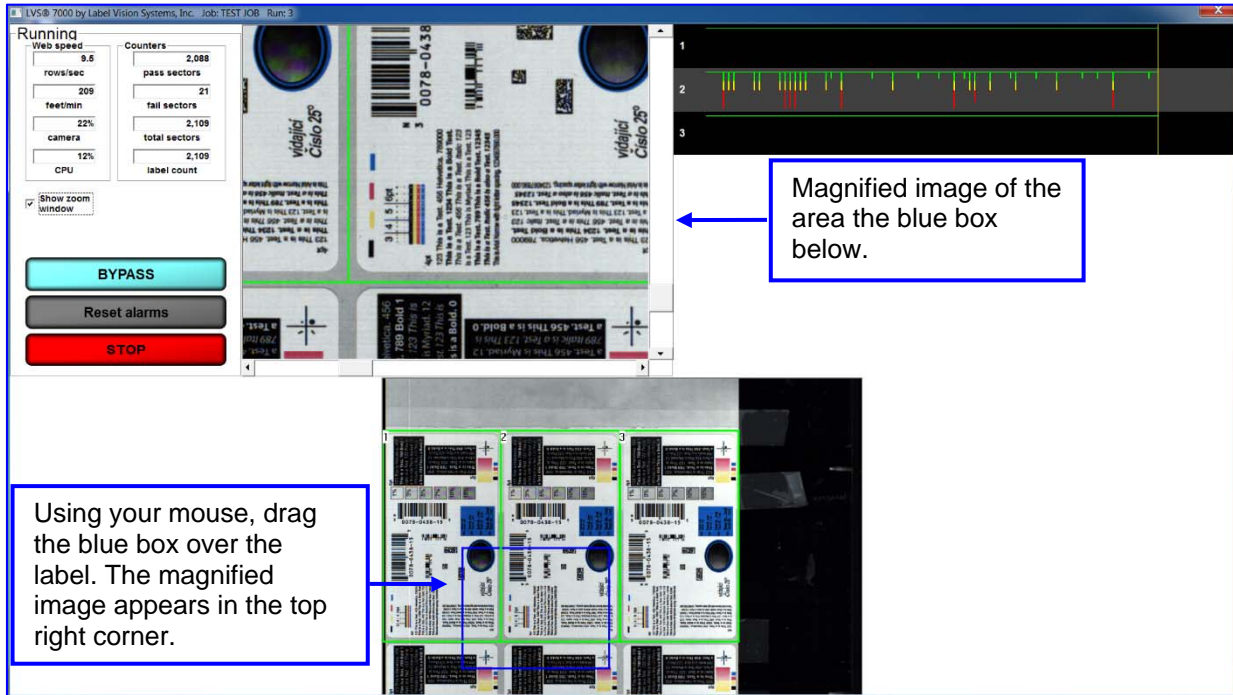
Bypass Button

Click the "Bypass" button to suspend any outputs (such as the stop motion signal) from the LVS-7500. After clicking the button, the screen flashes between yellow and white (see below) and the word "Bypass" scrolls across the top, left corner of the screen indicating the system is in Bypass mode. All repeats during Bypass appear in pink in the Reports\QC File Viewer.

IMPORTANT: The **DontProcessDuringBypass** setting (within the [System] section) in the LVS7500.ini file allows you to configure the LVS-7500 to process or not process sectors during bypass.
Example LVS7500.ini file

```
[System]

A5Follows=34
AddMissingTriggers=0
AutoBreakRoll=0
CameraToError=54
ConsecutiveReadLines=5
CpuUtilizationWarning=75
DontProcessDuringBypass=0
ePedigree=0
Gap=Off
```

See examples on next two pages.

- **DontProcessDuringBypass=0** indicates the LVS-7500 **will** process sectors during bypass and will highlight all errors in the Reports\QC File Viewer.

Button	
Previous error	
Next error	
Previous warning	
Next warning	
Summary report	
Print errors	
Print all	
Exit	

Key

Color	Label
Red	Sector error
Yellow	Sector warning
Light red	Splice requested
Light yellow	Splice performed
Green	Replaced

Repeat	Time	Distance	Sector 1
69	11-Apr-2012 09:47:06	84019	0"
70	11-Apr-2012 09:47:06	85851	0"
71	11-Apr-2012 09:47:06	86985	0"
72	11-Apr-2012 09:47:06	88119	0.008"
73	11-Apr-2012 09:47:07	89251	0"
74	11-Apr-2012 09:47:07	90385	0"
75	11-Apr-2012 09:47:07	91513	0"
76	11-Apr-2012 09:47:07	92641	0.031"!BG
77	11-Apr-2012 09:47:07	93775	0"
78	11-Apr-2012 09:47:08	95607	0"
79	11-Apr-2012 09:47:08	96741	0"
80	11-Apr-2012 09:47:08	97873	0.012"
81	11-Apr-2012 09:47:09	99005	0"
82	11-Apr-2012 09:47:09	100139	0"
83	11-Apr-2012 09:47:09	101269	0"
84	11-Apr-2012 09:47:09	102397	0"
85	11-Apr-2012 09:47:09	103531	0"
86	11-Apr-2012 09:47:10	105363	0.121"!DC
87	11-Apr-2012 09:47:10	106495	0.227"!DC
88	11-Apr-2012 09:47:10	107629	0.184"!DC
89	11-Apr-2012 09:47:11	108761	0.047"!DC
90	11-Apr-2012 09:47:11	109895	0.211"!DC
91	11-Apr-2012 09:47:11	111023	0.02"!DC
92	11-Apr-2012 09:47:11	112153	0.199"!DC
93	11-Apr-2012 09:47:12	113285	0.207"!DC
94	11-Apr-2012 09:47:12	115119	0.199"!DC
95	11-Apr-2012 09:47:12	116251	0.191"!DC
96	11-Apr-2012 09:47:12	117385	0.039"!DC
97	11-Apr-2012 09:47:13	118517	0.27"!DC
98	11-Apr-2012 09:47:13	119649	0"
99	11-Apr-2012 09:47:13	120779	0"
100	11-Apr-2012 09:47:13	121907	0"
101	11-Apr-2012 09:47:13	123041	0"
102	11-Apr-2012 09:47:14	124873	0"
103	11-Apr-2012 09:47:14	126005	0"
104	11-Apr-2012 09:47:14	127139	0.012"
105	11-Apr-2012 09:47:15	128271	0"
106	11-Apr-2012 09:47:15	129405	0"

Error codes ←

Error codes ←

- **DontProcessDuringBypass=1** indicates the LVS-7500 **will not** process sectors during bypass and will not check for errors.

  All bypassed repeats in the Reports/QC File Viewer appear with an !BP error code.

Repeat	Time	Distance	Sector 1
1	11-Apr-2012 09:48:36	1002	0"
2	11-Apr-2012 09:48:36	2130	0"
3	11-Apr-2012 09:48:36	3258	0"
4	11-Apr-2012 09:48:37	4392	0"
5	11-Apr-2012 09:48:37	6224	0"
6	11-Apr-2012 09:48:37	7356	0"
7	11-Apr-2012 09:48:38	8490	0.016"
8	11-Apr-2012 09:48:38	9622	!BP
9	11-Apr-2012 09:48:38	10756	!BP
10	11-Apr-2012 09:48:38	11884	!BP
11	11-Apr-2012 09:48:38	13014	!BP
12	11-Apr-2012 09:48:39	14146	!BP
13	11-Apr-2012 09:48:39	15978	!BP
14	11-Apr-2012 09:48:39	17112	!BP
15	11-Apr-2012 09:48:39	18246	!BP
16	11-Apr-2012 09:48:40	19378	!BP
17	11-Apr-2012 09:48:40	20510	!BP
18	11-Apr-2012 09:48:40	21640	!BP
19	11-Apr-2012 09:48:40	22768	!BP
20	11-Apr-2012 09:48:41	23902	!BP
21	11-Apr-2012 09:48:41	25734	!BP
22	11-Apr-2012 09:48:41	26866	!BP
23	11-Apr-2012 09:48:41	28000	!BP
24	11-Apr-2012 09:48:42	29132	!BP
25	11-Apr-2012 09:48:42	30266	!BP
26	11-Apr-2012 09:48:42	31394	!BP
27	11-Apr-2012 09:48:42	32524	!BP
28	11-Apr-2012 09:48:43	33656	!BP
29	11-Apr-2012 09:48:43	35490	!BP
30	11-Apr-2012 09:48:43	36622	!BP
31	11-Apr-2012 09:48:43	37756	!BP

Buttons: Previous error, Next error, Previous warning, Next warning, Summary report, Print errors, Print all, Exit

Key:
- Sector error (red)
- Sector warning (yellow)

Bypassed repeats

Error Display

The Error Display log can be accessed on the Operate screen while you are running the job or after you stop the job. Click on an error to view the barcode image and barcode parameters.

Barcode parameters

Error Display Log
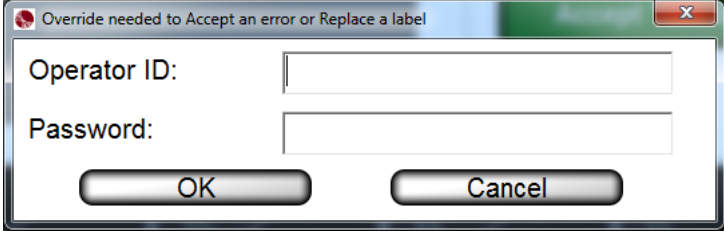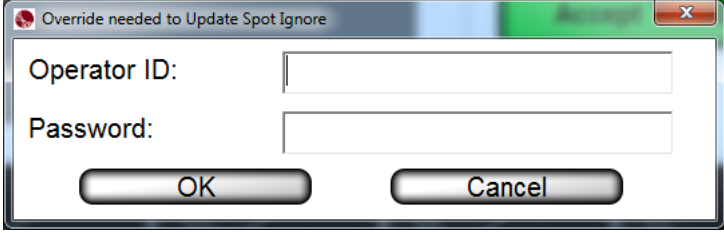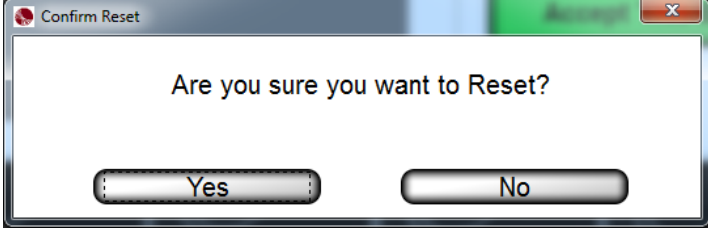
To hide the barcode parameters, click the "Hide Barcode Stats" button; this removes the barcode parameters from the screen and enlarges the barcode image.

Note: After clicking the "Hide Barcode Stats" button, the name changes to "Show Barcode Stats." Click this button to display the barcode parameters on the screen.

After clicking the "Hide Barcode Stats" button, the barcode parameters are hidden and the barcode image is enlarged.

Click the "Show Barcode Stats" button to display the barcode parameters on the screen.
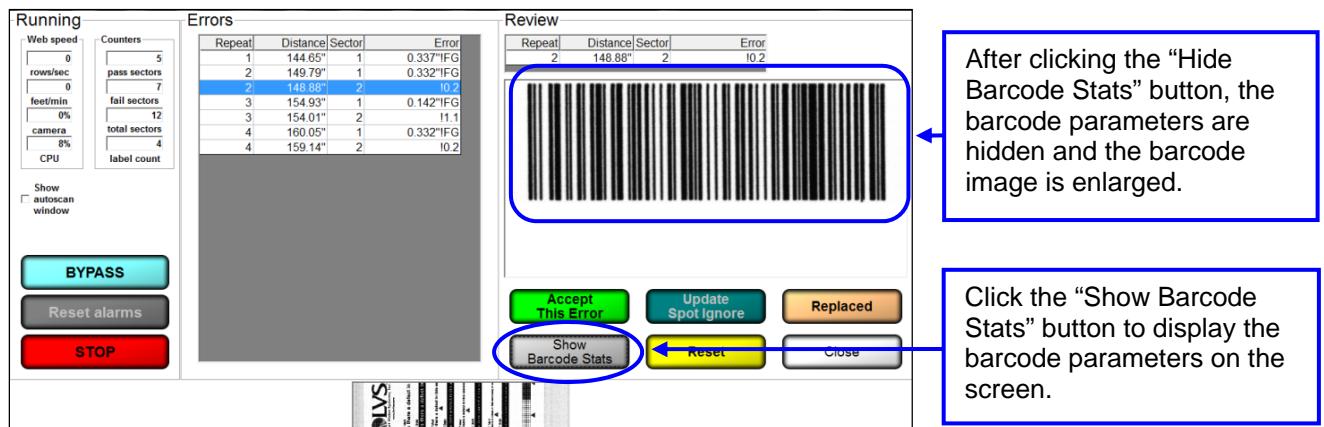
Additional error display options include:

Button	Description
Accept This Error	Click this button to approve the error; the error is marked as OK in the error log file and removed from the errors list. The button is active when the job is in run mode. Only operators granted the **Allow Accept / Replace Errors** permission are allowed to accept the error. The following message appears for operators without permission to accept the error (see screenshot below). An authorized Operator ID and Password must be entered or the operator will not be allowed to approve the error. See the **Permissions** section, within the **Operators** section, for more information on permissions.
Update Spot Ignore	Draws an ignore box around the error so that it will not appear again and every instance of the error will be removed from the errors list. The log file will also show an OK for every instance of this error. The ignore area is yellow if you edit the blemish sector. In the LVS7500.ini file, when **RelearnAuthorization=0**, any operator granted the "Allow Accept/Replace Errors" permission can use this feature. When **RelearnAuthorization=1**, the operator must have "Allow Administration" rights to use this feature. The following message appears for operators without permission to use the "Update Spot Ignore" feature (see screenshot below). An administrator's Operator ID and Password must be entered or the operator will not be allowed to ignore the areas. See the **Permissions** section, within the **Operators** section, for more information on permissions.
Reset	Places previously accepted and replaced errors back into the errors list and restores their original error codes in the log file. This feature also removes all spot ignore updates. The button is active when the job is in run mode. After clicking the "Reset" button, the following message appears. Click **Yes** to reset or **No** to cancel.

