

# AXICON LINEAR BARCODE VERIFIER SOFTWARE

## Release notes

### **New in version 3.0.0 of Verifier.EXE (03rd June 2025)**

Improvements:

- Thresholding algorithm & grade truncation as per updated ISO 15416:2025
- AICheck: added new AIs 03, 716, 7041, 7250-7259, & 8014, and other changes from GenSpec 2025.
- Tweak Chinese & Japanese translations to use non-ASCII characters as control character name delimiters.

Bug fixes:

- Fix odd behaviour in setup dialogue when (deprecated) "email scan" had been configured in an older (2.3 or earlier) software version.
- Assorted minor bug fixes & stability improvements.

### **New in version 2.4.1 of Verifier.EXE (14th November 2024)**

Improvements:

- DeliveryDate plugin setup has been clarified to remove redundant & useless controls & simplify configuration.
- AIDate plugin can now check new date-bearing AIs 4324 & 4325.
- Drivers for classic USB verifiers updated to FTDI latest version 2.12.36.4.
- Support for old serial CCD readers manufactured before 2006 or so has been removed.
- Remove excessive precision of EAN/UPC nominal height in GS1 report template.
- Aperture selection logic for GS1 codes improved: 7000 verifiers will now always apply the aperture recommended for "General Distribution".
- Less confusing behaviour on clicking 'OK' in Setup dialogue when password for setup is set.

Bug fixes:

- Fix incorrect aperture applied to some small GS1-128 codes (bug introduced in 2.4.0: sorry!).
- Fix short scans with classic USB verifier in virtual COM port mode.

### **New in version 2.4.0 of Verifier.EXE (03rd July 2024)**

Improvements:

- Repgen can now run .AVP plugins, via a new %RunPlugin ...% tag, and can also save scan files including the updated plugin results..
- Lookup improvements: – add ability to export a .CSV file of the current database. – 'Extract GTIN' now defaults on for new installs. – 'View Data' now works for CSV files as well as databases.
- AICheck updated to reflect GenSpec 2024.
- Substantial internal changes to bring linear decoding & verification routines into line with current Camera Verifier software.
- Shrink font of Laetus printed report bar & space information, to fit more elements onto one page.
- Repgen's %DateUK% tag now emits 4-digit years, and leading zeros on dates & month numbers less than 10.

- Updated French, Italian, Portuguese, & Dutch translations.
- Removed 'Email' tab from Setup dialogue: it's unlikely to work with present-day email providers.
- Removed some software features that only existed to support the obsolete PC-5000 wand verifiers.
- Updated text & translations of W:N Ratio/Magnification/X Dimension in Summary window.

Bug fixes:

- Fix 'Check for Updates...' under Windows XP.
- AICheck: warn about trailing Function 1 characters at the end of the code following a variable length field of maximum length.
- Amend defects calculation to fix error taken from ISO 15416:2016's formula.
- Fixed decode of first row of stacked databar expanded with odd number of codewords.
- Spurious width of last ITF character in dimensional analysis.
- Fixed status check of SSCC in GS1 HTML report template.
- Fixed reloading of 'Box Code' & 'Microcode' setting in laetus.exe.
- Dates in .CSV file save are now in ISO 8601 format, rather than hard-coded to d/m/yy as before.
- When upgrading from a version older than 2.0.24, the installer will now back up the example database for the lookup plugin from its old location under <Program Files>\Axicon\Verifier\ into <ProgramData>\Axicon\Verifier\Example.{db|px}-pre2.0.24. Also, if the lookup plugin finds that it was previously configured to use a database inside <Program Files>, it will check the appropriate VirtualStore location for the current user, and show a dialogue if it finds a copy of the database there.
- Fixed lookup in tables containing columns whose name contains space characters.

#### **New in version 2.3.0 of Verifier.EXE (28th April 2021)**

Improvements:

- Introduce Repgen %CSVSep% tag to make using separators other than ',' possible without modifying template file.
- Batch files called from 'Command to run when files are saved:' can now call Repgen without having to give the full path to repgen.exe or add the verifier install directory to %PATH%.
- Updated Traditional Chinese, Simplified Chinese, French, and Japanese translations.
- Laetus Pharmacode Verifier is now installed as standard.
- Added new Application Identifiers 395n & 4300 – 4326 to AICheck.
- Added 'Check for Updates...' to the Help menu.

