Appendix G: LVS® 95XX

Special Features

GS1 Solution Partner

Disclaimer

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

Latest Manual Version or Technical Support

For the latest version of this manual, or for technical support, see your local Omron website. Your local Omron website can be located by visiting **https://www.ia.omron.com** and selecting your region from the Global Network panel on the right side of the screen.

Security Measures

Anti-Virus Protection
Install the latest commercial-quality antivirus software on the computer connected to the control system and maintain to keep the software up to date.

Security Measures to Prevent Unauthorized Access
Take the following measures to prevent unauthorized access to our products:
- Install physical controls so that only authorized personnel can access control systems and equipment.
- Reduce connections to control systems and equipment via networks to prevent access from untrusted devices.
- Install firewalls to shut down unused communications ports and limit communications hosts and isolate control systems and equipment from the IT network.
- Use a virtual private network (VPN) for remote access to control systems and equipment.
- Adopt multifactor authentication to devices with remote access to control systems and equipment.
- Set strong passwords and change them frequently.
- Scan for viruses to ensure safety of USB drives or other external storage devices before connecting them to control systems and equipment.

Data Input and Output Protection
Validate backups and ranges to cope with unintentional modification of input/output data to control systems and equipment.
- Check the scope of data.
- Check validity of backups and prepare data for restore in case of falsification or abnormalities.
- Safety design, such as emergency shutdown and fail-soft operation in case of data tampering or abnormalities.

Data Recovery
Back up and update data periodically to prepare for data loss.
When using an intranet environment through a global address, connecting to an unauthorized terminal such as a SCADA, HMI or to an unauthorized server may result in network security issues such as spoofing and tampering.
You must take sufficient measures such as restricting access to the terminal, using a terminal equipped with a secure function, and locking the installation area by yourself.
When constructing an intranet, communication failure may occur due to cable disconnection or the influence of unauthorized network equipment. Take adequate measures, such as restricting physical access to network devices, by such means as locking the installation area.
When using a device equipped with the SD Memory Card function, there is a security risk that a third party may acquire, alter, or replace the files and data in the removable media by removing or unmounting the removable media. Please take sufficient measures, such as restricting physical access to the controller or taking appropriate management measures for removable media, by means of locking the installation area, entrance management, etc.

Software
To prevent computer viruses, install antivirus software on the computer where you use this software. Make sure to keep the antivirus software updated.
Keep your computer's OS updated to avoid security risks caused by a vulnerability in the OS.
Always use the latest version of this software to add new features, increase operability, and enhance security. Manage usernames and passwords for this software carefully to protect them from unauthorized uses.
Set up a firewall (e.g., disabling unused communication ports, limiting communication hosts, etc.) on a network for a control system and devices to separate them from other IT networks.
Make sure to connect to the control system inside the firewall.
Use a virtual private network (VPN) for remote access to a control system and devices from this software.

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Multi-Sector Barcode Verification

Many application-specific labels have more than one barcode symbol printed on them, such as shipping labels, blister packs, etc. The LVS-95XX software has a special feature design (sold separately) allowing the user to verify multiple barcode symbols in the field of view simultaneously. It is highly recommended when using the multi-barcode verification feature that all barcode symbologies use the same application standard. Figure 1 shows an example of a label having multiple barcode symbols of different symbologies (sectors #3 and #4 are linear symbols while sectors #1 and #2 are 2-dimensional symbols) with multi-sector verification activated.

Multi-Barcode Verification is to be used as a process control tool only and not for primary verification of barcodes.

Multi-Barcode Verification is not a standard LVS-95XX feature and is priced separately. Contact Omron Microscan or an Omron Microscan distributor for pricing information.

Figure 1: Label with multiple barcode symbols of different symbologies

Activate Multi-Sector Barcode Verification

To activate the multi-sector barcode verification feature for your LVS-95XX system, follow the steps below. Note that activation requires an 8-digit code received from Omron Microscan or an Omron Microscan distributor.

1. Log on to the LVS-95XX and click the "Setup" tab.
2. Within the "Optional features" section, click the "Optional Features Activation" button (Figure 2). The "LVS-95XX feature list" appears (Figure 3).
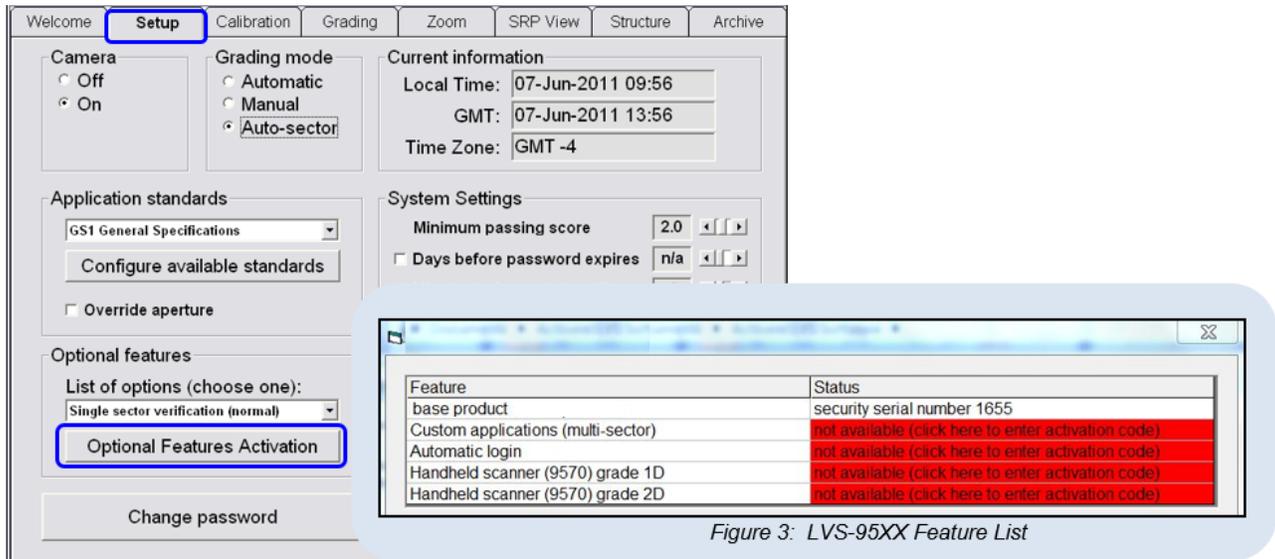
Figure 3: LVS-95XX Feature List

Figure 2: "Optional Features Activation" button

3. Next to "Custom applications (multi-sector)," click "not available (click here to enter activation code)." The "Enter Activation Code" window appears (Figure 4). Enter the 8-digit activation code received from Omron Microscan or an Omron Microscan distributor and then click "Ok."
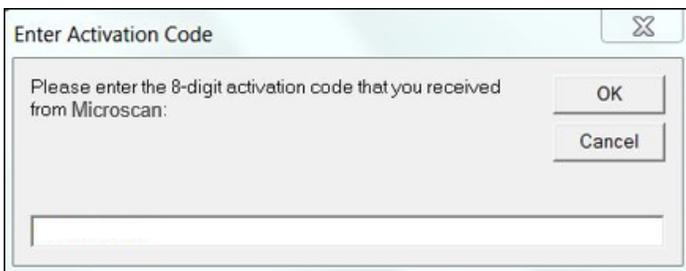
Figure 4: Enter Activation Code window

4. The Multi-Barcode Verification feature is now active (Figure 5).
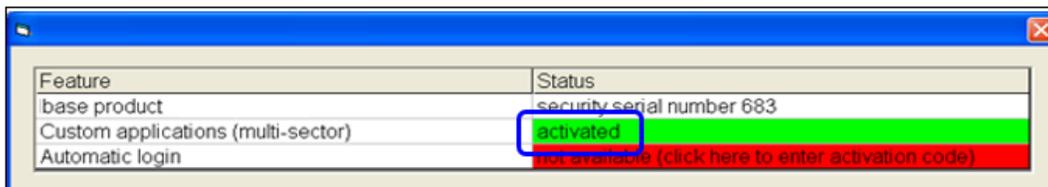
Figure 5: The "activated" status indicates that Multi-Barcode Verification is active

Multi-Sector Barcode Template Setup

The first time multiple sector verification is used, it is necessary to create and save a reference template. The reference template contains the multiple grading sectors in locations that match the locations of the barcodes on the label when the label is in the field of view. The use of a template prevents repetitive drawing/redrawing of each sector for each label every time a label is placed in the field of view. The reference template is automatically saved with the user-provided name; thus, the reference name chosen should have meaning (i.e. correspond to a production run, etc.). Future production runs can use the reference template by simply choosing the "select an existing format" option when using the multiple sector verification feature. To verify multi-barcode symbols, follow the steps below:

1. Log on to the LVS-95XX.
2. Click the "Setup" tab and choose "Multiple sectors verification" within the "Optional features" section (Figure 6).

Figure 6: Multiple sectors verification option

3. Select either "Create a new format" or "Select an existing format" and click "Ok" (Figure 7).

   Choose "Create a new format" when performing Multiple Sector Verification for the first time as no default templates exist.
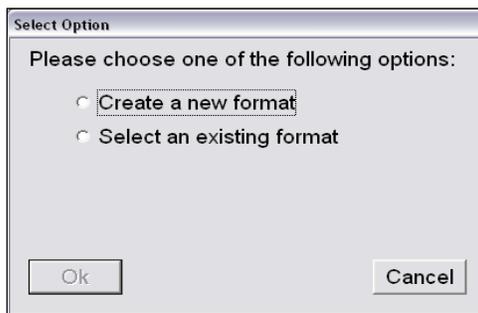
Figure 7: Select one of the above options

4. If you selected "Create a New Format," enter the name of the new format in the text field and then click "Ok" (Figure 8). If you choose to "Select an existing format," skip step 4 and proceed to step 5.

Figure 8: Enter the name of the new format

A. Choose the appropriate application standards for the barcode symbologies on the label and click "Ok" to proceed to the "Grading" Tab to complete the setup (Figure 9).
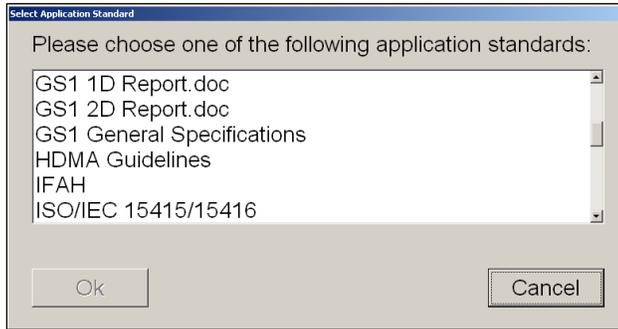
Figure 9: Choose an application standard

B. Place the multi-barcode label into the field of view and follow the steps below:

- To create sector #1, draw a box around one of the barcode symbols, leaving enough space for the quiet zones. The software automatically assigns an ID number to the sector.
- To create sector #2, press and hold the "Shift" keyboard button while drawing the box around the second barcode symbol. Release the "Shift" key when complete. The software automatically assigns this new sector with another ID number.
- To create additional sectors, repeat the previous step (step ii) for the remaining barcode symbols.
- Proceed to the "Multi-sector Barcode Verification Steps" section.

5. If you chose "Select an Existing Format" (from step #3 above), you have the option to "start" grading labels, "edit" the chosen template, or "delete" the chosen template (Figure 10).

- Select "Start" to begin grading barcode symbols on labels and proceed to the "Multi-sector Barcode Verification Steps" section of this appendix. Modifying sectors is not possible in this mode.
- Select "Edit" to make changes (add, delete, or redraw sectors) from the chosen template and go to the "Additional Features" > "Modify (Edit) Existing Format Templates" section of this appendix.
- Select "Delete" to delete the chosen template permanently.
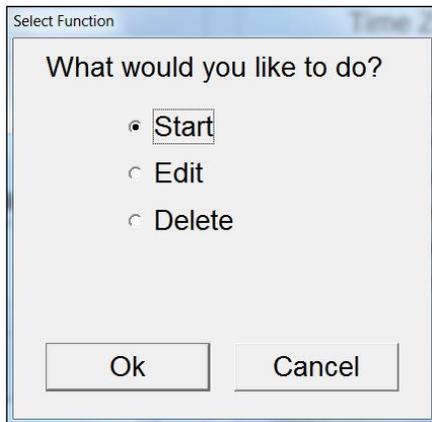
Figure 10: Select "Start," Edit," or "Delete"

Multi-Sector Barcode Verification Steps

1. From the "Setup" tab, choose "Multiple sectors verification" within the "Optional features" section.

2. Choose "Select an Existing Format" and select the template then click Ok.

3. Select "Start" and click Ok.

4. Place the label that matched the pre-configured template on the glass.

5. Align the label so that all the barcode symbols fall within their respective pre-configured sectors. The system will verify each sector in succession once the system no longer detects motion of the label on the glass if using Automatic Grading mode otherwise click "Click to grade".