Button	Description
Replaced	Click this button when a label with detected errors is replaced with a known good label. This action marks the label as !RP (replaced) in the error log file and is removed from the errors list. The button is active when the job is in run mode. Only operators granted the **Allow Accept / Replace Errors** permission are allowed to use this feature. See the **Permissions** section, within the **Operators** section, for more information on permissions.
Hide Barcode Stats	Click this button to hide the barcode parameters on the screen and enlarge the barcode image. After clicking this button, the button name changes to "Show Barcode Stats." Click this button for the barcode parameters to appear on the screen. The settings for this button are controlled in the LVS7500.ini file > [System] section > ShowRuntimeGradeStats setting. • **ShowRuntimeGradeStats=0 (default)** – Disables the "Hide Barcode Stats" button. • **ShowRuntimeGradeStats=1** – Enables the "Hide Barcode Stats" button.
Close	Click the "Close" button to close the error display window and return to the "Running the Job" screen.

Blemish Error Display

When viewing a blemish error, three views are available on the screen:

- **Golden** – Displays the golden image
- **Toggle** – Toggles between the golden image and actual image
- **Actual** – Displays the actual blemish image

Only a single image of the error is displayed when viewing other types of errors. For example, a No Read error on a barcode would only show an image of the barcode so that you can examine the problem.

Reports / QC File Viewer

The Reports Screen is detailed and navigation tools have been added to help the operator locate errors. The operator can also print a report for an entire "run" or choose to print a report of just the errors. The Labeled Column Headers are used to locate the report desired. Click on the Run Log to see all sectors overall data for that particular run. When using the Barcode Verifier software, all ANSI/ISO parameters are reported under 1D, 2D grade details. To view these click on the appropriate run under that header. The data is stored in a file format commonly known as a CSV (Comma Separated Values). It is sometimes referred to as a Comma Separated File. This format is a text file where fields are delimited by commas and records are delimited by a <CR><LF> pair. It is a standard interchange format for taking raw data and populating a database or spreadsheet. By default these files are stored in the following directories:

- For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: **C:\LvsData\LVS 7500\Jobs**

- For systems that are upgrading from a previous software version to version 5.6.3 or higher:
    - **Windows® XP:** C:\Program Files\Label Vision Systems\LVS 7500\Jobs
    - **Windows® 7:** C:\Users\[User Login Name]\AppData\Roaming\Label Vision Systems\LVS 7500\Jobs

The **Reports Screen** (see below) shows a report for each sector. Each line of data starts with the gate number followed by a date/time stamp, decoded string, error code (if any), and other data associated with the image being inspected.

See the "Error Code Definitions" section for a full list of error codes.

To select a file, double-click it. To cancel, click the red X on the upper right of this window.

Run number	Date and time	Run log	Errors only	1D grade details	DM grade details
1	08-Feb-2007 15:31:10	647,955	124,224	4,424,157	

Sample Reports

Errors Only Report

Buttons:
- Previous error
- Next error
- Previous warning
- Next warning
- Summary report
- Print errors
- Print all
- Exit

Key:
- Sector error
- Sector warning
- Splice requested
- Splice performed
- Replaced

Repeat	Time	Distance	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8
10	30-Mar-2012 16:02:47	47.84"	0"	0.234"-OK	2.238"-OK	0.3	0.5	0.9	300780438155	300780438155
11	30-Mar-2012 16:02:47	55.02"	0.078"-OK	0"	0"	0.5	1.0	1.7	300780438155	300780438155
16	30-Mar-2012 16:02:48	77.13"	0"	0"-OK 66"-OK	0.9	1.7	2.2	300780438155	300780438155	300780438155
17	30-Mar-2012 16:02:48	81.52"	0"	0.004"	2.238"!UN	0.3	0.3	0.1	300780438155	300780438155
18	30-Mar-2012 16:02:48	85.95"	0"	0.176"!BG	2.238"!BG	0.1	0.5	1.2	300780438155	300780438155
19	30-Mar-2012 16:02:49	93.13"	0.07"!BG	0"	0"	0.8	1.3	1.8	300780438155	300780438155
24	30-Mar-2012 16:02:50	115.22"	0"	0.074"!BG	2.238"!FG	0.8	1.6	2.0	300780438155	300780438155
25	30-Mar-2012 16:02:50	119.63"	0"	0"	2.238"!BG	0.1	0.3	0.3	300780438155	300780438155
26	30-Mar-2012 16:02:50	124.04"	0"	0.031"!BG	2.238"!BG	0.2	0.6	0.6	300780438155	300780438155
27	30-Mar-2012 16:02:59	131.23"	0"	0"	0"	0.0!DE	0.0!DE	0.0!DE	300780438155	300780438155
28	30-Mar-2012 16:03:00	135.66"	0.039"!FG	0"	0"	1.7	1.4	0.8	300780438155	300780438155
29	30-Mar-2012 16:03:00	140.09"	0.137"!FG	0"	0"	1.1	0.6	0.3	300780438155	300780438155
30	30-Mar-2012 16:03:00	144.51"	0.031"!FG	0"	0"	0.6	0.5	0.6	300780438155	300780438155
31	30-Mar-2012 16:03:00	148.93"	0.043"!FG	0"	0"	0.8	0.1	1.1	300780438155	300780438155
32	30-Mar-2012 16:03:00	153.33"	0.059"!FG	0"	0.246"!FG	0.2	0.3	0.5	300780438155	300780438155
33	30-Mar-2012 16:03:00	157.73"	0.023"!FG	0"	0.438"!BG	0.7	1.6	1.7	300780438155	300780438155
34	30-Mar-2012 16:03:00	162.15"	0.055"!FG	0.141"!BG	2.242"!FG	0.5	0.9	1.2	300780438155	300780438155
36	30-Mar-2012 16:03:01	173.76"	0.051"!FG	0"	0"	1.7	1.4	0.8	300780438155	300780438155
37	30-Mar-2012 16:03:01	178.19"	0.074"!FG	0"	0"	1.2	0.6	0.3	300780438155	300780438155
38	30-Mar-2012 16:03:01	182.61"	0.027"!FG	0"	0"	0.5	0.4	0.7	300780438155	300780438155
39	30-Mar-2012 16:03:01	187.04"	0.051"!FG	0"	0"	0.8	0.2	1.1	300780438155	300780438155
40	30-Mar-2012 16:03:02	191.43"	0.055"!FG	0"	0.344"!BG	0.5	0.2	0.5	300780438155	300780438155
41	30-Mar-2012 16:03:02	195.83"	0.027"!FG	0"	2.242"!FG	0.6	1.6	2.0	300780438155	300780438155
42	30-Mar-2012 16:03:02	200.25"	0.047"!FG	0.141"!BG	2.242"!FG	0.5	0.9	1.1	300780438155	300780438155
44	30-Mar-2012 16:03:02	211.86"	0.036"!FG	0"	0"	1.7	1.2	0.8	300780438155	300780438155
45	30-Mar-2012 16:03:03	216.29"	0.098"!FG	0"	0"	0.9	0.6	0.3	300780438155	300780438155
46	30-Mar-2012 16:03:03	220.71"	0.023"!FG	0"	0"	0.6	0.5	0.6	300780438155	300780438155
47	30-Mar-2012 16:03:03	225.14"	0.065"!FG	0"	0"	0.9	0.1	0.8	300780438155	300780438155
48	30-Mar-2012 16:03:03	229.54"	0.047"!FG	0"	0.145"!FG	0.2	0.3	0.3	300780438155	300780438155
49	30-Mar-2012 16:03:04	233.93"	0.039"!FG	0"	2.242"!FG	0.3	1.3	1.7	300780438155	300780438155
50	30-Mar-2012 16:03:04	238.35"	0.039"!FG	0.078"!BG	2.242"!FG	0.5	0.8	0.8	300780438155	300780438155
52	30-Mar-2012 16:03:05	249.96"	0"	0"	0"	0.0!DE	0.0!DE	0.0!DE	300780438155	300780438155
57	30-Mar-2012 16:03:06	272.03"	0"	0"	2.238"!BG	1.5	0.5	0.9	300780438155	300780438155
58	30-Mar-2012 16:03:06	276.45"	0"	0"	2.238"!BG	1.1	0.4	0.0	300780438155	300780438155
59	30-Mar-2012 16:03:06	283.63"	0.082"!BG	0"	0"	1.8	0.9	0.8	300780438155	300780438155
65	30-Mar-2012 16:03:07	310.13"	0"	0.004"	0.309"!FG	1.5	0.4	0.8	300780438155	300780438155
66	30-Mar-2012 16:03:07	314.55"	0"	0.555"!BG	2.238"!BG	1.3	0.5	1.3	300780438155	300780438155
67	30-Mar-2012 16:03:07	321.73"	0.086"!BG	0"	0"	1.7	0.8	0.5	300780438155	300780438155
73	30-Mar-2012 16:03:09	348.23"	0"	0"	0.309"!FG	1.2	0.3	1.1	300780438155	300780438155
74	30-Mar-2012 16:03:09	352.65"	0"	0.484"!BG	2.238"!BG	1.1	0.4	1.9	300780438155	300780438155
75	30-Mar-2012 16:03:09	359.84"	0.07"!BG	0"	0"	1.7	1.0	0.8	300780438155	300780438155

Run Log

	Previous error
	Next error
	Previous warning
	Next warning
	Summary report
	Print errors
	Print all
	Exit

Key

Sector error	(red)
Sector warning	(yellow)
Splice requested	(pink)
Splice performed	(light yellow)
Replaced	(green)

Repeat	Time	Distance	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
37	30-Mar-2012 16:03:01	178.19"	0.074"IFG	0"	0"	1.2	0.6	0.3	3007804
38	30-Mar-2012 16:03:01	182.61"	0.027"IFG	0"	0"	0.5	0.4	0.7	3007804
39	30-Mar-2012 16:03:01	187.04"	0.051"IFG	0"	0"	0.8	0.2	1.1	3007804
40	30-Mar-2012 16:03:02	191.43"	0.055"IFG	0"	0.344"IBG	0.5	0.2	0.5	3007804
41	30-Mar-2012 16:03:02	195.83"	0.027"IFG	0"	2.242"IFG	0.6	1.6	2.0	3007804
42	30-Mar-2012 16:03:02	200.25"	0.047"IFG	0.141"IBG	2.242"IFG	0.5	0.9	1.1	3007804
43	30-Mar-2012 16:03:02	207.43"	0"	0"	0"	0.1	0.4	0.4	3007804
44	30-Mar-2012 16:03:02	211.86"	0.035"IFG	0"	0"	1.7	1.2	0.8	3007804
45	30-Mar-2012 16:03:03	216.29"	0.098"IFG	0"	0"	0.9	0.6	0.3	3007804
46	30-Mar-2012 16:03:03	220.71"	0.023"IFG	0"	0"	0.6	0.5	0.6	3007804
47	30-Mar-2012 16:03:03	225.14"	0.055"IFG	0"	0"	0.9	0.1	0.8	3007804
48	30-Mar-2012 16:03:03	229.54"	0.047"IFG	0"	0.145"IBG	0.2	0.3	0.3	3007804
49	30-Mar-2012 16:03:04	233.93"	0.039"IFG	0"	2.242"IFG	0.3	1.3	1.7	3007804
50	30-Mar-2012 16:03:04	238.35"	0.039"IFG	0.078"IBG	2.242"IFG	0.5	0.8	0.8	3007804
51	30-Mar-2012 16:03:04	245.53"	0"	0"	0"	0.0	0.4	0.1	3007804
52	30-Mar-2012 16:03:05	249.96"	0"	0"	0"	0.0!DE	0.0!DE	0.0!DE	3007804
53	30-Mar-2012 16:03:05	254.39"	0"	0"	0"	0.6	0.8	1.1	3007804
54	30-Mar-2012 16:03:05	258.82"	0"	0"	0"	1.3	0.6	1.4	3007804
55	30-Mar-2012 16:03:05	263.24"	0"	0"	0"	1.0	1.2	0.3	3007804
56	30-Mar-2012 16:03:05	267.64"	0"	0"	0"	1.9	1.5	1.0	3007804
57	30-Mar-2012 16:03:06	272.03"	0"	0"	2.238"IBG	1.5	0.5	0.9	3007804
58	30-Mar-2012 16:03:06	276.45"	0"	0"	2.238"IBG	1.1	0.4	0.0	3007804
59	30-Mar-2012 16:03:06	283.63"	0.082"IBG	0"	0"	1.8	0.9	0.8	3007804
60	30-Mar-2012 16:03:06	288.06"	0"	0"	0"	0.4	0.3	0.3	3007804
61	30-Mar-2012 16:03:06	292.49"	0"	0"	0"	0.9	0.8	1.1	3007804
62	30-Mar-2012 16:03:06	296.92"	0"	0"	0"	1.3	0.6	1.1	3007804
63	30-Mar-2012 16:03:07	301.34"	0"	0"	0"	0.9	1.2	0.3	3007804
64	30-Mar-2012 16:03:07	305.74"	0"	0"	0"	1.9	1.5	1.0	3007804
65	30-Mar-2012 16:03:07	310.13"	0"	0.004"	0.309"IFG	1.5	0.4	0.8	3007804
66	30-Mar-2012 16:03:07	314.55"	0"	0.555"IBG	2.238"IBG	1.3	0.5	1.3	3007804
67	30-Mar-2012 16:03:07	321.73"	0.086"IBG	0"	0"	1.7	0.8	0.5	3007804
68	30-Mar-2012 16:03:08	326.16"	0"	0"	0"	0.4	0.4	0.3	3007804
69	30-Mar-2012 16:03:08	330.59"	0"	0"	0"	0.8	0.8	1.3	3007804
70	30-Mar-2012 16:03:08	335.02"	0"	0"	0"	1.3	0.9	1.5	3007804
71	30-Mar-2012 16:03:08	339.43"	0"	0"	0"	0.9	1.2	0.3	3007804
72	30-Mar-2012 16:03:09	343.84"	0"	0"	0"	1.9	1.4	1.0	3007804
73	30-Mar-2012 16:03:09	348.23"	0"	0"	0.309"IFG	1.2	0.3	1.1	3007804
74	30-Mar-2012 16:03:09	352.65"	0"	0.484"IBG	2.238"IBG	1.1	0.4	1.9	3007804
75	30-Mar-2012 16:03:09	359.94"	0.07"IFG	0"	0"	1.7	1.0	0.8	3007804

1D Grade Details

View 1D grade details by double-clicking on a job in the 1D grading column.

