

X9Ware Release History

X9Ware

Your x9.37+ACH+CPA005 support tools

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Release R5.05

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Table of Contents

Enhancements in R5.05 (11/08/2024).....	3
Enhancements in R5.04 (05/22/2024).....	3
Enhancements in R5.03 (01/08/2024).....	4
Enhancements in R5.02 (11/17/2023).....	4
Enhancements in R5.01 (06/26/2023).....	5
Enhancements in R4.12 (03/14/2023).....	6
Enhancements in R4.11 (12/07/2022).....	6
Enhancements in R4.10 (07/26/2022).....	7
Enhancements in R4.09 (03/31/2022).....	7
Enhancements in R4.08 (11/22/2021).....	8
Enhancements in R4.07 (06/23/2021).....	8
Enhancements in R4.06 (03/05/2021).....	9
Enhancements in R4.05 (11/21/2020).....	10
Enhancements in R4.04 (06/09/2020).....	10
Enhancements in R4.03 (02/22/2020).....	11
Enhancements in R4.02 (08/01/2019).....	11
Enhancements in R4.01 (05/27/2019).....	12
Enhancements in R3.12 (02/15/2019).....	13
Enhancements in R3.11 (09/06/2018).....	13
Enhancements in R3.10 (06/20/2018).....	14
Enhancements in R3.09 (01/10/2018).....	14
Enhancements in R3.08 (08/07/2017).....	15
Enhancements in R3.07 (03/06/2017).....	16
Enhancements in R3.06 (10/17/2016).....	16
Enhancements in R3.05 (04/27/2016).....	17
Enhancements in R3.04 (11/19/2015).....	17
Enhancements in R3.03 (08/21/2015).....	18
Enhancements in R3.02 (03/27/2015).....	18
Enhancements in R3.01 (10/20/2014).....	19

Enhancements in R5.05 (11/08/2024)

- X9Assist has an improved path manager that persists input-output folders by function.
- X9Assist File Tree (on the left of the main panel) can now be scrolled using the mouse wheel.
- X9Assist upgraded from Java 17 to Java 21 which is the current LTS (long-term support) release.
- X9Assist has new launch scripts (bat/sh) that can be used to invoke x9assist EXE or JAR.
- X9Assist has an improved auto-restart facility that works in all Java runtime environments.
- X9Assist has new conversion of ACH-to-X9.37 in addition to existing X9.37-to-ACH conversions.
- X9Assist Field Viewer has new option to show field value leading/trailing blanks as bullets.
- X9Assist Item Viewer displays the calculated skew line when E13B-OCR recognition is enabled.
- X9Assist fix for JVM failure when accessibility assistive technologies unexpectedly enabled.
- X9Assist Save now assigns a standard "modificationLogs" folder within the user home folder.
- X9Assist Scrub now attempts to show full filenames within the various file name dialog boxes.
- X9Assist Scrub can target specific routing/account/tc combinations for micr/image replacement.
- X9Assist Scrub has two alternatives when assigning amounts: incrementally versus sequentially.
- X9Assist has a new installer for Linux/macOS that requires a pre-installed Java 11+ JVM.
- X9Assist/X9Utilities compare has resequencing options to pre-sort in item or transaction order.
- X9Utilities -repair is a new function that both validates and repairs an input x9.37 file.
- X9Utilities -exportCsv has added keywords to simplify the export of item MICR fields by name.
- X9Utilities -split now allows very large files to be logically divided by items or bundles.
- X9Utilities -scrub output trailer records adapt to t61 record attributes from the input file.
- X9Utilities has a new "-lxb" switch which will list all input xml beans to the system log.
- X9Utilities now has a build requirement for Java 11 while the SDK remains at Java 1.8.
- X9Utilities has new convert -from:xml to convert items defined within XML documents to x9.37.
- X9Utilities has new convert -from:json to convert items defined within JSON documents to x9.37.
- X9Utilities has new convert -from:cof to convert items defined within FRB COF files to x9.37.
- SDK non-repairable images are only replaced with the missing image when explicitly provided.
- SDK has new basic compare classes for the x9, txt, csv, xml, json, and binary file formats.
- SDK and X9Utilities are fully split into separate products that must be licensed individually.
- SDK X9Factory has new "with()" setters that provide a fluent programming API alternative.
- SDK X9Writer now supports direct assignment of HeaderXml values, as opposed to loading from xml.
- X9Ware renewal email notifications improved with better instructions and website links.

Enhancements in R5.04 (05/22/2024)

- X9Assist Field Viewer has amounts formatted as \$xxx,xxx,xxx.xx within the field name column.
- X9Assist has an improved mechanism to associate popups with the most recent user dialog window.
- X9Assist can now display and repair tiff images with Tiff 6.0 compression types 6 and 7 (JPEG).
- X9Assist Swap Images allows front-back images to be swapped for a series of consecutive items.
- X9Assist IQA/ECI/CLM x9.37 settings (File / IQA Settings) are optionally sticky across sessions.
- X9Assist ACH now validates batch service class 200/220/225 against attached transactions.
- X9Assist ACH has improved EDI 820 payment validation of data embedded within type 7 addendas.
- X9Assist nacha-site-validations is new and simplifies setup of user specific validation rules.
- X9Assist tiff controls are changed to now run IQA by default for both front+back side images.
- X9Assist has instructions+video to help with setup and execution in a Linux Docker Container.
- X9Assist always provides access to all X9Utilities enhancements through the Utilities Console!
- X9Assist/X9Utilities image repair has improved conversion of color/grayscale to black-white.
- X9Assist registration with 19-character license key no longer requires client name to be entered.
- X9Utilities -awx added to many commands to abort when the selected output file already exists.

- X9Utilities console has a new HELP button that shows command line help for the current function.
- X9Utilities console has a new action line button to launch the X9Utilities User Guide.
- X9Utilities -create is a new function that writes ICLs from images using our E13B-OCR recognizer.
- X9Utilities -translate is a new function that reformats x9 files from one standard to another.
- X9Utilities -ocr is a new function that runs our E13B-OCR recognizer with results written to csv.
- X9Utilities -qualify is a new function that analyzes images with results to output csv file.
- X9Utilities -write has new HeaderXml switch to force each credit to begin in a new cash letter.
- X9Utilities merge now supports files that contain multiple cash letters.
- X9Utilities merge has new -gbn switch to resequence selected input files by logical file name.
- X9Utilities merge has new -select switch that filters input based on the file header content.
- X9Utilities export -xft supports value lookbacks to file, cash letter, and bundle header records.
- SDK has new field edit rule 'anslb' which accepts alphanumeric with optional leading blanks.
- SDK gray scale thresholding significantly improved using enhanced Otsu and Adaptive algorithms.
- SDK X9Rules has new "regex" edit rule that simplifies implementation of validation overrides.
- E13B-OCR has improved read rates for certain images where noise has spilled into the micr line.

Enhancements in R5.03 (01/08/2024)

- X9Ware has 80+ help videos now available as X9Assist/Help/Videos/ as accessed via our website.
- X9Assist-Make-937 has new depositFile.xlsm with a "Validate" button to pre-check entered data.
- X9Assist validation improvements after records/images are modified, deleted, and reverted.
- X9Assist Modify panel font usage corrected to allow value changes to be highlighted as entered.
- X9Assist Field Viewer copy/paste of field values assigns actual value and not their HTML strings.
- X9Assist has new "x9.37-single-credit-first" configuration which requires a single icl credit.
- X9Assist has improved tab/table resets associated with file open/close operations.
- X9Assist has a simplified select all/none approach based on buttons instead of radio buttons.
- X9Assist Search/Replace has usability improvements for larger monitors (width >= 1400).
- X9Assist Export supports the -xf translate and item records only functions added to x9utilities.
- X9Assist Scrub now supports field level inclusion/exclusion for the ach and cpa005 dialects.
- X9Assist has confirmed FRB truncation indicator validation rules needed for FEB 2024.
- X9Utilities -write incoming csv lines can contain "*" in column one to indicate comment lines.
- X9Utilities -write has a new sample of how to use batch profiles to group items by depositor.
- X9Utilities -export -xf has a new -xtr switch to translate columns into an alternate sequence.
- X9Utilities -export -iro switch includes item record types only and skips all headers/trailers.
- X9Utilities Console UI layout improved to address some quirks and take advantage of screen size.
- X9Utilities Console allows the formulated command line to be copied into the system clipboard.