Note: If the pre-configured sectors are not large enough to allow for quiet zones, quiet zone failures will result.
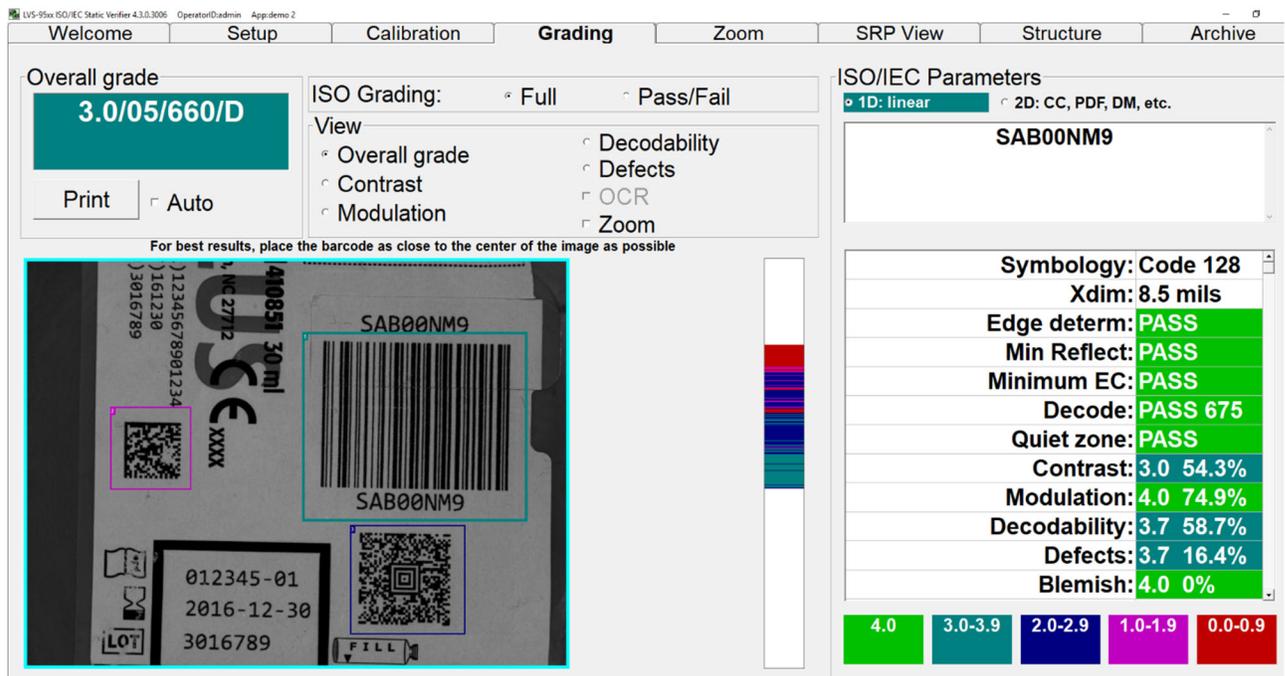
Figure 11: View of multiple sectors

Additional Features

Modify (Edit) Existing Format Templates

1. From the "Setup" tab choose "Multiple sectors verification" within the "Optional features" section.

2. Choose to "Select an Existing Format" and select the template.

3. Select "Edit."

4. Click on the *sector number* you wish to modify. This selects the sector for modification. It might take some time as the system attempts to verify all currently existing sectors automatically. Wait for the sector outline to become bold.

- **Delete** the sector by pressing the "Delete" keyboard button.
- **Redraw** the sector as desired. Do not hold the "Shift" key as it will add a new sector reordering the sector count.
- **Add** a new sector by pressing and holding the "Shift" key while drawing the box around the next barcode symbol. Release the "Shift" key when complete. The software automatically assigns this new sector with another ID number.

> **IMPORTANT:** It is only possible to modify (add, delete, re-draw) sectors for a given template in "Edit" mode. It is not possible to change application standards. If the application standard originally chosen is incorrect, delete the template and begin again.

Print a Single-Sector Verification Report

Generate a Single-Sector Verification Report by first highlighting the desired sector. To highlight a sector (i.e. make the sector bold), click on the sector. The individual parameter grades appear on the screen. Click "Print" to send the Single-Sector Verification Report to the default printer.

Print a Multiple-Sector Verification Report

Generate a Multiple-Sector Verification Report for ALL sectors by pressing and holding the "Shift" keyboard button while clicking "Print" simultaneously. This report may take a few moments if a large amount of data is involved.

It is not possible to get a Multiple-Sector Verification Report that contains the individual parameter grades for each individual sector.

Change Verification Report to One-Column Format

The default format of the LVS-95XX Verification Report is to two columns and fits properly on letter or A4 size paper. However, the layout of a Verification Report can be changed so that data displays in a one-column format and prints properly when using a narrow printer, such as a 3" or 4" width printer. The designated printer must have a Windows® compatible driver. To enable single-column reports, follow the steps below:

1. Log into LVS-95XX software as admin.

2. Click the "Archive" tab.

3. Enter the following command in the "Query" text box located at the bottom of the screen. Letters are not case sensitive.

> update settings set settingvalue = "1" where settingname = "singlecolumn"

Figure 12: Enter the following command: update settings set settingvalue = "1" where settingname = "singlecolumn"

4. Click the "Execute query" button.

- An "Operation Successful" message appears if the operation is successful (Figure 13). Figure 15 is an example of a single column format printout.
- A "Query Error" message appears if the operation is unsuccessful (see example in Figure 14).

Figure 13: Operation successful message

Figure 14: Query error message

If an error occurs, attempt to resolve the error by clicking "OK" and then re-entering the command in the "Query" text box (as identified in step 3 above) ensuring the command text is entered correctly. Then, click the "Execute query" button. If you copied and pasted the query from this document, check the quotation marks. If they are not identical (i.e. facing different directions), edit them and try the query again. If the error message returns, contact Omron Microscan or an Omron Microscan distributor for resolution assistance.

Omron Microscan
LVS-95XX Verification Report

Overall: 0.0/43/660 (F)

Person in charge of verification	Operator of this verification	approved by
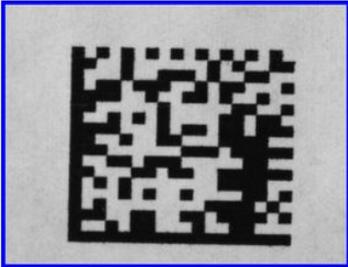
2D	
Symbology	ECC-200
Decoded text	(01)01236456987414(10)L123
Cell size	53.8 mils
Decode	PASS
Contrast	3.9 (A) 76%
Modulation	4.0 (A)
Axial nonuniformity	0.0 (F) 13%
Grid nonuniformity	4.0 (A) 0%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
L1 (left of L finder)	4.0 (A)
L2 (bottom of L finder)	4.0 (A)
QZL1 (left quiet zone)	4.0 (A)
QZL2 (bottom quiet zone)	4.0 (A)
CTR (clock track regularity)	4.0 (A)
CTD (clock track damage)	4.0 (A)
SFP (solid fixed pattern)	4.0 (A)
OCTASA (overall clock track and solid area)	4.0 (A)
AG (average grade)	4.0 (A)
TR (transition ratio)	0.00
Cell height	57.3 mils
Cell width	50.2 mils
L1 Angle	1 degrees
X print growth	55%
Y print growth	53%
Total CW	32
Data CW	18
Corrections	0
Size	18x18
Rmin	5%
Rmax	81%

| Other information	
ReportID	1368
Operator	LVS (LVS Master Administrator)
Application standard	ISO/IEC 15415/15416
Effective aperture	Reference number 43 (43 mil)
Wavelength	660nm
Date and time	25-Jul-2012 16:47 local; 25-Jul-2012 20:47 GMT
Time zone	GMT -4
Sector size	1.58" by 1.20"
Last calibration	never
Field of view	4.27" (camera is 1280x1024 pixels)
Serial numbers	Unit: 12778, Camera: 0
Software product and version	INTEGRA 95xx Version 3.0.8n
INTEGRA 95xx manufactured by:	Label Vision Systems, Inc. 101 Auburn Court Peachtree City, Georgia, 30269, USA www.lvs-inc.com

Figure 15: Verification report in one-column format

5. Log out of the LVS-95XX system and log back in using your designated Operator ID and Password. The next time you grade a symbol and print a report, the format of the LVS-95XX Verification Report displays in a one-column format and prints properly when using a narrow printer.

Important: To return the LVS-95XX Verification Report to two-column format: Follow steps 1 and 2 above. Then, enter the following command in the "Query" text box. Letters are not case sensitive. Then click the "Execute query" button. The next time you grade a symbol and print a report, the LVS-95XX Verification Report will display in a two-column format.

update settings set settingvalue = "0" where settingname = "singlecolumn"

Figure 16: Verification report in two-column format

Omron Microscan
LVS-95xx Verification Report

Overall: 0.0/27/660 (F)

Person in charge of verification	Operator of this verification	approved by

The required <FNC1> was not found

2D	
Symbology	QR Code
Version	1-L
Decoded text	12345678ABCDEFGHIJ
Cell size	0.853mm
Decode	PASS
Contrast	4.0 (A) 77%
Modulation	4.0 (A)
Axial nonuniformity	4.0 (A) 0%
Grid nonuniformity	4.0 (A) 10%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
Segment A1	4.0 (A)
Segment A2	4.0 (A)
Segment A3	4.0 (A)
Segment B1	4.0 (A)
Segment B2	4.0 (A)
Segment C	4.0 (A)
Format info	4.0 (A)
Cell height	0.850mm
Cell width	0.857mm
Angle	0 degrees
X print growth	56%
Y print growth	57%
Total CW	26
Data CW	19
Corrections	0
Size	21x21
Rmin	8%
Rmax	85%

Other information	
ReportID	851
Operator	admin (LVS Administrator)
Application standard	GS1 General Specifications
Effective aperture	Reference number 27 (0.686 mm)
Wavelength	660nm
Date and time	24-May-2012 22:33 local; 25-May-2012 02:33 GMT
Time zone	GMT -4
Sector size	24.6mm by 24.6mm
Last calibration	23-May-2012 21:08 local; 24-May-2012 01:08 GMT
Field of view	137.3mm (camera is 2176x1632 pixels)
Serial numbers	Unit: 12778, Camera: -90407673
Software product and version	INTEGRA 95xx Version 3.0.8i
INTEGRA 95xx manufactured by:	Label Vision Systems, Inc. 101 Auburn Court Peachtree City, Georgia, 30269, USA www.lvs-inc.com

Change Verification Report Signature Lines

The default LVS-95XX Verification Report is provided with two signature lines; however, system settings can be changed so that Verification Reports print with one signature line, two signature lines (default), three signature lines, or no signature line (see figures 20 – 23 below for example of each).

To change the number of signature lines appearing on the LVS-95XX Verification Report, follow the steps below.

1. Log into LVS-95XX software as an admin.

2. Click the "Archive" tab.

3. Enter the following command in the "Query" text box located at the bottom of the screen (Figure 17). Note that letters are not case sensitive.

- For no signature line, enter:
  update settings set settingvalue = "0" where settingname = "signatures"
- For one signature line, enter:
  update settings set settingvalue = "1" where settingname = "signatures"
- For "default" two signature lines, enter:
  update settings set settingvalue = "2" where settingname = "signatures"
- For three signature lines, enter:
  update settings set settingvalue = "3" where settingname = "signatures"

Query: | update settings set settingvalue = "2" where settingname = "signatures" | ▼ | Execute query

Figure 17: Enter one of the above commands in the "Query" text box

4. Click the "Execute query" button.

- An "Operation Successful" message appears if the operation is successful (Figure 18).
- A "Query Error" message appears if the operation is unsuccessful (see example in Figure 19).

Figure 18: Operation successful message
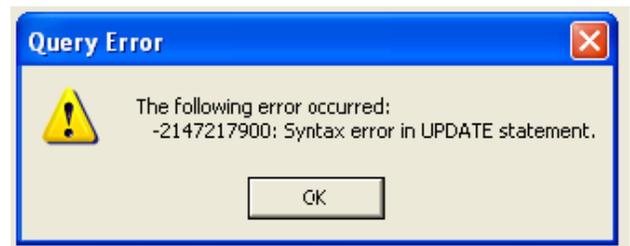
Figure 19: Query error message

If an error occurs, attempt to resolve the error by clicking "OK" and then re-entering the command in the "Query" text box (as identified in step 3 above) ensuring the command text is entered correctly. Then, click the "Execute query" button. If you copied and pasted the query from this document, check the quotation marks. If they are not identical (i.e. facing different directions), edit them and try the query again. If the error message returns, contact Omron Microscan or an Omron Microscan distributor for resolution assistance

5. Verify the updated changes to the Verification Report by clicking the Grading tab and then clicking the "Print" button; the Verification Report appears, allowing you to verify the number of signature lines.

6. Log out of the LVS-95XX system and log back in using your designated Operator ID and Password.

## *Sample Signature Line Formats*

One Signature Line

Figure 20: Verification Report with one signature line created by entering the following command:
   update settings set settingvalue = "1" where settingname = "signatures"

Two Signature Lines (Default Format)

Figure 21: Verification Report with two signature lines created by entering the following command:
   update settings set settingvalue = "2" where settingname = "signatures"

Three Signature Lines

Figure 22: Verification Report with three signature lines created by entering the following command:
update settings set settingvalue = "3" where settingname = "signatures"

No Signature Line

Figure 23: Verification Report with no signature line created by entering the following command:
update settings set settingvalue = "0" where settingname = "signatures"

Add or Remove Data Structure Analysis Report with Verification Report

IncludePrintStructure

The IncludePrintStructure setting can be used to change whether the Data Structure Analysis Report is included on the verification report, and if GS1 data structure information is separated out from the decoded text. By default, the Verification Report automatically includes the Data Structure Analysis Report and is located at the bottom left of a Verification Report. It is titled by the word: "Structure".

Structure		
Embedded data	Description	Value
<232>	FNC1	<FNC1>
01	Global Trade Item Number (GTIN)	(01)
00000123000017	Global Trade Item Number (GTIN)	00000123000017
17	Expiration Date (YYMMDD)	(17)
180630	Expiration Date (YYMMDD)	180630
10	Batch or Lot Number	(10)
ABC123	Batch or Lot Number	ABC123

Image of Data Structure Report

To change the Data Structure Analysis Report display in the Verification Report, follow the steps below.

1. Log on to the LVS-95XX as admin.
2. Click the "Archive" tab.
3. Enter the following command in the "Query" text box located at the bottom of the screen (Figure 24). Letters are not case sensitive. In this example the value shown below is a -1 (negative one), which removes the Data Structure Analysis Report from the Verification Report. See the table below for settings to use for specific behaviors.

   update settings set settingvalue = "-1" where settingname = "IncludePrintStructure"

   > **Query:** update settings set settingvalue = "-1" where settingname = "IncludePrintStructure"

   Figure 24: Enter the following command in the "Query" text box:
   update settings set settingvalue = "-1" where settingname = "IncludePrintStructure"

4. Click the "Execute query" button.
   a. An "Operation Successful" message appears if the operation is successful (Figure 25).
   b. A "Query Error" message appears if the operation is unsuccessful (see example in Figure 26).