	Repeat	Time	Distance	Sector ID	Decoded Text	Overall	Symbology	Xdim	EdgeDeterm	MinReflect	MinEC	QuietZone	Contrast	Modulation	Decodability	Defec
Previous error	1	02-Apr-2012 11:01:04	2.61"	1	300780438155	3.5/06/660 (A)	UPC-A	8.5	PASS	PASS	PASS	PASS	3.5(A)71%	4.0(A)90%	4.0(A)68%	4.0(A)
	2	02-Apr-2012 11:01:05	6.98"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)95%	4.0(A)71%	4.0(A)
Next error	3	02-Apr-2012 11:01:05	11.34"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)89%	4.0(A)70%	4.0(A)
	4	02-Apr-2012 11:01:05	15.72"	1		NR										
	5	02-Apr-2012 11:01:05	20.07"	1	300780438155	3.5/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.5(A)71%	4.0(A)95%	4.0(A)70%	4.0(A)
Previous warning	6	02-Apr-2012 11:01:06	24.44"	1	300780438155	3.5/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.5(A)71%	4.0(A)91%	4.0(A)70%	4.0(A)
	7	02-Apr-2012 11:01:06	28.81"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)91%	3.6(A)64%	4.0(A)
Next warning	8	02-Apr-2012 11:01:07	33.15"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)93%	4.0(A)73%	4.0(A)
	9	02-Apr-2012 11:01:07	37.52"	1	300780438155	3.5/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.5(A)71%	4.0(A)90%	4.0(A)68%	4.0(A)
Summary report	10	02-Apr-2012 11:01:08	41.89"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)95%	4.0(A)71%	4.0(A)
	11	02-Apr-2012 11:01:08	46.25"	1	300780438155	3.6/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.6(A)72%	4.0(A)89%	4.0(A)70%	4.0(A)
Print errors	12	02-Apr-2012 11:01:08	50.63"	1		NR										
	13	02-Apr-2012 11:01:09	54.98"	1	300780438155	3.5/06/660 (A)	UPC-A	8.6	PASS	PASS	PASS	PASS	3.5(A)71%	4.0(A)95%	4.0(A)70%	4.0(A)

Print all

Exit

Key
- Sector error
- Sector warning
- Splice requested
- Splice performed
- Replaced

Run Log with Images

Blemish, barcode, and OCR/OCV error images can be viewed by clicking on the red blemish cell in the log file. An error display screen will then pop-up. If the error is a blemish, the Golden Image will show on the Left; a Toggle between Golden and Actual in the center; and the Actual Blemish image is on the right.
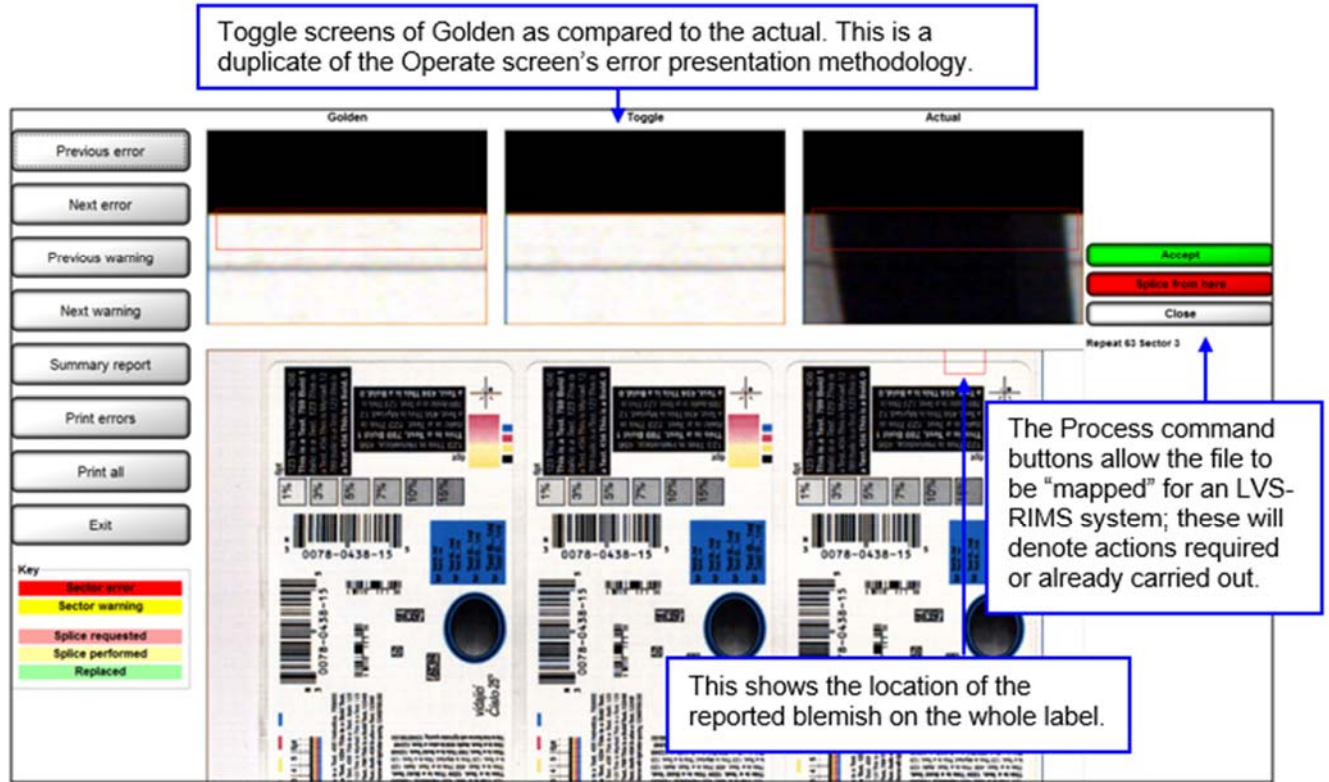
Button Definitions

Button	Description
Previous Error	Moves upward from the current file location to the next error.
Next Error	Moves downward from the current file location to the next error.
Previous Warning	Moves upward from the current file location to the next warning.
Next Warning	Moves downward from the current file location to the next warning.
Summary Report	Click to view the Summary Report.
Print errors	Click to print the errors only.
Print All	Click to print all information for the run.
Exit	Click to close the QC File Viewer and return to the LVS-7500.

Summary Report

The LVS-7500 Summary Report can be accessed by clicking on the **Summary Report** button when viewing a log file. The report gives a summation of the entire job and each sector's settings and parameters. It also shows example images where sectors were drawn.

The LVS-7500 Summary Report appears only in Internet Explorer or Firefox web browsers; no other web browser is supported.

Job name	LVS000001
Run number	4
Operator	Admin (Administrator)
Start time	24-Mar-
End time	24-Mar-
Start repeat	1
End repeat	10
Repeats during original inspection	10
Repeats replaced	0
Repeats spliced	0
Repeats after splicing	10

Footage summary	
Total footage	4
Actual waste	0
Net footage	4

Sector 6	Bar code 1D grade
Minimum passing score	1.5
okay	6 / 10 = 60%
Quality error	4 / 10 = 40%
DecodedText	300780438155
Overall	A:6 (60%), F:4 (40%)
Symbology	UPC-A
Xdim	8.7 to 8.8; average was 8.8
EdgeDeterm	10 / 10 = 100% PASS
MinReflect	10 / 10 = 100% PASS
MinEC	10 / 10 = 100% PASS
QuietZone	6 / 10 = 60% PASS
Contrast	A:10 (100%)
Modulation	A:10 (100%)
Decodability	A:9 (90%), B:1 (10%)
Defects	A:10 (100%)
Rmin	0%
Rmax	94% to 99%; average was 96.4

Preventive Maintenance

SENSOR INSTRUCTIONS

Weekly cleaning of the sensor is recommended to maintain optimum performance. To maintain a clean and clear appearance, spray a soft, lint-free, non-abrasive towel or cloth with a commercially available household glass cleaner, such as Windex®, Glassex®, VISS®, and Mr. Muscle® and gently clean the outside of the sensor glass.

DO NOT directly spray the sensor glass with glass cleaner; always spray a towel or cloth with glass cleaner and then gently wipe the sensor glass.

DO NOT use an industrial-strength glass cleaner.

RUBBER ROLLER INSTRUCTIONS

The rubber roller may need cleaning periodically, as it is important to keep the roller free of debris, adhesive buildup and other surface materials.

Locate the following supplies:
- Dishwashing liquid
- 1 cup of water
- Lint-free cloth

> **WARNING:** *Use only dishwashing liquid to clean the rubber roller. Do not clean the roller with alcohol, window cleaner or petroleum-based products, as this causes the rubber to crack.*

Mix a few drops of dishwashing liquid into a cup of water and place a lint-free cloth into the solution until the cloth is saturated. Ring out the cloth so that no water drips from the cloth. Wipe down the rubber roller surface, removing any debris. As you wipe, turn the roller to clean the entire surface. Then, rinse out the cloth and wipe down the rubber surface again to remove any dishwashing liquid from the roller. Allow the roller to dry before using.

CALIBRATION CARD INSTRUCTIONS

Replace the Calibrated Conformance Standard Test Card every two years.

If you have any questions or concerns about the performance of the LVS-7500 External System, please call your local Omron Microscan distributor or Omron Microscan technical support:

+1-800-762-1149 | +1-425-203-4841 | helpdesk@microscan.com

Troubleshooting

| Problem Description	Possible Causes
System will not acquire images	• The roll of labels is not moving. • Encoder is not in contact with moving roll of labels. • Encoder cable is not plugged in or is damaged. • The Readhead has lost power. • The Readhead to LVS-7500 interface cables are not plugged in or are damaged.
System is acquiring every other label	The label repeat is set too large.
Image has uneven lighting	• An LED may have burned out in the sensor. • The sensor may have a label stuck to it

For Error Condition issues, refer to the "Step 6: Alarm Matrix" section and review the following topics:

- Error Code Definitions
- Common Causes for Error Conditions

Mechanical Diagrams

All technical drawings are copyrighted in respect to their manufacture. All respected trademark rights are reserved.

LVS-7500 Basic Wire Diagram
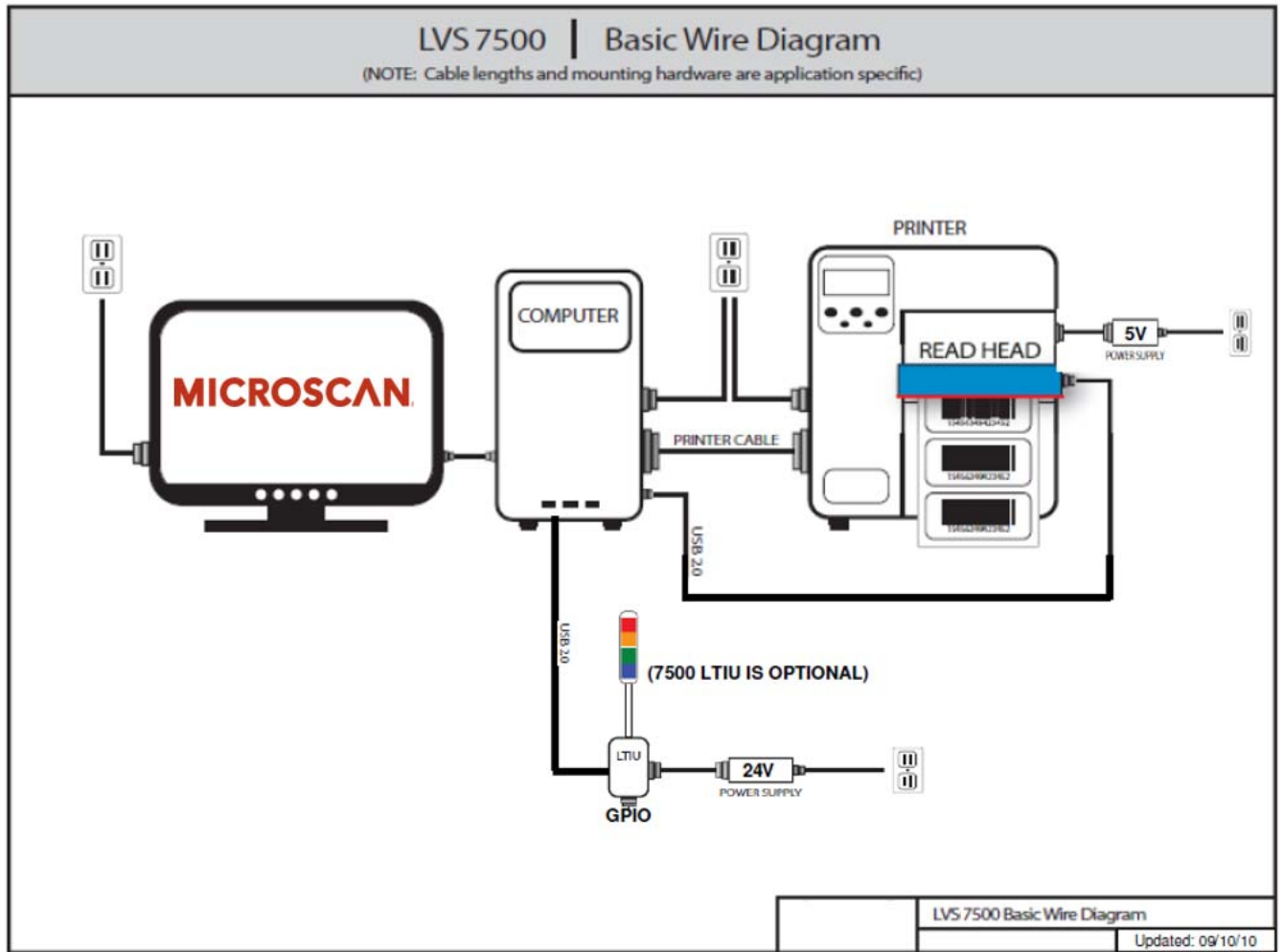
LVS-7500 Stop Motion and Light Tower Printer Interface

The purpose of the Alarm Matrix is to effectively connect to the Stop-Motion/Light Tower Unit.

Line 1 (D0) is hard wired to the GREEN Light. All sections listed under the Trigger Column that show "Line 1" will turn on the GREEN light on the light tower.

Line 2 (D1) Is hard wired to the YELLOW light. All sections listed under the Trigger column that show "Line 2" will turn on the YELLOW light on the light tower.