Enhancements in R5.02 (11/17/2023)

- X9Assist Amend is a new low-level record level editor: copy/paste, move, duplicate, delete, etc.
- X9Assist Merge allows multiple file selections, which can then come from different folders.
- X9Assist Make reformatter panel fields are reordered and displayed in their csv column order.
- X9Assist Create, Print IRD, and Print Image now display file and selected filter totals.
- X9Assist Save allows an optional \$\$ADD string to be included as used by mailbox/gateway logins.
- X9Assist Import saves and restores parameters to user preferences to be used across sessions.
- X9Assist Import update of type 70 bundle trailer micr valid amount and image count is optional.
- X9Assist Import supports the CPA005 format; these files can be exported, imported, and amended.
- X9Assist ICL-to-ICLR can create a new ICLR using a filter with item level return reasons.

- X9Assist ACH support is improved and supports returns, dishonored, and contested-dishonored.
- X9Assist Make Excel VBA function now validates yymmdd, yyyyymmdd, mmdd, ddd, and hhmmss.
- X9Assist Image Viewer image blur is improved and can be applied multiple times to the same image.
- X9Assist Image Viewer append micr strip now squeezes blanks within the MICR line when needed.
- X9Assist and X9Utilities image export supports image conversion to IRD format for ICL/ICLR.
- X9Assist reader progress bar shows megabytes per second (MBS) as input files are being loaded.
- X9Assist file chooser dialog titles include descriptive text to describe their selection mode.
- X9Assist validates our internal file hash code before save and again after the file is reloaded.
- X9Assist online license registration upgraded to https with improved timeout/retry capabilities.
- X9Assist Utilities Console shows longer portions of selected filenames subject to table space.
- X9Assist CSV Editor now includes tool bar options for both Save and SaveAs.
- X9Assist MSI Setup tool (Caphyon Advanced Installer) was upgraded from release 19.4 to 21.1.
- E13B-OCR has an improved deskew algorithm with increased recognition rates and performance.
- E13B-OCR has additional strategies to isolate micr line characters overlaid with handwriting.
- SDK x9.37 export from a single file has an improved API that mimics x9utilities functionality.
- SDK has new class X9Type68 which provides a generic mapping of the type 68 user record.
- SDK has new example X9VerifyAch which shows how ACH files can be easily loaded and verified.
- SDK has new update and split classes (previously in X9Utilities) that be invoked by applications.

Enhancements in R5.01 (06/26/2023)

- X9Assist has continuing improved support for multiple monitor environments.
- X9Assist x9.37 validation applies auto-balancing to files that contain a single credit.
- X9Assist has improved error messages for invalid ACH record lengths when CRLF is present.
- X9Assist ACH reversals improved to properly handle files that already includes reversal batches.
- X9Assist Field Viewer shows field value leading/trailing blanks as shaded cells and not bullets.
- X9Assist validation only throws image width insufficient for AuxOnUs error on type 25 items.
- X9Assist Make/Generate has a new reformatter to print out-of-file forward presentment originals.
- X9Assist Hex Viewer now displays ACH optional CRLF separators and end of file pad records.
- X9Assist Items (937,ACH,CP5) has separate amount columns for debits versus credits.
- X9Assist Excel Exporter now excludes batch header rows when Item tables are being exported.
- X9Assist now validates the balancing amount when an ACH file has a single offsetting item.
- X9Assist has improved capability to repair out-of-balance credits for X9 and ACH files.
- X9Assist Utilities Console supports the new X9Utilities batch and script enhancements.
- X9Assist records table (at bottom of the dashboard) now has vertical lines every 10 columns.
- X9Assist Utilities Console has a new "set" button that allows file names to be copy-pasted.
- X9Utilities supports -batch which processed a model command line against an input folder.
- X9Utilities supports -script which executes all command lines provided via an input text file.
- X9Utilities -batch and -script processing are multi-threaded and run work units in parallel.
- X9Utilities -draw is new and draws images (credits, rcc, etc) and writes to external tiff files.
- X9Utilities -write paid stamps have increased flexibility with optional boxing and filling.
- X9Utilities -write/-import have new -dpi:nnn switch to draw images as either 200 or 240 dpi.
- X9Utilities -split has new MICR onus lookup rules to simplify 25.6 account number matching.
- X9Utilities translate and writer work together to convert x9 files from one format to another.
- X9Utilities -translate new switches "noHeaderXml" and "noCredits" improve control of output csv.
- X9Utilities switch -logger: and -write "logger" csv line type can be used for log correlation.
- SDK deposit balancing rules has new options of single, singleDebit, and singleCredit.
- SDK has all API's converted from java.util.Date to java.time.LocalDate, LocalDateTime, etc.

Enhancements in R4.12 (03/14/2023)

- X9Assist Reversals is new and generates X9/Ach/CPA005 reversals from either a file or PickList.
- X9Assist Template Editor is new and allows Make/Generate template xml+images to be updated.
- X9Assist Create from PickList can select credits and will force balance the generated ICL.
- X9Assist Create has new option for ICLR files to insert type 33 Return Addendum B when missing.
- X9Assist Make/Generate has a new reformatter to print out-of-file IRDs using Excel input+images.
- X9Assist Make/Generate legal amount on front image can be drawn in English, French, and Spanish.
- X9Assist usability improvements for monitor width less than 1280.
- X9Assist user specified font size (on the tool bar) is applied to more UI components.
- X9Assist user initiated evaluation from X9Lite expanded to include X9.37, ACH, and CPA005.
- X9Assist E13B-OCR MICR recognition has improvements based on physical character attributes.
- X9Assist E13B-OCR MICR recognition repairs and analyzes non-standard images whenever possible.
- X9Assist has an improved informational popup box when licenses are nearing their expiration.
- X9Assist has a cancel icon added to the tool bar menu in all dialogs (as a convenience).
- X9Assist Tiff Tester has performance improvements when using "?" for recognition insight.
- X9Assist/SDK now repairs incorrectly sized images to 7.35 x 3.32 inches (average check size).
- X9Assist/X9Lite (our freeware) is now the demonstration platform for our E13B-OCR product.
- X9Utilities -write can accept front/back images as embedded base64 strings (and not files).
- X9Utilities -write new "image2" line accepts front back images within a multi-page tiff image.
- X9Utilities -write "image" and "image2" now support inline images using base64 encoding.
- X9Utilities -write depositStructure "bundledCredits" forces every bundle to contain a credit.
- X9Utilities -write drawn credit image title can be customized defaulting to "Remote Deposit".
- X9Utilities -exportCsv optionally accepts the output csvFile and imageFolder on the command line.
- X9Utilities -merge has new command line options to override credit impact on trailer records.

