

No: 006
Date: January 14, 2022

Product: LVS-95XX
Document Number: 84-9350053-02

LVS-95XX Software 4.4.3.4102 – Release Notes

Summary:

LVS-95XX Software, Omron Microscan's proprietary 1D and 2D symbol verification software for use with all LVS-95XX products, provides an intuitive way to verify virtually any AIDC symbol in compliance with ISO/IEC and a wide variety of application standards.



Note: It is recommended to first uninstall previous versions of LVS-95XX Software before installing version 4.4.3.4102. If installing on a new PC then the database file (.mdb) must be copied from the existing PC to the new PC LVS-95xx program folder – see the user manuals for further information.

Please see the following pages for more detail about updates and improvements.

NEW FEATURES

Conformance to GS1 General Specification 2021

- Adds support for AIs 395n, 4300 – 4326.
- Implement changes to GS1-128 Code Set C rules.
- Added Table 13 and updated the x-dim specification for Table 13.
- Updates to Global Model Number.
- Other updates to reporting, wording and others.

*Support for the Digital Link URI is not included in this release.

ISO/IEC 29158:2020

ISO/IEC TR29158 support was updated to the released ISO DPM standard. Customers grading to the previous 'Technical Report' can now grade to the released ISO/IEC standard.

*The LVS-95XX hardware does not support the Tilted Coaxial Lighting option defined in ISO/IEC 29158:2020

Auto-Save of reports to PDF format

A new option allows users to automatically save every grading report generated to a PDF file. PDF file names are automatically generated based on the decoded value of the symbol. An additional option allows bitmap images of each symbol graded to be saved along with the report.

ENHANCED FEATURES

Grading DMRE codes per ISO/IEC 21471:2020

Certain rectangular data matrix codes were verified in previous versions of the LVS-95XX software. This version extends the LVS-95XX capabilities to include all DMRE sizes specified in ISO/IEC 21471:2020.

PDF and Micro-PDF grading improvements

Grading of PDF417 and microPDF417 symbols has been improved. New grading results are provided for the Start/Stop patterns (for PDF symbols) and Row Address Patterns (for Micro-PDF symbols). Grades for all parameters have been re-organized on the grading screen and in reports to better distinguish between scores that impact the overall grade and those that are provided for process control analysis. These improvements also apply to composite codes (CC-A, CC-B and CC-C).

Clarification of AI 7003 reporting

Date and time reporting for AI 7003 is improved.

DataBar guard pattern reporting

The LVBS-95XX software now reports guard pattern grades for DataBar symbologies as a separate parameter grade.

New FAQs available

The FAQ document has been updated with new information. Additionally, it has been translated into new languages. The FAQ document is now available in Danish, English, French, German, Polish, Russian and Spanish. Note that the Russian language is not yet available from the language drop-down. To access the Russian language FAQ, it is necessary to find it in the documents folder in the 95XX installation.

Decimal grading for 2D matrix symbols

Additional options for grading 2D matrix symbols were added. The default is to use the legacy LVS decimal grading algorithm for reporting 2D matrix symbol grades. Options to apply strict ISO/IEC 15415:2011 grading rules or to use a decimal grading algorithm based on the decimal grading scheme presented in ISO/IEC 14516:2016 are also available. A detailed explanation of the decimal grading options is provided in Appendix G of the Operations Manual.

MIL-STD-130N improvements

MIL-STD-130N imposes grading criteria additional to the criteria of ISO/IEC 15415. When these additional acceptance criteria are not met, a message is displayed indicating a failure. The ISO/IEC grade is not changed in this case. The MIL-STD-130N failure is noted both on the grading screen and in the grading report.

Related to this change, the Acceptance Criteria box on the Setup screen is ignored for MIL-STD-130N grading. MIL-STD-130N specifies a minimum grade of 3.0. This criteria will be observed regardless of what is entered into the Acceptance Criteria box.

USPS Code 128 Intelligent Mail Barcodes for Containers

The USPS IMB application standard is enhanced to include Container barcodes in addition to Package barcodes.

Grades are reported for GS1 symbols when using ISO/IEC 15415/15416 application standard

Grades are reported if a GS1 symbol is verified using the ISO/IEC 15415/15416 application standard.

FPMAJ symbols default to GS1 Table 6

When selecting the FPMAJ application standard, GS1 Table 6 is automatically applied.

Text sizing in UI

Improvements have been made to text sizing in the UI to make it more consistent in all fields on a screen.

DEFECTS RESOLVED

Aperture size for 2D symbols

2D matrix symbols are now graded with a 50% aperture by default.

AutoSector with QR Codes and quiet zone > 1X

When grading a QR Code and setting the quiet zone to greater than 1x, the autosector box is now drawn large enough to accommodate the expanded quiet zone.