Line 3 (D2) is hard wired to the RED light. All sections listed under the Trigger columns that show "Line 3" will turn on the RED light on the light tower. There is also a relay (K2) connected to this line and can be accessed via connector CN6 located inside the Stop-Motion/Light Tower Unit.

The Pin outs for CN6 are as follows:

- CN6-1   USB 5VDC source
- CN6-2   Normally open relay contact (N.O.)
- CN6-3   Common relay contact
- CN6-4   Normally closed relay contact (N.C.)
- CN6-5   Signal Ground

When an active-high or active-low signal is required for an external device, jumper CN6-5 (ground) to the CN6-3 (common relay contact). Then choose to use a 5VDC signal or a 24VDC signal by placing a jumper across the 3-pin X1 header located on the Stop Motion/Light Tower circuit board. One side is connected to 5VDC through a resistor and the other side is connected to a 24VDC through a resistor.

Line 4 (D4) is the STOP MOTION signal and is hard wired to a relay (K1)   All sections listed under the Trigger columns that show "Line 4" will activate relay K1 and can be accessed via connector CN5 located inside the Stop-Motion/Light Tower Unit.

The Pin outs for CN5 are as follows:

- CN5-1   USB 5VDC source
- CN5-2   Normally open relay contact (N.O.)
- CN5-3   Common relay contact
- CN5-4   Normally closed relay contact (N.C.)
- CN5-5   Signal Ground

The Stop-Motion signal (Line 4) can be used to "pause" a printer when an error is detected.

The STOP MOTION signal can also be delayed by a certain distance. This allows the operator to activate an ink jet printer or some other device on down the printing process line. Or it can make the printer or rewinder automatically stop at their inspection/splicing table.

> **Note:** The LVS-7500 External System does not stop the printer / rewinder. It simply gives the operator access to normally open and normally closed contacts to work in conjunction with the device being controlled. Every system is different. Please check with the manufacturer of the device on specific instructions to cause the PAUSE function to work.

When an active-high or active-low signal is required for an external device, jumper CN5-5 (ground) to the CN5-3 (common relay contact). Then choose to use a 5VDC signal or a 24VDC signal by placing a jumper across the 3-pin X2 header located on the Stop Motion/Light Tower circuit board. One side is connected to 5VDC through a resistor and the other side is connected to a 24VDC through a resistor.

Line 5 (D3) – The Audible Alarm, located inside the Stop Motion/Light Tower Unit, is programmed to follow the RED light (Line 3). When the audible alarm is not required, the operator will have to change the INI settings. There is no access to Line 5 through the Alarm Matrix.

CN5 Stop Motion Relay Output (Active Low)		
Pin Assignment	**Wire Color**	**Directions**
1 – USB 5VDC		Not used
2 – Normally open relay contact	RED	Active-Low +5VDC Signal
3 – Common relay contact	BLACK	Jumper to Pin 5 (Ground)
4 – Normally closed relay contact	WHITE	Not used

CN5 Stop Motion Relay Output (Active High)		
Pin Assignment	**Wire Color**	**Directions**
1 – USB 5VDC		Connect a 1K resistor (1/2 watt) from Pin 1 to Pin 4
2 – Normally open relay contact	RED	Not used
3 – Common relay contact	BLACK	Jumper to Pin 5 (Ground)

CN5 Stop Motion Relay Output (Relay Contacts Only)		
Pin Assignment	**Wire Color**	**Directions**
1 – USB 5VDC		Not used
2 – Normally open relay contact	RED	
3 – Common relay contact	BLACK	
4 – Normally closed relay contact	WHITE	
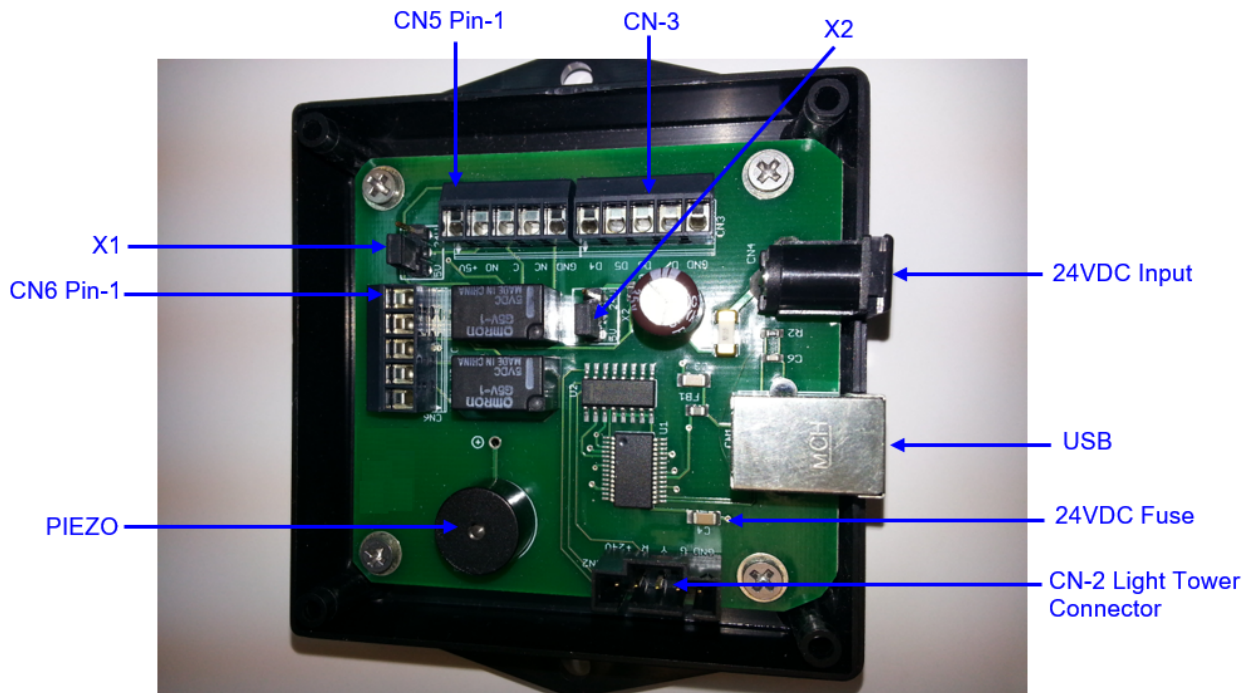
Appendix A: LVS7500.INI File

The LVS-7500 uses the LVS7500.ini file to configure variable/default values when the program loads. The file is located in the following directory:
- For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: **C:\LvsData\LVS 7500**

- For systems that are upgrading from a previous software version to version 5.6.3 or higher:
  - **Windows® XP**: C:\Program Files\Label Vision Systems\LVS7500\LVS7500.ini
  - **Windows® 7**: C:\Users\[User Login Name]\ AppData\Roaming\Label Vision Systems\LVS 7500\LVS7500.ini

Below is a sample LVS7500.ini file with descriptions:

SystemConfiguration Settings:
The SystemConfiguration settings are not user configurable and should not be altered unless requested by an Omron Microscan representative.

- CameraPort is designated as 0 for the LVS-7500 software.
- DistanceMethod=0 – LVS-7500 shows Encoder Triggers; DistanceMethod=1 – Encoder distance is shown in inches.
- EncoderPort is determined by the encoder board's serial port in Device Manager.
- MaxSpeed is determined by the camera's top speed
- LinesPerInch is the product of dividing the encoder's pulses per revolution by the circumference of the encoder wheel. This number is used to correctly gauge label repeat.
- PageBreaks are used to let the system know if there are expected non-uniformities of label repeats. 0 = none expected, 1=expected. If the system expects these repeats then it will not log those as errors once seen. This is dangerous as the system in this mode can be fooled by a missing label. It can let a missing label go by and never call out an error.
- RIMSBarcodePlacement is an offset for the barcode placement in a LVS7500 RIMS system from the camera viewing point.
- ShowPrintBarcode is the press Identifier for multiple presses in a LVS7500 RIMS system

[SystemConfiguration]
CameraPort=0
DistanceMethod=1
EncoderPort=-1
MaxSpeed=5
LinesPerInch=400
PageBreaks=0
RimsBarcodePlacement=
ShowPrintBarcode=0

Alarm Matrix:

Default settings for the Alarm Matrix. These settings are entered by the Installation Technician at the time of system installation.
- UseAcknowledgementIO=1 – When this setting is set to 1, and UsePassFailMethod=1, the Alarm Matrix Pass/Fail view is displayed along with the "Ack Input" and "Ack Output" columns.
- UsePassFailMethod indicates how the Alarm Matrix is displayed.
  - UsePassFailMethod=0 (default) – Displays the Alarm Matrix in the "Error Condition View," which displays error-specific I/O information.

o   UsePassFailMethod=1 – Displays the Alarm Matrix in the "Pass/Fail View" which is I/O based on the pass or fail status of the entire inspection.

[Alarm matrix]
Line01=Good read   ,I/O line 1,100ms,
Line02=Stop motion ,I/O line 4,100ms,
Line03=Grade warning,   I/O line 2,100ms,
Line04=Background   ,I/O line 3,100ms,do not stop
Line05=Bypass mode   ,I/O line 3,100ms,do not stop
Line06=Database engine, I/O line 3,100ms,immediately
Line07=Die cut   ,I/O line 3,100ms,do not stop
Line08=Duplicate   ,I/O line 3,100ms,do not stop
Line09=Foreground   ,I/O line 3,100ms,do not stop
Line10=Gap   ,I/O line 3,100ms,do not stop
Line11=Matrix   ,I/O line 3,100ms,do not stop
Line12=Mismatch   ,I/O line 3,100ms,do not stop
Line13=Not assessed ,I/O line 3,100ms,do not stop
Line14=Not synced   ,I/O line 3,100ms,do not stop
Line15=No read   ,I/O line 3,100ms,do not stop
Line16=Quality   ,I/O line 3,100ms,do not stop
Line17=Range   ,I/O line 3,100ms,do not stop
Line18=Sequence   ,I/O line 3,100ms,do not stop
Line19=Wrong length ,I/O line 3,100ms,do not stop
UseAcknowledgementIO=1
UsePassFailMethod=0

Aperture Settings:

The aperture settings are used to calculate barcode grading. These should not be changed by a customer unless requested by an Omron Microscan representative.

[Aperture]
ApertureScaling=1.0
IgnoreGS1Rules=0
SharpenMatrixSize=5
SharpenValue=0.5

Blemish Settings:

The Blemish Settings are user configurable.
- ColorCode, Debug (default is 0), FloodDiff, and FloodSize are only to be used when requested by an Omron Microscan representative.
- MaxErrorsBeforeQuit – When a given sector reaches more than the number of errors defined in this field, the LVS-7500 stops reporting the errors. For example, If MaxErrosBeforeQuit=20, the LVS-7500 stops reporting errors after a given sector reaches 20 errors. **NOTE:** This value is configurable; however, the value must limited to keep from causing processing overflow.
- MaxThumbnailsPerSector limits how many thumbnails are used for a single sector's errors.
- ScrollMax controls the maximum size of a blemish. Value is in inches.
- ShowDieCutCrossHatch is used by Omron Microscan technicians. Default is 0
- ShowMatrixDieCutControls is used to make the sensitivity controls for Matrix and Die Cut available during setup.
- SquareSize is the size of boxes that any given Blemish sector will be cropped into.

- TargetDPI is used for Blemish quality. Lower settings help the system to run faster but fewer errors are found. Higher settings slow the system but more errors will be found. It is advised to leave this setting as is unless instructed by an Omron Microscan representative.

- TrackMotion is utilized to follow cartons on a conveyor with rotation.

- Wander is used to align pixels within the Blemish sector FOREGROUND Only. It will hunt for the best matching pixel values in an array size equal to the WanderX,Y value.

[Blemish]
ColorCode=0
Debug=0
FloodDiff=2.0
FloodSize=2
MaxErrorsBeforeQuit=50
MaxThumbnailsPerSector=4
ScrollMax=0.125
ShowDieCutCrossHatch=0
ShowMatrixDieCutControls=0
SquareSize=4
TargetDPI=100
TrackMotion=0
WanderX=6
WanderY=6

Blemish Extra:

These settings control the Blemish defaults in the LVS-7500 software.

[BlemishExtra]
Contrast=65
ForegroundSensitivity=65
ForegroundSize=0.015
BackgroundSensitivity=50
BackgroundSize=0.024
MatrixSensitivity=25
MatrixSize=0.06
DieCutSensitivity=50
DieCutTolerance=0.039

Calibration Settings:

Calibration setting data is updated by the main program with the exception of "Max DaysBeforeRequired=10". This number is customer configurable. It will make the operator calibrate the system after "X" amount of days. All other parameters under this heading should not be altered.

[Calibration]
GainOffset=-20
GainSlope=0.33
MaxDaysBeforeRequired=0
MilsPerPixel=2.50198948011471
SAG=10
SAO=1023
SmoothGraininess=40
SSG=96

Calibration Card Settings:

The Calibration Card settings may need to be changed depending on the Settings provided on the calibration card that is used to calibrate the system. These settings are marked on the card and should be entered to match those values.

[Calibration card]
Data=
Rmax=84
Rmin=3
Xdim=14.9

Camera Parameters:

The Camera parameters are not user configurable and should not be altered unless requested by an Omron Microscan representative.

[Camera]
CalSpeed=44
Flip=1
MinSpeed=0
SAO=0 to 1023
SAG=-10.0 to 10.0
SSG=0 to 511

CharSet Parameters:

The CharSet parameters are for OCR/OCV and are customer configurable. They dictate which characters are to be used or omitted within a sequential number system.

[CharSet]
Numeric=0123456789
AlphaNumeric=ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789
NumericAlpha=0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

Debug:

Debug is not user configurable and should not be altered unless requested by an Omron Microscan representative.

[Debug]
Mode=0

Encoder Parameters:

The Encoder parameters are used as instructions sent to the External Control Unit of the LVS-7500.
- ArrowOffset should not be altered as this is a result of changing the arrow's position when using the ShowRollerOnReverse feature.
- The OverrideLine setting is used if a customer requires one of the I/O ports to change states at program start up. It will hold this line high until the program is closed. Most commonly used as a handshaking to a rewinder. Multiple ports can be triggered by adding the numbers into a string. 345 would activate ports (3), (4), (5) at software start up.
- RegradeOnReverse tells the software if labels needs to be re-graded when a Rewinder winds the labels back to a point then forward again.
  - RegradeOnReverse=0 – No previously checked labels are re-graded. Do not regrade after moving in reverse.
  - RegradeOnReverse=1 – Re-grades images after moving in reverse and advancing if operator has pressed Replaced.

