X-Suite

Release Notes

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# Preface

About X-Analysis

X-Analysis is an advanced and easy-to-use analysis tool for IBM i application documentation, design recovery, and re-engineering. The X-Analysis software works as a plugin under IBM's RDi / RDp / WDSC and Eclipse, enabling you to browse and visualize applications from a high-level model down to individual lines of code. X-Analysis allows technical analysts to navigate graphically through an IBM i application from a Windows PC. Working in a true client-server mode, X-Analysis automatically cross-references databases and ensures that the display is always up-to-date and a true representation of the application on the IBM i.

### Version

X-Suite **Release Notes**, software version **13.3**.

### How to use this document

This document is a compilation of the unique X-Analysis features that we are proud to release in this version of X-Analysis. All of our products are regularly enhanced by our R&D teams based on the valuable feedback we receive from our customers. This guide is written with the purpose of giving users a clear understanding of how X-Analysis continues to evolve.

As the document also covers all the modules that are part of the X-Suite (X-Analysis, X-Datatest, X-Resize, etc.), you will find the information about each module in separate section of a given release. This approach, we believe, will help identifying more easily the changes that took places for each of the modules

The X-Analysis suite contains a total of eight modules. For information about the other modules, please contact your Fresche Solutions representative, or visit us at:

<https://freschesolutions.com/products/x-analysis-suite/>

# Overview

X-Analysis is a powerful software suite for IBM i users. Our ultimate goal is to identify and prioritize the requirements of our users and develop X-Analysis accordingly. X-Analysis is continuously developed and enhanced so as to meet and exceed customer requirements. Our ultimate goal is to produce a high-quality product that creates value for our customers.

An encapsulation of various changes, this document is not only a ready reference for the existing users, but also a handy introductory guide for the new users!

#### Important Note:

#### For Version 11.0 and onwards, users must download the XALicenseManagerTool, a utility that gathers the machine information necessary for Support to generate your V2 License file.

#### Details about the licensing mechanism are available in the X-Analysis User Manual\_13.3.

#### Starting with XA 13.2.07 the minimum version of eclipse supported is version 4.4, and the minimum version of RDi supported is version 9.5. For more information about the eclipse versions supported, please refer to the following knowledge base article(link): [What version of Eclipse is supported for X-Analysis client for version 13 or above?](https://www.myfreschesolutions.com/kb?kbnum=15954)

#### Important Note:

#### Please refer to the section “[New Server Installation Manager](#_New_Server_Installation)” of XA 13.2.11 regarding a new tool provided to ease the installation of the XA Server.

#### Please refer to the section “[New requirements prior of installing X-Analysis on the server](#_New_requirements_prior)” of XA 13.2.10 regarding some new server-side requirements introduced since that version.

#### Please refer to the section “IBM i version 7.2 minimum requirement and new API Server” of XA 13.3.00 regarding the new API Server and minimum OS supported since that version.

#### Since the release 13.2.12a, all the releases contain the required updates in order to protect from the log4J vulnerabilities reported in December 2021.

#### For more details, please refer to the following Knowledge base articles:

#### <https://www.myfreschesolutions.com/kb?kbnum=17147>

#### <https://www.myfreschesolutions.com/kb?kbnum=17145>

# X-Suite Release 13.3.01

## Product: X-Analysis

### Installation

Several changes took places inside of the installation of the server component mainly to ease the installation/configuration of the API server introduced in version 13.3.00. Those changes apply to both the manual installation and the one assisted by the installation manager:

* During the installation, if required, all the actually configured and running API Servers will automatically be stopped and restarted at the end of the installation.
* The installation will verify the presence of the minimum Java version required by the API Server and prevent the installation if the requirement is not met.
* Each API Server is delivered with a pre-configured dedicated port information that could be manually change by the installer. From 13.3.00 onward, the API Server is installed and will receive requests on the default port for each release. So, for release v13.3.00, the default port is 13300; for release v13.3.01, the port used is 13301 and so on.
* The installation will inform the user of all the decisions and actions that will take places during its execution. From the manual installation, the user will have to acknowledge each information by pressing **<ENTER>**, while the installation manager will summarize everything in a single new dialog. In both cases, a new option has been added to disable this default verbose mode.
* Please note that the **Server Installation Manager 13.3.01** must be used to install versions **13.3.01** and up and the **Server Installation Manager 13.3.00** or **13.2.16** to install previous versions.
* The new command **XAPISRVUTL** can be used to start/stop any version of the API Server available as well as to get some status information about them. Please refer to the section **XAPISRVUTL Command** of the **X-Analysis Installation and Upgrade Guide**.
* For more information, refer to the **X-Analysis Installation & Upgrade Guide**.