Figure 25

Figure 26

   If an error occurs, attempt to resolve the error by clicking "OK" and then re-entering the command in the "Query" text box (as identified in step 3 above) ensuring the command text is entered correctly. Then, click the "Execute query" button. If you copied and pasted the query from this document, check the quotation marks. If they are not identical (i.e. facing different directions), edit them and try the query again. If the error message returns, contact Omron Microscan or an Omron Microscan distributor for resolution assistance.

5. Log out of the LVS-95XX system and log back in using your designated Operator ID and Password.
6. The "Data Structure Analysis Report" will not appear on the "Verification Report."

SeparateDecodedText

The SeparateDecodedText feature was added to allow for long character strings and large amounts of data that did not print well on the page. Now the user can move the decoded text into a separate table at the top of the report.

Query:	update settings set settingvalue = "1" where settingname = "SeparatedecodedText"

To separate the decoded text, use the following commands:

- SeperateDecodedText=0 (Default) (OFF) results in the decoded text being displayed in the main table.
- SeperateDecodedText=1 (ON) results in the decoded text being displayed in a separate table at the top of the report.
  - o When IncludePrintStructure=2 or IncludePrintStructure=3 are used with the SeparateDecodedText=1 (On), the GS1 AI structure does not work. The GS1 AI structure is displayed as one line of decoded text in the Decoded Text Table.
  - o When the SeparateDecodedText=1 (On), the IncludePrintStructure=1 and IncludePrintStructure=3 reports both have a Structure Table at the bottom of the report and decoded text is displayed in a separate table.
  - o When the SeparateDecodedText=1 (On), the IncludePrintStructure=2 produces a report with a separate decoded Text table, but does not have a Structure Table.

Include Print Structure Command (IPS)	Separate Decoded Text Command (SDT)	Status of Structure Table	Status of Decoded Text Table
IPS=0 (Default)	SDT=0	Has Structure Table	Decoded Text in 1D or 2D table.
IPS=1	SDT=0	Has Structure Table	Decoded Text in 1D or 2D table.
IPS=0 (Default)	SDT=1	Has Structure Table	Separate Decoded text table at the top of the report.
IPS= -1	SDT=0	No Structure Table	Decoded Text in 1D or 2D table.
IPS= -1	SDT=1	No Structure Table	Separate Decoded text table at the top of the report.
IPS=2	SDT=0	No Structure Table	Decoded Text displayed in 1D or 2D table with GS1 data AI displayed in separate rows. (Global Trade, Expired, Batch Lot.)
IPS=2	SDT=1	No Structure Table	Separate Decoded text table at the top of the report.
IPS=3	SDT=0	Has Structure Table	Decoded Text displayed in 1D or 2D table with GS1 data AI displayed in separate rows. (Global Trade, Expired, Batch Lot.)
IPS=3	SDT=1	Has Structure Table	Separate Decoded text table at the top of the report.

Examples of IncludePrintStructure and SeparateDecodedText

IncludePrintStructure=1 or IncludePrintStructure=0 (Default)

Report Includes the Structure table. The Decoded text is presented in the 2D table shown in the image below.

"IncludePrintStructure=1" and "IncludePrintStructure=0" have the same functions. "IncludePrintStructure=0" is the default setting.

LVS-95XX Verification Report

Overall: 4.0/08/660 (A)

Reference: IncludePrintStructure=0

_____
Operator signature

_____
Second signature

2D	
Symbology	GS1 Data Matrix
Decoded text	010000012300001717180630110ABC123
Cell size	41.8 mils
Decode	PASS
Contrast	4.0 (A) 83%
Modulation	4.0 (A)
Reflectance margin	4.0 (A)
Axial nonuniformity	4.0 (A) 1%
Grid nonuniformity	4.0 (A) 4%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
L1 (left of L finder)	4.0 (A)
L2 (bottom of L finder)	4.0 (A)
QZL1 (left quiet zone)	4.0 (A)
QZL2 (bottom quiet zone)	4.0 (A)
CTR (clock track regularity)	4.0 (A)
CTD (clock track damage)	4.0 (A)
SFP (solid fixed pattern)	4.0 (A)
OCTASA (overall clock track and solid area)	4.0 (A)
AG (average grade)	4.0 (A)
TR (transition ratio)	0.00
Cell height	41.7 mils
Cell width	41.8 mils
L1 Angle	0 degrees
X print growth	52%
Y print growth	52%
Total CW	40
Data CW	22
Corrections	0
Size	20x20
Rmin	1%
Rmax	84%

Other information	
GS1 Data	(01)00000123000017(17)180630(10)ABC123
GS1 Pass/Fail	PASS
ReportID	205
Operator	LVS (LVS Master Administrator)
Application standard	GS1 General Specifications
GS1 Table	Table 11 - GS1 GSRNs
GS1 Limit Action	Don't generate warning if Xdim or label height is outside GS1 limits
Effective aperture	Reference number 08 (8 mil)
Wavelength	660nm
Date and time	29-Jun-2015 16:02 local; 29-Jun-2015 20:02 GMT
Time zone	GMT -4
Sector size	1.33" by 1.27"
Last calibration	22-Jun-2015 14:29 local; 22-Jun-2015 18:29 GMT
Field of view	3.00" (camera is 2592x1944 pixels)
Serial numbers	Unit: 13542, On #21510330
Software product and version	INTEGRA 95xx Version 3.0.9mm
INTEGRA 95xx manufactured by:	Label Vision Systems, Inc. 101 Auburn Court Peachtree City, Georgia, 30269, USA www.lvs-inc.com

| Structure		
Embedded data	Description	Value
<232>	FNC1	<FNC1>
01	Global Trade Item Number (GTIN)	(01)
00000123000017	Global Trade Item Number (GTIN)	00000123000017
17	Expiration Date (YYMMDD)	(17)
180630	Expiration Date (YYMMDD)	180630
10	Batch or Lot Number	(10)
ABC123	Batch or Lot Number	ABC123

IncludePrintStructure=2

This report Includes GS1 data. The AI is displayed in the 2D table within the following rows: **Global Trade Item Number**, **Expiration Date**, and **Batch or Lot Number**. This report does not include the Structure table.

LVS-95XX Verification Report

Overall: 4.0/08/660 (A)

Reference: IncludePrintStructure=2

Operator signature

Second signature

2D	
Symbology	GS1 Data Matrix
Global Trade Item Number (GTIN)	(01)00000123000017
Expiration Date (YYMMDD)	(17)180630
Batch or Lot Number	(10)ABC123
Cell size	41.8 mils
Decode	PASS
Contrast	4.0 (A) 83%
Modulation	4.0 (A)
Reflectance margin	4.0 (A)
Axial nonuniformity	4.0 (A) 1%
Grid nonuniformity	4.0 (A) 4%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
L1 (left of L finder)	4.0 (A)
L2 (bottom of L finder)	4.0 (A)
QZL1 (left quiet zone)	4.0 (A)
QZL2 (bottom quiet zone)	4.0 (A)
CTR (clock track regularity)	4.0 (A)
CTD (clock track damage)	4.0 (A)
SFP (solid fixed pattern)	4.0 (A)
OCTASA (overall clock track and solid area)	4.0 (A)
AG (average grade)	4.0 (A)
TR (transition ratio)	0.00
Cell height	41.7 mils
Cell width	41.8 mils
L1 Angle	0 degrees
X print growth	52%
Y print growth	52%
Total CW	40
Data CW	22
Corrections	0
Size	20x20
Rmin	1%
Rmax	84%

Other information	
GS1 Data	(01)00000123000017(17)180630(10)ABC123
GS1 Pass/Fail	PASS
ReportID	207
Operator	LVS (LVS Master Administrator)
Application standard	GS1 General Specifications
GS1 Table	Table 11 - GS1 GSRNs
GS1 Limit Action	Don't generate warning if Xdim or label height is outside GS1 limits
Effective aperture	Reference number 08 (8 mil)
Wavelength	660nm
Date and time	29-Jun-2015 16:04 local; 29-Jun-2015 20:04 GMT
Time zone	GMT -4
Sector size	
Last calibration	
Field of view	
Serial number	
Software product	

INTEGRA 95xx

> To display the decoded text in a separate table, use the "SeparateDecodedText=1" command.
>
> **Note:** GS1 AI Structure will be lost

IncludePrintStructure=3

This report Includes the Structure table. GS1 AI data is displayed in the 2D table within the following rows: **Global Trade Item Number**, **Expiration Date**, and **Batch or Lot Number**.

LVS-95XX Verification Report

Overall: 4.0/08/660 (A)

Reference: IncludePrintStructure=3

_____

Operator signature

_____

Second signature

2D	
Symbology	GS1 Data Matrix
Global Trade Item Number (GTIN)	(01)00000123000017
Expiration Date (YYMMDD)	(17)180630
Batch or Lot Number	(10)ABC123
Cell size	41.8 mils
Decode	PASS
Contrast	4.0 (A) 83%
Modulation	4.0 (A)
Reflectance margin	4.0 (A)
Axial nonuniformity	4.0 (A) 1%
Grid nonuniformity	4.0 (A) 4%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
L1 (left of L finder)	4.0 (A)
L2 (bottom of L finder)	4.0 (A)
QZL1 (left quiet zone)	4.0 (A)
QZL2 (bottom quiet zone)	4.0 (A)
CTR (clock track regularity)	4.0 (A)
CTD (clock track damage)	4.0 (A)
SFP (solid fixed pattern)	4.0 (A)
OCTASA (overall clock track and solid area)	4.0 (A)
AG (average grade)	4.0 (A)
TR (transition ratio)	0.00
Cell height	41.7 mils
Cell width	41.8 mils
L1 Angle	0 degrees
X print growth	52%
Y print growth	52%
Total CW	40
Data CW	22
Corrections	0
Size	20x20
Rmin	1%
Rmax	84%

Other information	
GS1 Data	(01)00000123000017(17)180630(10)ABC123
GS1 Pass/Fail	PASS
ReportID	208
Operator	LVS (LVS Master Administrator)
Application standard	GS1 General Specifications
GS1 Table	Table 11 - GS1 GSRNs
GS1 Limit Action	Don't generate warning if Xdim or label height is outside GS1 limits
Effective aperture	Reference number 08 (8 mil)
Wavelength	660nm
Date and time	29-Jun-2015 16:04 local; 29-Jun-2015 20:04 GMT
Time zone	GMT -4
Sector size	1.34" by 1.24"
Last calibration	22-Jun-2015 14:29 local; 22-Jun-2015 18:29 GMT
Field of view	3.00" (camera is 2592x1944 pixels)
Serial nu...	
Software...	
INTEGR...	

To display the decoded text in a separate table, use the "SeparateDecodedText=1" command. Note: GS1 AI Structure will be lost.

Structure		
Embedded data	Description	Value
<232>	FNC1	<FNC1>
01	Global Trade Item Number (GTIN)	(01)
00000123000017	Global Trade Item Number (GTIN)	00000123000017
17	Expiration Date (YYMMDD)	(17)
180630	Expiration Date (YYMMDD)	180630
10	Batch or Lot Number	(10)
ABC123	Batch or Lot Number	ABC123

IncludePrintStructure=3 and SeparateDecodedText=1

This report Includes the Structure table. Decoded text is displayed in a separate table.

LVS-95XX Verification Report

Overall: 4.0/08/660 (A)

Reference: IncludePrintStructure=3
Additional reference: SeperateDecodedText=1

Operator signature

Second signature

Decoded text

010000012300001717180630l0ABC123
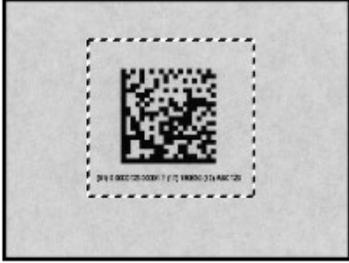
2D	
Symbology	GS1 Data Matrix
Cell size	41.8 mils
Decode	PASS
Contrast	4.? (A) 83%
Modulation	4.0 (A)
Reflectance margin	4.0 (A)
Axial nonuniformity	4.0 (A) 1%
Grid nonuniformity	4.0 (A) 4%
Unused EC	4.0 (A) 100%
Fixed pattern damage	4.0 (A)
L1 (left of L finder)	4.0 (A)
L2 (bottom of L finder)	4.0 (A)
QZL1 (left quiet zone)	4.0 (A)
QZL2 (bottom quiet zone)	4.0 (A)
CTR (clock track regularity)	4.0 (A)
CTD (clock track damage)	4.0 (A)
SFP (solid fixed pattern)	4.0 (A)
OCTASA (overall clock track and solid area)	4.0 (A)
AG (average grade)	4.0 (A)
TR (transition ratio)	0.00
Cell height	41.7 mils
Cell width	41.8 mils
L1 Angle	0 degrees
X print growth	52%
Y print growth	52%
Total CW	40
Data CW	22
Corrections	0
Size	20x20
Rmin	1%
Rmax	84%

Other information	
GS1 Data	(01)00000123000017(17)180630(10)ABC123
GS1 Pass/Fail	PASS
ReportID	212
Operator	LVS (LVS Master Administrator)
Application standard	GS1 General Specifications
Last calibration	22-Jun-2015 14:29 local; 22-Jun-2015 18:29 GMT
Field of view	3.00" (camera is 2592x1944 pixels)
Serial numbers	Unit: 13542, On #21510330
Software product and version	INTEGRA 95xx Version 3.0.9mm
INTEGRA 95xx manufactured by:	Label Vision Systems, Inc. 101 Auburn Court Peachtree City, Georgia, 30269, USA www.lvs-inc.com

Note that when using the SeparateDecodedText "On" command, the text is displayed in a separate table with one row. The GS1 AI data is not separated out into individual row.

Structure

Embedded data	Description	Value
<232>	FNC1	<FNC1>
01	Global Trade Item Number (GTIN)	(01)
00000123000017	Global Trade Item Number (GTIN)	00000123000017
17	Expiration Date (YYMMDD)	(17)
180630	Expiration Date (YYMMDD)	180630
10	Batch or Lot Number	(10)
ABC123	Batch or Lot Number	ABC123

Change CommPort Settings

Communication Port settings allow you define the port where data is published.

The default CommPort setting is 1, indicating that data is published to CommPort 1. To publish data to a different CommPort, or to turn off CommPort, follow the steps below.