Enhancements in R4.11 (12/07/2022)

- X9Assist field viewer (and other tables) are using a new font with improved readability.
- X9Assist has improved truncation indicator validation for record types 26/28/32/35.
- X9Assist has IRD print improvements for Subsequent IRD Used for Returns (MICR EPC of 4).
- X9Assist modify/delete has improved ability to automatically update x9.37 trailer records.
- X9Assist modify/delete trailer updates are sensitive to type 70 conditional fields usage.
- X9Assist delete includes debit and credit counts/amounts in the popup approval message.
- X9Assist delete automatically launches file validation after the records are removed.
- X9Assist Tiff Tester can optionally display the MICR gauge box and run our E13B-OCR recognition.
- X9Assist Unlimited can restrict user functionality based on LDAP/AD group assignments.
- X9Assist file chooser confirms selected files are readable/writable subject to user permissions.
- X9Assist Csv Editor reset now includes automatic column resizing based on current values.
- X9Assist Xml Editor is a new generic xml file editor that operates at the logical element level.
- X9Assist utilities console has usability improvements including a new file selector panel.
- X9Assist/SDK max image length increased from 2MB to 9.5MB (based on 52.18 max field length).
- X9Utilities includes the interactive utilities console (UI) as demonstration of capabilities.
- X9Utilities -write can optionally exclude type 61 credits from 70/90 trailer image counts.
- X9Utilities -export -xf has a new "asis" switch to export item amounts even when non-numeric.
- X9Utilities -export -xf has a new check number field populated from AuxOnUs or Process Control.
- X9Utilities -exportCsv provides parsed "AccountNumber" and "CheckNumber" output fields.
- X9Utilities -write can assign type 26 deposit account when the file does not contain credits.

- X9Utilities -write and -import set exit status 3 when any output data fields were truncated.
- X9Assist/X9Utilities export optionally creates output image folders based on an image limit.
- X9Assist/X9Utilities compare includes identified differences count in output txt/csv files.
- SDK X9Writer/X9SdkIO now accumulate the total number of output fields truncated due to size.

Enhancements in R4.10 (07/26/2022)

- X9Assist program launch title bar includes the license expiration date.
- X9Assist has new flat UI theme with lite and dark modes which is now the system default.
- X9Assist File Open adds the Home folder to the left-side panel of available folder locations.
- X9Assist has a new installer that can assign file associations, runnable as Admin or User.
- X9Assist has improved flexibility to assign the GUI font size from the system task bar.
- X9Assist Items937 tab on the dashboard shows the type 70 bundle amount (instead of just \$0).
- X9Assist Errors tab on the dashboard can add items to the system PickList by error message.
- X9Assist Recent Files has an improved layout with a remove button for each individual file.
- X9Assist Filter Import supports saved configurations that allow definition of filter columns.
- X9Assist has a new popup error for TIFF images that are failed during decoder decompression.
- X9Assist IQA tags individual TIFF images that fail decompression with a new error message.
- X9Assist now supports Canadian Central1-MICR files as part our general CPA005 implementation.
- X9Assist File Tree has a better visual indicator set while an input file is being loaded.
- X9Assist Make/Generate-937 Record Usage Indicator can be assigned for several credit formats.
- X9Assist has new X9Rules Editor that supports browse+editing of x9 xml rules documents.
- X9Assist has new TIFF Rules Editor that supports browse+editing of tiff rules xml documents.
- X9Assist Csv Editor has improved auto-sizing of columns based on actual input csv data.
- X9Assist Hex Display improvements when input files are structurally flawed at file offset zero.
- X9Assist Internal Security Manager removed and replaced with new socket blocking technology.
- X9Assist/X9Utilities Export to csv fixed columns all record types can now include column names.
- X9Utilities -make is a new function that runs Make/Generate, exactly as provided by X9Assist.
- X9Utilities new -j command line flag will write totals in JSON format (-t -x flags still exist).
- X9Assist/SDK Rules allow ACH pad records to be defined as required, optional, or prohibited.
- X9Assist/SDK has all x9rules definitions reformatted and saved using the new X9Rules Editor.
- SDK has a new example program that invokes X9Utilities-write from a Spring Boot application.

Enhancements in R4.09 (03/31/2022)

- X9Assist startup now displays release and build on the splash screen.
- X9Assist Item Viewer has a new tool bar button to add the current item to the PickList.
- X9Assist Item Viewer Tiff Tags hex (now on left) shows the full IFD as formatted hex display.
- X9Assist Item Viewer Hex uses the mono-spaced font and is redesigned for copy+paste operations.
- X9Assist running on multi-monitor system opens all dialogs on same monitor running X9Assist.
- X9Assist Field Viewer (and all other tables) now use multi-interval row/column/cell selection.
- X9Assist Bulletin Table maximum rows increased to 10000 and can be assigned via program options.
- X9Assist tracks FileChooser startup latency and suggests switch to OpenFileDialog when appropriate.
- X9Assist Make/Generate-937 10.10 cash letter identifier can begin at a user defined number.
- X9Assist Make/Generate-937 20.8 bundle sequence number can begin at a user defined number.
- X9Assist Make/Generate-937 provides string formatting patterns for 10.10, 20.7, and 20.8.
- X9Assist Make/Generate-937 allows 28.3 routing assignment from preceding 26/33 or 25/31 records.
- X9Assist Print Cash Letter is new and includes detailed file+item+addenda information.
- X9Assist Print Cash Letter will print from file, filter, or selected items from the file tree.

- X9Assist Print Images supports selection of multiple items (using CTRL) within the file tree.
- X9Assist Print IRDs can now print items selected either through the file tree or from filters.
- X9Assist Make/Generate-ACH is rewritten with improved reformatters and use case files.
- X9Assist Export initializes run mode as single-or-multi based on whether a file has been opened.
- X9Assist Item Viewer exports the working version of an image (it does not have to be replaced).
- X9Utilities -write has a new "t26" line which can create varying BOFD addendas for each item.
- X9Assist/SDK scrub has new option to draw template images at 200, 240, or the original image dpi.
- X9Assist/SDK tiff image validation now checks for tiff tags with shared pointer offsets.
- X9Assist/SDK field validation allows specific ANS characters to be flagged as invalid by dialect.
- X9Assist/SDK now supports type68 records with same owner format type (but different xml formats).
- X9Ware TiffKit is a new product that can inspect, write, and repair tiff images per x9.100-181.
- SDK stream reader has improved performance when reading x9.37 streams within AWS containers.

Enhancements in R4.08 (11/22/2021)

- X9Assist/SDK adds support for the Canadian CPA005 electronic file format.
- X9Assist/SDK now supports three separate file formats (X9.37, ACH, and CPA005).
- X9Assist Item Viewer can now run single image automated repair to fix tiff tags (etc).
- X9Assist Item Viewer deskew rotates an image that was slightly tilted during capture.
- X9Assist Item Viewer blur applies an image blurring operation to simulate scanner issues.
- X9Assist Item Viewer flip rotates an image 180 degrees when initially captured upside down.
- X9Assist Item Viewer exchange swaps front and back images when incorrectly captured.
- X9Assist Item Viewer performs all modify-image functions (load replacement, missing, etc).
- X9Assist Item Viewer now replaces an image after sharpen, deskew, flip, exchange, repair, etc.
- X9Assist Make images tab includes a title line for each thumbnail with image name, dpi, size.
- X9Assist Make/Generate automatically resizes template images that are not stored at 240 dpi.
- X9Assist Modify runs a full-file validation of all records and fields after each update.
- X9Assist asks and then auto-opens a file save dialog when exiting with unsaved changes.
- X9Assist Search export-hits button writes all field level hits to an output csv file.
- X9Assist ModifyLog export-log button writes all record modifications to an output csv file.
- X9Assist Export to xml has a new hierarchical format (file, cash letters, bundles, and items).
- X9Assist/SDK can convert ACH files to Pain.001 (credit) and Pain.008 (debit) transfer formats.
- X9Assist Registration now auto-detects user licenses that have been copied into the clipboard.
- X9Assist opens and launches csv files into our CSV Editor using file-open from the toolbar.
- X9Assist uses a new mono-spaced font that is easier to read (within the field viewer, etc).
- X9Assist MSI Installer updated from Java 11 to Java 17; runtime dependency is still Java 11.
- X9Utilities -update can assign values based on lookbacks to earlier records and fields.
- X9Utilities -update can assign values based on a user defined external lookup table.
- X9Utilities -merge has new packaging options that control how files are grouped by the merge.
- X9Utilities -merge timestamp file now includes detailed totals of all files that are merged.
- X9Utilities -merge max output file size can be set to zero for unlimited w/o suffix assignment.
- AchAssist/SDK NACHA record line breaks can be defined as required, optional, or prohibited.