The following changes also took places around the installation and licensing:

* The License Manager tool now support Kerberos environments.
* The XA Eclipse runtime has been repackaged with the most recent version of the Amazon Correto 8 library in order to address any security vulnerability announced by the provider. The support portal has been updated on November 24th 2022.
* When Installing X-Analysis Server on an IBM i machine with multiple X-Analysis XAPROD libraries on different ASP devices, you can receive the following error message: **The installation must be done on the same ASP group as XAPROD library(C)**. This is a true restriction but there was an issue when the installation program performed the ASP verification. This problem has been fixed.
* Installing XA on more than one ASP group on the same IBM i machine is now allowed. If XA is installed on one ASP, note that it cannot be installed on the system ASP (ASP 1) also known as \*SYSBAS.
* Some enhancements and corrections were added to the **XDLTRLS** command.
  + It now detects running XA API Server and will display a message warning you that the Server will be stopped in the delete process. You still have the choice to prevent the deletion, or you can accept and the XA API Server will be shut down before the libraries deletion.
  + The X-Analysis IFS directory is now included in the deletion. i.e. [/AspDevice]**/XANALYSIS/Vnnnnn**.
  + To help find deletion issues, new Job messages were added to the **XMNTDnnnnn** job that handles the release deletion.

### XA Client compatibility change and parallel perspective execution

|  |
| --- |
| The **XA Client 13.3.01** will not be compatible with the cross-references initialized at version **13.3.00** and the previous version of the plugin will be required to interact with such cross-references until they will be upgraded to **13.3.01.**   * + In the past we did our best to maintain some compatibility between any new XA Client versions and the **cross-reference** initialized at the same **GA** version, and we will continue to do so when applicable (ex XA client 13.2.16 was able to open a cross-reference initialized at version 13.2.15).   + Starting with **13.3.01:**     - The XA Client will verify if it is compatible with the cross-reference we are attempting to open.       * If not, and if the cross-reference was initialized with a version prior to **13.2.00**, the former notification will continue to inform the user to use a compatible version of the XA client to interact with the cross-reference.       * If not, and if the cross-reference was initialized with version **13.2.xx**, the XA client will propose to the user the possibility to open the corresponding perspective immediately. It is possible that while opening such a perspective that a warning take places since the XA client was not expected to be allowed to execute in such concurrent/parallel environments. If the exact same version of the perspective is not available anymore, it will be expected from the user to manually start a compatible version as before.       * If not, and if the cross-reference was initialized with version **13.3.00**, the XA client will propose to the user the possibility to open the corresponding perspective immediately. It is possible that while opening such a perspective that a warning take places since the XA client was not expected to be allowed to execute in such concurrent/parallel environments. If the exact same version of the perspective is not available anymore, the current version of the XA Client will open the cross-reference in “non-API mode” (no API Server).       * The easiest way to open a perspective remains to use the eclipse **Open Perspective** functionality.     - Opening multiple XA perspective of the XA Client at version **13.2.xx/13.3.xx** in parallel inside of the same Rdi/Eclipse workspace is now supported.     - Starting with XA 13.3.00, we are recommending to our users to wait until all of their cross-references have been upgraded to the newer version before uninstalling an XA Client version. |
|  |

### Client-Side – Enhancements and Fixes

* The message provided when hovering on a cross-reference in warning state, as introduced in 13.3.00, has been updated to also inform the user on the log file to look at for more details.
* In addition to the improvement made inside of the XA client to have a distinct icon next to any cross-reference where some problems have been detected during the last INIT/REFRESH execution, we are introducing a new icon to highlight the cross-references that haven’t yet been fully initialized.



* While the initialization/Refresh execution is in progress, the user will now be able to see the current state such execution is at. Simply hovering the cross-reference from the XA Client and the execution state will be displayed. Hovering away and back will update the state information.

Here are some screenshots showing up different execution stages:









* A small change took places to clarify the message part of the dialog informing the user about a situation with the API Server.
* Some improvements took places for the **Data Modeling**:
  + The **Relationship in DMD** viewer now contains a new column to show the **Origin** of any relationship, being a **Constraint**, **CA2E-Model**, **Field Matching**, **PGM Logic** or **Overridden.** The **Constraint**-based relationship will start to be reported on the DMD as part of this release, with a **Relation Type** value of **Owned By**.
  + For the **Data Model Diagram**, all the constraint-based relationships should be considered as **owned-by** relation and should be populated with constraint name, library. An **owned-by** relationship will be considered based on the **unique key definition** in the logical file in the same sequences from the first position.
* The **Variable Where Used** operation performance has been improved inside of this release. This would be tangible mainly on larger cross-reference.
* Some validations have been added to the operations **Add to Application Area/Omit From Application Area** performed from the **Member List** to prevent such an operation over any entries that don’t have related objects existing at the cross-reference level. Prior to such a change, the Application Area rules was created but would qualify nothing, leading some confusion on the expected outcome.
* For our Japanese users:
  + For some specific cases in Japanese, the **Screen/Report Layout** option was showing all the different screen formats in a single screen. This has been corrected and only the screen corresponding to the selected format in the toolbar dropdown will be displayed.
  + In specific case, source editor was not displaying the correct Japanese characters compared to the one shown on IBM i. This has been fixed now.
  + The **Problem Analysis** Categories were wrongly displayed in English on a Japanese environment set with CCSID value 65535. This has been fixed.
  + A small change took place to the message displayed by the XA Client when a conflicting CCSID is detected in a Japanese environment.
  + The Japanese packaging of the server component was missing some messages that lead to some execution errors. This has been corrected.
* The Problem analysis category “**Source contains Dynamic SQL Statements**” was not shown in the X-Analysis Client after "**Generate Problem Analysis**" was being executed with CCSID 5026. That issue has now been fixed.
* Performing a right-click on field name with Z-SUB was not showing the correct field name and, due to this, the **Member-Xref** and **VWU** couldn’t be called. This has been fixed.
* **Source scan** dialog box was showing duplicate source file name in the drop-down box. The situation has been corrected.
* The **pseudo code** **source** was showing some inconsistent values in the text description when the same field name exists from a different file. For instance, the text description for member CUSNO in the demo application was impacted. This has been corrected.
* The annotation icon in DMD editor was unable to update and delete the text and also showing some duplicate values when clicking again. This has been corrected.
* Export to MS Excel in DFD was showing “Null pointer Exception” when object count is zero. A new dialog box will now inform the user that such an operation is not possible when the object count is zero.
* When the RPG/LE program was opened in the source editor, and then Expanded Copybook mode was selected in the source editor, then the Flowchart option did not generate a correct flowchart. This has been corrected.
* A **Specialized Report** for **PRTF** objects was leading to a subset of the expected objects to be displayed. The situation has been corrected.
* When the Flowchart option was selected from the System Document, the generated flowchart did not include any expanded copybook source. This has been corrected.
* When generating a new **Specialized Analysis** report that include the ***Last Used Date*** information, for some objects the value was incorrect and different from the ***More Info*** dashboard. Now the issue has been corrected.
* The **Report an issue** functionality has been extended to include the exact build number information of the clients and servers installations visible in the user environment.

### Server-Side – Enhancements and Fixes

* A new command named **XDLTLIB** has been provided and could be used to delete an XA cross-reference library instead of using the system command **DLTLIB**. The **XDLTLIB** will do the necessary to prevent any notification regarding the journal before deleting the library.
* In a situation where a StackOverFlowError couldn’t be properly handled by the SQL Parser, the remaining of the parsing effort was halted. In such conditions, now only the currently parsed member will be impacted and the remaining of the parsing effort will continue.
* API Server (introduced in 13.3.00)
  + Some scenarios involving a change of password from the IBM i user used to start the API Server and leading to a disabled profile situation have been identified and corrected.
  + A situation preventing the XA API Server to properly set its library list, and to respond to requests, has been identified and fixed.
* SQL Parser:
  + Cross-reference initialization process is enhanced to make sure that the SQLXref prerequisites are checked at the very start of any INIT/REFRESH execution. A FATAL message will be logged into X\_LOG file and the INIT/REFRESH execution will be terminated if any of the SQLXref prerequisites are not met.
  + During SQL cross-referencing, Incomplete file field references were being reported in case of embedded SQL source with non-alias table references. The issue has now been fixed and references are being reported as expected.
  + A situation involving the SQL Parser in an environment with CCSID set to 65535 has been identified and fixed in this release.
  + In a customer environment the verification of the Java version available was failing and impacting the SQL parser. This has been corrected.
  + SQL cross-referencing was getting stuck in scanning each line of Embedded SQL source for SQL comments. The issue has now been fixed.
* The refresh process was not updating the “**Days Used**” information. This has been corrected now.
* During the initialization process, the job log was reporting multiple errors on the DLTOVR command because of an incorrect parameter which has been fixed now.
* Earlier, incorrect mapping details were populated by the INIT/REFRESH process for a flat file and source member, even though they both don’t have any relationship. Now correct relation will get populated.
* For **X2E-Analysys**, the process has been enhanced to capture the **Y2EXMCC** references for CALL or SBMJOB statements.
* During the initialization, a situation leading to the appearance of the error **“*\*\* ERROR: ESQL SCAN FAILED WITH ERROR -60***” has been corrected.
* From the initialization job, a scenario was leading the job log to report multiple errors of type **“SQL0305 Indicator variable required.”** This has been fixed now.
* A situation leading to the error “**A character representation of a numerical value is wrong.**” reported in the **INIT**/**REFRESH** job log has been resolved.
* A bug in utility class to copy parsed model causes unessential copy of expression objects. It might consume memory in case of processing big RPG source. The fix stops the potential recursive copy operation and removes the excessive copies of expression objects.
* The reference file was not showing proper reference for scenarios with same name program and copybook name. Now this has been fixed now.
* Irrelevant program references were being written when parsing the Cobol code source members for second and subsequent members. A fix was needed to reset the indicator used to determine whether the parser had reached the Cobol source members “Procedure Division” whenever parsing a new Cobol source member. This has been fixed.
* An initialization scenario was leading to a *Result of SELECT MORE than one row error* to be reported in the joblog. This situation has been corrected.
* Some physical file references were wrongly getting deleted due to the presence of some exclusions. This has been corrected.
* A scenario of concurrent attempts to initialize a Cross-Ref was not properly trapped and reported when issued from the **XAXREF** command. This has been resolved.
* A looping situation has been identified and corrected inside of the initialization execution.
* Misc dumps situations have been prevented from the Init and Refresh process execution