1. Log into the LVS-95XX software as an admin.

2. Click the "Archive" tab.

3. Enter the following command in the "Query" text box located at the bottom of the screen (Figure 27). Note that letters are not case sensitive.

- To turn off CommPort, enter:
  update settings set settingvalue = "0" where settingname = "commport"

- To publish data to CommPort 2, enter:
  update settings set settingvalue = "2" where settingname = "commport"

- To publish data to CommPort 3, enter:
  update settings set settingvalue = "3" where settingname = "commport"

Follow the above examples for each desired CommPort.

Query: update settings set settingvalue = "0" where settingname = "commport"   ▼   Execute query

Figure 27: Enter one of the above commands in the "Query" text box.

4. Click the "Execute query" button.

- An "Operation Successful" message appears if the operation is successful (Figure 28).
- A "Query Error" message appears if the operation is unsuccessful (see example in Figure 29).

Figure 28: Operation successful message   *Figure 29: Query error message*
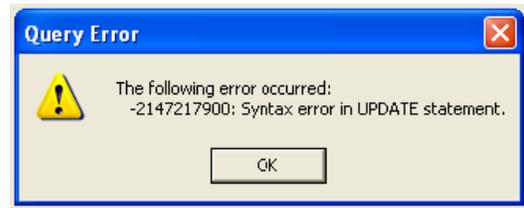
If an error occurs, attempt to resolve the error by clicking "OK" and then re-entering the command in the "Query" text box (as identified in step 3 above) ensuring the command text is entered correctly. Then, click the "Execute query" button. If you copied and pasted the query from this document, check the quotation marks. If they are not identical (i.e. facing different directions), edit them and try the query again. If the error message returns, contact Omron Microscan or an Omron Microscan distributor for resolution assistance.

5. Log out of the LVS-95XX system and log back in using your designated Operator ID and Password.

Automatic Login

The LVS-95XX requires a user to enter an Operator ID and Password when logging onto the system. The Automatic Login feature, when enabled, allows a user to automatically log on to the LVS-95XX without entering an Operator ID and Password. The sections below explain how to enable, disable, and bypass Automatic Login.

Automatic Login is not a standard LVS-95XX feature and is priced separately. Refer to the LVS-95XX Price Book for additional information, or contact Omron Microscan or your Omron Microscan distributor. The Automatic Login feature voids 21 CFR Part 11 compliance.

Enable Automatic Login

Three steps are required to enable Automatic Login. Each step is described in the following sections.

1. Locate your Security Serial number.
2. Activate Automatic Login.
3. Enter "Automatic" as an Operator.

Step One: Locate Your Security Serial Number

4. Turn on the LVS-95XX; the "Welcome" page appears.

5. Double-click the term "Version" (Figure 30).

Figure 30: Double-click on "Version"

6. Locate the Security Serial number (Figure 31) and provide this number to an Omron Microscan distributor or Omron Microscan Headquarters via e-mail or phone.
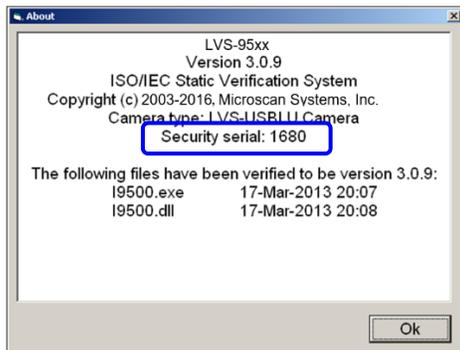
Figure 31: Security Serial Number

Step Two: Activate Automatic Login

After receiving your Security Serial number, Omron Microscan (or an Omron Microscan distributor) will e-mail you an 8-digit activation code and the AddFeature.exe program. Follow the steps below to activate the Automatic Login feature.

7. Open the AddFeature.exe program. The Add Feature window appears (Figure 32).

Figure 32: Add Feature window

8. Enter **9502** in the "Feature unlock code" field.

9. Enter the 8-digit activation code sent from Omron Microscan in the "Activation code" field.

10. Click the "Activate feature" button. See the next step for further instructions.

Step Three: Setup "Automatic" as an Operator

11. Turn on the LVS-95XX.

12. Click on any tab at the top of the screen. The Login box appears (Figure 33).

Figure 33: Login box

- Enter **LVS** as the Operator ID.
- Enter **LVS** followed by the password provided by Omron Microscan in the "Password" field. For example, if 1234 is the password, enter **LVS1234**.
- Click "OK."

13. Click the "Setup" tab, and then click "Setup Operators" (Figure 34).
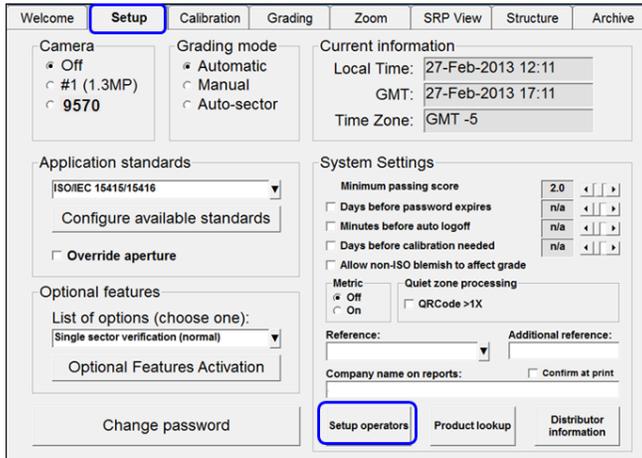
Figure 34: "Setup operators" button on the "Setup" tab

14. The Operator Administration window appears (Figure 35).
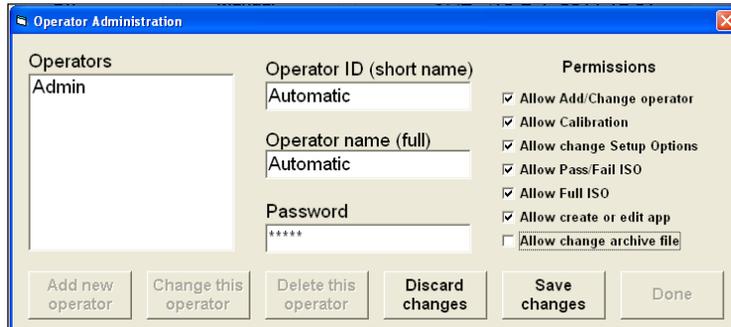
Figure 35: Operator Administration window

16. Enter "Automatic" in both the "Operator ID (short name)" field and "Operator name (full)" field (Figure 36).

17. Enter "login" in the "Password" field.

18. Select the desired permissions within the "Permissions" section.

19. Click "Done."

20. Click "Save Changes."
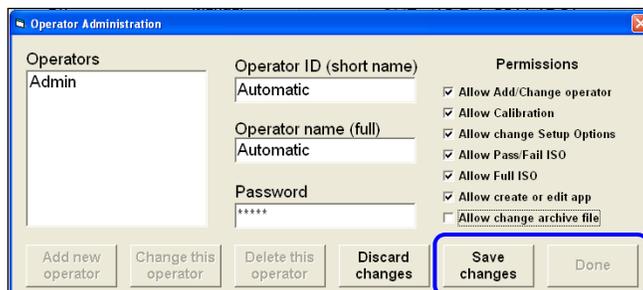
Figure 36: Click "Done" and then "Save changes"

21. Log out, and then log back in to the LVS-95XX. The Automatic Login feature is now enabled, allowing you to log in to the LVS-95XX without entering an Operator ID and Password.

Disable Automatic Login

To disable Automatic Login, the "Automatic" operator must be deleted from the LVS-95XX. See the steps below for detailed instructions.

Only users granted the "Allow Add/Change Operator" permission has the ability to delete operators from the system.

22. Log into the system.
23. Click the "Setup" tab, and then click "Setup Operators."
24. Select "Automatic" from the "Operators" list (Figure 37).
25. Click "Delete this operator."
26. Click "Done."
27. Click "Save Changes."
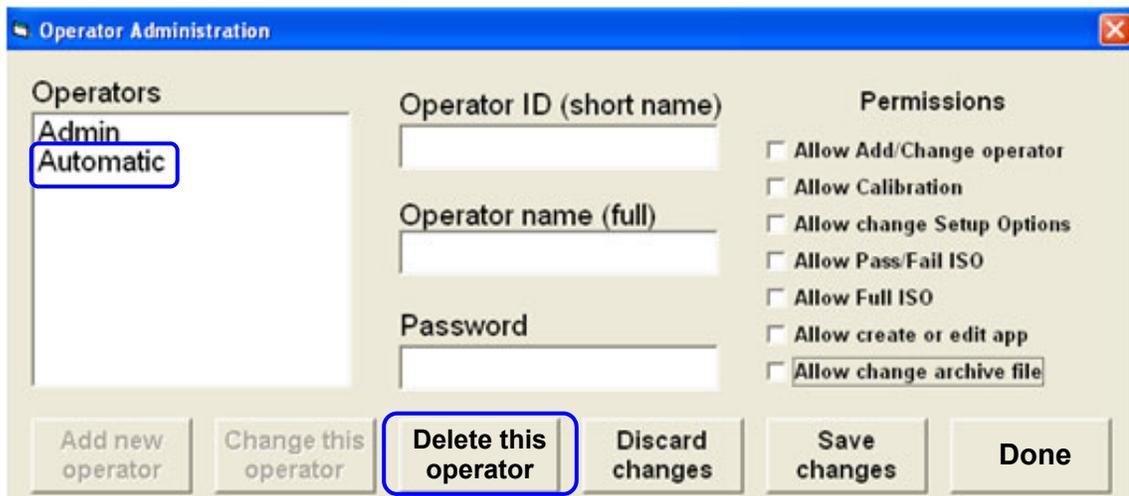
Figure 37: Click "Delete this operator"

Bypass Automatic Login

Follow the steps below to bypass Automatic Login and enter an Operator ID and Password when logging in to the LVS-95XX.

28. Start the LVS-95XX; the "Welcome" page appears.
29. Press the "CTRL + L" keyboard buttons.
30. Click on any tab at the top of the screen. The Login box appears requiring you to enter an Operator ID and Password.

Custom Reports

> **Important note about the use of the GS1 1D and 2D report templates:** The GS1 1D and 2D report templates may be used by any organization or company as part of a quality program while respecting the Copyright of the GS1 logo (or any heading or text that imply actual GS1 endorsement (subject to local licensing agreements such as accreditation programs, which may allow exceptions).
>
> **Important note about the Custom Report feature:** Microsoft® Word must be installed on the computer running the LVS-95XX software to use the Custom Report feature. The LVS-95XX software is compatible with Microsoft Word version 97 through 2010. The default templates are in Word 1997 – 2003 document format (.doc) and can be saved in the higher version document format (.docx).

The LVS-95XX software populates a custom report by searching the document template for parameter names encased in curly brackets; for example, **{overall grade}**. It then substitutes the verification data for the current barcode in place of the associated parameter name. This process is similar to a mail merge. Valid parameter names (along with sample verification data) are listed in the table below.

During LVS-95XX software installation, a default Barcode Verification Template as defined by GS1 General Specifications is stored in the following location:

- C:\Users\Public\LVS-95xx\CustomReportTemplates

The LVS-95XX Series offers two custom reports:
- GS1 1D Report.doc
- GS1 2D Report.doc

The two reports listed above appear for new system installations of LVS-95XX software version 3.0.9. If an LVS-95XX system is being upgraded from a previous software version to version 3.0.9, the above two reports appear, along with a third report entitled GS1 Report.doc. The GS1 Report.doc is a copy of the GS1 1D Report.doc and contains the same data; thus, you can review the GS1 1D Report.doc or GS1 Report.doc to review the 1D report data.

Add or remove parameters and reformat the documents as desired. It is good practice, to make a copy of the default template, modify the copy, and rename the new document leaving the default template unaltered. The naming convention of a custom template determines the Application Standard used in grading symbols; either GS1 General Specifications or ISO 15415/15416. Custom templates with names that begin with GS1 (e.g. GS1 1D Report.doc) use the GS1 General Specifications Application Standards where custom templates with names that do not begin with GS1 use ISO 15415/15416 Application Standards.

> **Important note about custom template file names:** If the file name begins with "GS1" the LVS-95XX software will apply GS1 General Specifications Application Standard rules to barcode verification otherwise ISO 15415/15416 Application Standard rules apply to barcode verification.

The user-created custom templates will be available for use in the LVS-95XX software **only** after the LVS-95XX software has been completely closed (returning to the "Welcome" screen is insufficient). Custom templates are located with the Application Standards in the Application standards drop-down box on the "Setup" tab (Figure 38): Click "Configure available standards" and ensure a check mark "√" and "yes" are selected in the "Available column" of the Application Standards window.
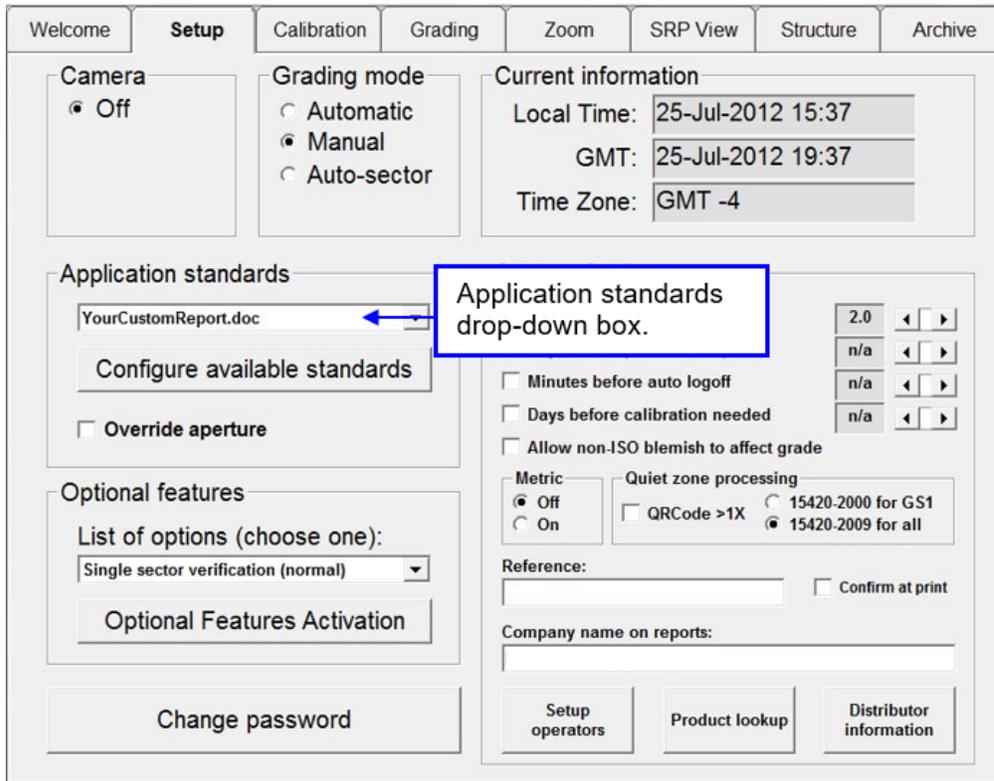
Figure 38: Application standards drop-down box

To customize the default template, copy the default template (to protect the original) and use Microsoft Word to add and remove as many parameter names encased in curly brackets as desired. Change any other formatting as desired and save the template (using the above-indicated naming convention) in the appropriate folder for your operating system.