Non-English text corrections

A number of incorrect non-English text strings and text omissions have been corrected. If additional issues with incorrect text are noted, please report them to an Omron representative.

Non-English regional settings improvements

Errors when using GS1 Table 7 with French regional settings have been corrected.

Text wrapping improvements

Text wrapping has been improved.

Chinese text in reference field

The Reference field in the Setup Screen accepts Chinese characters when the Chinese language is selected and the computer locale is set to China. Additional details are documented in the revised FAQ.

Improved descriptions

Several description blocks have been improved or added. These include the instructions for calibrating the LVS-9585 and several of the grading parameter descriptions. Improvements have been made in multiple languages.

Code 39 orientation

Code 39 symbols are now graded consistently regardless of symbol rotation.

HIBC data checks

HIBC dates reported in the YYYYMMDD format are now correctly checked for format and validity. Additionally, the Secondary Supplemental Data serial number length is correctly checked.

Superfluous FNC1 reporting

A superfluous FNC1 character occurring at the end of GS1 symbols is now reported.

Missing parenthesis on AIs

GS1-128 version B symbols are now correctly reporting all AIs enclosed in parenthesis.

Aperture size when grading GS1-128 symbols

The correct aperture size is used when grading GS1-128 symbols for all tables, correcting missing updates for tables 11, 12.2 and 12.3.

Databar Stacked Omnidirectional codes for GS1

Databar Stacked Omnidirectional symbols are now correctly permitted for GS1 tables 1, 2, 3, 4, 6, 8 and 10. Databar Stacked Omnidirectional symbols are not permitted for tables 5, 7, 9, 11, 12 and 13.

ITF-14 for GS1

The x-dimension checks are updated for ITF-14 for all tables where ITF-14 is a valid symbology.

Composite Codes for GS1 applications

An error will be reported when attempting to use composite codes (CC-A, CC-B or CC-C) with any GS1 table except tables 6, 8 and 10.

Switching between the DPM GS1 and non-DPM GS1

The incorrect data added to the report and grading screen when switching between DPM GS1 grading and non-DPM GS1 grading has been eliminated.

MIL-STD-130N structure errors

A structure error will be reported if the dash symbol (-) is used or if there is a blank serial number. In addition, the character limit for the SEQ TEI is expanded from 15 to 30 characters when applying the ULL rules. Some structure error messages have been adjusted to more accurately reflect the error. Code 128 symbols are now properly checked for structure errors.

Incorrect symbologies identified for MIL-STD-130N

ITF14 symbols are flagged as not valid for MIL-STD-130N.

ULL with Base256 encodation

A ULL that includes Base256 encodation is no longer flagged as an error.

Code 128 quiet zone enforcement for AIAG application standard

An incorrect quiet zone space will cause an error to be generated when using a Code 128 symbol and grading with the AIAG application standard.

USPS Code 128 grading refinements

Errors in applying the grading algorithms to USPS Code 128 symbols have been corrected. Enhancements include enforcing the rules for x-dimension and aperture and grading a Code 128 symbol without requiring the appropriate GS1 table to be selected first.

Run-time error 2

When an LVS device is disconnected then reconnected to the host computer, a message stating the camera is resetting is displayed, rather than the previously reported Run-time error 2 message.

Image exposure when using with an LVS-958X DPM HD unit

Exposure controls are improved when grading a symbol with either the 9580-DPM-HD or 9585-DPM-HD unit.

Export reference data / Export all working correctly

A runtime error and subsequent application crash that occurred when exporting reference data and selecting 'Export all' has been eliminated.

Structure reporting

The structure status is now included in the output report when DontFailIfStructureError is ON.

NOTES

Audit Trail information

There have been some questions about information in the Audit Trail. These questions require some clarification of what is seen in the Audit Trail.

MISSING OPERATOR ID: Some system events are recorded in the audit trail. For these events, the Operator ID field is left blank.

ENTRIES CHANGING: Entries are stored in the Audit Trail and tagged with the time of entry. Time is recorded to the minute. In some cases, multiple entries are created in the same minute. When the audit trail is extracted to a report, these entries may appear in random order within the minute boundaries, giving the appearance that the Audit Trail entries are rearranged.

KNOWN CAVEATS

LVS-9570 Decodability

Variations in the decodability scores have been observed when grading the same symbol in ladder versus picket fence orientation using an LVS-9570.

WORKAROUND: Determine the preferred orientation for scanning symbols with the LVS-9570 and use that orientation consistently.

DPM Grading Performance

On some DPM symbols, it may take longer to stabilize on a grade than expected. This is due to the implementation of the new ISO/IEC 29158:2020 grading algorithms and new LVS search features. In general, the new system is expected to grade a wider range of symbols than the previous system, although results may vary for specific symbols.