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* The **Checkpoint Log** has been improved in order to provide a link to the actual log file, when available. Clicking on the link will open the log file generated during the restore execution.

Table

Description automatically generated

* X-Subset has been improved in order to give preference to the foreign key constraint relationship, if exists, over any other relationship that exists to generate the subset data in the subset schema as per the subset filter criteria.
* In X-Datatest, a fix has been made to allow an ampersand(&) characters in the checkpoint description text.
* In X-Datatest, the application/result library would no longer be allowed to overwrite while creating or changing Checkpoint, Test Result, and Compare Result definition, and an informative message will be displayed to the user in such case. Also, same library name would also not be allowed to provide more than once while defining any checkpoint or test result definitions.
* The **Change Checkpoint Definition** and **Create Checkpoint Definition** options were not showing all the original libraries to chose from. This has been corrected.
* During the **Save Checkpoints** operations, the \***DTAARA** objects were not saved from the library list setup for the \*LIBL mode. This has been fixed.
* The **Save Test Result** operation, when invoked in the context of the **\*LIBL** mode, was generating an error. This has been corrected.
* Save Test Result operation was failing in \*LIBL mode due to a mismatch in XOBJECT and XAALIST entries. This has been fixed.

### Server-Side – Enhancements and Fixes

* The X-Datatest commands used to restore a Checkpoint (**XRSTCHKP** and **XRSTCHKPC**) have been enhanced to support a restore execution into a work library.
* When X-Ref is initialized with **Duplicate \*NO,** then during the **Save Checkpoint** operation, duplicate entries of src-pf were being saved in the checkpoint library for a multi-base library setup. This has been fixed.
* When a cross-reference is initialized with Duplicate \*NO, then during the **Save Checkpoint** operation, all the objects from the base library were saved in a multi-base library cross-reference setup, not only those part of the Application Area. This has been fixed.
* A Restore Checkpoint scenario was generating the error S*QL error -811 i.e. SQL0811* several times in the Job log. This has been fixed.
* The individual Checkpoint Log Sequences were not starting from sequence number 1, which has been corrected in this release.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* Attempting to use an apostrophe as part of a Checkpoint library description would lead to an error. This is now allowed/corrected.
* The X-Resize option to open an ‘**Impact Analysis**’ editor was broken and not working due to incorrect datafile generated. This has now been fixed.

### Server-Side – Enhancements and Fixes

* X-Resize has been enhance in order to generate a warning for each DDL objects whose source are missing in the repository.
* The X-Resize’s Build list process has been multithreaded to introduce parallel processing for faster *Detailed Impact Analysis* of the field being resized.
* The X-Resize option **15**(**Override Comp Cmds**), from the Conversions section, was reporting an empty list after some records have been added. This has been corrected.
* In some DSPF and PRTF cases where the base library is spread in multiple lines within the REFFLD keyword, it was not properly replaced with the conversion library in the converted source member. This has been fixed.
* FFWU stop tracking REFFLD derivation at Level 1 which has been fixed.
* Earlier, X-Resize was unable to generate the converted DDL member objects if the record length of the DDL source was greater than 112. In such cases X-Resize was converting the DDL source, however, it was not able to compile that changed source to create the final resized object. This has been fixed.