Enhancements in R4.07 (06/23/2021)

- X9Assist Font Size can be selected from the primary tool bar (small, medium, large).
- X9Assist Make/Generate templates now include an optional back image (in addition to front).
- X9Assist Make/Generate has a new "credit" template category, similar to retail and business.
- X9Assist Make/Generate has two new credit templates which can be assigned round-robin.
- X9Assist Make/Generate has new payeeName2/payeeName3 fields for the front image template.

- X9Assist Make/Generate credit templates can now be explicitly assigned from the use case file.
- X9Assist Make popup now suggests reformatter/generator to be saved when changes are detected.
- X9Assist has redesigned ECI detection techniques with improved accuracy and performance.
- X9Assist xml/checkFormats renamed to xml/templates in support of backward compatibility.
- X9Assist Image/IRD Print has improved selection of 1200 vs 600 DPI with the default now 600.
- X9Assist CSV Editor assigns better default columns widths subject to total columns present.
- X9Assist X9.37 validation includes auto discovery of CR61 amount impact on trailer records.
- X9Assist UI now supports dark mode which is selected from help-options-gui --- please comment!
- X9Assist System Log from file menu now opens the log folder instead of the current log file.
- X9Assist Item Viewer can display BMP images in addition to TIFF (expected), PNG, JPG, and GIF.
- X9Assist Search/Replace can target addenda record updates to debits, credits, or all.
- X9Assist Open Path function can access unmapped network folders using UNC (\\server) name.
- X9Assist/X9Utilities Export now optionally converts output images to PNG, JPG, or GIF.
- X9Assist/X9Utilities Fixed Export (-xfc) now inserts a CSV column name headers line as row one.
- X9Assist/SDK has improved error messages for ACH files using non-standard character sets.
- X9Assist/SDK has improved processing for ACH records that contain invalid UTF-8 characters.
- X9Assist/SDK "notInValuesList" includes the expected values within the error message.
- X9Utilities -write has new RCC debit/credit templates that can be used to draw basic items.
- X9Utilities -write can populate customized credit/debit markers into the type 26 user field.
- X9Utilities -write generic t25/credit CSV lines can now be used with RCC -drawImages.
- X9Utilities -update supersedes findReplace with multiple search values and regex capabilities.
- X9Utilities -split is new and splits an existing x9 file based on header/item field content.
- X9Utilities -exportCsv is new and exports a single x9 file to csv with user defined columns.
- X9Utilities Jar Installations (Linux, OSX, etc) can pack their license key within the jar.
- SDK Error Message Patterns can now be defined once in xml and then repetitively reused.
- SDK has improved color and gray scale image conversions to bitonal (black-white) images.
- E13B-OCR has improved accuracy using machine learning and improved character attribute matching.

Enhancements in R4.06 (03/05/2021)

- X9Assist has new shared bookmark facilities added to all file chooser dialogs (open, save, etc).
- X9Assist file chooser opens in details mode with columns auto-sized based on content.
- X9Assist now automatically closes all open dialogs when using right click on the task bar.
- X9Assist dashboard reports tiff image errors against the type 52 record for improved clarity.
- X9Assist filter import/export can be used to save/resume filter work and share work with others.
- X9Assist filter import/export can be used to remove filtered items in one file from another file.
- X9Assist CsvEditor is now launched to view various generated csv files (Export, Make, etc).
- X9Assist CsvEditor has improved performance when opening larger csv files (> 10k rows).
- X9Assist CsvEditor can now open XLS/XLSX files which can be edited and saved to CSV.
- X9Assist/X9Utilities export errors includes new column 25 which summarizes the error condition.
- X9Assist/SDK new global error message pattern controls error message format and content.
- X9Assist/SDK error messages can be assigned at the record/field level (text and severity).
- X9Assist Message Editor enhanced to support entry of new record/field level message controls.
- X9Assist Csv Editor supports tab (forward) and shift-tab (backward) to move between cells.
- X9Validator now includes search/replace which provides this functionality to more users.
- X9Assist/X9Utilities export to csv can now insert images as base64 encoded strings.
- X9Assist/X9Utilities export to csv/xml has new image options for base64 and mime encoding.
- X9Utilities "-export -xf" with "-rectypes:items" skips headers/trailers and pulls items only.
- X9Utilities function -scrub can now run at the folder level utilizing background threading.

- SDK includes mixed use of file and stream support (in SdkIO, Export, Writer, Scrub, etc).
- SDK new example X9ReadX9ExportCsv creates CSV output exactly as X9Utilities/X9Assist.
- SDK new example X9ReadX9AsStream reads an incoming x9.37 as stream and parses by record type.
- SDK has improved error messages for ACH files with invalid trailing pad (9's) records.
- SDK has improved inspection techniques to identify reasonable ACH data and reject invalid files.

Enhancements in R4.05 (11/21/2020)

- X9Ware has introduced new unique and identifiable logos across our website and product line.
- X9Ware is now a reseller of the EZ-Scan series of workstation-based check scanning products.
- X9Assist now includes the X9Assist Quick Start Guide which is accessible via help.
- X9Assist/SDK flawed file improvements allow more files to enter validation processing.
- X9Assist export allows parameters to be loaded/saved as a reusable xml configuration.
- X9Assist has better record positioning of flawed files when launched into the hex viewer.
- X9Assist new CSV Editor supports a variable number of columns as required by X9.37 and ACH.
- X9Assist CSV Editor includes row/column based functions: insert, delete, copy, cut, paste, etc.
- X9Assist import panel is now "sticky" with parameters saved within the same user session.
- X9Assist import function to draw images was removed with R4.03 and now added back with R4.05.
- X9Assist has new HeaderXml937 Editor to update SDK/X9Utilities "-write" HeaderXml files.
- X9Assist Item Viewer has AuxOnUs/Routing/OnUs/Amount in larger font for improved visualization.
- X9Assist multi-file export has improved error recovery that traps flawed exceptions.
- X9Assist credit table editor allows new files to be loaded within the editor session.
- X9Assist editors highlight selected rows (the select checkbox) in green to confirm selection.
- X9Utilities "-write" HeaderXml can now populate type 26 BOFD deposit branch and payee name.
- X9Utilities "-export -xm" provides multi-file export facilities as available in X9Assist.
- AchAssist applies FRB MOD10 check digit validation to item routing 6.3 for all entry classes.
- AchAssist applies validations to 820 EDI payment documents embedded within CCD/CTX addenda.
- AchAssist field viewer now parses and displays data segments within EDI 820 payment documents.
- AchAssist/SDK has various ACH validation and error messaging improvements.
- AchAssist/SDK has improved recovery parsing when ACH logical records are not 94 characters.
- SDK has improved CSV Writer that minimizes double-quoted fields based on actual field content.
- E13B-OCR has improved removal of leading/trailing noise characters ("*") on the MICR line.