WORKAROUND: Be persistent. Grading of the most challenging DPM symbols will typically stabilize within one minute.

Red line when using LVS-9585

A red line may intermittently occur when grading a 1D barcode with the ISO/IEC 15415/15416 standard using an LVS-9585. The red line is a display artifact that does not impact the symbol grade. This issue has been observed only rarely.

WORKAROUND: Ignore the red line, or realign the symbol in the verifier viewfinder so that the symbol and viewfinder are more square with each other.

Red bar when grading DPM symbols

A red bar has been observed to appear when grading a QR code and selecting Modulation in the View second of the Grading screen. This bar is a display artifact. It conveys no meaning and is not a factor in the symbol grade. This issue has been observed only rarely.

WORKAROUND: Ignore the red bar.

Incorrect image showing on report for “No Valid Barcode Found”

When grading a DPM symbol is unsuccessful (“No Valid Barcode Found” message is displayed), a report will be generated that includes the image of the previously graded symbol. The report should not include a symbol image.

WORKAROUND: Ignore the image include in the report if there is no symbol data.

Difficulty achieving a 4.0 grade on a microPDF417 symbol

Grading a microPDF417 symbol that appears to be perfect may result in a score less than 4.0. If the overall grade appears to be lowered due to a Stacked SRP grade that is less than 4.0, it may be due to the difficulty of finding ‘clean’ scan lines through the Row Address Patterns in the symbol. Scan lines that are close to row edges can be impacted by the adjacent row, which brings down the grade for Stacked SRP.

WORKAROUND: If an overall grade less than 4.0 appears to be the result of a less than perfect Stacked SRP grade, the overall grade should be treated as a 4.0. However, if the Stacked SRP grade is below 3.5, this indicates there is a real issue with the Row Address Patterns and the component grades should be examined for more detail.

Recalibrate 958X HD after grading DPM symbols

If switching to a non-DPM application standard after grading DPM symbols using an LVS-958x-DPM-HD unit, it is necessary to recalibrate the device.

WORKAROUND: Recalibrate an LVS-958x-DPM-HD unit if switching from grading DPM symbols to grading non-DPM symbols.

Recalibrate 958X HD after grading DPM symbols

If switching to a non-DPM application standard after grading DPM symbols using an LVS-958x-DPM-HD unit, it is necessary to recalibrate the device.

WORKAROUND: Recalibrate an LVS-958x-DPM-HD unit if switching from grading DPM symbols to grading non-DPM symbols.

Missing information in Audit Trail

The Program Stopped message is occasionally missing from the Audit Trail.

WORKAROUND: A Program Stopped message should be assumed prior to a subsequent Program Started message.

Application Standard not persisting over an application restart

This issue occurs when running the LVS-95XX software under Japanese regional settings. After restarting the LVS-95XX application, the application standard appears to revert to the ISO/IEC 15415/15416 standard, regardless of the standard in use when the application was last shut down. In addition, the application standard name is not reflected in the title bar of the Grading screen where it should be.

WORKAROUND: When running the LVS-95XX application under Japanese settings and using an application standard other than ISO/IEC 15415/15416, navigate to the Settings screen and select the desired application standard before attempting to grade symbols.

Custom Reports missing information

The Average Grade value is not transferring to Custom Reports.

WORKAROUND: Before relying on the Custom Reports feature, verify that all the information needed transfer to the report correctly.

Active Directory username character limitations

Usernames that include the dash (-) or the underscore (_) character cannot be authenticated using Active Directory.

WORKAROUND: If Active Directory is used to authenticate users, create accounts for the LVS-95XX users that do not include either the dash (-) or underscore (_) character.

Decodability values in the SRP screen

Decodability is reported as 100% in the SRP screen regardless of the actual value of Decodability.

WORKAROUND: Do not rely on the Decodability value shown in the SRP screen. Decodability reported on the Grading screen is correct.

Rounding of UEC for Data Matrix

The Unused Error Correction value for Data Matrix symbols is being rounded to the nearest whole percentage. This may cause confusion when grading symbol 7 on the Data Matrix Calibration Conformance Standard Test Card. The value on the card is provided to one decimal place.

WORKAROUND: Round the UEC value on the calibration card before comparing it with the value measured by the LVS-95XX unit.

Codabar symbols

Codabar symbols sometimes receive a 0.0 grade when they shouldn't.

WORKAROUND: When grading Codabar symbols, manually draw the region of interest so that it does not include the human readable information.

Missing warning message for DPM

The LVS-95XX software displays a warning message when not using the GS1 application standard and a GS1 symbol is graded. This message does not appear when grading a symbol that has GS1 structure when using the DPM grading standard.