Bug fixes:

- Fix Code 128 sub-optimal packing not correctly reported when Function 1 in set A or B is followed by four or more digits.
- Fix syntax error in CSV file saving Repgen template script csv-scanfile.pas.
- Fix a couple of potential crashes when scanning multi-row Databar codes.
- RMin in CSV file save is now the percentage value, not the ISO grade, for consistency with other ISO parameters.
- Fix "Format '%s' invalid or incompatible with argument" error when calibration fails (since 2.2.6).
- Install older drivers under Windows XP for classic verifiers.
- Fix plugin results appearing in the wrong fields in ScanDB if a plugin result is present but blank in the scan file.

- Try to avoid occasional corrupt scan files when saving to an unreliable network share.

**New in version 2.2.8 of Verifier.EXE (09th January 2020)**

Improvements:

- Set decodability of Databar 14/expanded guard patterns to 0.0 when the (nominally 1-module) inner element is larger than 3 modules.

Bug fixes:

- Fix occasional crash when searching for reader when using latest FTDI driver.

**New in version 2.2.7 of Verifier.EXE (16th December 2019)**

Improvements:

- Fix typos & broken link in help file.
- Standard CSV repgen template now works as a standalone Repgen template, (without requiring the %CSVScanFile% tag to be defined).
- Minimising the Reader Info window is now not possible, to avoid it getting lost and appearing to block startup.
- Removed some obsolete controls & settings from the 'Advanced' setup tab.
- Installer now installs our code signing certificate.
- Cosmetic fixes to verifier Setup dialogue, and to HIBC & Generic VMCU plugin configuration dialogues.
- Added new AIs 235, 417 & 7240; and new definition of AI 22 to AICheck.
- Removed 'Report' tab from UserData plugin configuration (which never worked properly), & made it possible to create an equivalent report via RepGen instead.

Bug fixes:

- Make cleanup of Windows VirtualStore less likely to cause unexpected errors.
- Don't abort setup if CSV file directory can't be created, unless 'Auto-save CSV' is enabled.
- Fix repgen crash on scans made in continuous scan mode
- Fix spurious error in AICheck when first character of an AI's data is ')'.

**New in version 2.2.6 of Verifier.EXE (22nd August 2019)**

Improvements:

- Add "Custom" scanning environment setting to Inline verifier software, to allow user selection of minimum and maximum allowed X-dimensions.
- English text descriptions of calibration errors, replacing cryptic -60x error code numbers.
- ScanDB tweaks: allow deleting single scans, scan list can scroll sideways, use UserData settings from <All Users> when 'Plugin settings shared by all users' configuration setting is enabled.
- Handle around %IncludeScript% file name in Repgen templates.
- Reader log written to file when searching for readers, to help diagnose program startup issues caused by non-Axicon USB devices.

Bug fixes:

- Fix lookup plugin defaulting to returning blank result.
- Fix AICheck handling of multiple country codes in AI 425; correct a few typos in AICheck AI descriptions; fix spurious extra field display in AIs 703, 7003, & 7007; include length indicator in AI 23; fix a few potential crashing bugs.

- Display translated text for calibration failure message.
- Improve handling of the case when many FTDI USB devices are connected, fix the crash when any of those devices return a description longer than 64 bytes, and handle more than four Classic USB readers connected at once.
- Repgen Configuration in verifier setup now correctly passes one-line flag for CSV files.
- Fixed Repgen template generation in ScanDB.

**New in version 2.2.5 of Verifier.EXE (4th April 2019)**

Improvements:

- Updated FTDI drivers to 2.12.28.
- New Application Identifiers (723s), (8009), & (8026)

Bug fixes:

- Fix AIDate plugin not working, and several small improvements to the plugin.
- Show 'Unexpected or invalid addon' as a structure error.
- Measure & display deviations in Databar Limited right guard pattern correctly.