Enhancements in R4.04 (06/09/2020)

- X9Assist has improved support for very large x937 files, which can load files 4G or larger.
- X9Assist has improved support for high resolution monitors including Microsoft Surface Pro.
- X9Assist Item Viewer has a new zoom slider on the full screen (front/back) image tabs.
- X9Assist Item Viewer rotate function now flips the full scale image 90 degrees per rotate.
- X9Assist Create from Filter supports user selected CR61/62s which are now preserved on output.
- X9Assist has new license key registration panels that are simplified and easier to use.
- X9Assist license keys no longer need to be entered -- they are distributed as import format.
- X9Assist Make/Generate can populate 26.4/32.4 BOFD endorsement date at the item level.
- X9Assist Make/Generate has new CR61/CR62 generator options which define CR record positioning.
- X9Assist Make/Generate can populate a constant value into addenda user field 28.10/35.10.
- X9Assist Make/Generate draw of demo X9Ware LLC paid stamp on the back-side image is now optional.
- X9Assist IRD Print has a new printer layout for Troy 3 checks 8.5 x 11 DLA834 (7000) stock.
- X9Assist IRD Print has a new printer layout for Troy 3 checks 8.5 x 13 45-20462 stock.

- X9Assist has improved viewport scrolling when panels are clicked within their scroll bars.
- X9Assist+X9WareSDK+E13B-OCR are distributed as Java 11 but made available as 1.8 when needed.
- X9Assist takes slightly more time to launch but is then 40-50% faster once loaded and running.
- X9Assist has new EXE installer for Windows with more options and improved removal capability.
- X9Assist retains our ZIP installer capability for Windows which runs without ADMIN privileges.
- X9Assist has new ZIP installer for Linux/OSX installations (BYO JVM) at no additional cost.
- X9Assist Item Viewer has a new E13B-OCR panel which provides insight into recognition results.
- X9Assist JAR version can be used in support of external automation and instrumentation efforts.
- X9Assist/X9Utilities export can optionally insert the decimal point into all amount fields.
- X9Validator now allows Print Image to utilize all available page formats (not just IRDs).
- AchValidator/AchAssist/SDK include various ACH validation corrections and improvements.
- X9Utilities/X9SDK are issued evaluation and perpetual license keys by client/company name.

Enhancements in R4.03 (02/22/2020)

- X9Assist dashboard viewers can be scrolled using the mouse wheel within the right button panel.
- X9Assist save-as now sets the default output folder from the original input file folder.
- X9Assist print tables headings include source/total lines which summarize overall file content.
- X9Assist print tables now defaults to the batch table as a basic summary of file content.
- X9Assist Item Viewers (x9.37/ach) and Print Image Preview can now scroll using the mouse wheel.
- X9Assist has much improved Code Line Match (CLM) based on rewritten SDK OCR recognition.
- X9Assist file name boxes (make,generate,scrub,print,etc) have full filename rollover tool tips.
- X9Assist has expanded credit balancing parameters within program options.
- X9Assist Make/Generate can populate 28.5/35.5 from the current item sequence number.
- X9Assist Make/Generate can optionally populate bundle trailer MICR valid amount (70.4).
- X9Assist Make/Generate can optionally populate bundle trailer image count (70.5).
- X9Assist Make/Generate can optionally populate cash letter trailer ECE Institution Name (90.6).
- X9Assist Make/Generate can explicitly assign fields 50.2, 50.5, 50.6, 50.9, 50.10, and 50.15.
- X9Assist Import has a new "as is" option which imports images regardless of format, dpi, or size.
- X9Rules has new credit balancing parameters which define when credit balancing is to be applied.
- X9Rules "dateRange" rule validates a "low|high" date range based on days, weekdays, and holidays.
- SDK OCR-E13B rewritten with 99.6% accuracy running 14-16 items per second (50+ when threaded).
- SDK demo writer examples have been simplified by attaching images to x9items using 64bit heap.
- SDK example X9ReformatX9 changes the x9 standard, header content, and can add/remove credits.
- SDK example X9ConstructAch uses our new X9AchWriter to reformat x9.37 to an ACH ARC file.

Enhancements in R4.02 (08/01/2019)

- X9Assist has a new consolidated dashboard format which simplifies overall usage.
- X9Assist scrub can separately select routing, account, and sequence numbers in addenda records.
- X9Assist scrub has an include/exclude facility to further control fields to be sanitized.
- X9Assist has new Print ICLR function which simplifies printing of an ICLR as substitute checks.
- X9Assist includes IRD print enhancements which resolve various formatting and printer issues.
- X9Assist ICLR->ICL conversion now populates 25.12 BOFD indicator as "U" (undetermined).
- X9Assist item detail now includes BOFD date/routing and image creator date/routing/IRN.
- X9Assist Make/Generate allows selection of a specific use case worksheet from the input workbook.
- X9Assist Make/Generate auto-excludes Excel worksheets with a parenthesized () sheet name.
- X9Assist Make/Generate no longer requires the use case worksheet to be first within the workbook.
- X9Assist Make/Generate supports custom numeric format strings of "#####-#####" and "#####-####".
- X9Assist Make/Generate can populate trailer credit indicators (70,90,99) for x9.100-187-2016.

- X9Assist Make/Generate can populate the user field in BOFD addenda records (26.12, 32.12).
- X9Assist field viewer automatically hides edit rules 2-10 when those rules are not being used.
- AchAssist has all sample Make use case templates combined into a single XLSX workbook.
- AchAssist/X9AssistPlus includes various validation improvements for ach files.
- AchAssist scrub allows the account number (6.5) to be independently selected.
- AchAssist repair can correct the addenda count based on actual addenda records present.
- X9Assist is now launched as a full screen application with numerous UI improvements.
- X9Assist has a right-side table header control which allows individual columns to be hidden.
- X9Assist excludes hidden columns from various tables when printing or exporting to Excel.
- X9Assist resizes the Field Viewer "value" column width based on actual record data present.
- X9Assist allows an override home folder (x9_assist) location to be specified via program options.
- X9Assist has a new Quick Start Guide on the Help menu and added to the X9Assist User Guide.
- X9Utilities -write can populate 52.3 (ECE routing) separately from bundle header 10.4.
- X9Utilities -write can populate time stamped AuxOnUs values within dynamically created credits.
- SDK:X9ConstructX9 is a new low level example which creates an x9 with a type 61 record.
- New ACH file validation option can assign "required" fields to be either mandatory or optional.
- SDK upgraded to now support OpenJDK 8 through 11 (which is the latest Oracle long term release).

Enhancements in R4.01 (05/27/2019)

- X9Assist file revalidation from the menubar is easier to use and is sticky across sessions.
- X9Assist tree viewer has separate DR/CR totals at the file, cash letter, and bundle levels.
- X9Assist cash letter tab has separate DR/CR totals for accumulated item count and amount.
- X9Assist cash letter tab includes destination/origination, contact name, and contact phone.
- X9Assist has improved error message format shown in the dashboard lower left feedback panel.
- Make/Generate can optionally attach type 26/28 addendum records to type 61/62 credits.
- Make/Generate can optionally create x9.37 files that do not contain images (no 50-52 records).
- Make/Generate can create multi-cash letter files with varying cash letter destination routings.
- Make/Generate can optionally set the type 61 debit/credit indicator (typical value of "2").
- Make/Generate can now easily create supplemental gray scale images (front or front+back).
- Make has all settings from the make and generate tabs consolidated into a single panel.
- Make reformatter has new transactionDate column which is used to assign ICLR returns 31.9.
- X9 validation issues a new warning when item sequence numbers or routing numbers are zero.
- Item Viewer has improved support for attached supplemental (gray scale) images.
- ACH Make/Generate example Excel have drop down lists for transaction code selection.
- ACH Make/Generate example Excel use case files now create automated balancing entries.
- X9Assist field viewer displays an extended value grid for fields which exceed 80 characters.
- X9Assist program options can assign type 61 record format as override to auto discovery.
- X9Assist program options can enable/disable validation of FRB district within routing numbers.
- X9Assist has new Message Editor to maintain assigned error message severity and text.
- X9Assist has new Credit Table Editor to maintain the optional credit routing POD table.
- X9Assist ZIP installer is now created using our 64 bit application (not as 32 bit).
- X9Rules can override message severity at the field level (eg, "n!warn" issues warning message).
- X9Utilities -write can organize and batch deposits within dedicated cash letters.
- X9Utilities -write can now create x9.100-180 files.
- X9Utilities -write headerXml fileIdModifier reference can be either absolute or relative.
- X9Utilities -write new paidStamp csv directive which draws a paid stamp on the back side image.
- X9Utilities -export without config: now auto-detects the specification as x9.37 vs x9.100-180.