# X-Suite Release 13.3.00

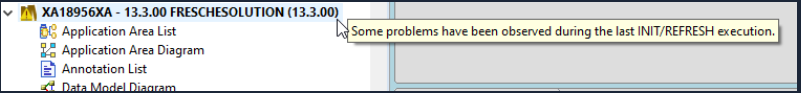
## Product: X-Analysis

### IBM i version 7.2 minimum requirement and new API Server

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| --- |
| Please note that XA 13.3.00 requires IBM i version 7.2 as a minimum system requirement. With this new version of XA we are starting to use some technologies provided by this version of the OS. As part of the newly introduced change, you will see the presence of a new server component, named the **API Server**, running on the IBM i, which will have the responsibility to respond to requests done toward the XA database. While using the XA client, some users might perceive some performance improvement while expanding the list of XA Repositories (XREF) or while expanding the list of available Objects/Files/Programs.  Since the implementation of this **API Server** is new, we have put in place a fallback mechanism in case it would not be available to respond. In such a case, a dialog will inform the user about the situation and the XA client will query the XA database directly, minimizing the impact for the user. If the situation should occur, some investigation might be required to determine the root cause of the situation and our support team will be available to help. Please refer to the Installation guide for more information about the configuration of the API server as it requires some extra requirements around the installation.  X-Analysis 13.3.00 has been certified on IBM i 7.5 with as well as Windows 11.  **Known limitation:** The API Server doesn`t yet support a Kerberos environment. In such case, the XA Client will use the fallback and contact directly the XA database. |

### Client-Side – Enhancements and Fixes

* A “warning” icon will now appear on any XA Repository (XREF) where some important situation has been observed during the **INIT/REFRESH,** such as potential dumps. When such a warning icons appear, we are recommending to look at the **INIT/REFRESH** log files for more details.



* The X-Analysis client **Session Information** panel has been extended to also display the **Translation Language**, as currently set in the **Advanced** preference settings.
* A new **Problem Analysis** category named **Source contains Dynamic SQL Statements** has been added under the **Program Code Alerts** group. As its name highlights, this category will be useful to know all the programs where X-Analysis has detected the utilisation of Dynamic SQL.
* Some improvement around **Dynamic SQL** support for the **VWU** have been made in this release. Since an SQL string could be prepared in a widespread code that could involve multiple source files and libraries, the VWU on **Dynamic SQL** will report to the line where the SQL is being executed. Please refer to the User Manual chapter “**Limitations on Embedded SQL Source Processing**“ for more details.
* The **Work with Objects** dialog now provide extra **Function Type** possibilities to select from, such as **EXECXTFUN**, **EXCINTFUN.**
* The Data Modeling has been improved considerably to better support the information extracted from the fully free RPG code.
* A new toolbar option has been added to the **Variable Where Used viewer** that allow the possibility to generate directly from it a **Summary Reference** report. Prior to this change, the **Summary Reference** could only be called from the context menu of the Source view. In both cases, a new icon has been assigned to identify the operation.
* A new toolbar option has been added tothe **Application Area Summary** to allow the possibility to **Expand All/Collapse All** the **Object Details** list.
* For our Japanese users:
  + We have provided a “quick way” for our Japanese user to temporarily change the **Database Language Translation** between the two supported translation possibilities currently supported for Japanese being **Japanese** and **Japanese (Katakana)**. Performing a **CTRL-F3**, will toggle between the **Japanese** and **Japanese (Katakana)**, and any already opened **Source Viewer** will immediately refresh itself to display the source content with the newly effective translation. Changing the translation using **CTRL-F3** will also be effective during the next **Source Scan** execution. Please note that the change done through **CTRL-F3** are temporary and won't change the default translation value set in the preferences. The effective value will be displayed in the **Session Information** panel.
  + When the language setting is Japanese or Japanese (Katakana), flowchart whether opted interactively from the Source editor, or using the System Documenter, will always replace the field name and file name with its description (long name). This has been corrected for Visio as well as Open Office flowcharts.
  + We have improved the consistency of the **Problem Analysis** generated on the Japanese environment.
  + Some scenarios leading to garbled characters reported in the Zoom Source have been corrected.
* Changes made in the Source Editor to correctly position the source so that the columns correctly align with the Column header. Earlier the source code was appearing as shifted to 1 position to the right with respect to the Column header.
* Since 13.2.14, Flowchart for certain Fully Free RPGLE programs was not getting generated correctly. This has been fixed.
* The function type for Synon objects were not able to fetch the correct function type for EXCEXTFUN types – These were incorrectly reported as UPDFIL. Issue has been resolved.
* **File Field Where Used** was not working when same name module and service program exists in cross repository in case of FAP. This has been fixed.
* In a specific case, Open Office Flowchart was incorrectly creating a connector from the top of the diagram crossing all the boxes at the center. This is now fixed.
* In some cases for the **Relationships in DMD** view, the **Dep LF** value was not proper. This has been fixed.
* A fix has been applied in the **Process Flow Chart** for not showing the labels of CL program properly.
* When the domain name in the Kerberos System had something other than ‘.com’ at the end, X-Analysis could not connect via Kerberos. To correct this, a preference setting has been introduced in the Advanced page where the user can mention the domain name. When this value is blank, then the domain name is extracted from the system.
* Flowchart on any RPG(LE) source smaller than 128 lines was failing. This has been corrected.
* Enhanced Member X-Ref option was not positioning the results inside the correct subroutine node. It always either showed them in the main program node, or the last subroutine node. This has been corrected.
* To complement these release notes, we are inviting you to also look at the Online Help section entitled “**What is new in the latest release?**” which highlights the major changes done to the documentation. Each manuals also have a similar section.