To create a completely new template (non-GS1 formatted), use Microsoft Word to create a new document, add as many parameter names encased in curly brackets as desired, format as desired, and save the template (using the above indicated template naming convention) in the appropriate folder for your operating system. Valid parameter names (along with sample verification data) are listed in the table below.

After saving your custom template, launch the LVS-95XX software, log in, and navigate to the set-up tab. The new custom template will appear in the Application standard drop-down window. Click "Configure available standards" and ensure a check mark "√" and "yes" are selected in the "Available column" of the Application Standards window.

Parameter Name	Example Parameter Value
AG (Average Grade)	4.0
Application Standard	AS9132-A / AIM DPM Cat 0
Axial Nonuniformity	3.0 7%
Bar Growth	5%
Bar Height	12.614mm
Blemish	0.0 62%
Cell Height	9.7 mils
Cell Size	9.0 mils

Parameter Name	Example Parameter Value
Cell Width	8.4 mils
Codeword PQ (Print Quality)	4.0
Codeword Yield	3.0 69%
Company Name	Omron Microscan
Contrast	1.6 41%
Corrections	0
CTR (Clock Track Regularity)	4.0
CTD (Clock Track Damage)	4.0
Data CW	12
Date and Time	01-Jun-2007 11:28 local; 01-Jun-2007 15:28 GMT
Decodability	0.0 0%
Decode	FAIL
Decoded Text	9533027MW6 Demo
Defects	3.7 14%
Distortion Angle	PASS 0º
Dots Out of Range	PASS 0%
Edge Determ	PASS
Edge Determ (failures reduced overall grade)	75% ERROR
Effective Aperture	Reference number 20 (20 mil)
Erasures	0
Field of View	0.18" (camera is 92x106 pixels)
Fixed Pattern Damage	4.0
Grid Nonuniformity	4.0 1%
GT	47%
Human Readable	?
L1 (Left of L finder)	4.0
L1 Angle	179 degrees
L2 (Bottom of L finder)	4.0
Last Calibration	Never
Min Reflect	PASS
Minimum EC	FAIL 0%
Modulation	4.0
NW Ratio	1:3
OCTASA (Overall Clock Track and Solid Area)	4.0
Operator	Omron Microscan (Omron Microscan Master Administrator)
Overall Grade	0.0/10/660

Parameter Name	Example Parameter Value
Product Lookup	UPC-A master grade
Quiet Zone	FAIL
QZL1 (left quiet zone)	4.0
QZL2 (bottom quiet zone)	4.0
ReportID	24
Rmax	94%
Rmin	7%
Row Height	19.1 mils
Sector Size	1.55" by 1.05"
Serial Numbers	Unit: 60999, Camera: 135268
SFP (Solid Fixed Pattern)	4.0
Size	16x16
Software Product and Version	LVS-95XX Version X.X.X
Symbology	ECC-200
Thumbnail	Most recent image scanned
Time Zone	GMT-4
Total CW	24
TR (Transition Ratio)	0.00
Unused EC	4.0 100%
Warning	Extended area around symbol contains extremes of reflectance
Wavelength	660nm
X Print Growth	50%
Xdim	0.350mm
Y Print Growth	48%

The default report uses only some of the above parameters; however, all the parameters listed in the table above are available if required.

Below are examples using the aforementioned parameter values.

This text in the template:	This text in the report:
The symbology for this code is {symbology}	The symbology for this code is ECC-200
The cell size for this code is {cell size}	The cell size for this code is 9.0 mils

Change Reference Report Parameters on Export

The LVS-95XX allows you to view a report of all verification reports that contain the chosen reference data. Select the Reference by navigating to the Setup Tab and choosing the desired Reference from the drop down list. Navigate to the Archive Tab and click the "Reference Report" button.

Export a Reference Report by clicking the "**Export reference data"** button on the **Archive** tab. When a Reference Report is exported, all parameters for a given reference are exported. The steps below explain how to define only the parameters you wish to export on a Reference Report.

Open Notepad or WordPad and type the desired parameters in the order you wish them to appear on the Reference Report. Delimit parameter names using vertical bars "|" without spaces between parameters and the vertical bars (Figure 39).
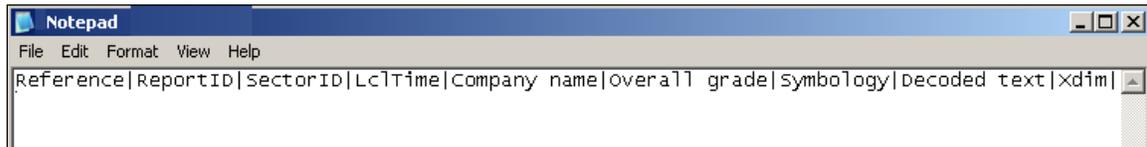
Figure 39: Parameter names delimited by vertical bars

1. Save the file (click **File** and then **Save** from the menu bar).
2. Name the file **ExportOverride.vbd** (not case sensitive). A .vbd file is a vertical bar delimited file.
3. Save the file to the following Windows Explorer location:
   - Save the file to **C:\Users\Public\LVS-95XX**
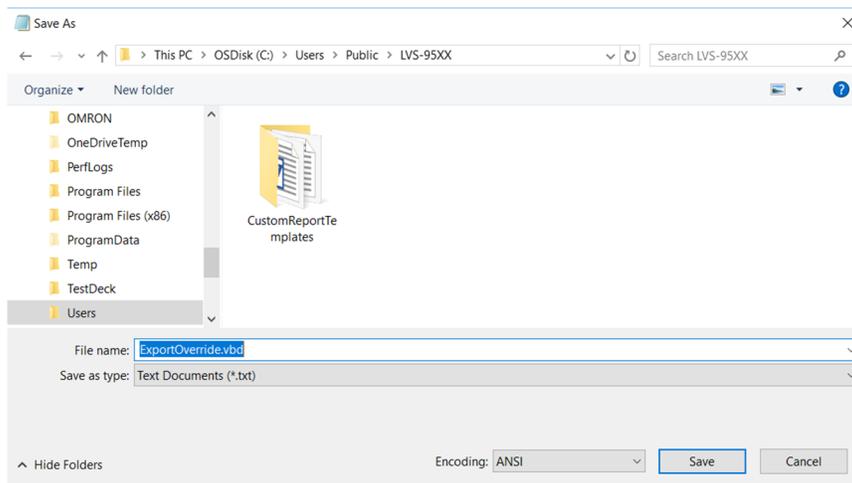
Figure 40: Name the file "ExportOverride.vbd"

4. Click the **Save** button.
5. Export the reference data by clicking the **Export Reference Data** button on the **Archive** tab.
6. Select either **Yes** or **No** when asked if you want to include all records (Figure 41).

Figure 41: Select Yes or No

7. Place this file into C:\Users\Public\LVS-95XX, and then click the **Save** button.

8. Open the file and notice that the Reference Report displays with the new, user-defined parameters.

9. Delete the file ExportOveride.vbd to return to the default export reference report.

Exclude "All" Sector ID on Export

By default, when a Reference Report is exported, all verification report data is exported regardless of the sector name. The steps below explain how to export all sectors except for the sector ID named "All," which is a summary record generated when using Multi-sector verification or a Multi-Rotation application standard.

To exclude the "All" sector ID on export, follow the steps below:

1. Log into the LVS-95XX software as an admin..

2. Click the "Archive" tab.

3. Enter the following command in the "Query" text box located at the bottom of the screen (Figure 42). Note that letters are not case sensitive.

    update settings set settingvalue = "1" where settingname = "ExcludeAllOnExport"

Figure 42: Enter the following command in the "Query" text box: update settings set settingvalue = "1" where settingname = "ExcludeAllOnExport"

4. Click the "Execute query" button.

- An "Operation Successful" message appears if the operation is successful (Figure 43).
- A "Query Error" message appears if the operation is unsuccessful (see example in Figure 44).
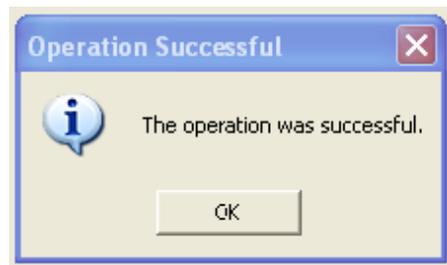
Figure 43: Operation Successful message

Figure 44: Query error message

If an error occurs, attempt to resolve the error by clicking "OK" and then re-entering the command in the "Query" text box (as identified in step 3 above) ensuring the command text is entered correctly. Then, click the "Execute query" button. If the error message re-appears, contact your distributor or Omron Microscan Headquarters for resolution assistance.

5. You may now log out of the LVS-95XX system and log back in using your designated Operator ID and Password.

6. When a Reference Report is exported, all verification report data, except for the "All" sector ID, is exported.

Important: To include the "All" sector ID on export, enter the following command in the "Query" text box:

Update settings set settingvalue = "0" where settingname = "ExcludeAllOnExport"

Windows® Lockdown

The Windows® Lockdown feature locks down the Windows operating system, keeping the system secure and preventing users from changing system settings.

To lockdown the operating system, follow the steps below.

1. Log in to the LVS-95XX software. You must log in as a user who has "Allow Add/Change Operator" permissions (Figure 45).
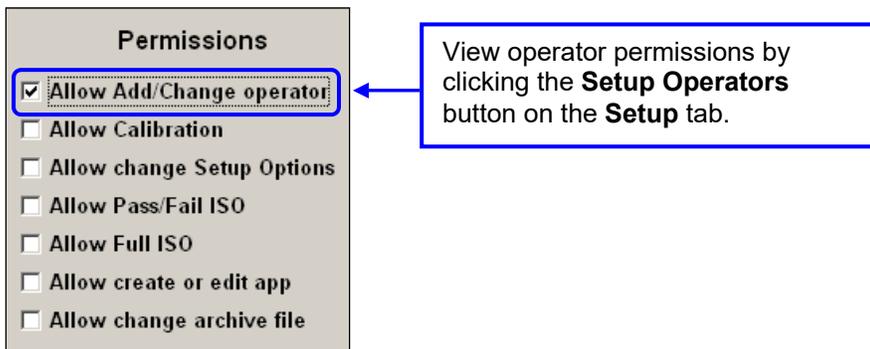
Figure 45: "Allow Add/Change operator" permission

2. Click the **Setup** tab and then click the **Setup Operators** button; the **Operator Administration** window appears (Figure 46).
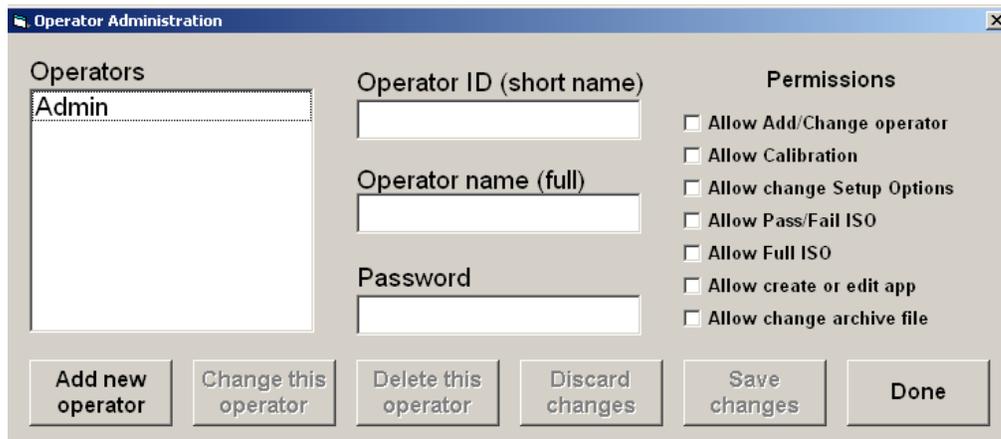
Figure 46: Operator Administration window

3. Click the **Add new operator** button.

4. Type **windows** in the **Operator ID (short name)** field; letters are not case sensitive.

5. Type **windows** in the **Operator name (full)** field; letters are not case sensitive.

6. Type a user-defined password in the **Password** field.

7. Valid passwords contain at least eight (8) characters; at least one (1) letter from A to Z; and at least one (1) digit from 0 to 9.

8. Select the **Allow Add/Change Operator** permission and any other desired permissions in the **Permissions** section. The **Allow Add/Change Operator** permission must be selected.