**New in version 2.2.4 of Verifier.EXE (3rd January 2019)**

Improvements:

- Fix typo in calibration failure message.
- Improve handling of short reads of 5-digit addons.
- Tweak online help description of 'Reflectance Margin' parameter.
- Generic VMCU plugin can now check all AI-bearing codes for VMCUs, and has configuration options to choose what should happen for each symbology.
- Lookup plugin can now extract GTINs from Databar Expanded codes, and can enable or disable lookup on these independently from Databar 14/limited.
- Lookup can now disable the warning when multiple matching records are found, and can also report the number of matches in its output string.
- Disable 'Print' and 'Save as Text' whilst calibrating: the results that would be printed or saved are of no practical use, since they are calculated from the uncalibrated values.
- Adjust layout of summary window automatically so that descriptive text isn't obscured.
- Implemented new (proposed) decodability calculation for addon guard and separator patterns as per draft ISO/IEC 15420.
- Updated Dutch translation.
- Make sure windows don't end up completely off-screen.

Bug fixes:

- Fix a crash when scanning incomplete Databar codes
- Fix print gain compensation calculation in Dimensional Analysis display.
- Reset 'Scan up to' setting when the 'Minimum scans to average' setting is adjusted.
- AICheck: fix parsing of element strings terminated with an unnecessary, but permitted, function 1 character.
- Improve handling of corecode.ini in Windows VirtualStore.

**New in version 2.2.3 of Verifier.EXE (14 June 2018)**

Improvements:

- Add French user manual to CD.
- Updated Danish translation.

Bug fixes:

- Improve consistency of new Element Reflectance Non-uniformity calculation for codes with defects in their margins
- Remove spurious error -611 when reader calibration fails.

**New in version 2.2.2 of Verifier.EXE (27 March 2018)**

Improvements:

- Add option to enable/disable beep when bar code is decoded.
- AICheck:
- Display unknown ISO country code 999 correctly.
- Improve display of currency amounts.
- Add missing display of length to various AIs.
- Fix typos.
- Update list of invalid & mandatory associations.
- Add Portuguese NHRN AI (714).
- Allow multi-plugin configuration window to be shrunk to fit on extremely tiny screens.
- ISBN plugin updated with latest ranges from [isbn-international.org](http://isbn-international.org).

Bug fixes:

- Ignore defects beyond nominal light margin for new Element Reflectance Non-uniformity calculation.
- AICheck: Fix repeated display of number of splices in roll products, AI (8008).

**New in version 2.2.1 of Verifier.EXE (18 December 2017)**

Improvements:

- Updated to incorporate changes in the latest ISO/IEC 15416:2016 standard regarding fractional ("continuous") grading, new Element Reflectance Non-uniformity algorithm, and reporting of Reflectance Margin value. Update 'Interpretation of results' help page and sample scan files correspondingly.
- Other symbology specification names in standard report footer and HTML repgen template updated to current ISO/IEC standards.
- Visual tweaks to help file.
- Sample scan files are now installed in the Program Data folder rather than into Program Files.
- HIBC plugin now has 'Report' button instead of 'Print', to open a report in the default system browser, whence it can be saved, printed to any printer, &c.
- Calibration no longer requires write access to the system TEMP directory: temporary calibration log files are now written to the same directory as the calibration log itself.
- Lower bound for GS1-128 X-dimension in hand-scanning environment is now 170µm rather than 250µm.
- ISBN plugin updated with latest ranges from [isbn-international.org](http://isbn-international.org).
- Character decodabilities within 0.5 of the pass grade are now shown with the warning colour in the Dimensional Analysis window.

Bug fixes:

- Fixed extra character at end of lot/serial number in HIBC plugin; also fix possible nonsense output when link or check character is '/'.

- Fixed RMin/RMax settings in verifier.exe calibration dialogue sometimes jumping back to their previous values.
- \* AICheck: fix parsing of measurement values from variable-length AIs terminated with a function 1.
- Colouring of character decodability and element defects bar graphs is now performed according to the value of the fractional ISO/IEC grades relative to the pass grade.