Enhancements in R3.12 (02/15/2019)

- X9Assist can run X9Utilities interactively with provided parameters saved to xml for reuse.
- Convert x9-to-ach creates a new ACH file from the current x9 in a user selected entry class.
- X9Validator now includes IRD image print to make this functionality available to more users.
- Iqa/Eci/Clm/Modify boxes are disabled during the X9Assist file loading process.
- Each Make reformatter is now directly associated with a corresponding generator.
- Make/Generate has improved and streamlined support for type 68 user records.
- Make/Generate can optionally accumulate credits into trailer record item counts and/or amounts.
- Make/Generate debit back side image incorporates sample usage of the X9Ware LLC paid stamp.
- Save/SaveAs have improved file backups which are written as temp and renamed on completion.
- Additional X9Assist performance improvements (browse, save, etc) when running in 64 bit mode.
- Simplified and improved ICL-ICLR conversion capabilities using ICL<-->ICLR tool bar function.
- Create/Generate/ACH transform will create returns, dishonored returns, and contested returns.
- Create/Generate/ACH transform will create notification of change and refused NOC files.
- Make/Generate/ACH has new spreadsheet templates for dishonored returns and contested returns.
- Add Items/IRDs to pick lists allows tree item selection at the file and cash letter levels.
- Add IRD allows return reasons to be automatically assigned from the last item addendum record.
- Config.xml allows loading of system configuration entries to be disabled during startup.
- Config.xml allows a default session configuration to be assigned for all users.
- X9Rules x9controls "fileNameValidation" applies filename validations using RegEx patterns.
- Removed x9.100-187-2013 & 187-2013-UCD; added x9.100-187-2016 & 187-2018-UCD.
- Updated return reasons for various applicable x9 standards using ANSI X9.100-188-2018.
- Templates.xml has new entryType of System/User to improve compatibility across releases.
- Configuration Editor and system log now indicate the folder where rules were loaded from.
- CPA015 validates item level currency (CAD/USD) using routing and process control fields.
- X9Utilities has new compare tool which analyzes two x9 files and reports on all differences.
- X9Utilities "-workUnit:" parameter assigns saved parameters from a previous X9Assist test.
- X9Utilities "-write" number of type 28 endorsements increased from one to three.
- X9Utilities logs extraneous command line parameters that are invalid for the current function.
- X9Utilities has been incorporated into the SDK and can be invoked by SDK based applications.
- X9Utilities source code is now public and published on our website as SDK example application.
- SDK X9Rules/X9Controls has credit table improvements for type25s that represent credits.
- SDK deposit balancing has new settings for credit orientation and trailer record boundaries.
- SDK JavaDoc (which documents all APIs) is now public and can be downloaded from our website.
- X9DemoWriter/X9DemoWriterThreaded improved to demonstrate advanced SDK x9writer capabilities.

Enhancements in R3.11 (09/06/2018)

- X9Assist is now available in both 32 bit and 64 bit installer packages (both run x9assist.exe).
- X9Assist 32 bit installs into folder / Program Files (x86) / X9Ware LLC / X9Assist R3.11 /.
- X9Assist 64 bit installs into folder / Program Files / X9Ware LLC / X9Assist R3.11 /.
- Filter related tools moved from X9Assist into X9Validator to make it available to more users.
- X9Validator now includes 2x1 image print to make this functionality available to more users.
- Image Viewer will display partial images when the type 52 tiff byte array is truncated (short).
- Make/Generate credit back side image has a list of checks to better simulate a deposit ticket.
- Scrub option "retainImageBlockImageAreas" now blocks common memo and signature box areas.
- Validator errors now consistently end with "failed(xxx)" which indicates the failure reason.
- IQA too light / too dark settings updated to FRB parameters as of 2014 per their website.
- X9Assist installer includes a ".dat" file association (in addition to x9, x937, icl, and ach).

- X9Assist exception processing popup can optionally report problems via our website.
- X9Utilities expanded to generally support test center automation and related scripting.
- X9Utilities write has new creditItemSequenceNumber settings to auto-create a unique credit ISN.
- X9Utilities now exports images regardless of active "-rectypes" filtering.
- X9Utilities export "-mpird" parameter which exports a multi-page tiff of the IRD for each item.
- X9Utilities write automatically drawn credit back side image includes optional check list.
- X9Utilities write can optionally draw a paid stamp endorsement for RCC items.
- X9Utilities sample script "x9writerProcessor.bat" processes/renames files at a folder level.
- SDK is now compatible with OpenJDK (we are using Zulu8 in our development environment).
- X9Ware Installation Guide now consolidates associated topics from various other documentation.

Enhancements in R3.10 (06/20/2018)

- ACH improvements as part of our new ACH related products and support.
- ACH functions extended to include scrub, make/generate, compare, create, clone, and repackage.
- Make/Generate has been streamlined into a single function using a consolidated user interface.
- Make/Generate use case files now support XLSM in addition to XLS, XLSX, and CSV.
- Make/Generate ACH reformatters added which support all standard entry classes.
- Make/Generate now separately identifies header rows as "H" and comment lines as "*".
- Make/Generate comment lines within Excel files can be color coded using conditional formatting.
- Make/Generate no longer parses header rows which eliminates the potential for unbalanced strings.
- Generate can still be run as a stand alone and external process from Make when/if desired.
- Validation auto discovery of type 61 item count impact on bundle, cash letter, and file trailers.
- Export into fixed columns parses type 25/31 MICR OnUs into field4, account, and process control.
- Find will optionally reset all input fields before each new find dialog is initiated.
- Search/Replace can search on low-high ranges in addition to explicit string values.
- Search/Replace can search within MICR OnUs subfields (field4, account, process control).
- Repackage provides new credits first parameter (which is applicable to x9 ICL deposits).
- Dashboard images tab includes a copy button which copies the current image item to the clipboard.
- Compare enhanced to launch external Meld comparisons (in addition to WinMerge & UltraCompare).
- ACH files can be opened in the viewer even when field 5.6 (standard entry class) is invalid.
- Improved support for varying screen sizes (both larger and smaller than our optimal 1366x768).
- Improved support for mailbox/gateway routing records which may exist on the front of x9 files.
- X9Assist compiled distribution updated to SE8U144 and is 20% faster for large scale operations.
- X9Utilities write has new batch profile capability which creates multi-deposit x9 files.
- X9Utilities write has new credit structure parameter which creates single item deposits.
- X9Utilities export new "awe" command line switch that aborts when the input x9 file is empty.
- X9Utilities export to csv can be limited to specific x9 record types.
- X9Utilities export can export from folders of x9 files to all available output csv formats.
- X9Utilities functions logs all switches and options as specified on the command line.
- Enhanced security manager with permissions stored in new file /policy/x9wareSecurity.policy.
- Evaluation mode changed from X9Assist to X9AssistPlus and now includes ACH capabilities.