WORKAROUND: When grading GS1 DPM symbols, use the GS1 application standard and Table 7.

Missing warning message for ITF-14

The LVS-95XX software displays a warning message when not using the GS1 application standard and a GS1 symbol is graded. This message does not appear when grading an ITF-14 symbol that has GS1 structure and not grading with the GS1 application standard.

WORKAROUND: When grading a GS1 ITF-14 symbol, use the GS1 application standard.

Incorrect “The Symbology is not valid for GS1 Table 1” message

There is a banner being displayed indicating that "The Symbology is not valid for GS1 Table 1". This occurs for all GS1 Tables. This message appears any time a symbol cannot be decoded or there is no symbol in the field of view.

WORKAROUND: Ignore this message if there is no symbol in the field of view.

Incorrect “This symbology does not support overwrite aperture 80%” message

A warning banner stating "This symbology does not support overwrite aperture 80%" occurs when there is no barcode in the field of view or if the region of interest is drawn too small.

WORKAROUND: Ignore this message if there is no symbol in the field of view or if the region of interest is smaller than the symbol.

Missing “Live Video Has Been Turned Off” message

After calibrating the LVS-95XX system, then going to the Settings screen to turn off the camera, when returning to the Grading screen, the “Live Video Has Been Turned Off” message should appear. Depending on the Application Standard selected, the message may not appear.

WORKAROUND: After system calibration, verify the camera is on and the correct application standard is selected before attempting to grade any symbols.

Verifying AIAG PDF symbols

This version of LVS-95XX software has not been updated for recent changes to the AIAG guidelines regarding quiet zone and aperture for PDF symbols.

WORKAROUND: To get an accurate ISO/IEC numeric grade for a PDF symbol, grade the symbol using the ISO/IEC 15415/15416 application standard, then regrade the symbol using the AIAG standard to check for syntax.

SeparateDecodedText

The description for the setting SeparateDecodedText that appears in Appendix G is incorrect.

WORKAROUND: Use "update settings set settingvalue = "-1" where settingname = "IncludePrintStructure"" and "update settings set settingvalue = "1" where settingname = "SeparateDecodedText"" to display the structure table in the report.

Color Scale

The color scale at the bottom of the Grading screen is not being updated with the regional format.

WORKAROUND: None. The period (.) is being used as a decimal separator in the color scale regardless of the regional settings.

Unplugging device while on Calibration screen

Unplugging the LVS-95XX device from the host computer while on the Calibration screen will cause will cause a Run-time error.

WORKAROUND: Exit the LVS-95XX software before unplugging the hardware from the host computer.

Grading variation on 2D symbols

If poor quality 2D symbols are graded multiple times, variation in the grades may be observed.

WORKAROUND: Accept the lowest grade received by the symbol.

The letter grade shown in the verification report does not match with the overall grade

This complaint is typically caused by the misperception that the colors shown on the Grading screen correspond to letter grades. This is incorrect. The colors are based on historical precedent. With the advent of decimal grading for 1D barcodes, the correspondence of colors to letter grades is broken. Letter grades are no longer part of the ISO/IEC grading scheme and are not represented on the Grading screen.

WORKAROUND: If letter grades are required, the letter grades provided in the reports represent the current ISO/IEC score to letter grade mapping recommendations provided in ISO/IEC 15416.

Superfluous "Value" row in special feature reports

When customizing reports as described in Appendix G, extra rows can be inserted into the report tables. These rows will have no label in the left column, and the word "Value" in the right column. These extra rows appear when IncludePrintStructure=2 and SeparateDecodedText=0 or when IncludePrintStructure=3 and SeparateDecodedText=0.

WORKAROUND: The extra rows do not indicate missing information. They are truly extra rows and can be ignored.

50% blemish error

An erroneous 50% blemish error is being reported on a DataBar Expanded Stacked symbol.

WORKAROUND: The blemish error reported does not impact the overall grade. Ignore the error message.

Effective aperture setting not updating

The effective aperture setting field does not update when calibration completes or when the software is shut down and restarted.

WORKAROUND: This issue does not impact functionality, but may be confusing. Ignore the effective aperture setting after calibration and before grading a symbol.

Missing column headings in Export Reference report

The column headings are missing in Export Reference report when "ExcludeAllOnExport=1".

WORKAROUND: Do not use the "ExcludeAllOnExport=1" setting. Sector IDs will be shown on the report.

Unexpected reports generated

When using the Auto Save reports feature, an unexpected report may be generated when transitioning to the Grading screen. The report will not contain any verification data.

WORKAROUND: Delete extraneous grading reports.