#### **New in version 2.1.0 of Verifier.EXE (02 October 2017)**

##### Improvements:

- New Windows Installer, and introducing a new version numbering scheme. Bug fix releases will now increment the third number of the version, and feature releases the second. The software title is now "Axicon Linear Verifier" everywhere it appears. This installer will uninstall any installed older version.
- Verifier.exe will now detect if plugins have been installed in Windows VirtualStore by older versions. It will remove them if they are duplicates of plugins installed under <Program Files>; otherwise, it will display a warning dialogue. It also checks for the presence of corecode.ini in VirtualStore.
- Fractional ISO grading and new defects calculation algorithm from ISO/IEC 15416:2016 is implemented, but disabled by default in this release. It will be enabled in a forthcoming version; 2.1.0 will be able to load saved scan files from this future version, but earlier (2.0) versions will refuse to load scan files made with fractional grading enabled.
- Newly-installed plugins are now disabled by default (except for the standard install's AICheck, ISBN, JobRef, and UPC): after installing plugins, you'll have to enable them in the Setup dialogue Plugins tab.

##### Lookup plugin:

- handles multiple matching results better, and allows choosing a column by which to order the results.
- allows choosing SQL dialect.
- description now configurable.
- Added a native Windows version of Repgen.exe (named RepgenW.exe) to avoid flashing up console window when run by another application, and use it from Verifier.exe for CSV saving, custom reports, and batch mode.
- USB 2 drivers updated.
- AICheck includes new Application Identifiers 416, 7020 – 7023, & 8112, and updates the format of AI 425 to variable-length.

##### Bug fixes:

- Readers whose user calibration date is before their factory calibration date are reported as uncalibrated.
- Factory calibration dates of USB 1 readers that appear to be in the future are treated as invalid, and ignored.
- Long lines in the calibration log (e.g. a very long user name) are not truncated when calibrating.
- HIBC plugin secondary supplemental data display is now cleared correctly when scanning an HIBC code containing no secondary data.
- Fix ScanDB plugin results being incomplete when UserData is configured but no UserData results exist.
- Fix hang in ScanDB when loading a scan file fails.

- Fix bug that would fail to report sub-optimal packing for some Code 128 barcodes.

**New in version 2.0.30.3 of Verifier.EXE (13th October 2016)**

Improvements:

- Handle Secondary Supplemental Data in HIBC plugin.
- Allow multiple comma-separated email addresses as recipients of 'email scan file'.
- Fix a couple of minor typos in repgen documentation.
- M&S plugin now reports a zero value in the quantity field value as an error.
- Re-instate user manual and guide on CD.

Bug fixes:

- Fix 'email scan file' not working again until application restart after any error occurred while emailing a scan.
- Fix incorrect display of Code 128 stop character decodability when reference decode algorithm can only decode the stop in one direction.

**New in version 2.0.30.1 of Verifier.EXE (21st July 2016)**

Improvements:

- Removed a couple of redundant and non-effective settings from the Lookup plugin settings.
- Lookup in Excel .xls and .xlst spreadsheet files and Access .mbd databases now works (read-only in Excel files for now).
- Improved handling of errors in lookup plugin.
- Update of blank fields in lookup 'Prompt for Reference' mode is now conditional on 'Insert New' being enabled.
- Updated Dutch translation for verifier and lookup.

Bug fixes:

- Fix description in plugin installer manifest.
- Fix installing plugins from Autorun when VirtualStore folder does not exist.
- Fix potentially truncated output from repgen when -k (keep going) flag is not given and loading a scan file fails.

**New in version 2.0.30.0 of Verifier.EXE (21st June 2016)**

Improvements:

- When scanning environment is set to 'Automatic', assume that all EAN/UPC codes scanned with a 6000 are intended for retail/hand scanning environment, even if their X dimension is > 495µm.
- Removed the not-terribly-useful cscan.exe from the installation.
- Check that the directory selected for CSV file saving exists, and only enable the 'Write CSV' button when a CSV file name has been configured.
- Online verifier is now named Inline in installer and shortcuts.
- Inline verifier now uses 250µm aperture for all GS1-128 and ITF-14 codes, and for all EAN/UPC codes with X dimension >= 495µm, and has a setting to allow choosing the scanning environment to override this.
- Inline verifier software no longer uses the BDE for its list of duplicate codes: instead, it uses an SQLite database, and provides a utility, sqliteimport.exe, to copy records from the old Paradox duplicates database.
- Distinguish between erroneous and extraneous Function 1 characters in AICheck.