- o RegradeOnReverse=2 – All repeats are re-graded and put into log.
- o RegradeOnReverse=3 – (Must have StopLoggingOnErrors set to 1) Will re-grade only the repeats that have been marked Replaced; otherwise, re-grading will begin with the first repeat after the (one and only one) defect label not marked as replaced has passed the camera (any subsequent repeat defects prior to the stop motion signal will appear in the error log, but be deleted after the stop motion signal has been sent).
- o RegradeOnReverse=4 – LinesPerInch must be exactly 400.0 not 409.6. Error log entries will be color coded as follows:
  - ▪ White – Next error at the inspection table when stopped (Accept enabled; Replaced not enabled)
  - ▪ Yellow – Next error, web moving or stopped but not at inspection table (buttons not enabled)
  - ▪ Cyan – NOT Next error, but stop motion has been sent (buttons not enabled)
  - ▪ Gray – NOT Next error, but web stopped and error is at splice table (buttons not enabled)
  - ▪ Red – Next error at splice table, web stopped (accept not enabled, replaced enabled) System will begin inspecting once error has reached camera all other errors will be deleted and re-inspected.
- • SetRunStatusOutput sets an output signal to high when the system is running. Enter any number from 0 to 8. Zero disables the output signal and any number from 1 to 8 sets the output signal high when the system is running and low when the system is not running.
  - o SetRunStatusOutput=0 disables the output signal.
  - o SetRunStatusOutput=1 [and any number up to 8] sets the output signal to high.
- • ShowRollerOnReverse determines if a Roll-to-Roll will be displayed when running in reverse.
  - o ShowRollerOnReverse=0 – Shows the actual image when running in reverse
  - o ShowRollerOnReverse=1 – Shows the Roll-to-Roll image when running in reverse.
- • StopLoggingOnError=0 – When a single error occurs, all logging stops until the rewinder is backed up. Then, the LVS-7500 re-inspects the label after it moves back under the camera and continues logging from that point.
- • The StopMotionDelay is the minimum allowed distance that Omron Microscan has determined that the Stop Motion Output signal can be sent without missing any outputs. This should not be changed unless instructed by an Omron Microscan representative.

[Encoder]
ArrowOffset=0
OverrideLine=0
RegradeOnReverse=0
SetRunStatusOutput=0
ShowRollerOnReverse=0
StopLoggingOnError=0
StopMotionDelay=40

Grading:

Grading is the default value the LVS-7500 uses when a grading sector has been created. This will make the creation of multiple sectors quicker as the operator can just accept the default value and move on.
- • AutoSetupGrade1D
  - o AutoSetupGrade1D=0 – Tells AutoSetup to Read 1D barcodes
  - o AutoSetupGrade1D=1 – Tells AutoSetup to Grade 1D barcodes
- • AutoSetupGrade2D
  - o AutoSetupGrade2D=0 – Tells AutoSetup to Read 2D barcodes
  - o AutoSetupGrade2D=1 – Tells AutoSetup to Grade 2D barcodes
- • LightFrequency tells the software what color line light to expect
  - o LightFrequency=0 indicates the LVS-7500 will report the use of red light (660nm).

- o   LightFrequency=1 indicates the LVS-7500 will report the use of white light.
- MaxDecodesToGrade is the amount of decodable scan lines it takes to grade a barcode. ANSI standards require at least 10 lines.
- MinimumPassScore activates an error signal and logs an error in the log.
- MinimumWarningScore activates a warning that alerts an operator without generating an error in the log. This value is user configurable.

[Grading]
AutoSetupGrade1D=1
AutoSetupGrade2D=1
LightFrequency=0
MaxDecodesToGrade=10
MinimumPassScore=1.5
MinimumWarningScore=0

Image Saver:

Image Saver is a path to be specified to store images to. A target folder must be made and the path to that target folder is to be put directly after the path=. As an example *Path=C:\Images* would need a folder called *Images* under the C:\ drive. It will store all incoming images to that directory. This will show a Pop up window reminding the operator that it was set as it will consume massive processing power and HDD space if left with a path specified.

SaveLabelRepeat 0=save every unsynchronized label, 1= Save every synchronized label, 2,3,4,5= Save every label multiple of (ex 2 every other, 3 every third,…etc) synchronized.

[ImageSaver]
Path=
SaveLabelRepeat=0

Store Jobs to a Different Location:

To store jobs to a different location other than the default, a new path can be specified to the system & it will store the jobs to that location. It is done exactly like the [ImageSaver]. The default path is =.\Jobs. This stores the Jobs to the same directory that the I7500.exe is running from to a folder called Jobs.

[Jobs]
Path=.\Jobs

Lumenera:

The Lumenera settings are used for Lumenera specific area scan camera's and should not be altered unless requested by an Omron Microscan representative.

- Exposure is the exposure setting of a Lumenera USB camera.
- FixedSpeed is the speed of an external belt or conveyor in feet per minute.
- Gain0, Gain1, Gain2 and Gain3 are the four gain values for the 8" Lumenera USB camera sensor.
- MaxGainPercent is the maximum allowed gain the LVS-7500 will use to calibrate in the automatic calibration procedure.
- MaxLumeneraSpeed is the maximum frames that a Lumenera USB camera can run at per second.
- PhotoeyeSkip=0 means that every photoeye trigger is used
  - o   PhotoeyeSkip=N   If N is a positive number, the photoeye will use the first trigger and skip to the "Nth" of photoeye trigger. For instance, if N=1, the first trigger is used then every other photoeye trigger that follows is used.

- o PhotoeyeSkip=-N   If N is a negative number, the photoeye will not use the first trigger and it will start at the "Nth" photoeye trigger.
- SerialNumber=0. This can be 0 if you have 0 or 1 Lumenera cameras. If you have more than 1 Lumenera camera, then this is the serial number of the right half of the split screen image.
- StrobeDelay=0. Delay the strobe pulse by this number of milliseconds.
- StrobeLen=0.1. Length of the strobe pulse in milliseconds.

[Lumenera]
Exposure=0.0
FixedSpeed=0
Gain0=1.0
Gain1=1.0
Gain2=1.0
Gain3=1.0
MaxGainPercent=85
MaxLumeneraSpeed=60
PhotoeyeSkip=0
SerialNumber=0
StrobeDelay=0.0
StrobeLen=0.155

OCR:

- Debug=0 is the default and will not save OCR images
    - o Debug=-1 saves OCR images as cropped images without scores
    - o Debug=1 saves only OCR error images with scores
    - o Debug=2 saves all OCR images with scores
- DontForceRatio2to3 - Most OCR fonts have a width:height ratio of 2:3. Some fonts do not. If the font is twice as tall as it is wide, or if there are other facets of the font which prevent the normal setting from working, turn it on. When this feature is turned on, narrow characters (such as the letter I or the digit 1) may appear stretched when displayed. This value should only be changed after consulting an Omron Microscan technical support representative.
    - o DontForceRatio2to3=0 (default) turns off DontForceRatio2to3.
- MaxHorizontalShift follows the movement of printed characters.
- TouchMode=1 – OCR and OCV will perform extra processing to handle the case in which characters are touching. The characters must be the same height and width and all characters must be evenly spaced.

[OCR]
Debug=0
DontForceRatio2to3=0
MaxHorizontalShift=0
TouchMode=0

OCV:

- MinimumPassScore sets the default pass score for OCV
- MinimumWarningScore sets the default warning score for OCV

[OCV]
MinimumPassScore=40
MinimumWarningScore=60

Preset:

When enabled, allows the preset configuration settings buttons to appear on the "Step 4: Define Sector Type" (Blemish settings) screen. Buttons include: "Low," "Medium," "High," "Set this Job," and "Set new jobs."
- UseFeature=0 – Default setting. Disables the preset configuration settings buttons.
- UseFeature=1 – Enables the preset configuration settings buttons.
- Low, Med, and High are set via the LVS-7500 system.
- Default="Med" – This is the default setting for new blemish sectors. Valid entries for this setting are "Low," "Med," and "High."

[Preset]
UseFeature=1
Low=65,65,15,65,24,25,59,50,39
Med=75,75,15,75,15,25,59,50,39
High=85,85,5,85,5,25,59,50,39
Default="Med"

Printer:

"Width=" tells the software where to print a barcode when tagging the end of a roll.

[Printer]
Width=700

Simulation:

Simulation is a tool for training or demonstration of system capabilities by using stored images instead of live material.
- HealthCheck=1 demonstrates the health check option for barcodes instead of grading to standards.
- The path is set to a directory of stored images.
- Speed is how fast the system will simulate web motion. A negative value in this field specifies the maximum CPU percentage to use.
- StopOnWrap stops the LVS-7500 when in simulation mode after one time though the associated image file.

[Simulation]
HealthCheck=0
Path=
Speed=50
StopOnWrap=0

Skew Blemish Parameters:

These settings affect the ability of the LVS-7500 to process cartons on a conveyor that may not be perfectly in line.

- CloseEnoughAngle and TrackImages are parameters used by [Blemish] and should only be changed by an Omron Microscan technician.

[SkewBlemish]
CloseEnoughAngle=0.05
TrackImages=25

StreakVoid Parameters:

- Contrast separates the Foreground from the Background. Increasing this number will define more print as Foreground and less as Background. Decreasing this number will define more of the label as Background and less as Foreground. A sensitivity of 0 will call everything Background and 100 will call everything Foreground.

- ForegroundSensitivity is the system's allowable deviation in print color contrast after converting to gray scale. A sensitivity of 0 will accept all variations from the original pixels gray scale value, while 100 will allow no variation of the gray scale values. In other words, a setting of 0 will pass everything that is defined as Foreground print and a setting of 100 will pass nothing.

- ForegroundSize allows the user to increase or decrease the size of detected Blemishes.

- BackgroundSensitivity works the same way as ForegroundSensitivity but it is meant to find contrast differences in the label's background.

- BackgroundSize allows the user to increase or decrease the size of detected Blemishes.

- WanderX and WanderY control how far individual pixels are allowed to move in relation to the rest of the streak/void line. This is different from controlling how far the entire streak/void line can move in relation to the rest of the image. Motion of the entire line is controlled with the following settings: StreakVoidX and StreakVoidY.

- StreakVoidX controls how far the streak/void line is allowed to move in the X direction (default is 1/8").

- StreakVoidY controls how far the streak/void line is allowed to move in the Y direction (default is 1/8").

[StreakVoid]
Contrast=80
ForegroundSensitivity=80
ForegroundSize=0.002
BackgroundSensitivity=80
BackgroundSize=0.002
WanderX=2
WanderY=2
StreakVoidX=0.125
StreakVoidY=0.125

Sync Parameters:

The Sync Parameters are used for setting the system to be able to lock onto the customers' labels.

- HopX and HopY tracks the movement of the labels in the horizontal and vertical direction.

- Log is to be used by an Omron Microscan technician only.

[Sync]
HopX=0.0625
HopY=0.125
Log=

System Parameters:

The system parameters control some of the user interface.

- A5Follows tells the software what I/O Line the system should use to trigger an audible alarm.

    o A5Follows=   Disables the audible alarm
    o A5Follows=3   Alarm follows line 3
    o A5Follows=4   The Alarm follows line 4
    o A5Follows=34 The alarm follows line 3 and line 4 (default)

- AcceptReplaceInputTimer – Setting this to anything greater than zero will activate the ability of the customer to click the "Accept" or "Replaced" buttons remotely using user inputs 7 and 8. The value entered dictates the time in milliseconds between input pulses when triggering these buttons remotely. A value of 500, for instance, means that the buttons cannot be clicked via user inputs any faster than twice a second (500 millisecond delay). User input 7 is linked to the "Accept" button and user input 8 is linked to the "Replaced" button.

- AddMissingTriggers - When enabled (set to some value other than zero), the system will estimate where photoeye triggers should have occurred and create phantom triggers. This enables customers to have photoeye triggers on every plate repeat instead of on every label

- AutoLogin allows a user to automatically log in to the software without entering a user name and password.
    o AutoLogin=0 (default) – Disables AutoLogin
    o AutoLogin=1 – Enables AutoLogin.

- AutoSetup tells the software when to use the LVS-7500 automated process when creating a new job
    o AutoSetup=0 – Turns on manual setup when creating a new job
    o AutoSetup=1 – Shows a pop-up that allows a user to choose if they want to use Auto or Manual setup when creating a new job.
    o AutoSetup=2 – Uses Auto-Setup when creating a new job

- AutoStop turns on autostop for stopping after a specified label count.

- Base64Trailer is the final number of binary characters in an Aztec code that will have binary base 64 data encrypted.

- Border Indent makes the LVS-7500 window smaller or larger. This helps in making LVS-7500 navigation easier when using a touch screen monitor.

- BypassSignalDelay sets delay (in inches) from the moment the bypass signal is received, until the bypass command is activated.

- CameraSpeedWarning tells the software when to show a warning message if the camera gets to the specified speed.

- ChangeRollOnFly is used only if directed by an Omron Microscan technician.

- ClearPrompts - If set to zero (default), the system will re-use the most recently entered data for prompts. If set to non-zero, the computer will start with blanks and the operator must fill in all data.

- ConsecutiveReadLines is how large a gap must be between 2 adjacent barcodes during autosetup to separate them into 2 separate sectors.

- CpuUtilizationWarning tells the software when to show a warning message if the CPU usage gets to the specified value.

- DontProcessDuringPypass makes the LVS-7500 not process any sectors during bypass; this minimizes processor usage when the vision system does not need to be inspecting.

- DontStopWhileInMotion determines if the LVS-7500 can stop while the web is in motion. If enabled, a warning message appears if the LVS-7500 attempts to be stopped (by pressing the "Stop" button on the Operate screen) while the web is in motion.
    o DontStopWhileInMotion=0 disables the warning message and allows the user to stop the LVS-7500 while the web is in motion.
    o DontStopWhileInMotion=1 indicates the LVS-7500 cannot be stopped while the web is in motion. If the "Stop" button is pressed, a warning message will appear indicating the system cannot be stopped while the web is in motion.

- ePedigree switches between normal LVS-7500 checking and ePedigree checking

- The Gap=OFF/ON is a specialized reporting ability that if turned on, any jump in a sequential number in a positive direction is called a GAP and is allowed. If the GAP is turned off then this same condition would result in a Sequence error.