Enhancements in R3.09 (01/10/2018)

- ACH support added with new products X9ValidatorPlus, X9AssistPlus, AchValidator, and AchAssist.
- All X9Ware products (X9Lite, X9Vision, X9Assist, X9Validator) will open and browse ACH files.
- X9 versus ACH file type detection is automatic and fully transparent within the user interface.
- R3.09 ACH support includes the item viewer, validate, import/export, repair, and merge.
- New online product registration process is optional and is based on a 32 character license key.

- Registration Editor export/import allows the elicence file to be shared within your organization.
- Find allows entry of addendum routing which is matched against the bofd/secondary addenda.
- Make/Generate new field "Item Identifier" is drawn on the front image above the check number.
- Invalid image scenarios moved from Generate into Make and can be specified on the use case file.
- Merge has been moved from X9Assist into X9Validator to make it available to more users.
- Merge verifies that all specified input files end with a file trailer before starting the merge.
- Scrub populates confidential alphabetic fields with random alpha strings and not just spaces.
- Generate can either left or right justify MICR OnUs within positions 32-13 of the MICR line.
- Generate can forcibly populate variable length field descriptors as numeric (not numeric blank).
- Metavante (tm) t61 credit format is auto-assigned when the file header user field contains CR61.
- FRB district validations have been improved for applicable x9 record types.
- Find provides separate debit and credit counts and amounts for all selectable bundles.
- Print Images has new "Recalculate" button to auto-calculate image positions within the layout.
- Image thumbnails are now a fixed size which eliminates unexpected divider resizing.
- Default MICR E13B font changed to ID Automation Bold to minimize capture rejects when printing.
- Preferences/Recent moved to AppData suffixed with UserId to support Server/Citrix installations.
- Tiff tag descriptions in xml rules are now overrides to a system defined standard list.
- X9Utilities new "-merge" function will merge multiple x9 files into a single output file.
- X9Utilities "-write" has more flexible credit creation options defined in HeaderXml.
- X9Utilities "-write" has a new "t25" line type which defaults indicators from HeaderXml.
- X9Utilities "-write" HeaderXml can be optionally set via the command line (instead of the csv).
- SDK has core ACH support including record type definitions, a reader, totals accumulation, etc.

Enhancements in R3.08 (08/07/2017)

- Check formats (templates) now have individual xml files for easier maintenance.
- IQA parameters can be adjusted when IQA is enabled from the toolbar.
- IQA now creates a filter list of all items which have failed image quality tests.
- New electronically created items (ECI) detector with a filter list for review.
- Item Viewers set IQA pixel density color to further indicate image pass or fail.
- Item Viewers have the current item number on the right side of the title bar.
- Find Next eliminated with filter browsing provided solely within the Item Viewer.
- Make "Excluded Rows" renamed to "Error Rows" with the error count in the tab title.
- Make use case example (depositFile) improved and changed to Excel xlsx format.
- Make/Generate has new business4 template as a toner friendly version of business3.
- Make/Generate can populate cash letter header returns indicator for ICLR x9.100-187.
- Make/Generate can populate payor account name in the type 33 returns addendum.
- Make/Generate squeezes blanks one at a time within excessively long micr lines.
- Generate has a new View button which shows its input csv file (eg, from Make).
- Create ICL/ICLR has improved conversion capabilities between x9.37 and x9.100-180.
- Export has a new csv item format parsed into fixed columns and with/without images.
- Export has a new csv record group format which is stringed for easier user parsing.
- Print Image interfaces to the Microsoft XPS viewer with improved zoom and thumbnails.
- Repackage can process an x9 with multiple logical files (more than one file header).
- Split panels have a more visible divider that are easier to grab for resizing.
- GUI defaults to Windows Classic with Cross Platform available through program options.
- R26/R28/R32/R38sequence x9 edits replaced with new more generic "sequential" rule.
- SDK supports silent print to a targeted printer and optionally as print-to-file.

Enhancements in R3.07 (03/06/2017)

- Moved file level information within the dashboard to new tabs located on the right.
- Moved File Summary information from the File menu to the new dashboard Info tab.
- Errors tab columns reorganized to make field number and field name more visible.
- New configuration "x9.dstu-no-field-validations" only checks basic x9 file structure.
- New test-pass-fail edits support more complex cross field validation requirements.
- Make use case item type of "*" is an alternative way of identifying a comment row.
- Make/Generate has multiline text support for payee, memo, and signature fields.
- Make/Generate accepts more characters for MICR line negative use case testing.
- Make/Generate/Scrub/SdkDraw uses 20% less cpu resources when drawing images.
- Merge can optionally write directly to an output file bypassing the intermediate x9.
- Export x9 with images has simplified dialog which assumes image folder location.
- About has a new button to launch a viewer of third party licenses and copyrights.
- Invalid image test cases are now dynamically drawn from actual item data.
- Invalid image test cases have improved drawing of too light and too dark images.
- Invalid image test cases have new slanted-right, slanted-left, and piggyback images.
- Invalid image test case names are inserted into the back image for identification.
- Modify of amount within type25/31 records now optionally updates trailer records.
- Tiff tag viewer now displays the tiff directory in more situations for errant images.
- External maximum image size for the Tiff Tester has been increased from 500kb to 1mb.
- Errors can have alternate severity levels depending on the current x9 configuration.
- New program options flag allows EOFB errors to be ignored for all x9 configurations.
- Logs moved to the new work folder which can be overridden via options and properties.
- Improved detection and diagnostics of malformed x9.100-180 type 52 image records.
- SDK includes new encoder and writer functions for gray scale and color tiff images.
- SDK implements AutoCloseable in X9SdkIO, X9Reader937, X9Writer, X9CsvReader, X9CsvWriter.
- X9Utilities "-write" enhanced to allow secondary endorsements to be attached to items.
- X9Utilities "-imagePull" can extract images and item level data from archived x9 files.

Enhancements in R3.06 (10/17/2016)

- x9.100-180 support within the SDK and implemented in all X9Assist tools.
- Make/Generate will always set the first endorsement truncation indicator to "Y".
- Make/Generate draws legal amounts as two lines for extremely lengthy amounts.
- Make/Generate has new option to insert a leading \$ into the courtesy amount box.
- Make/Generate allows blanks for image fields name/addr, memo, payee, and signature.
- Added x9.37 and x9.100-187 variants for US to CAN cross border exchange.
- Item Viewer has tabs for all provided views with new accelerator (speed) keys.
- Item Viewer demonstrates the new SDK E13B OCR recognition capabilities.
- New Code Line Match compares x9 data against E13B OCR recognized image data.
- Image Quality (too light/too dark) runs within the loader for improved performance.
- Field Viewer and Item Viewer show the type 25/31 routing as a nine character field.
- New tool bar function to go to record using relative item number within the file.
- Item Viewer has record and item number on the field zero record length row.
- Search/Replace defines the type 25/31 routing as a single nine character field.
- Modify defines the type 25/31 routing as a single nine character field.
- Modify on the tool bar changed from an icon to a check box which simplifies use.
- Modify will only force a field value to upper case when an actual change is applied.
- Validator has new "table/" rule to lookup values against an external xml table.

- Filter Viewer (similar to the Item Viewer) browses items within a filtered list.
- Repackage retains deposit sequence (credits offset by debits) for as-is reordering.
- Performance improvements when a very large number of records are deleted by range.
- An x9 variant specification can be built upon multiple extensions in a defined order.
- Exit changed to Cancel throughout the application using accelerator key CTRL C.
- CSV Reader has improved backslash ("\) processing for Windows quoted file names.
- Origination-Destination bulletins are shown when defined by the Endpoint Editor.
- Scrub image retain MICR snippet height reduced from 0.625 to 0.450 inches.
- x9ware.properties removed from the distribution to not overwrite customer settings.
- xml rules <x9specification> has modified values which identify x9 rulesets.