LVS-95XX Software Version History

A summary of important software changes prior to version 4.4.3 is shown below. This version history is limited to software builds that were distributed to customers and partners.

Version	Release Date	Changes
4.4.2.3008	September 4, 2020	<ul style="list-style-type: none"> GS1 related changes <ul style="list-style-type: none"> Table 2 and Table 5 updated to allow Data Matrix symbols Data Matrix aperture error in GS1 Table 6 resolved Incorrect Extraneous FNC1 error when grading GS1 QR codes eliminated Added reporting for AI(10) Batch or Lot number for GS1-128 codes Updated aperture size per Gen Spec v20 for QR codes when using Table 1 Correct error message displayed when encountering an NTIN with an incorrect check digit Support new AIs in Gen Spec V20: 235, 417, 7040 and 7240 Corrected element errors in AI 253, 394 and 421 Corrected isolated MinHeight errors in GS1 tables Quiet zone checking when using GS1 Databar codes has been corrected Residual warnings when switching from GS1 Table 1.8200 to ISO/IEC 15415/15416 applications standards has been eliminated An extra FUNC1 or <GS> placed after a data string is ALLOWED per GS1 v20. The software was updated to generate a warning but not to fail in this situation. Updated Table 12 to use minimum passing score of 3.5 per Gen Spec v20 Residual grading banners when using GS1 tables are eliminated Minimum x-dimension banner when using GS1 Table 4 has been eliminated DPM related issues <ul style="list-style-type: none"> Defects and Modulation View displays are corrected Re-drawing region of interest prevented in DPM mode Added Minimum Reflectance to grading report Eliminated inappropriate application of MIL-STD-130 criteria when grading non-MIL-STD-130 symbols Allow multiple format (06, 07) when using MIL-STD-130 + UII Grade changes after releasing the trigger eliminated StrictISO15415IntegerGrading option created to eliminate decimal grading for 2D and DPM symbols Corrected MIL-STD_130N grading errors for PDT and REM Added DPM application standard for HIBC Issue identifying QR codes as Data Matrix when using DPM TR29158 resolved MIL-STD-130N

		<ul style="list-style-type: none"> ○ Allow multiple format (06, 07) when using DPM + MIL-STD-130 + UII ○ Use only 5 mil aperture when MIL-STD-130N + UII application standard is selected ○ Remove “Construct 1” / “Construct 2” labelling for DI25S ○ Fixed duplicate data issue for unknown TEI • Grading Consistency <ul style="list-style-type: none"> ○ Variations observed when grading the same symbol multiple times have been reduced ○ Tolerances are tightened for <ul style="list-style-type: none"> ▪ Contrast Uniformity ▪ Fixed Pattern Damage • Audit Trail <ul style="list-style-type: none"> ○ Action of removing a report from Recent Reports now logged to Audit Trail • UI Issues <ul style="list-style-type: none"> ○ Missing verification parameter descriptions provided ○ Display distortion in Zoom screen when grading a DPM symbol has been corrected ○ Transition Ratio display when in non-US regional settings has been fixed ○ Grade reporting when in non-US regional settings corrected ○ HIBC date display in 1D structure report properly formatted ○ When in Japanese language, the (非対応) notation after OCR on Grading tab was removed ○ Mixed Japanese and English language text when running in Japanese has been improved – only specific dialog boxes were addressed and this condition may still exist in other locations ○ Bar height reporting in inches corrected • Symbologies <ul style="list-style-type: none"> ○ Mailmark Type D decoding issues fixed ○ Codabar identification fixed ○ Quiet zone errors now correctly reported for Databar Limited using FPMAJ application standard regardless of read direction ○ CC portion of Databar Limited with CC now recognized ○ 2x Quiet Zone check for PDF-417 corrected ○ Allow missing start or stop characters in PDF-417, but don't allow both to be missing • Propeller firmware <ul style="list-style-type: none"> ○ Issue upgrading Propeller firmware when using Japanese regional settings is corrected • Calibration <ul style="list-style-type: none"> ○ Issues encountered when re-calibrating an existing system using a new GS1-128 Conformance Calibration Standard Test Card have been resolved ○ Automatic aperture override to 80% applied when using Data Matrix CCSTC with 958X HD units
--	--	--