- HideAlarmMatrix displays or hides the "Step 6: Alarm Matrix" screen.
  - o HideAlarmMatrix=0 (default) displays the Alarm Matrix screen.
  - o HideAlarmMatrix=1 hides the Alarm Matrix screen. The software will skip "Step 6: Alarm Matrix" and the user will never see this screen.
- IgnoreHealthCheck is for Omron Microscan technician use only.
- Inactivity Timeout automatically logs out any user if the system is left idle for the defined amount of time. This value is defined in minutes.
- LaneDivision splits a job into its separate lanes for LVS-RIMS systems in case they were slit on the press; it prints a barcode per lane as well. Note that LaneDivision does not function in conjunction with the Turret signal.
  - o LaneDivision=0 means the feature is disabled.
  - o LaneDivision=1 means the feature is optional -- prompt the operator whether or not to split lanes.
  - o LaneDivision=2 means the feature is required -- do not prompt the operator.
  - o LaneDivision=3 is for non-RIMS applications where "channel" information is uploaded via Tcp/Ip.
- LvsContactSensor is for Omron Microscan technician use only.
- LvsContactSizeY is for Omron Microscan technician use only.
- MakeReady is used when the operator needs to ignore a specified string in a sector at the beginning of a job. For instance, type in the word VOID and the software will ignore that word at the beginning of the job only.
- MaxErrPerSec prevents the software from failing when inundated with errors; it will not create more than 30 thumbnails of errors per second. After 30 errors, no more thumbnails will be collected until the next second.
- MaxThumbnails is the amount of thumbnail images that will be stored.
- MaxTriggerGap causes an error if photo-eye triggers have stopped after a certain distance. Do not alter this setting unless instructed by an Omron Microscan technician.
- MonthsBeforePasswordChange prompts users for passwords to be changed after the number of months entered.
- NumPacketThreads is the number of threads; it is set by how many processing CORES are available per PC.
- OneBigBlemishSector make the autosetup feature not separate label lanes.
- PDF417UEC stops PDF from using ISO. PDF417UEC =1 only uses UEC as grade.
- Pharmacode indicates whether pharmacode is included in the automatic 1D barcode reading/discrimination:
  - o Pharmacode=0 means pharmacode **is not** included in the automatic 1D barcode reading/discrimination.
  - o Pharmacode=1 indicates pharmacode **is** included in the automatic 1D barcode reading/discrimination.
- PhotoeyeSignalDelay is utilized to externally synchronize a line scan, or trigger an area scan LVS-7500.
- RelearnAuthorization – When enabled, prevents the operator from using the "Ctrl+L" shortcut key or "Update Spot Ignore" feature unless the operator has administrative rights. If the operator does not have administrative rights, a pop-up message will appear requiring the operator to enter an authorized user name and password.
  - o RelearnAuthorization=0 indicates a pop-up message will not appear. Any user can press Ctrl+L and any user with "Allow Accept/Replace Errors" privileges can press "Update Spot Ignore"
  - o RelearnAuthorization=1 indicates a pop-up message will appear when an operator attempts to use Ctrl +L or "Update Spot Ignore." The operator must enter an administrator user name and password to continue.
- ReportUnusedCodes - If enabled, a button entitled "Report unused codes" appears. This is used to generate a report of codes that were in the match file, but never seen by the system.

- ResyncMatchFileOnMismatch - If enabled, whenever a mismatch error occurs, the system will assume it is possibly not in the right location in the match file and try to find where it is again. This allows the system to recover instead of generating non-stop mismatch errors after an inserted or deleted label.

- ShowBlemishMotion should only be changed by an Omron Microscan technician.

- ShowElapsedTime is not user configurable and should not be altered unless requested by an Omron Microscan representative.

- ShowReportLabel enables or disables the "Report label" field on the "Step 5: Setup Matching" screen. The Report label field acts as a unique user-defined identifier of a sector.
  - ShowReportLabel=0 (default) – disables the "Report label" field on the "Step 5: Setup Matching" screen.
  - ShowReportLabel=1 – enables the "Report label" field on the "Step 5: Setup Matching" screen.

- ShowRuntimeGradeStats enables or disables the "Hide Barcode Stats" button on the Error Display screen.
  - ShowRuntimeGradeStats=0 (default) – Disables the "Hide Barcode Stats" button.
  - ShowRuntimeGradeStats=1 – Enables the "Hide Barcode Stats" button.

- ShowSnapshotButton=1 enables the "Snapshot" button to appear on the "Operate: Running the Job" screen that enables a snapshot to be taken of the next repeat. This setting should not be altered unless instructed by an Omron Microscan representative.
  - ShowSnapshotButton=0 disables the "Snapshot" button.

- ShowStatusAlert enables the Bypass and MakeReady screens to flash colors (Bypass screen flashes yellow/white; MakeReady screen flashes red/white), and enable the scrolling message ("Bypass" or "MakeReady") to appear across the top, left corner of the screen.
  - ShowStatusAlert=0 disables the flashing screens and scrolling text.
  - ShowStatusAlert=1 enables the flashing screens and scrolling text.

- SkipAutoSetupShrink indicates whether rectangular borders around labels or space in-between labels are detected when using Automatic Setup.
  - SkipAutoSetupShrink=0 (default). When drawing a sector around a label, the software automatically detects rectangular borders around labels and space in-between labels.
  - SkipAutoSetupShrink=1 - When drawing a sector around a label, the software does not detect rectangular borders around labels or space in-between labels. Sectors drawn become expanded to fill a horizontal and vertical repeat. There are no gaps between labels.

- SpotVoidCheck will error any spot anywhere within a barcode. Do not use unless instructed by an Omron Microscan technician.

- StripParentheses takes parentheses off decoded data strings from symbologies such as GS1 databar or Datamatrix.

- Strobe allows the system to be used in viewing mode like a strobe light. There must be a consistent sync mark on the web to use this feature.
  - Strobe=0 allows the software to be used in its Normal mode.
  - Strobe=1 allows the software to be used in Strobe Mode.
  - Strobe=2 allows the software to be used in an Advanced strobe mode. Only use this setting if advised by an Omron Microscan technician.

- TiltedRead attempts to read a short in height barcode by applying a slight rotation.

- TriggerStopMotionOnLearnBlemish tells the software to send a stop motion signal when a Blemish sector has been defined. This helps to stop the Rewinder to visually inspect label(s) that are used as a golden image.
  - TriggerStopMotionOnLearnBlemish=0 – Feature is off.
  - TriggerStopMotionOnLearnBlemish=1 – Signal will be sent to stop Rewinder after Blemish sector is defined or Golden Image is relearned.

- TurretSignalDelay sets delay (in inches) from the moment the turret signal is received, until the Change Roll on the fly command is activated.

- UseBypassSignal turns on the monitoring of the Bypass signal Input line. Activated on LOW signal.

- UsePhotoeyeSignal turns on the monitoring of the Photo optic signal Input line. Activated on LOW signal. This is special as it can use any available port via the integer used. Also, the polarity can be switched by making the integer a negative number. For example, UsePhotoeyeSignal=-3 makes it respond to an active HIGH signal on input #3.

- UseTurretSignal turns on the monitoring of the Turret Cutsignal Input line. Activated on LOW signal. It will effectively stop logging for a roll and begin another.

[System]
A5Follows=34
AcceptReplaceInputTimer=0
AddMissingTriggers=0
AutoSetup=0
AutoStop=0
Base64Trailer=0
BorderIndent=0
BypassSignalDelay=0
CameraSpeedWarning=90
ChangeRollOnFly=
ClearPrompts=0
ConsecutiveReadLines=5
CpuUtilizationWarning=75
DontProcessDuringBypass=0
DontStopWhileInMotion=0
ePedigree=0
Gap=Off
HideAlarmMatrix=0
IgnoreHealthCheck=0
InactivityTimeout=0
LaneDivision=0
LvsContactSensor=0
LvsContactSizeY=96
MakeReady=
MaxErrPerSec=30
MaxThumbnails=1000
MaxTriggerGap=0
MonthsBeforePasswordChange=0
NumPacketThreads=8
OneBigBlemishSector=0
PDF417UEC=0
Pharmacode=0
PhotoeyeSignalDelay=0
RelearnAuthorization=0
ReportUnusedCodes=0
ResyncMatchFileOnMismatch=0
ShowBlemishMotion=0
ShowElapsedTime=0
ShowStatusAlert=0
SpotVoidCheck=0
StripParentheses=0
Strobe=0

TiltedRead=0
TriggerStopMotionOnLearnBlemish=0
TurretSignalDelay=0
UseBypassSignal=0
UsePhotoeyeSignal=0
UseTurretSignal=0

Tcplp Parameters:

These parameters are used when the LVS-7500 is connecting to another system.
- Mode indicates if the LVS-7500 is connecting to another system. Options include:
  - Enter **<Remote>** if the LVS-7500 is connecting with a remote computer, such as the LVS-HMI Command Center or a non-LVS system.
  - Enter **<off>** if the LVS-7500 is not connecting to another system. Note that all remaining settings (such as Host, Port1, Port2, etc.) do not apply if the LVS-7500 is not connecting to another system.
- Host: Do not change this setting; leave as is.
- Port1: Enter the port where the first external system will be listening for Omron Microscan data.
- Port1Filter: Do not change this setting; leave as is.
- Port2: Enter the port where the second external system will be listening for Omron Microscan data.
- Port2Filter specifies the type of information received from the non-LVS system.
  - Enter <Blank> to receive all information.
  - Enter <7> to receive error only information.

[TcpIp]
Mode=off
Host=0.0.0.0
Port1=0
Port1Filter=
Port2=0
Port2Filter=

Appendix B: ePedigree

Systems with ePedigree enabled are using the normal LVS-7500 software with enhanced tracking features. Below are a couple of steps that highlight the LVS-7500 ePedigree process.

1. When drawing a sector over a 2D Data Matrix code, make sure that the center of the X within the sector is close to the center of the 2D code. This helps the software to determine the position of the barcode.
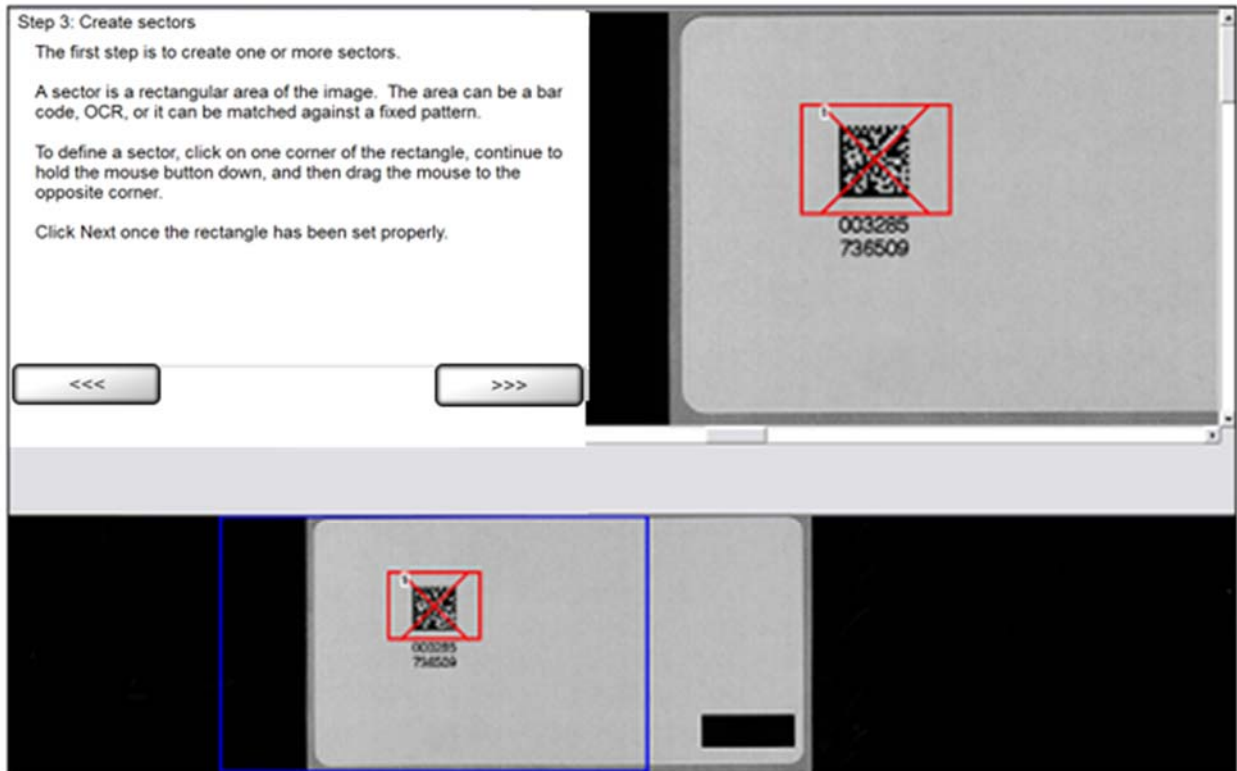
2. Choose the Check for Duplicates option to make sure that the barcode's encoded data is unique for this job or the sect. When running the job, a !DU error will show up if the software finds a duplicate of the barcode.

3. Draw an OCR sector around the human readable characters and let it match its corresponding barcode.

    In this example, we have to start matching OCR at position 17 of the barcode, because the barcode is 28 characters long and the human readable characters match the last 12 characters of the barcode.