Enhancements in R3.05 (04/27/2016)

- Make/Generate now supports use case files saved in Excel XLSX format.
- Make/Generate tracks maximum field sizes and reports when limits are exceeded.
- Make/Generate populates bank name and signature line fields when drawing credits.
- Make/Generate can create x9 files that contain multiple cash letters.
- Make/Scrub uses the IDAutomation E13B font with improved drawing of "2" & "5".
- Cross field validation of digital signature fields (50.10,50.11,52.17) improved.
- ECE Item Sequence number validation (25.8,33.4,etc) optionally applies non-zero test.
- MICR OnUs validation (25.6,31.4,etc) includes presence of at least one OnUs symbol.
- Import only queries for the image folder when the csv has relative image file names.
- Dashboard "images" tab now includes buttons to show the front versus back images.
- Merge and export multi-x9 confirmation messages include the selected file list.
- Export allows individual selection of the x9 record types to be exported.
- Print Images can print at higher DPIs (eg, 1200) instead of previous 600 DPI max.
- Search/Replace can assign the new replacement string as value plus increment.
- x9 file compare has a much improved and more interactive user interface.
- User functionality profiles are simplified for internal X9Assist distribution packages.
- Temp folder relocated to %APPDATA% for improved performance.
- Program Options can activate an optional MICR OnUs extended validation rule.
- Program Options has been renamed from options.xml to programOptions.xml.
- X9Validator functionality expanded to include Export, IRDs, and Image Print.
- X9Utilities "-scrub" is a new tool which will scrub x9 files in a batch environment.
- X9Utilities creates output files as TMP and then renames to target file on completion.

Enhancements in R3.04 (11/19/2015)

- Main panel status bar shows total item count (25,31,61,62) and not total checks.
- Make/Generate creates credit images with name/address, CAR/LAR, payee, etc.
- Make/Generate image draw has improved font size calculation for legal amount.
- Make/Generate can insert blanks into 25.6 MICR OnUs field from the use case file.
- Make/Generate can now utilize system defined fonts when drawing image text fields.
- Scrub image retaining the MICR line is much faster to support large volume runs.
- Print Images includes x9 file name in the page footer when footers are enabled.
- Export to XML can export images to an external folder with file names in 52.19.
- Export to CSV/XML has new option to automatically clear the output image folder.
- Export to CSV/XML optionally creates a multi-page tiff with the front/back images.
- Export supports more than two images per item and image formats other than tiff.
- Search/Replace can replace a value with blanks and confirm intent on that action.

- Search/Replace can select all possible values within search fields.
- Search/Replace can forcibly assign replacement values as lower case.
- Repair of Aux/MICR OnUs replaces invalid characters with '*' as unreadable.
- Type 25s can be identified as credits in x9rules using the documentation indicator.
- Type 25s can be identified as credits in x9rules using routing and transaction code.
- Compare improvements when multiple record differences exist within an item group.
- checkFormats.xml changed to use "serif" instead of "arial.ttf" for various fields.
- Properties settings can be bundled with the SDK or assigned externally from xml.
- SDK resources (images, rules, xml, etc) are self-defining with optional override.
- X9Utilities "-export" has command line switches to export data and images to xml.

Enhancements in R3.03 (08/21/2015)

- Corrections around both validating and saving ICLR files with no images.
- New compare tool compares data/images in two x9 files with same logical sequence.
- Error Summary has a new view button which launches directly into the errors tab.
- Print of substitute and returned item IRDs is now supported by X9Assist Unlimited.
- Make/Generate has **Void**Void** sequence added to all check template images.
- Make/Generate can suggest a name and extension for the x9 file being created.
- Scrub can draw proxy images from templates using the original image size.
- Scrub can retain original images while blocking specific user defined areas.
- Scrub can create blank or missing images while retaining the original MICR line.
- Scrub can exclude items from scrub image using an xml routing list with wildcards.
- Scrub/Repair can browse a summary list of the field names that were modified.
- Filters have a summary line with the total amount for all items within the filter.
- TIFF validation updated per X9.100-181-2014 image exchange standards.
- Item Viewer can zoom in and out of the front/back images using mouse clicks.
- Item Viewer has improved performance when paging using next/previous buttons.
- Improved edits for 50.10 digital signature indicator and 50.12 security key size.
- Modify has less latency with an improved cursor and field click interface.
- Modify has a new function to insert a zero length tiff image into 52.19.
- Delete includes a prompt to update counts and amounts in trailer records.
- All text fields within Make/Generate drawn images (checkFormats) are optional.
- Make, Generate, Scrub, and Print Image are now available as SDK functions.
- SDK has a new function to dynamically draw endorsement stamps on back side images.
- SDK no longer has a dependency for the JDOM open source project and jar.

Enhancements in R3.02 (03/27/2015)

- Save correctly preserves 52.17 digital signature when populated with binary data.
- Item Viewer now shows both front and back images within the viewer panel.
- Item Viewer can append an x9 MICR line strip for visual image comparison.
- Hex Viewer moved into the Item Viewer with full screen display of hex data.
- Import is now a two step process which first analyzes and reports any csv errors.
- Tiff tag viewer includes tags for the front and back images on the same panel.
- Validation warns when more than two OnUs symbols appear in 25.6, 31.4, or 6x.x.
- Return Reason added to the items by bundle and filter list viewers.
- Make/Generate can insert type 68 records at defined points within the item group.
- Generate can default secondary endorsement routing 35.3 from 10.4/10.3/01.5/01.4.
- Scrub can retain routing while replacing account, process control, and aux onus.

- Modify can repair individual images as alternative to file level image repair.
- Alternate reserved values can be specified for CPA 015 header routings.
- CSV Export can export tiff tags for all x9 images or for a record number range.
- Repaired TIFF images can be individually reverted using the modification log.
- Saved Configuration Editor entries are added immediately to the Validation menu.
- New x9 validation value rules added for Icl, Iclr, IclrAdmin, and IclrCustomer.
- Improved validation of ICLR return reason codes in fields 31.6 and 35.9.
- Improved FRB x9 file validations including FRB SEP 2014 IQA image size changes.
- Validation added for supplemental images which can be JPG, PNG, GIF or TIF.
- Left/Right arrows and the enter key can be used to select popup box responses.
- X9Utilities has new functions for validate, import, export, and find/replace.
- X9Utilities purges log files based on retention specified in program options.
- SDK performance improvements for x9 file validation and x9 rule loading.

Enhancements in R3.01 (10/20/2014)

- Support for x9.100-187-2013 and the associated UCD.
- Save As added to file menu which allows an x9 input file to be easily overwritten.
- Delete automatically updates trailer counts so there is no need to run repair.
- Modify can now be quickly toggled on and off directly from the tool bar.
- Multiple and/or contiguous items can be added to a pick list using CTRL and SHIFT.
- Gray scale image support added to x9 rules, tiff rules and Make/Generate.
- Item Viewer now displays image tiff tags with an improved directory format.
- Item Viewer can optionally apply a standard MICR gauge against the MICR line.
- Delete using filter allows multiple items to be deleted from search or pick list.
- Make/Generate provides information as to where data fields will be populated.
- Make/Generate can create invalid MICR lines for negative use case capture testing.
- Make/Generate can encode CMC7 MICR fonts as used by various European countries.
- Make/Generate can populate country code in the file header.
- Make/Generate can populate contact name and phone number in the cash letter header.
- Make/Generate includes support for the IDAutomation E13B MICR font.
- Make excluded rows include the CSV line number and can be horizontally scrolled.
- Generate can create a new 28/35 addendum and add to the endorsement chain.
- Mapping Editor supports user defined map entries retained across installs.
- New and optional mapping.xml overrides map.xml to explicitly define binding rules.
- SDK import of field 52.19 enhanced with automated TIFF rescale and repair.