- Added new Application Identifiers 394, 8010, 8011, 8012, 8111, and 8200 to AICheck.
- Improvements to GS-1 HTML report template.
- Lookup plugin now uses ADO database connection directly, and no longer depends on the BDE. It can also lookup in CSV files directly, making the TextLookup plugin obsolete, and has many other improvements and bug fixes too.
- ScanDB no longer uses the BDE, nor any database backend at all: it simply maintains a text file list of .scn files, from which it can generate CSV files as before.
- Autorun.EXE's 'Install Optional Plugins' is now a separate executable, pluginst.exe, which runs with elevated privileges, and attempts to move any plugins installed into VirtualStore by previous versions to the correct location under <Program Files>.
- All installed executable files are now signed.

Bug fixes:

- Fix addon gap checking for UPC-E.
- Fix a number of bugs in the HIBC plugin.
- Fix hiding 'Tick all' and 'Untick all' buttons in UserData when no tick boxes have been defined.
- Remove the hard-coded limit on the number of columns in the lookup plugin database, fixing the "Range check error" when there were more than this number, and fixed a crash when trying to recover from a database error on startup.
- Fix Repgen so scripts using StrToFloat/FloatToStr work in locales where the decimal separator is ','.
- Code 128 characters with invalid parity are now not decoded again: the change in 2.0.29.1 to allow decoding Code 128s with invalid parity led to occasional misdecoding of both EAN/UPC and Code 128, and other subtle bugs. There's a new corecode.ini [Code 128] flag bit (of 0x40) to enable decoding such characters if the need ever arises. The old flag bit value (0x20) to disable decoding of invalid parity Code 128 characters is now ignored.
- Fix for settings not being completely saved when plugin test string list contains an empty item.

#### **New in version 2.0.29.1 of Verifier.EXE (09 October 2015)**

Improvements:

- Default maximum number of scans in continuous scan mode is now 106.
- X-dimension of EAN/UPC codes is always shown before magnification, and magnification now isn't ever shown for any other GS1 code types, in accordance with the current General Specification.
- When the scanning environment is set to 'General Retail/Hand Scanning', issue a warning for GS1-128 and ITF-14 codes with X dimension > 495 Åµm.
- Small improvements to Lookup plugin 'Prompt for Reference' mode.
- Grade in Summary window is now shown in ISO 15416 compliant format.
- Note association of AIs 17 & 390 with AI 255.

Bug fixes:

- Don't allow uncalibrated scans in continuous scan mode (fix bug introduced in 2.0.29.0: sorry!).
- Remove nonsensical 'Afghanistan' info text from fisheries AIs in AICheck, and make AI 7009 alpha-numeric.

#### **New in version 2.0.29.1 of Verifier.EXE (26 August 2015)**

- AIDate plugin now allows checking for dates up to 9,999 days in the past or future, and includes AI 16 'Sell By' in the list of AIs to check for dates.
- There's a new setting, 'GS1 Scanning Environment', to choose which aperture should be used for GS1 bar codes where the intended scanning environment and required aperture cannot be



inferred from the code itself. The default setting is 'Automatic', which should behave correctly for the majority of uses. If the automatic setting guesses wrongly, it's possible to force either 'General Distribution' or 'Retail' as the intended use, which switch to a 250Åµm (10) or 150Åµm (06) aperture respectively for codes for which either aperture might be valid. This brings aperture selection for GS1-128 and ITF-14 in line with the current GS-1 General Specifications.

- Lookup plugin includes new 'Prompt for Reference' mode and 'Log Field' feature.
- Code 128 codes with characters of invalid parity can now be decoded.
- A few small corrections & clarifications to the on-line help files.