Appendix C: ImageSaver Instructions

Saving Images Without a Label Repeat

1. Navigate to the LVS-7500 Directory:
    *   For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: **C:\LvsData\LVS 7500**
    *   For systems that are upgrading from a previous software version to version 5.6.3 or higher:
        o Windows® XP: C:\Program Files\Label Vision Systems\LVS 7500
        o Windows® 7: C:\Users\[User Login Name]\ AppData\Roaming\Label Vision Systems\LVS 7500
2. Create and name a target folder where images can be saved (see below).
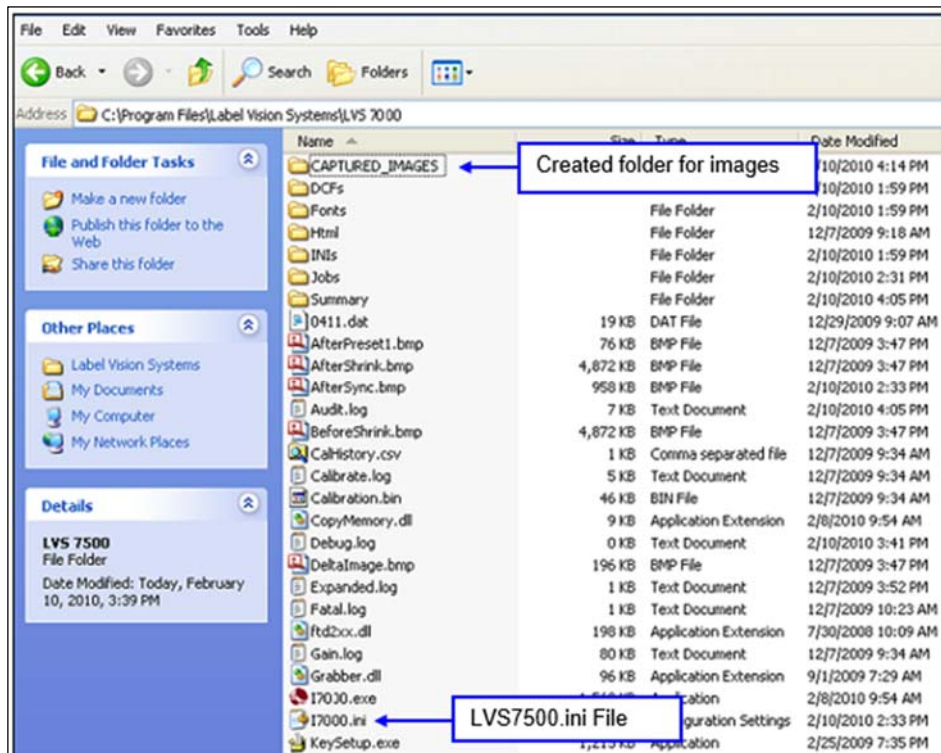
3. Open the Lvs7500.ini file (see above image) and follow the steps below:
    a. Scroll down to the section called [ImageSaver].
    b. In the "Path=" section, insert the directory of the folder that was just created with no spaces (see image below).
   c. Directly under "Path=" type "SaveLabelRepeat=0".
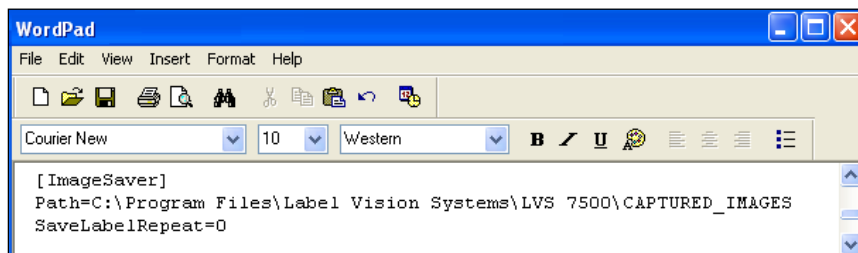
4. Save changes and close the Lvs7500.ini file.
5. Open the LVS-7500 program.
6. Click **OK** at the Image Saver warning (see below).

7. Click the **Create a New Job** button and stay at the Label Repeat screen.
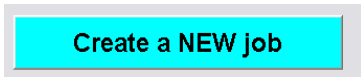
8. Run the printer to obtain a desired amount of images. The system is capturing images although the on-screen images may not immediately update.
9. Stop the Job and close the software; then, stop the printer.
10. Navigate to the **Image Capturing** folder that was created earlier and the images should appear from the last job.
11. When image capturing is complete, go to the Lvs7500.ini file, remove the Path and leave SaveLabelRepeat at 0 (see below).
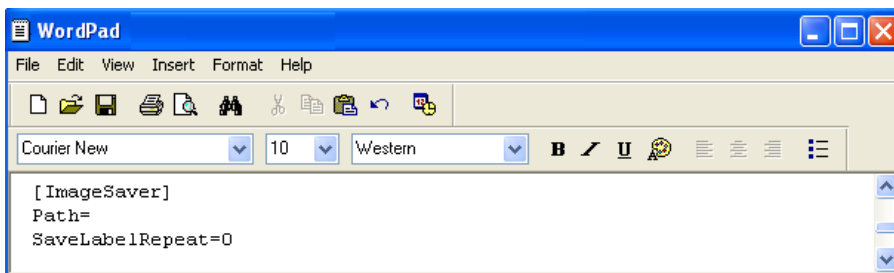
12. If you were using the Strobe feature, then scroll down to the [System] section and switch Strobe=0 back to its original setting.
13. Remember to remove all excess images as they quickly take up space on the Hard Drive.

Saving Images With a Label Repeat

1. Open the LVS-7500 program and create a new job with the labels that you would like to capture.
2. Correctly synchronize the labels, define any sector, and Save the job.
3. After the job is created, close the LVS-7500 program and stop the printer.
4. Navigate to the LVS-7500 folder:
   - For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: **C:\LvsData\LVS 7500**
   - For systems that are upgrading from a previous software version to version 5.6.3 or higher:
     o Windows® XP: C:\Program Files\Label Vision Systems\LVS 7500
     o Windows® 7: C:\Users\[User Login Name]\ AppData\Roaming\Label Vision Systems\LVS 7500
5. Create and name a target folder where images can be saved (see below).
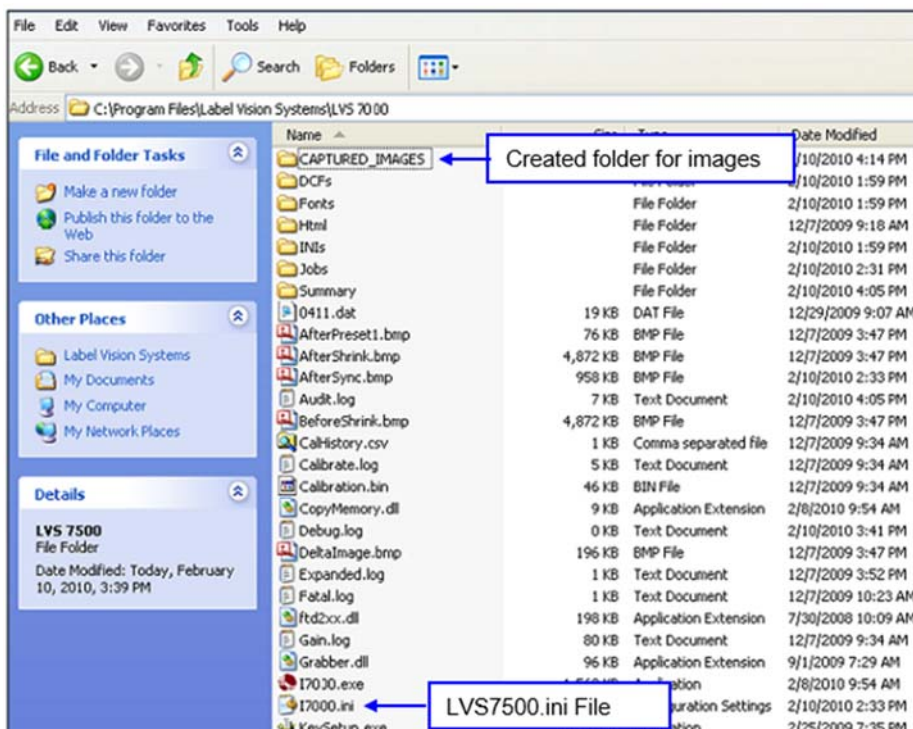
6. Open the Lvs7500.ini file (see above image) and follow the steps below:
   a. Scroll down to the section called [ImageSaver].
   b. In the "Path=" section, insert the directory of the folder that was just created with no spaces.
   c. Directly under "Path=", type "SaveLabelRepeat=1" (see below).
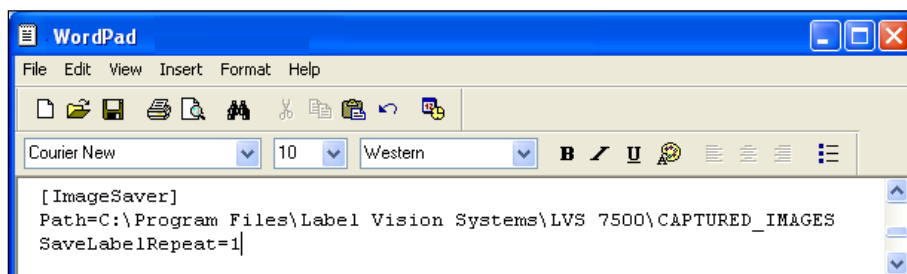
7. Save changes and close the Lvs7500.ini file.
8. Open the LVS-7500 program.
9. Click **OK** at the Image Saver warning (see below).

10. Click the **Load an Existing Job** button and choose the job that was created for image capturing.
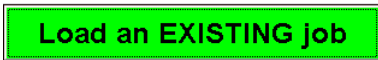

11. After the job is loaded, click the **Start New Run** button and jog the printer for a desired amount of images. Each label repeat should be a full image.
12. Stop the printer.
13. Stop the Job and close the software.
14. Navigate to the **Image Capturing** folder that we created earlier and the images should appear from the last job.
15. When image capturing is complete, go to the Lvs7500.ini file, remove the Path and change SaveLabelRepeat to 0 (see below).
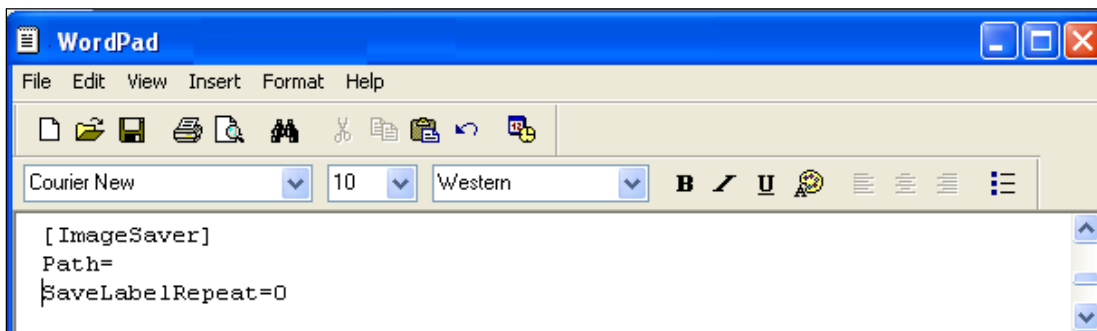
16. Remember to remove all excess images as they will quickly take up space on the hard drive.