4.4.1.4002	May 03, 2019	<ul style="list-style-type: none"> • Fixed issue with non-US decimal & thousands separators • Improved analysis of GS1 QR codes
4.4.1.3013	Not released	<ul style="list-style-type: none"> • GS1 2019 General Specification updates, including new Application Identifiers. • Micro QR code decoding errors corrected • QR Code 2D Analysis reporting improved when using DPM TR-29158 as application standard • Grid Nonuniformity round-off fixed • Axial Nonuniformity round-off fixed • MySQL memory handling improved when selecting all reports • OCR tip presentation for non-English languages enhanced • "Type mismatch error" during calibration caused by regional settings fixed • Data archives when analyzing composite codes fixed – both 1D and 2D data is saved • Shortcut keys to change form tabs run-time error fixed • Reference Data Export using SQL • Grading Data Matrix with DPM TR-29158 fixed issue with embedded <GS> character • Text wrapping when printing multi-sector report • Verification reports include Pass/Fail indication based on minimum passing score • External trigger (CTRL+SHIFT) • Aperture setting for non-GS1 Data Matrix codes • Quiet zone reporting in 2D analysis screen • Transition Ratio measurement color coding (clarifies FPD grading, helping to understand grading of Data Matrix codes created using dots) • 1 decimal place display of data in calibration screen • Both 1D and 2D parameters included in export reference report when appropriate • "Machine not authorized" error message • GS1 Stacked Databar analysis no longer reports missing <FNC1> when <FNC1> is implied • Rounding when grading Symbol Contrast for Data Matrix improved • Stitching function automatically turns on camera as appropriate • 2D analysis of reflectance values on Analysis Screen exclude 20Z white space analysis • Full and compact Aztec codes grading and reading • Data Matrix structure analysis error that caused dropped characters from reported data fixed • MicroPDF codes read if only one of either the stop or start pattern is valid • Xdim and Symbol Height warning flag (on Setup tab) configurable for all application standards

		<ul style="list-style-type: none"> • Ability to delete an old report on the Archive screen restricted to users who have “Allow change archive file” permission • Software installation guide and Readme.txt added to root of LVS-95XX software download • Auto-logoff inhibited if user is grading symbols but not using mouse • Warnings about minimum X dimensions when near the specification limits • Accuracy of aperture size reporting for Data Matrix codes • Inverted PDF417 and MicroPDF417 reading • Data Matrix and DPM symbol reading • 9510 1.75” field of view • Erroneous non-printable characters included in barcode data • Updated contact reference when using Japanese language • Czech language • Hungarian language • “Suomi-Svenska” removed from the translation table • Default directory cleanup after installation
4.4.0.5101	Jun 27, 2018	<ul style="list-style-type: none"> • Update data identifier database to avoid incorrect structure errors
4.4.0.4106	Jun 27, 2018	<ul style="list-style-type: none"> • Update to Japanese translation file
4.4.0.4105	May 30, 2018	<ul style="list-style-type: none"> • Increase camera watchdog timeout to avoid unnecessary camera reset • Fix type mismatch error during calibration when goals don't match regional settings • Fix communications issue with 9580s
4.4.0.4102	May 18, 2018	<ul style="list-style-type: none"> • Improved ability to communicate with and upgrade older 9570 units
4.4.0.4101	May 17, 2018	<ul style="list-style-type: none"> • Fixed regional setting conflict with SQL • Updated PCB software to support 7.5MHz crystals • Added missing FAQ files • Improved French translations • Fixed translation issue when displaying “GS1”
4.4.0.3009	Apr 30, 2018	<ul style="list-style-type: none"> • Add dynamic baud rate adjustment for 9570 units • Show correct mils on calibrate screen for 1.3" FOV • Add word break option to avoid truncated display of decoded text • Fix problem displaying (9580HD) when applicable • Fix signing conflict with new Atmel 1.2.6 driver • Record minimum passing grade when pass/fail option used • Fix dome light correction for 1.3" FOV • Fix incorrect Invalid AI warning • Show (9580HD) on setup screen if applicable • Solve issue with synthetic aperture aligning with 6 mil aperture on 1.3" FOV • Fix issue with AI calibration card • Add new AI 22 • Change report label from GS1 Pass/Fail to be GS1 Data Structure Pass/Fail • Change Symbol ANSI X3.182 Letter Grade scaling • Fix 9585-HD calibration issue