### Server-Side – Enhancements and Fixes

* Since concurrent I**NIT/REFRESH** execution are not supported for a given XA Repository (XREF), we have put in place a mechanism to detect and prevent concurrent **INIT/REFRESH** jobs execution. When such a scenario occurs, the newly submitted **INIT/REFRESH** jobs will immediately stop.
* The data model relation have been enhanced to capture the foreign key constraint information for owned by relationship.
* During initialization, a record locking issue situation has been fixed.
* The OCL parser has been enhanced to capture some missing references for programs and S36 procedures.
* The parser has been updated to capture the programs references for the calls via API QCMDEXC.
* After executing XREFRESH process, DFD was not showing the references of files corresponding to the service program in case of FAP. This has been fixed.
* Earlier, the *Dependent Access paths* were missing when creating an application area on Physical File. Now the *Dependent Access paths* will be included.
* Improved %SCAN built-in function parsing.
* An issue of type “Decimal data error” on a numeric field for a specific scenario occurring during the initialization has been resolved.
* Misc. dumps situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* On some environments, the comparison report was displaying the RRN in random order and that has been fixed. Now the Comparison report will always show the correct ordering of RRN in ascending order in the displayed comparison report.

### Server-Side – Enhancements and Fixes

* The unique access paths were not captured from the dependent LFs/Indexes present inside the given application area during table comparison. This has been resolved

## Product: X-Resize

### Server-Side – Enhancements and Fixes

* X-Resize has been enhanced to optionally process the DDL source members similar to the DDS members.

Until this release, X-Resize was converting the DDL objects by using the *‘ALTER TABLE’* statements only. However, with this enhancement, end-users can now chose “***DDL Change Type***“ from the two available modes - **\*ALTERTBL** (***default***) and **\*INLINE.**

The default option **\*ALTERTBL** will continue to convert the DDL source member by using the ***ALTER TABLE*** command. In this mode, an appropriate *‘ALTER TABLE’* statement will be added at the end of the original DDL source to produce the expanded DDL object keeping the original comments intact.

With the newly added **\*INLINE** functionality - Similar to DDS conversion process, X-Resize will now comment out the original tracked field and will re-write the field definition as per the X-Resize setup. Finally, the changed source will be compiled to produce the expanded DDL object.

***Note- Both the above modes will preserve the original comments/documentation present inside the DDL script.***

* Certain X-Resize log messages in log table were having missing file names in the IBM i commands used by X-Resize. This has been corrected to log messages with complete details*.*
* In certain situations, X-Resize adjusted some of the PRTF fields and also moved them to fixed line numbers which was not expected as such PRTF fields were defined with relative positions. This has been corrected.
* In certain cases of X-Resize Data structure conversion process, the DS conversion was incorrectly performed - If there were too many DS subfields that were having the same size as the expanded file-field. This has been addressed and X-Resize DS conversation process has been significantly improved to cover very long Data Structures also.
* In scenarios where any constant field was interacting with unicode enable fields, X-Unicode was unable to convert such sources correctly due to the type mismatch among the two. This has been fixed.

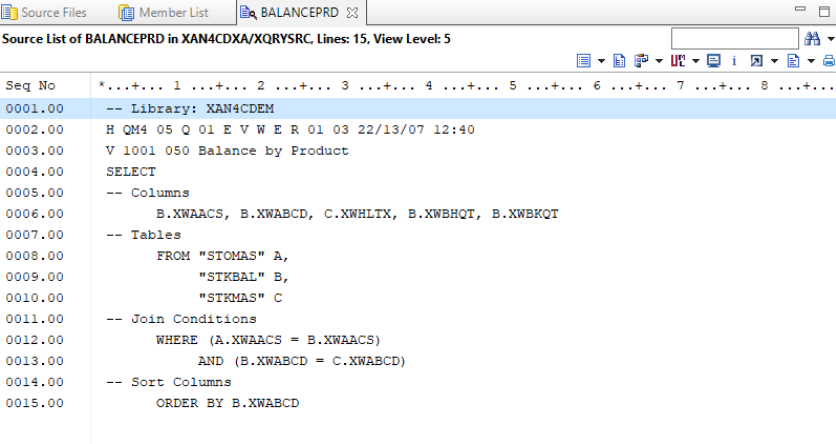
# X-Suite Release 13.2.16

Please note that this 13.2.16 release of X-Analysis is expected to be the last maintenance release planned based on the 13.2 release. As such, it will be the last release to support IBMi Version 7.1.