9. Click the **Save changes** button.
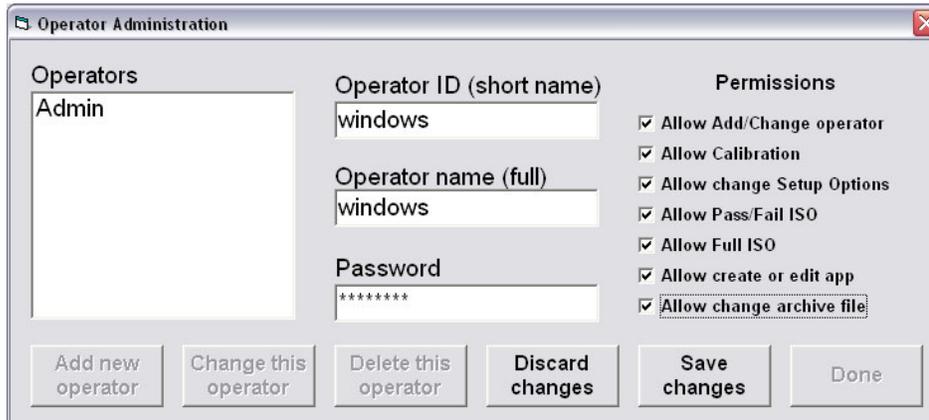
Figure 47: Operator Administration window with selected permissions

10. The **Confirm Windows Lock Down** message appears (Figure 48); click **Yes**.
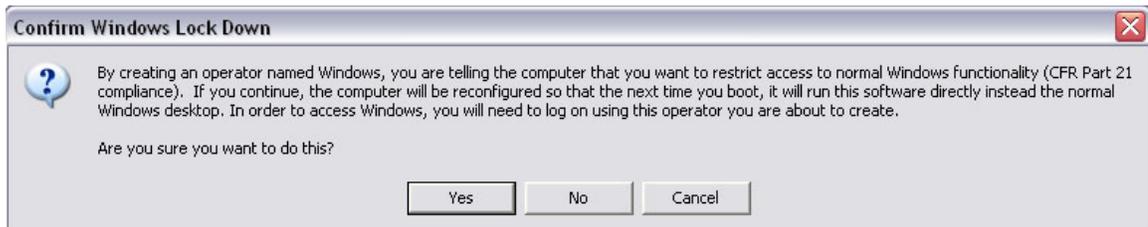
Figure 48: "Confirm Windows Lock Down" message

11. The **Reboot Required** message appears (Figure 49); click **OK**.

Figure 49: "Reboot Required" message

12. Click the **Done** button.

13. Close the LVS-95XX software and then restart the computer.

14. The computer is in lockdown mode when restarted and all Windows® desktop functionality is disabled. For example, the desktop appears blank and no taskbar appears at the bottom of the screen (Figure 50).

The Windows® desktop is blank.

The taskbar is not displayed.
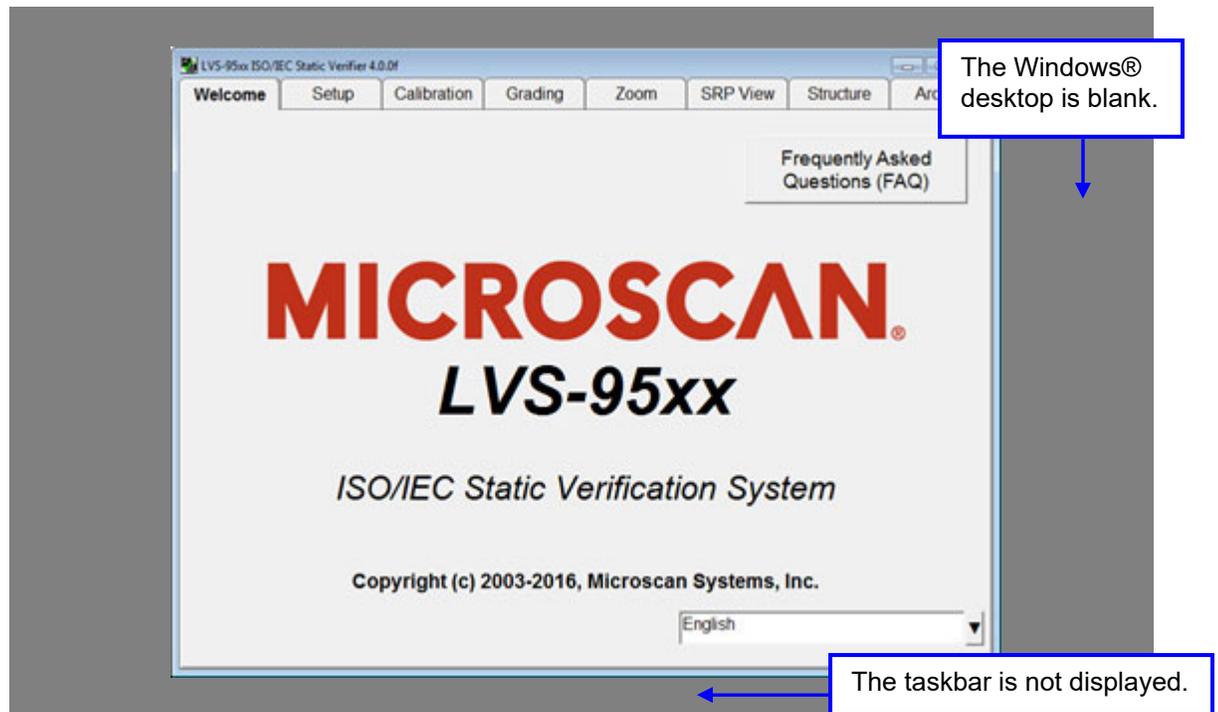
Figure 50: Example of lockdown mode

Shut Down the System

To shut down the system while Windows® is locked down:

15. Click the red X located in the top, right corner of the screen; the LVS-95XX software shuts down.
16. Press the computer's power button to shut down the system.

Unlock

To unlock the operating system, follow the steps below:

17. Log out of the LVS-95XX software by clicking the **Welcome** tab. Click **Yes** when asked to confirm log off.
18. Click any tab to log back in to the LVS-95XX software.

- Enter Windows as your Operator ID.
- Enter your user-defined password.
- Click the Ok button.

19. On the **Setup** tab, click the **Setup Operators** button.
20. Select **Windows** from the Operator list and then click the **Delete this operator** button (Figure 51).
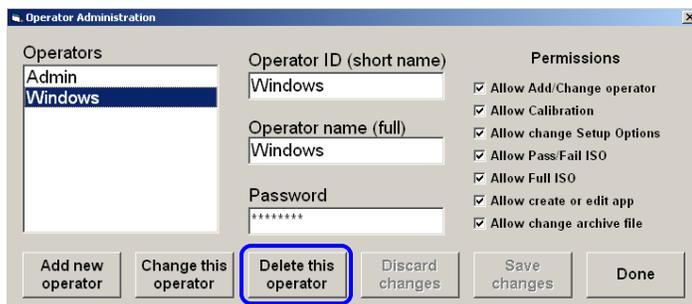
Figure 51: Select "Windows" and then click "Delete this operator"

21. Click **Yes** when the **Confirm Windows Lock Down** message appears.

22. Click **Ok** when the **Reboot Required** message appears.

23. Follow any other onscreen prompts.

24. Close the LVS-95XX software by clicking the red X located in the top, right corner of the screen; the screen turns blank.

25. Reboot the computer by pressing the computer's power button to shut down the system. After the system shuts down, press the computer's power button to turn on the system. When prompted, enter your desired Operator ID and Name to log on to the system.

26. The Windows® desktop is now unlocked and has returned to normal mode.

Account Password Reset

After attempting to log in to an account three times with an incorrect password, the LVS-95XX software disables the account to prevent unauthorized users from gaining access. The account must be altered (e.g. password change or permission change) to reset the account and enable login access again. Admin accounts are the exception to the three-attempts rule. The system will never lock out all admin accounts. If there is only one admin account, the system will allow any number of login attempts. If there are multiple admin accounts, all but the last unlocked account will be locked if more than three incorrect attempts are made.

Application Standard Shortcut Keys

An application standard is a specific protocol established by a group or industry, such as the military, hospitals, Food and Drug Administration (FDA), etc. Select application standards from the "Setup" tab (within the "Application standards" section) or by using the default shortcut keys listed below. Shortcut keys allow you to quickly change application standards in the LVS-95XX software at any time from any tab or screen excluding the Welcome Screen.

Shortcut Key	Application Standard
SHIFT+F	FPMAJ
SHIFT+G	GS1 General Specifications
SHIFT+I	ISO/IEC 15415/15416
SHIFT+P	Postal (Intelligent Mail, PostNet, Japan Post)
SHIFT+D	DPM + UII + MIL-STD-130N
SHIFT+U	USPS Code 128

See the sections below to:

- View Application Standard Shortcut Keys Already Defined
- Assign or Reassign Application Standard Shortcut Keys

View Application Standard Shortcut Keys Already Defined

Follow the steps below to view application standard shortcut keys already defined in the LVS-95XX software.

1. Click the "Archive" tab.

2. Type the following command in the "Query" field located at the bottom of the screen. Letters are not case sensitive.

Select ShortName, LongName, ShortCutKey From ApplicationStandards Where ShortCutKey > "" Order By ShortName

Tip: If you copy and paste the query from this document, check the quotation marks to make sure they are identical (i.e. facing the same direction). If they are not identical, edit the quotation marks so they face the same direction and are identical.

Query:	Select ShortName, LongName, ShortCutKey From ApplicationStandards Where ShortCutKey > "" Ord ▼	**Execute query**

Figure 59: Enter the following command:

Select ShortName, LongName, ShortCutKey From ApplicationStandards Where ShortCutKey > "" Order By ShortName

3. Click the "Execute query" button.

4. A list of application standards (including short name and long name) and shortcut keys already defined in the LVS-95XX software appear.

Welcome	Setup	Calibration	Grading	Zoom	SRP View	Structure	**Archive**

ShortName	LongName	ShortCutKey
FPMAJ	FPMAJ	F
GS1	GS1 General Specifications	G
ISO	ISO/IEC 15415/15416	I
Postal	Postal (IMB, Japan Post, Mailmark, PostNet)	P
UII	DPM + UII + MIL-STD-130N	D
USPS128	USPS Code 128	U

Import image from file
Export image to file
Recent reports (last 30 days)
Delete prior to specific date
Software version history
Audit trail report
Calibration report
Reference report
Export reference data
Change SQL connection
Create backup database
Browse backup database

⊙ Preview results in above table
○ Generate HTML file (for printing)

Query: | ct ShortName, LongName, ShortCutKey From ApplicationStandards Where ShortCutKey > "" Order By ShortName ▼ | Execute query

Figure 60: List of already defined application standards (including short name and long name) and shortcut keys

Assign or Reassign Application Standard Shortcut Keys

Follow the steps below to assign a shortcut key to an application standard, or reassign the default shortcut keys listed in the "Application Standard Shortcut Keys" section.

5. Log into the LVS-95XX software as an admin.

6. Click the "Archive" tab.

7. To get a complete list of the application standards and their names, type the following command in the "Query" field located at the bottom of the screen. Letters are not case sensitive.

Select ShortName, LongName, ShortCutKey From ApplicationStandards Order By ShortName

Query: Select ShortName, LongName, ShortCutKey From ApplicationStandards Order By ShortName ▼

Figure 61: Enter the following command:

Select ShortName, LongName, ShortCutKey From ApplicationStandards Order By ShortName

8. Click the "Execute query" button.

9. A list of application standards appear, including an application standard's short name (denoted in the "ShortName" column), full name (denoted in the "LongName"column), and assigned shortcut key. Use the vertical scroll bar to view the entire list of application standards.

ShortName	LongName	ShortCutKey
GSTNTIN	GST NTIN	
Hanxin	Chinese Sensible (Han Xin) Code	
HDMA	HDMA Guidelines	
HIBC	Health Industry Bar Code (HIBC)	
IFAH	IFAH	
ISO	ISO/IEC 15415/15416	I
Italian	Italian Pharmacode	
JapaneseCodabar	Japanese Codabar	
MilStd	MIL-STD-130N	
MiniPharmacode	Miniature Pharmacode	
MultiDataMatrix	Multi-rotation Data Matrix	
MultiQRCode	Multi-rotation QR Code	
Pharmacode	Laetus Pharmacode	L
Postal	Postal (Intelligent Mail, PostNet, Japan Post)	P
PostNoSize	Postmatrix Code (PMC) without size checking	
PostSize	Postmatrix Code (PMC) with size checking	
PPN	PPN-code	
PZN-big	PZN-big (German Pharmacode)	
PZN-normal	PZN-normal (German Pharmacode)	
PZN-small	PZN-small (German Pharmacode)	
USPS128	USPS Code 128	U

Figure 62: List of application standards including short name, long name, and assigned shortcut key

10. Locate the desired application standard's short name and make note of it as you will enter the short name in the next step.

11. Delete the command in the "Query" field and enter the following command. Letters are not case sensitive.

Update ApplicationStandards Set ShortCutKey = "**X**" Where ShortName = "**Y**"

- Replace the **X** in the above command with the desired shortcut key (use only a capital letter from A to Z).

- Replace the **Y** in the above command with the application standard's short name as identified in the previous step.

Example: To assign "Shift + L" the shortcut key for the "Laetus Pharmacode" application standard, enter the following command in the "Query" field:

Update ApplicationStandards Set ShortCutKey = "L" Where ShortName = "Pharmacode"

If you copy and paste the query from this document, check the quotation marks to make sure they are identical (i.e. facing the same direction). If they are not identical, edit the quotation marks so they face the same direction and are identical.

Query: | Update ApplicationStandards Set ShortCutKey = "L" Where ShortName = "Pharmacode" | ▼ | **Execute query**

Figure 63: Use the following command to assign "Shift + L" as the shortcut key for the "Laetus Pharmacode" application standard:

Update ApplicationStandards Set ShortCutKey = "L" Where ShortName = "Pharmacode"

12. Click the "Execute query" button.

- An "Operation Successful" message appears if the operation is successful.

Figure 64: Operation successful message

- If an error occurs:
  - o Make sure you are logged into the software using an Omron Microscan administrator user name and password. Users not logged on as an administrator will receive the following Query Error message (Figure 65) when executing the command in the "Query" field.

Figure 65: Example query error message when not logged into the software as an Omron Microscan administrator.