		<ul style="list-style-type: none"> • Fix incorrect Extraneous FNC1 warning • Allow 9585 HD white balance calibration without factory override • Check HIBC dates for validity • Correct 9585 HD dome light correlation • Enable pulldown for FPMAJ so height warnings can be made optional • Fix bug in trapezoidal correction logic which would occasionally cause a crash • Improve logic for for non-breakable spaces in HTML reports • Recompute Data Matrix error correction codewords when correcting pseudo-random padding errors • Show (9585HD) if camera model is 9585HD • Update manuals • Attempt to mitigate issues with serial number zero • Fix issue with Ctrl + Shift trigger timeout • Remove problematic translation file 040B.dat • Update Atmel drivers to 1.2.6 • Update for modified LVS-9570 driver PCB • Record minimum passing grade when pass/fail option used • Fix incorrect Invalid AI warning shown after <GS>. • Change report label from GS1 Pass/Fail to be GS1 Data Structure Pass/Fail • Fix incorrect Extraneous FNC1 warning • Fix issue with Ctrl + Shift trigger timeout • Restore ability for LVS-9570 to use automatic sector • Allow either <GS> or <232> as separators in GS1 Data Matrix codes • Update max Xdim for Table 6 GS1 Data Matrix (per Gen Spec 18) • Add 2018 GS1 Gen Spec AIs; 714, 8013. New AI for NHRN Portugal and New GS1 identification key: Global Model Number (GMN) • Resolve Run Time error when connecting to an existing MS SQL database • Add new standards for non-DPM versions of Mil-130 • Allow 9510 factory calibration via phone support
4.3.0.3006	08-Nov-2017	<ul style="list-style-type: none"> • Updated to comply with ISO 15416:2016 • Updated for changes to GS1 General Specification v17, dated 1 July 2017 • Allow user to disable decimal grading without using password of the day. • Default setting that provides decimal grading as default for grading parameters. • Improvements to DPM grading • Streamlined software installation process, with fewer driver installation steps. • Removed support for Lumenera cameras used in LVS-9570 serial # 14139 and lower (Dec. 2013 and earlier), LVS-9500, LVS-9505, and LVS-9510 serial # 12906 and lower (June 2012 and earlier). • Added Traditional Chinese language (Taiwan) and character set.
4.3.0.3003	20-Oct-2017	<ul style="list-style-type: none"> • Extend maximum length of AIs 91 through 99 to be 90 characters. • Include decimal for Rmin, Rmax, and GT.
4.3.0.1001	18-Oct-2017	<ul style="list-style-type: none"> • Implement ISO/IEC 15416:2016(E) interpolation rule

4.2.0.3021	16-Sep-2017	<ul style="list-style-type: none"> Automatically detect and draw blue sector box around symbol in DPM mod.
4.2.0.3019	08-Sep-2017	<ul style="list-style-type: none"> Implement ability to read QR Codes when set for DPM.
4.2.0.3016	23-Aug-2017	<ul style="list-style-type: none"> Fix HIBC error when code switch occurs inside \$\$+7 format. Update Japanese Translation File.
4.2.0.3003	06-Jul-2017	<ul style="list-style-type: none"> Fix error in PZN check digit calculation for 2D symbols. Implement new clock track tracking algorithm for DPM. Show additional lighting information. Drop support of Lumenera cameras. Implement more sophisticated event handler. Improve build info displayed when double-clicking version. Include changes from GS1 General Specifications V17. Show HIBC structure if DPM and first character is a '+'. <ul style="list-style-type: none"> Support Taiwan language and character set. Upgrade to Visual Studio 2015 runtime. Use dfu-programmer instead of Atmel Flip. Use Inno Setup instead of InstallShield.
4.2.0.3002	03-Jul-2017	<ul style="list-style-type: none"> Always show first decoded scan line as line 1 in dimensional analysis Copy recovery MDB to correct folder Don't include stale structure information in report of newer code Don't misidentify 9585 as 9580 on setup screen and reports Fix canceling calibration
4.1.0j	23-Jan-2017	<ul style="list-style-type: none"> Fix overly bright images when upgrading which only affects certain LVS-9580s.
4.1.0i	13-Jan-2017	<ul style="list-style-type: none"> Fix bug related to blank passwords and ActiveDirectory. Remove logic to detect contrast label during calibration, as it is unreliable. Update Polish translation file.
4.1.0h	10-Jan-2017	<ul style="list-style-type: none"> Fix exposure decimal places.
4.1.0g	27-Dec-2016	<ul style="list-style-type: none"> Accept GS1-128 calibration card. Avoid overflow error while minimized. Avoid overly bright images when upgrading from older versions. Fix problem with calibration with bright images. Fix symbology errors on tables 7.2, 7.3, and 7.4. Improve system responsiveness during focus calibration.
4.1.0f	07-Nov-2016	<ul style="list-style-type: none"> Fix calibration not being reloaded when shortcut key used to change application standard. Update 0410 Italian translation.
4.1.0e	04-Nov-2016	<ul style="list-style-type: none"> Don't report 'D' for dome lighting on non-LVS-9580 systems. Eliminate image jumping once image is stable. Fix problem with reference reports and SQL Server. Fix update problem with MySQL. Reload calibration when changing application standards. Update manuals.
4.1.0d	20-Oct-2016	<ul style="list-style-type: none"> Don't allow Data Matrix when set for MIL-STD-130N Linear (1D). Fix stitching with LVS-9510/ LVS-9580/ LVS-9585. Update CompactLvsDB to include Microscan in search.
4.1.0c	18-Oct-2016	<ul style="list-style-type: none"> Fix comma vs. period for GS1SpecificationTables. Fix MicroPDF vs. Interleaved 2 of 5 misread.