Appendix D: Upgrading Software

1. After receiving the LVS-7500 software files to download, open the .zip folder and double-click the **Setup.exe** icon (see below).
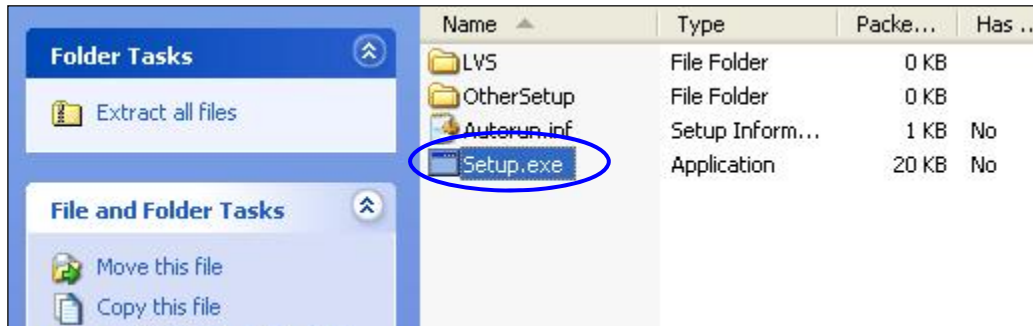
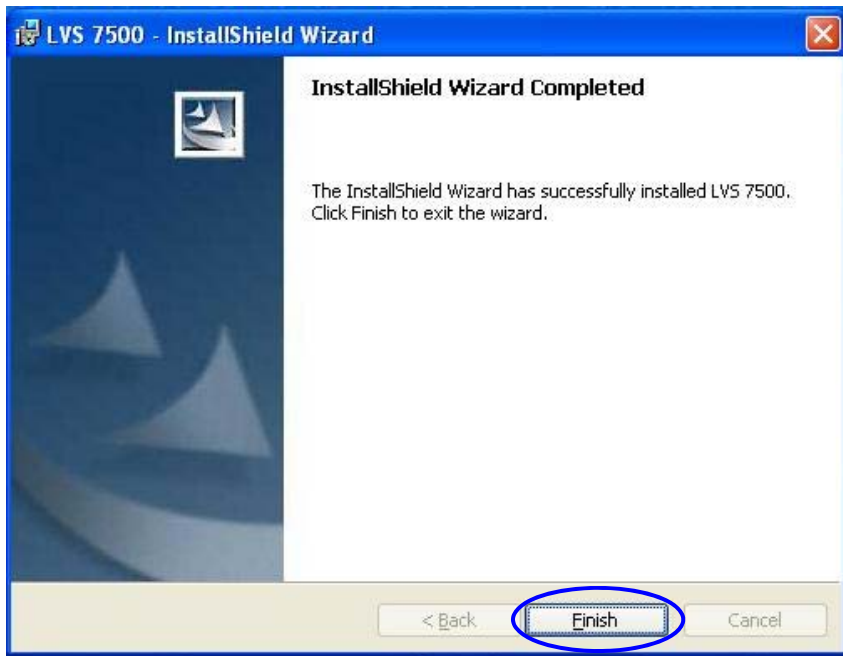2. When the **InstallShield Wizard** appears, click **Next** (see below).
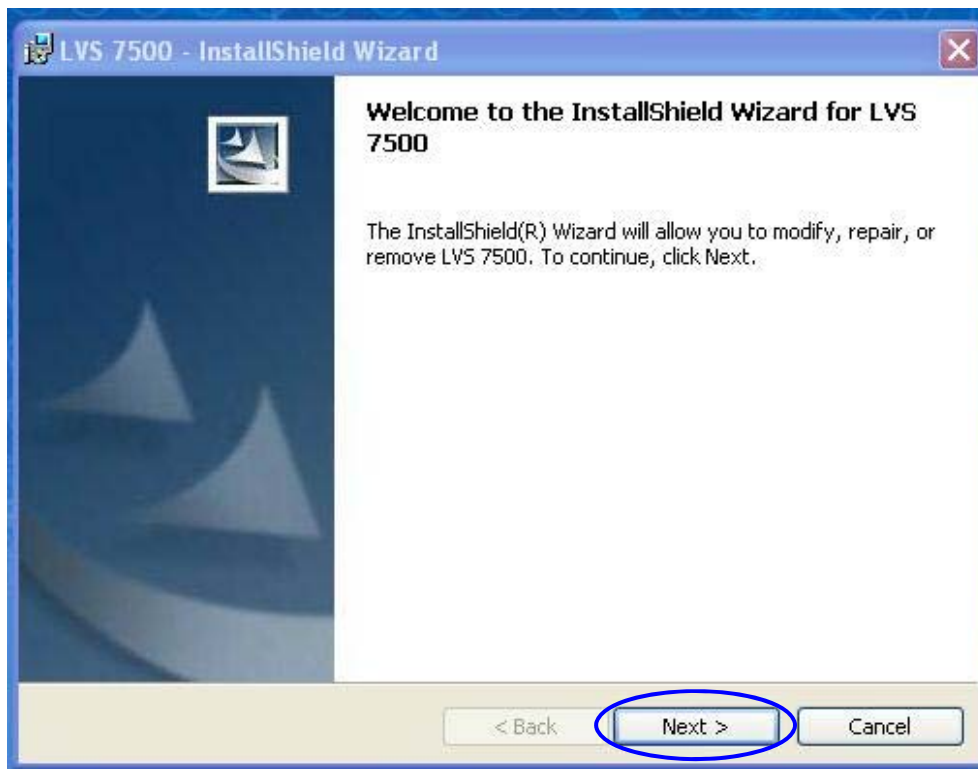
3. Click **Install** to begin installation (see below).
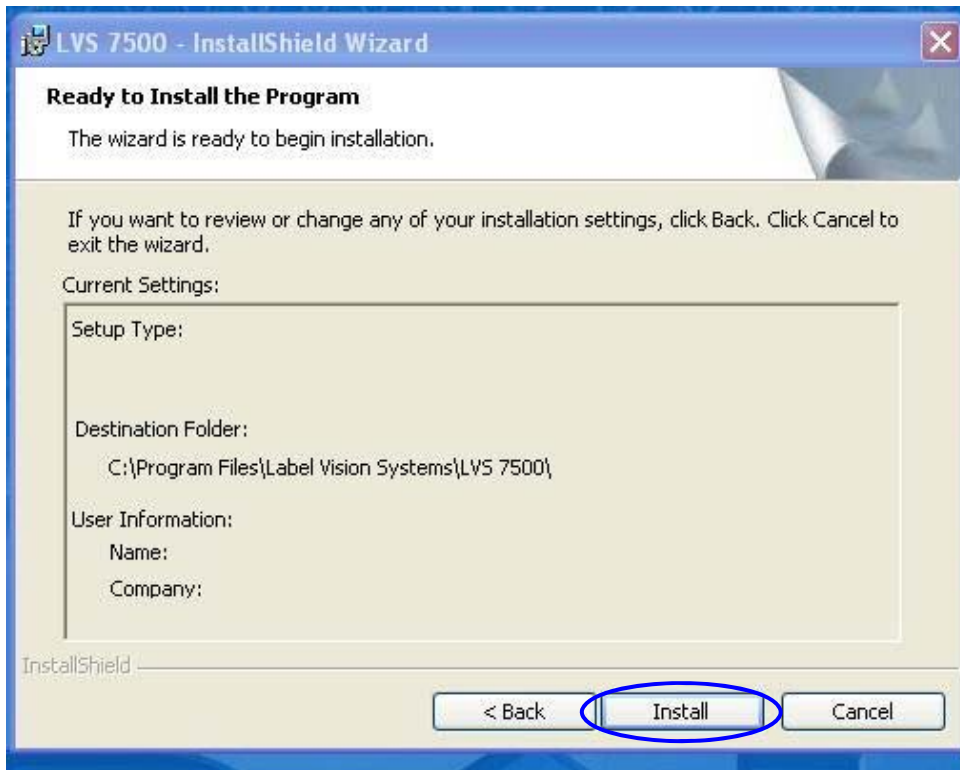
4. After clicking the **Install** button, the InstallShield Wizard begins installation and shows a status bar (see below).
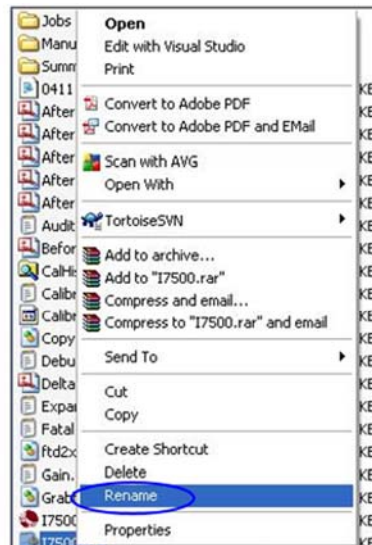
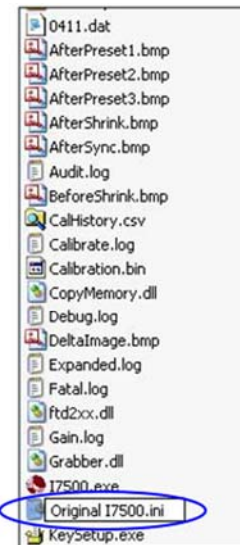5. After installation is complete, the window below appears; click **Finish**.

6. Locate the LVS7500.ini file and rename the file to "Original LVS7500.ini" (see screenshots below). LVS7500.ini file locations:

- For new installations of software version 5.6.3 on Windows® 7 Professional and Windows® 8.1 Professional operating systems: **C:\LvsData\LVS 7500\Lvs7500.ini**.

- For systems that are upgrading from a previous software version to version 5.6.3 or higher:
  - o **Windows® XP**: C:\Program Files\Label Vision Systems\LVS7500\LVS7500.ini
  - o **Windows® 7**: C:\Users\[User Login Name]\ AppData\Roaming\Label Vision Systems\LVS 7500\LVS7500.ini


Select the LVS7500.ini file.   Right-click and select "Rename".   Rename the file "Original LVS7500.ini".

7. Open the "LVS7500.ini" file and "original LVS7500.ini" file. Note that the files should open in WordPad or Notepad.

8. Minimize both files so you can compare the files line-by-line against each other (see below). Change the values in the LVS7500.ini file to reflect the same values in the "Original LVS7500.ini" file.

   - DO NOT change values in the "Original LVS7500.ini" file.

   - Values in the LVS7500.ini file can be changed, but do not delete any extra line items in the file.
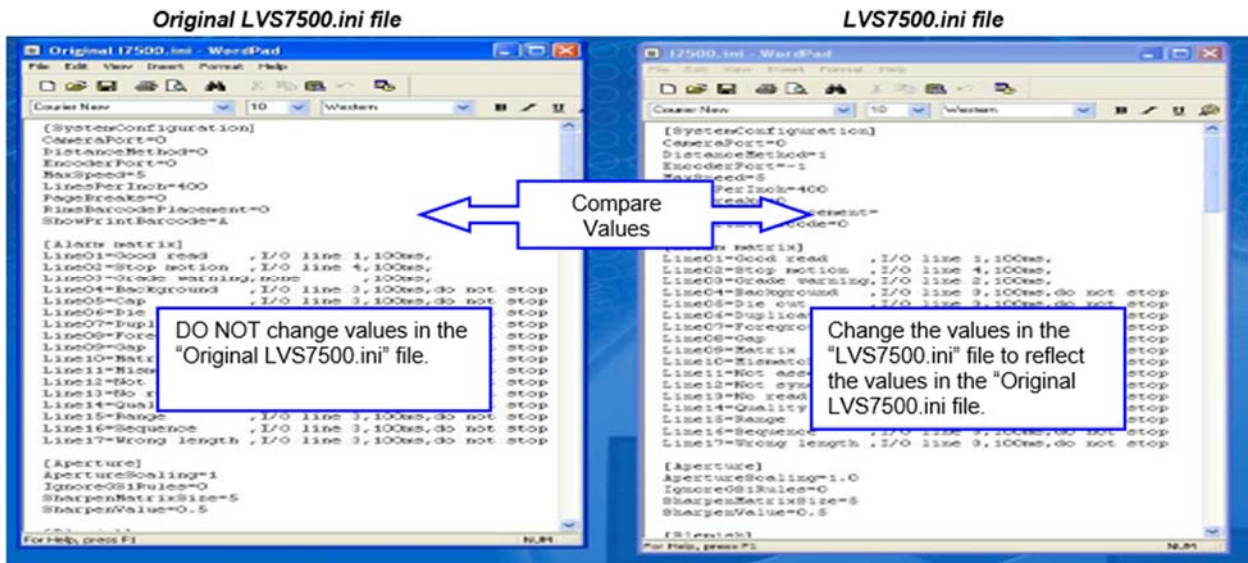
9. When all values are the same, close the "Original LVS7500.ini" file.

10. Perform a "Save As" to "LVS7500.ini" file and save the file to the **LVS 7500** folder (see below).
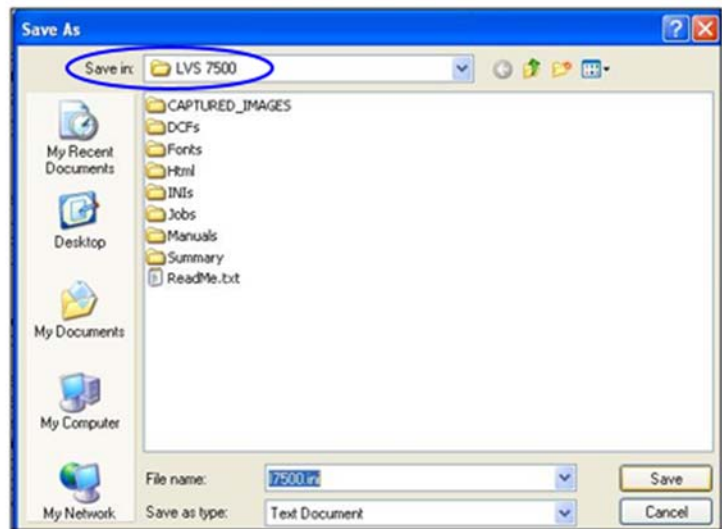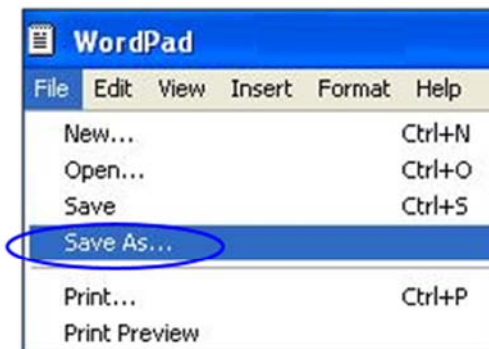
Appendix E: Automatic Login

The Automatic Login feature allows a user to automatically log in to the LVS-7500 External System software without entering an Operator ID and Password.

The settings for Automatic Login are controlled in the LVS7500.ini file > [System] section > AutoLogin setting.

- AutoLogin=0 (default) disables Automatic Login
- AutoLogin=1 enables Automatic Login

When enabled, the LVS-7500 External System compares the current Windows user name to the list of LVS-7500 operator names. If there is a match, and if the operator's LVS-7500 password is set to "AUTO," then the user will automatically be logged in to the LVS-7500 software.

Automatic Login is attempted only when the LVS-7500 is first opened. If a user logs out of the LVS-7500, then the next user is required to log in manually. If the operator closes the LVS-7500 entirely, then Automatic Login will be attempted the next time the LVS-7500 software is launched.

Note: See the "Create a New Job" section in this manual for detailed instructions on creating a new job. See the "Load an Existing Job" section for detailed instructions on loading an existing job.
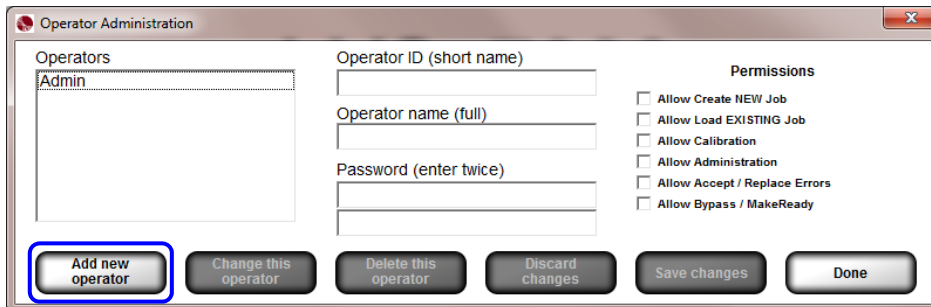
To setup an operator to allow Automatic Login, follow the steps below.

1. Click "Administration" and then "Operators" from the menu bar.

2. On the "Operator Administration" screen, click the "Add new operator" button.

3. Enter the operator name in the "Operator ID (short name)" field and "Operator name (full)" field. **The Operator name must match the Windows user name**.

4. Enter "AUTO" (all uppercase letters) in the "Password" field. Enter this password in each of the two "Password" fields.

5. Select the desired operator permissions in the "Permissions" section.

6. Click the "Save Changes" button, and then click the "Done" button.

7. Close the LVS-7500 software by clicking the X in the top, right corner of the screen.

8. Log in to Windows as the user you just setup in the LVS-7500 software.

9. Open the LVS-7500 software. The user should automatically be logged in and the "Create a New Job" or "Load an Existing Job" screen is visible. The user is not prompted to enter a user name or password.

   See the "Create a New Job" section in this manual for detailed instructions on creating a new job. See the "Load an Existing Job" section for detailed instructions on loading an existing job.

10. Close the LVS-7500 when work is complete.

11. Log off of Windows.

> **IMPORTANT:** Automatic Login is only attempted when the LVS-7500 is first opened. If the operator logs out of the LVS-7500, then the next user must log in manually. If the operator closes the LVS-7500 entirely, then Automatic Login will be attempted the next time the LVS-7500 software is launched. In practice, an operator would follow the steps below.
>
> - Log in to Windows
> - Launch the LVS-7500. Automatic Login executes for that Windows user name
> - Run the LVS-7500 as needed
> - Close the LVS-7500
> - Log off of Windows
> - The next operator repeats the above steps