  - o If you copied and pasted the query from this document, check the quotation marks; if they are not identical (i.e. facing different directions), edit them and try the query again. Figure 66 is a sample error message that appears when the syntax of the command is incorrect.
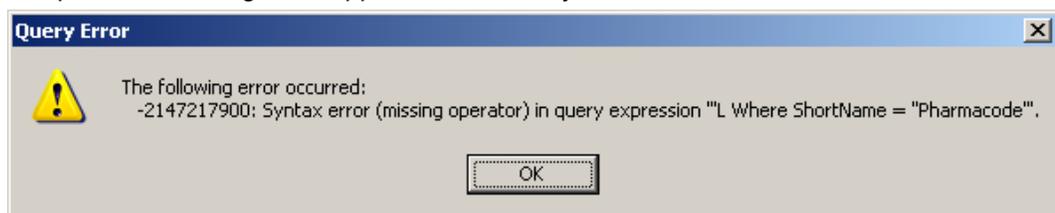
Figure 66: Example query error message when the syntax of the command is incorrect.

  - o If error messages continue to appear, contact Omron Microscan or an Omron Microscan distributor for resolution assistance.

13. Log out of the LVS-95XX system and log back in using your designated Operator ID and Password. The newly assigned or reassigned shortcut keys are available for use.

Decimal Grading for 2D Matrix Symbols

The LVS-95XX software uses decimal grading by default for 2D matrix symbols. Decimal grading provides higher precision than ISO/IEC 15415 grading. ISO/IEC 15415 grading provides only five possible grades (0, 1, 2, 3, and 4). Decimal grading uses the tenths decimal place to provide higher precision in grading symbols.

Decimal grading is provided because Omron Microscan believes it improves on the ISO/IEC 15415 grading system by providing higher precision and avoids sudden grade jumps. By way of analogy, the ISO/IEC 15415 system is like a car whose speedometer provides speed readings in increments of 10 mph increments. The speedometer tells the user they are moving 0 mph, 10 mph, 20 mph, 30 mph, or 40 mph. By using the decimal, the Omron Microscan speedometer gives the user 1 mph increments between the major increments of 0, 10, 20, 30, and 40 mph.

Beginning with LVS-95XX software version 4.4.3, two options for decimal grading are provided. The two decimal grading options are the ISO/IEC 15416:2016-based option and the LVS Legacy option. The two methods differ in how the decimal portion of the grade is calculated. The LVS Legacy method is designed to preserve the concordance with the letter grade to numeric grade mapping found in Figure 1 of the ISO/IEC 15415:2011 specification. The ISO/IEC 15416:2016 standard no longer supports letter grade to numeric grade mapping.

LVS Legacy decimal grading (default)

Prior to the release of ISO/IEC 15416:2016, the LVS line had implemented a decimal grading scheme that supports the letter grading mapping that is indicated in Figure 1 of the ISO/IEC 15415:2011 standard. This method of decimal grade calculation was temporarily abandoned starting with version 4.3.0 in an effort to create decimal grades for 2D symbols that were consistent with the decimal grading scheme described in ISO/IEC 15416:2016 for 1D symbols. The legacy method for assigning decimal grades to 2D codes has been brought back due to a large number of customers who preferred that method. The legacy method is now the default method for assigning decimal grades to 2D symbols. Decimal grades calculated using this method must be rounded to arrive at the ISO/IEC 15415 whole number grade.

ISO/IEC 15416:2016-based decimal grading

The ISO/IEC 15416:2016 method of decimal grading was used as the only method for calculating decimal grades in LVS-95XX software in versions 4.3.0 through 4.4.1. This method of decimal grading is based on the 1D decimal grading scheme described in ISO/IEC 15416:2016. That document applies only to 1D grading, but in an effort to keep grading consistent across both 1D and 2D symbols, the LVS 95XX makes this method available. Decimal grades calculated using this method must be truncated to arrive at the ISO/IEC 15415 whole number grade.

Strict 15415 Grading

In addition to the two decimal grading options, the LVS 95XX also provides the option to forego decimal grading and to strictly following the grading methodology of ISO/IEC 15415:2011 without applying any enhancements. While ISO/IEC 15415 requires expressing grades to 1 decimal place, the prescribed mechanism for grading 2D matrix symbols will only ever return a whole number result. The LVS 95XX software refers to this as Strict 15415 Integer Grading.

Comparing Grading Methods

Both decimal grading schemes resolve to the same grade as Strict 15415 Integer Grading when the relevant mathematical operation is applied: Truncation in the case of the ISO/IEC 15416:2016-based method and rounding in the case of the LVS Legacy method. This means that decimal grades obtained by using the ISO/IEC 15416:2016 method will be 0.5 GPA higher than grades obtained using the LVS Legacy method.

Using Symbol Contrast as an example, grades for the three methods compare as follows:

Symbol Contrast					
% value	15415 Grade	15416 -based interpolation rules	'New' color scheme	LVS classic interpolation rules	LVS Classic color scheme
100%	4.0	4.0		4.0	
99%	4.0	4.0		4.0	
98%	4.0	4.0		4.0	
•••	•••	•••	•••	•••	•••
72%	4.0	4.0		3.5	
71%	4.0	4.0		3.5	
70%	4.0	4.0		3.5	
69%	3.0	3.9		3.4	
68%	3.0	3.9		3.4	
67%	3.0	3.8		3.3	
•••	•••	•••	•••	•••	•••
57%	3.0	3.1		2.6	
56%	3.0	3.1		2.6	
55%	3.0	3.0		2.5	
54%	2.0	2.9		2.4	
53%	2.0	2.9		2.4	
52%	2.0	2.8		2.3	
•••	•••	•••	•••	•••	•••
42%	2.0	2.1		1.6	
41%	2.0	2.1		1.6	
40%	2.0	2.0		1.5	
39%	1.0	1.9		1.4	
38%	1.0	1.9		1.4	
37%	1.0	1.8		1.3	
•••	•••	•••	•••	•••	•••
22%	1.0	1.1		0.6	
21%	1.0	1.0		0.5	
20%	1.0	1.0		0.5	
19%	0.0	0.9		0.4	
18%	0.0	0.9		0.4	
17%	0.0	0.8		0.4	
•••	•••	•••	•••	•••	•••
2%	0.0	0.0		0.0	
1%	0.0	0.0		0.0	
0%	0.0	0.0		0.0	

The above graphic also includes the color scheme applied by the LVS 95XX software when reporting grades. As can be seen from the graphic, a consistent color will be applied to a measurement regardless of the grading method, but the GPA for that measurement will differ depending on the method selected.

Choosing a method for calculating 2D matrix symbol GPA grades

Grading Method	Choose this method if:
Strict 15415 Integer Grading	• You need to adhere to the standard without any deviation or enhancements • Decimal grading does not provide any additional value to your process
Legacy LVS Decimal Method	• You want the additional detail and insight provided by decimal grading • You have the flexibility to implement enhancements to the standard • You are using an application standard that requires or favors decimal grading, or one that references legacy ANSI letter grades (for example, GS1 General Specification, MIL-STD-130N, HIBC, AS-9132 and others) • You are using LVS-95XX software prior to version 4.3.0 and want to continue with the same decimal grading method
ISO/IEC 15416:2016-based Decimal Method	• You want the additional detail and insight provided by decimal grading • You have the flexibility to implement enhancements to the standard • You have been using LVS 95XX software versions 4.3.0 or higher and want to continue with the same decimal grading method • You are *not* using an application standard that requires or favors decimal grading, nor one that references legacy ANSI letter grades

Selecting the 2D matrix grading method

The 2D matrix grading method used is done by configuring the Strict15415IntegerGrading and the Legacy2DGradingScale settings. These settings are available on the Archive tab of the LVS 95XX software.
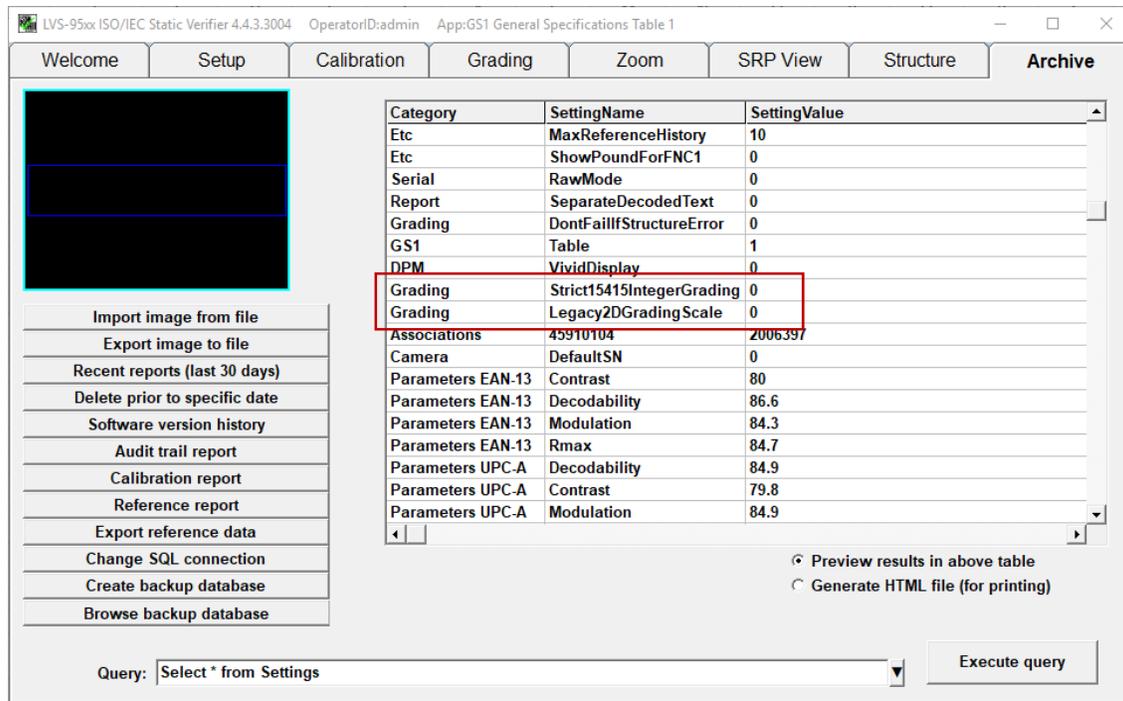
Navigate to the Archive tab and enter

<div align="center">

Select * from Settings

</div>

into the Query field (see above image). Click the **Execute query** button. This will allow you to see a list of settings within this software. Scroll to the where the *Strict15415IntegerGrading* and *Legacy2DGradingScale* settings are visible. To select a grading method, changes the settings according to the following table:

Setting values	To select this 2D matrix grading method
Strict15415IntegerGrading = 1 Legacy2DGradingScale = 0	**Strict 15415 Integer Grading**
Strict15415IntegerGrading = 0 Legacy2DGradingScale = 1	**Legacy LVS Decimal Method (Default)**
Strict15415IntegerGrading = 0 Legacy2DGradingScale = 0	**ISO/IEC 15416:2016-based Decimal Method**
Strict15415IntegerGrading = 1 Legacy2DGradingScale = 1	**Not allowed. An error message will be displayed and the Legacy2DGradingScale setting will be reset to 0.**

To change the value of *Strict15415IntegerGrading* to a 1, enter the following command and click the **Execute Query** button:

<div align="center">

Update settings set settingvalue = "1" where settingname = "Strict15415IntegerGrading"

</div>

Be sure to type this command exactly as stated, including the quotation marks, spaces, and words typed together. Once successfully executed, software will show a pop-up window explaining the operation was successful.
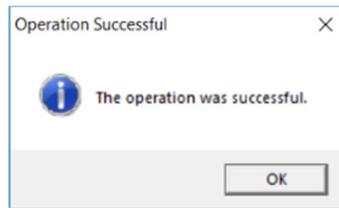
In the same way, *Legacy2DGradingScale* can be changed:

<div align="center">

Update settings set settingvalue = "1" where settingname = "Legacy2DGradingScale"

</div>

After changing the settings to the desired values, execute the

<div align="center">

Select * from Settings

</div>

command again and scroll to where the settings are visible. Verify they are now set to the correct values.

Active Directory

The LVS-95XX software integrates with Microsoft® Active Directory to manage operator permissions. LVS-95XX operators are granted operator privileges based on Microsoft® authentication and LVS-95XX permissions are assigned based on group membership in Omron Microscan-specific Active Directory groups. Production operators will see no change in the user interface or operation of the LVS-95XX software when Active Directory permissions are enabled.

When Active Directory (AD) is enabled on each start of the LVS-95XX software, the LVS-95XX system will connect over the network to the specified Microsoft® AD domain controller. The LVS-95XX system will update the database Operators table to contain the user names and permissions as defined in the Active Directory. The LVS-95XX users created are in the AD Group specified in the "AD LVS All Users Group" configuration setting (see next section for more information).

When Active Directory is enabled, user passwords, password expiration dates, and failed password counts are not stored locally in the LVS-95XX database. Microsoft® Active Directory policies will manage user password restrictions and policies. When a user enters his/her user name and password in the LVS-95XX system, the credentials are verified with the current user name and password in the AD. The "Operator Administration" screen (see below) in the LVS-95XX system can be used to view the current users and their permissions, but the "Add new operator," "Change this operator," and "Delete this operator" buttons are disabled. When users are disabled or deleted from AD, their access to the LVS-95XX system login is immediately disabled even if the LVS-95XX system has not been restarted.

The default administrator account (admin) is a special, unique login. It is not managed in AD and remains in the local LVS-95XX system database. All new installations create a default administrator user with the User Name and Password set to **admin**. The admin user password is stored in the local LVS-95XX system database to allow access to the system in case there is a network outage. This provides the option of operating the LVS-95XX system without Active Directory user authentication. With Active Directory enabled, the admin user is the only user that can be modified using the LVS-95XX system Operator Administration interface. The admin user name and password can be changed and deleted if desired; however, if the admin user name is changed or deleted and the LVS-95XX system loses connection to the Active Directory Server or Active Directory is disabled, then no user will exist who has access to enable Active Directory or manage users in a standalone mode.

Active Directory control of LVS-95XX system users provides a single, secure record of authentication and authorization. Control of all AD changes is managed through AD Group policy and ownership.