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* When visualizing the object usage imported from a production environment (See 13.2.13 “**import the object usage information from another LPAR into the X-Analysis repository**“) the client interface will now retain the selected machine the next time the **All Objects**/**Files**/**Programs** viewers will be restarted. This enhancement is coming from customers telling us that once they have imported the object usage information from their production environment, those become the more relevant and useful information.
* When a **Zoom Source** is issued on a source file located inside of **XQRYSRC** library, a special line will report the original library from where the information has been extracted



* A new option has been added to the **Source Scan** in order to allow the possibility to perform **Case Sensitive** search. By default the option is disabled to maintain the default behaviour.
* In some circumstances the **Text description** of the source physical file could be missing from the **Files** viewer. This has been corrected.
* The **Database Size Statistics** option from Audit options group was not restricting the result to the **Application Area** - when the option was selected for Application Area. This has been corrected.
* The **Reset Rule Sequence Numbers** button in application area rule was not doing the expected resequencing if a rule was added or deleted. This has been fixed.
* Changes were made to avoid duplicate entries in the **Source Scan** result. This was happening when same object member was also part of a Sub-Application area and the **Source Scan** option was selected for a parent Application Area.
* At the Object List editor with imported data from other production machine, sorting on dates column were not working correctly. This has been fixed.
* A scenario where the XA client was not able to properly identify the folder for its log files has been fixed.
* When performing a change history on an object with no history, the reported message was improperly referring to the cross-reference name instead of the object name. This has been corrected.
* The **Restrict to Application Area** option on the **Structure Chart** did not remove an external object from the diagram, when another object of same name was part of the Application Area, and the other was not.
* The datafile format for Source Editor was changed in 13.2.14. But the Process Flow Chart option on CL/CLLE programs was still using the old file format, and showing unnecessary characters in the flowchart. This has been corrected.
* A fix was made to display the external field names of files **at File Field details** editor.
* The length of the Page size in the Open Office Flowchart has been increased to avoid any possibility of chopping off some portion of the Flowchart.
* The sections “**X-Analysis Troubleshooting**“ and “**Installation Troubleshooting**“ of the recently introduced **X-Analysis Online Help** have been improved with a small table of content section.
* The google authorization process has been updated in order to meet the new requirements introduced recently for the google Drive integration. The **Appendix H** of the User Manual has been updated accordingly.

### Server-Side – Enhancements and Fixes

* A scenario leading to missing **File Field Details** information has been identified and corrected.
* Removing a \*QMQRY object type from the base library and then executing a REFRESH was not properly removing the object from the cross-reference. This has been fixed.
* A scenario where a repository upgrade from XA 13.1.xx to XA 13.2.15 was leading to a MSGW situation. This has been prevented.
* A dump scenario was reported leading to which **Variable Where Used** data were missing for display file. This has been corrected.
* This version now captures the references of program via **User Defined Command** in **SBMJOB**.
* An Initialization scenario leads to few XA programs to crash and to generate some error messages in the job log. This has been fixed.
* When running from a disabled user account, the SQL cross-referencing was generating incomplete results where copybook processing was involved. This issue has been fixed.
* Reorganize command on Physical file was failing as it was performed on the logical file instead of physical file
* A scenario of the initialization was generating the error “**Length or start position is out of range for the string operation**“. This has been fixed.
* The XA process was experiencing difficulties to resolve built-in functions for which inconsistent and incorrect arguments were passed. These have now been taken care of.
* XA process witnessed a situation where the receiver value was too small to hold the result. The field size has now been adjusted to address the situation.
* A scenario where the XA process was trying to update a file for which the end of file was already achieved has been identified and corrected.
* A scenario leading to the error “**Override not found at specified level**” has been corrected.
* A program was modified to handle a missing file error during the REFRESH process.
* Misc. dumps situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* During the creation of a new **Checkpoint**/**Test Result** a validation on the provided name is performed earlier in the process. This will help identify, and correct, scenarios involving an already existing name.

## Product: X-Resize

### Server-Side – Enhancements and Fixes

* In some cases, the Source physical file created in the X-Resize Conversion Library had a limited number of members that resulted in not all source members being converted. In order to resolve the issue, the Src-Pf is changed to \*NOMAX.
* For a specific case, the X-Resize pre-build process was going into loop. This has been fixed.
* In X-Resize process execution, an SQL0811 error was generated in the joblog. This has been fixed.
* X-Resize was adding a field length to a source line with a reference field. This has been corrected.
* In X-Resize process execution, an SQL104 error was generated in the joblog. This has been fixed.
* In certain cases, X-Resize was unable to create multimember files inside the conversion library. As a result of it, such multimember files were created as single member Files in conversion library. This has been addressed.
* In previous versions, X-Resize was only supporting those margin flags that start with either **alpha** or special characters like **$ @ #**. This limitation has now been removed. Now users can provide any valid margin flags for their converted code.
* In some circumstance the DS Conversion was causing MCH0603 error - **Range of subscript value or character string error**. This has been fixed.