		<ul style="list-style-type: none"> Record structure information in database so it can be recalled and reprinted. Try to read QR Code when set for DPM.
4.1.0b	11-Oct-2016	<ul style="list-style-type: none"> Grade tilted DPM but issue warning if applicable. Implement non-integral exposure.
4.1.0a	05-Oct-2016	<ul style="list-style-type: none"> Avoid error when review report earlier than the latest report. Don't accept Defects symbol in calibration mode. Fix calibration not working in Manual grading mode. Plot Micro QRCode format cells properly. Show LVS-9585 as a choice on optional features. Show green crosshair on LVS-9580 while moving. Show yellow border while trigger is held.
4.1.0	27-Sep-2016	<ul style="list-style-type: none"> Fix problems when interrupting processing. Fix problems when switching cameras. Instead of beeping, delay operations where possible.
4.0.0n	23-Sep-2016	<ul style="list-style-type: none"> Implement GS1 Table 7.
4.0.0m	19-Sep-2016	<ul style="list-style-type: none"> Finish DPM2 implementation. Fix HIBC link character. Implement new background/multithread model for slower operations. Remember AutoPrint setting and don't reset when changing tabs.
4.0.0L	02-Sep-2016	<ul style="list-style-type: none"> Placeholder for unreleased version.
4.0.0k	26-Aug-2016	<ul style="list-style-type: none"> Changes to Speedup creation of users from Active Directory. Fix HIBC issue - Unrecognized data identifier.
4.0.0j	07-Jun-2016	<ul style="list-style-type: none"> Fixed issue with SQL dB, file access error 75 for Windows users without admin rights.
4.0.0h	25-Apr-2016	<ul style="list-style-type: none"> Add 2D symbologies to GS1 table 4. Add 2D symbologies to GS1 table 7. Added AI (394) Percentage discount of a coupon. Added AI (8012) Software version. Added AI (8111) Loyalty points of a coupon. Change GS1-128 Table 11 aperture to 5. Clean up and sort translation files. Fix Active Directory bug when there are no users in the LVS All Users group. Fix problem misidentifying older LVS-9580 units. Fixed incorrect error about missing leader bars in Data Matrix codes. Fixed missing AI (30) in AI report. Remove obsolete manuals. Try more persistently to read UPC/EAN codes with a wrong check digit. Use data identifiers for MIL-STD-130N.
4.0.0g	10-Mar-2016	<ul style="list-style-type: none"> Fix ConfirmEngineType to catch Microsoft SQL 2014. Fix MySQL MaxValue is reserved keyword; add delimiters when engine type is MySQL. Fix SQL Stmt. error in ActiveDirectoryIntegration. Use UPPER for MySQL and MSSQL. Fix error in ExportReferenceCommand by using MSSQL Database. Improve Microscan logo.
4.0.0g	10-Mar-2016	<ul style="list-style-type: none"> Include rebranded manuals.

		<ul style="list-style-type: none"> • Restore internal designations of Atmel-based LVS-9570 units. • Revert translation files pending redesign.
4.0.0f	04-Feb-2016	<ul style="list-style-type: none"> • Bump revision letter.
4.0.0e	02-Feb-2016	<ul style="list-style-type: none"> • Include proper AIs in report for composite symbols. • Include separate structure reports for 1D and 2D if applicable. • Preserve ActiveDirectory settings when copying database.
4.0.0d	27-Jan-2016	<ul style="list-style-type: none"> • Change default exposure for LVS-9580 from 40 to 70 ms. • Support new red/white lighting for LVS-9580 camera.
4.0.0c	24-Jan-2016	<ul style="list-style-type: none"> • Add ActiveDirectory Log file and form setting to enable. • Add progress bar when creating operators from Active Directory. • Correct bug in Active Directory CreateUsersFromAD. • Fix HTML characters in "Manufactured By" field. • Rename old registry values.
4.0.0b	18-Jan-2016	<ul style="list-style-type: none"> • Add ActiveDirectory Log file and form setting to enable. • Add progress bar with creating operators from Active Directory. • Correct bug in Active Directory CreateUsersFromAD. • Correct bug in new Data Matrix locator algorithm.
4.0.0a	13-Jan-2016	<ul style="list-style-type: none"> • Improve Data Matrix locator algorithm.
4.0.0	06-Jan-2016	<ul style="list-style-type: none"> • Rebrand as Microscan. • Set modulation to 0 for scan lines which fail edge determination.