Enable Active Directory and Manage Operator Permissions

You must establish the Microsoft® AD required groups before completing the steps below. Below is an example of a Microsoft® AD environment matching the Omron Microscan AD configuration settings shown in the steps below. Your entries may be different depending on your AD environment and the group names you choose.
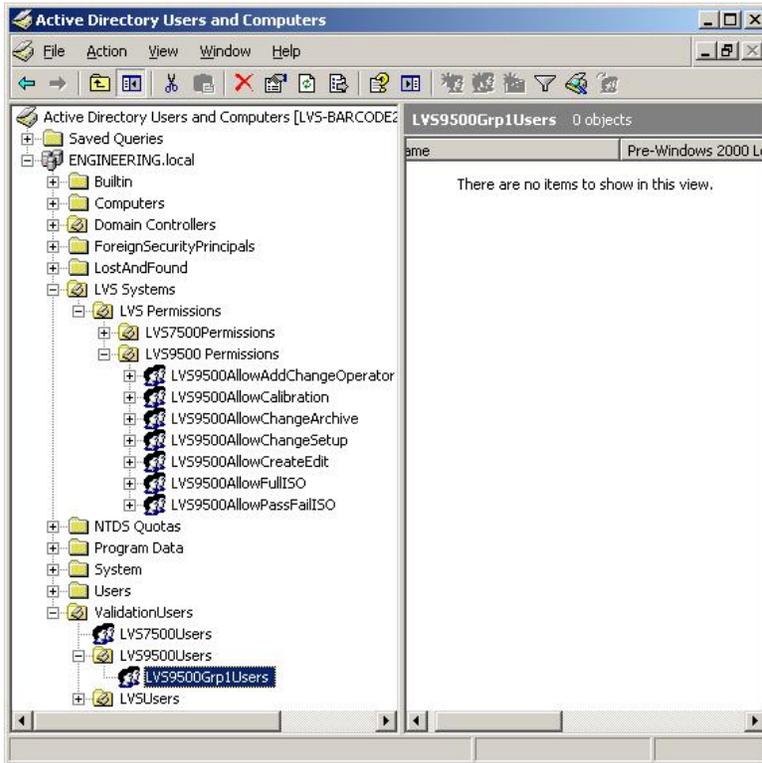
1. Login to the LVS-95XX system (you must be granted the "Allow Change Setup Options" permission).

2. On the **Setup** tab, click the **Setup operators** button.

3. On the Operator Administration screen, click the Active Directory Setup button.
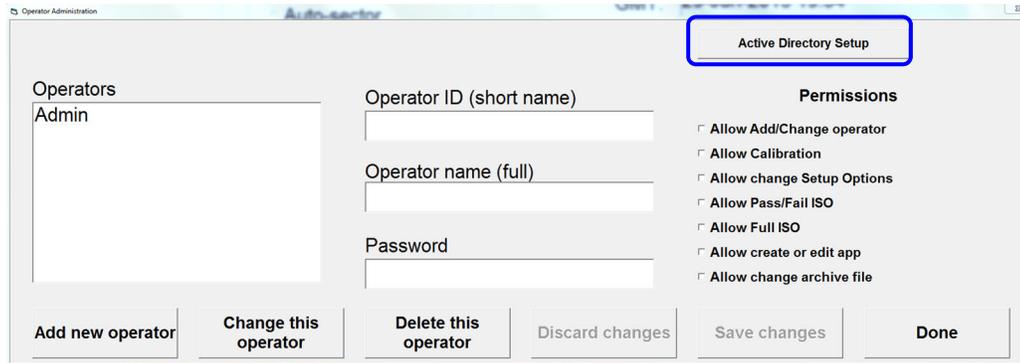
4. On the **Active Directory Settings** screen, click the **Enable Active Directory Operator Administration** checkbox. The Active Directory Settings fields appear.

Unchecking this box disables AD user administration.
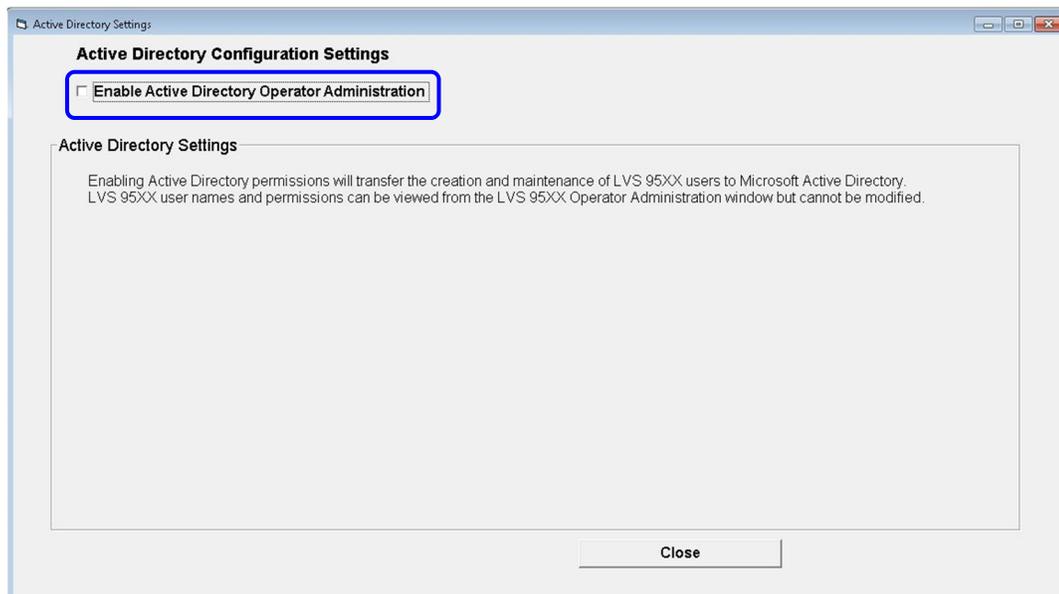
5. Complete each field on the screen. To successfully enable AD user administration, all fields are required except for the AD Server Name which is optional.

The screenshot below is an example of a completed Active Directory Settings screen. Your entries will be different depending on your AD environment and the group names you choose. A description of each field is provided in the table below. Each of the Permission Groups can contain Users and other Groups containing users.

Field	Description
AD Server Name (optional)	Enter the name Active Directory Server name where LVS Org unit and users are located. This is an **optional** value; however, it will improve performance if provided.
AD Domain	Enter the name of the Microsoft® AD Domain. Examples: lvs-inc.com, ENGINEERING.local
AD LVS Organizational Unit	Enter the AD Organizational Unit containing all of the other LVS-95XX Permission Groups. The data entry format must conform to standard Active Directory object naming syntax. This allows you to enter the full path of the org unit, back to the root. Example: ou=LVS9500 Permissions,ou=LVS Permissions,ou=LVS Systems
AD LVS All Users Group	Enter the AD Security Group containing all domain users who are accessing to the LVS-95XX system. The formatting of data entry must conform to standard Active Directory object naming syntax. In the example below the cn= designates that LVS9500Grp1Users is a Group. It must be a Group, not an Org Unit or Container. This allows the LVS All Users Group to be defined in a location outside of the LVS Org Unit if desired. The LVS All Users Group can contain Users and other Security Groups containing users. Example: cn=LVS9500Grp1Users,ou=LVS9500Users,ou=ValidationUsers

Field	Description
Allow Add/Change Operator	Enter the AD Security Group containing all users to be granted the "Allow Add/Change Operator" permission (allows the administrator to assign permission levels for all other system users) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowAddChangeOperator
Allow Calibration	Enter the AD Security Group containing all users to be granted the "Allow Calibration" permission (allows the operator to calibrate the system) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowCalibration
Allow Change Setup Options	Enter the AD Security Group containing all users to be granted the "Allow Change Setup Options" permission (allows the operator access to set any of the "Setup Tab" screen parameters) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowChangeSetup
Allow Pass/Fail ISO	Enter the AD Security Group containing all users to be granted the "Allow Pass/Fail ISO" permission (allows the operator to set different Pass/Fail levels) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowPassFailISO
Allow Full ISO	Enter the AD Security Group containing all users to be granted the "Allow Full ISO" permission (allows the operator to see all parameter values on the Grading Screen) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowFullISO
Allow Create or Edit Application	Enter the AD Security Group containing all users to be granted the "Allow Create or Edit App" permission (allows the operator to create or edit special features such the "multiple sectors verification option") on the LVS-95XX system. This permission is an upgraded feature and is available at an additional cost. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowCreateEdit
Allow Change Archive File	Enter the AD Security Group containing all users to be granted the "Allow Change Archive File" permission (allows the operator to change the archive file located on the "Archive" tab) on the LVS-95XX system. The group must be located in the ActiveDirectoryLVSOrgUnit. Example: LVS95XXAllowChangeArchive

6. Click the **Test AD Settings** button to test if the settings entered in the above fields match the settings defined in AD.

    A. **If the settings match,** an "Active Directory Connection Passed" message appears. Click **OK** to proceed. The "Active Directory Settings" screen appears. Click the **Close** button. Active Directory is enabled.
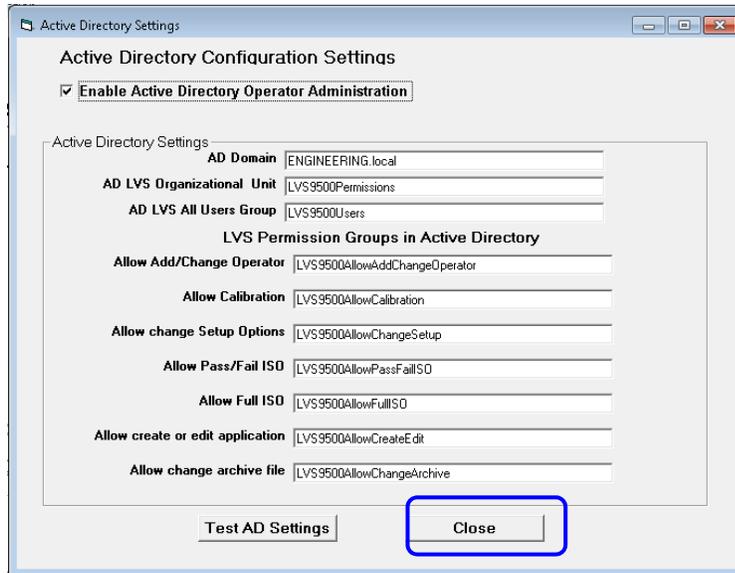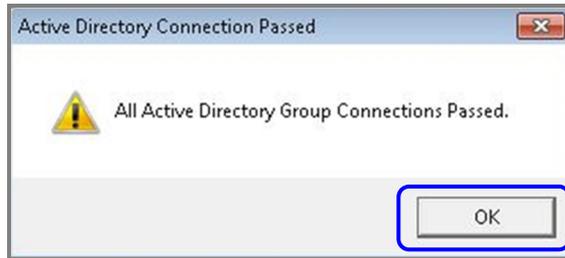
When Active Directory is enabled, the "Active Directory is Enabled" status message appears in red font.
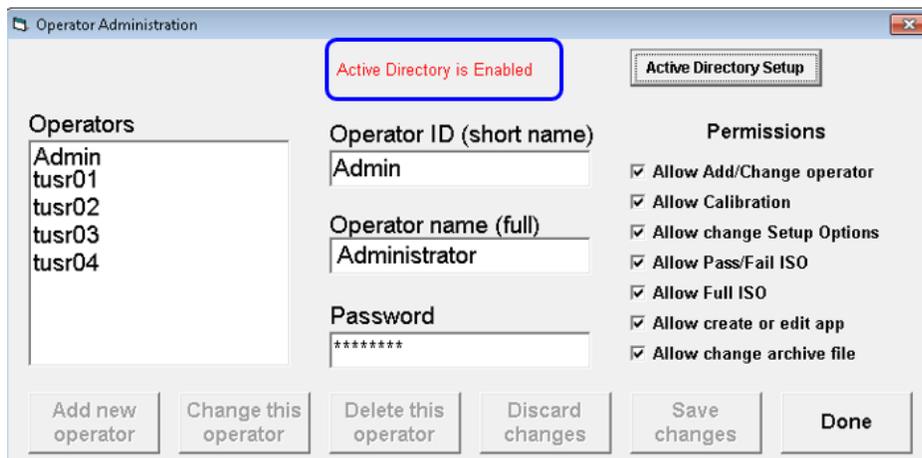
B. **If any setting does not match,** a failure message appears for the setting. The failed setting is identified in the message. In the failed message below, the **AD LVS All Users Group** setting is not entered correctly ("LVS9500Us" is not the setting defined in AD). Click **OK**.

The following message appears indicating all Active Directory Group connection issues must be resolved and provides the option to continue or quit AD configuration.

- Click **Yes** to continue AD configuration and make any necessary changes to the settings on the "Active Directory Settings" screen.
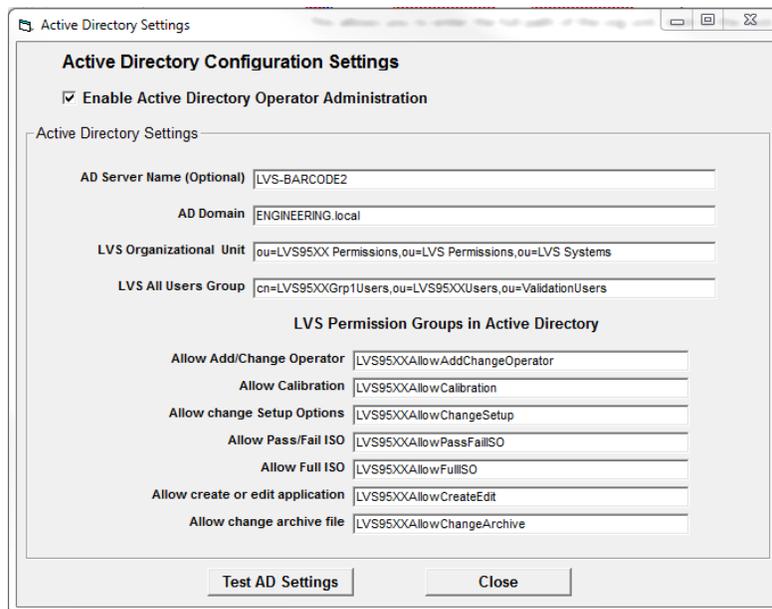
- Click **No** to discontinue AD configuration. The entries entered on the "Active Directory Settings" screen are saved, but AD will not be enabled. The "Active Directory Settings" screen will close and the software will return to the "Operator Administration" screen.