Bug fixes:

- Fixed missing '%\' in copyuser.bat script.

#### **New in version 2.0.29.0 of Verifier.EXE (29th June 2015)**

Improvements:

- Calibration log file now contains user name of the logged-in user that performed the calibration.
- 250Åµm aperture for EAN/UPC codes in general distribution setting added.
- Maximum aperture for Databar codes is now 250Åµm.
- Add new SASL authentication type to 'Email scan' – should work with gmail's SMTP servers again now.
- Added new fishing industry AIs 7005 – 7010.
- Moved the obsolete 'EAN/UPC Magnification' to the 'Advanced' tab of Setup.
- Continuous scan mode can now stitch together multi-row symbols with more than two rows.
- A single scan of an EAN/UPC which decodes with an addon in a set of scans otherwise without an addon is now treated as a mismatched scan, and does not cause the whole set of scans to be considered to have an addon.
- Updated French translation.
- Tweaks to online help for lookup plugin.

Bug fixes:

- Fix GS1 repgen template preset file name.
- Continuous scan mode scans no longer appear out of order.
- Fixed crash on start-up of "Choose Language" under Windows Server 2008 R2.
- EAN/UPC addons can now only be decoded at the correct length.

#### **New in version 2.0.28.5 of Verifier.EXE (5th January 2015)**

Improvements:

- Add drivers for VeriStation.
- Small correction to setup help page.
- Adjust lower bound for 150 Åµm aperture of Databar codes from 170 to 166 Åµm.
- Add a page to the help file about the possible errors that might appear in the Structure window.
- Updated FTDI drivers to version 2.10.
- Improved the algorithm that decides what the correct decoded value of a set of averaged scans of an ITF to ignore a single long decode.
- AICheck:
- Added 16 (Sell By Date),

- Added 713 (Brazilian National Healthcare Reimbursement Number)
- Increased maximum length of 8007 (International Bank Account Number) to 34
- Show a slightly less terse description of add-on delimiter errors in the Structure window.
- Display the bar & space reference threshold dimensions for Codabar code in the Dimensional Analysis window.
- Updated ISBN plugin with the current ranges from isbn-international.org.
- Many factual, typo & style fixes to the on-line help files.
- The state of the continuous scan button is now saved between runs of the application.

Bug fixes:

- Fix up error handling for serial readers so they actually work again via rdesktop.
- Fix handling of empty field (',') at end of line in TextLookup plugin.
- Always report check digits of incompletely decoded EAN/UPC codes as invalid characters.
- Fix lookup plugin returning the result of the previous database lookup if the settings resulted in trying to look up an empty string.
- Use the correct light margin tolerances for EAN/UPC codes (as per the GenSpec), rather than always overriding them with 0.5 modules.
- Fix short read of Databar Expanded reversed code rows with odd numbers of data characters, and prevent the possibility of short-reading Databar-14.

#### **New in version 2.0.28.3 of Verifier.EXE (16th December 2013)**

Improvements:

- Updated Korean translation.
- Replace user-visible occurrences of 'Narrow Bar Width' and 'NBW' with 'X dimension' and 'X dim' respectively.
- Repgen now has a command-line switch to make all output appear on a single line, which is used when creating CSV files.
- The template file 'csv-template.txt' is now used to create CSV files regardless of the setting of 'Save Path to Scan File in CSV': csv-fullpath-template.txt is no longer used.
- Don't permit calibration with unreasonable values of RMin & RMax.

Bug fixes:

- When there is neither pass nor fail information to be shown in the 'Misc' pane of the pass Pass/Fail window in 'Target Retail Stores' mode, show the pane in the Pass colour.
- Fix check digit checking in 'Italian' (base 32) pharma code plugin.
- Fix display of currency (and other types of) database field contents in lookup plugin results.
- Fix misdecoding of certain Databar Limited symbols in one direction, and report when a Databar Limited code is a negative (white on black).
- Prevent divide-by-zero when calibrating with invalid RMin & RMax.
- Report non-alphanumeric character errors correctly in AICheck.
- Fix Chinese mis-translation of 'Decode' on printed report.