# X-Suite Release 13.2.15

## Product: X-Analysis

### Installation

* A new authorization list named **XAADMLST** has been introduced in order to ease and improve the security around the administrator role in X-Analysis. With the current release, we are providing extra administrator protection on the **XREFMENU** options around application authorities (**XARWKAPP**) and application area authorities (**XARWKAPA**). As for the previously provided authorization list XAAUTHLST, the system administrator must alter the definition of the **XADDMLST** before the protection is fully effective.

In order to provide a way to also secure the XUSRPF table, a dedicated authorization list named **XAADMAPLST** has been created. By altering this authorization list, you are also altering who is allowed to perform some INIT, Upgrade, and COPY&INIT operations. The default definition will not restrict furthermore the list of users who is authorized to perform such actions as possible in previous versions.

Those authorization lists complement the **XAAUTHLST** as introduced in version 13.2.10. We invite you to visit the **X-Analysis Installation And Upgrade Guide** for more details.

* The XA Server installation now requires that the DEMO cross-ref “XAN4CDXA” be free of object locks. This only applies when you request the DEMO to be installed. If the DEMO cross-ref has locks it will be reported and the installation will stop with an error message. If the XAN4CDXA is free of locks, then the installation will lock the DEMO for the time of the installation.
* The XA-Client installation no longer reports an error if the “features” folder does not exist in the RDI or Eclipse installation folder.

### Client-Side – Enhancements and Fixes

* Please note that **ACS version 1.1.9.0** is a new requirement for **SEU** support in X-Analysis and it has been certified with X-Analysis starting at version 13.2.14.
* The **X-Analysis Online Help**, which can be obtained from the Windows **Start->X-Analysis 13.1.15->X-Analysis 13.2.15 Help** has been completely replaced and improved in order to include extra content resulting from several improvements done around our documentation preparation part of the recent releases. It also provides a great search utility as well as a complete index that search in all of the user manuals at once. We are inviting you to try it as we believe it might replace the utilisation of the PDF documents on a daily usage. Furthermore, this new version should now work well with the modern browsers such as Chrome and Microsoft Edge.

This **X-Analysis Online Help** content is now in-synch with the content of our PDF manuals as well as with the **eclipse help** (available from **eclipse->Help->Help Contents->X-Analysis 13.2.15 Help**). To highlight the fact that the eclipse help has been improved considerably, we have renamed the entry point to include the suffix “**Help**” instead of “**User Guide**”.

* Pressing F1 to reach/open the contextual eclipse help will bring you better results as we have added over 70 new direct link across all of the XA client dialogs and editors.
* A small performance improvement has been put in place while opening/expanding an application from the XA Client.
* In the **Application Area Rule** dialog, changing the value of the **Rule Type** drop-down option will now reset the values for **Object Type** to **All Object Types** and **Object Attribute** to **\*ALL**.
* The **Source Scan** functionality has been enhanced to also include search inside of the source files located in **XQRYSRC**. **XQRYSRC** will be considered by the **Source Scan** when the Source File value will be set to **\*ALL** or **XQRYSRC** in the client dialog.
* A scenario for an **Application Area rule** where a specific library name was specified was leading to objects to also be qualified from other libraries. This has been corrected.
* Zoom Source for ***SQL Procedure*** was not opening if the **Specific name** and **Member name** are different. Changes has been made and allow to open the Zoom Source if these names (Specific name and Member name) are same as well as different.
* The **Work with Object** dialog used when opening the **All Objects/Programs** list viewer now support the **CBLLE** and **CBL38** Attribute types.
* The **Business Rules** are now generated for **CBL38** Cobol type programs.
* In the **Structure Chart Diagram editor**, repeated nodes were losing the Repeated node indication when switching back from '**Show Files**' to '**Normal SCD**' mode. This has been corrected. Also, repeated node functionality has been updated to not expand at '**Show Files**' and other expanded node modes.
* When attempting to open a repository using an XA Client version that is not compatible, the error message generated has been changed in order to identify easily the XA client version being used. The repository version number remains present in the new message.
* In the Flowchart drawn on Open Office, sometimes the logic incorrectly considered a normal code line as an END statement and as a result the connector from the ELSE was connected to an incorrect place. This has been fixed.

### Server-Side – Enhancements and Fixes

* X-Analysis now references the Synon Product library held in the XA2EPROLIB data area, allowing the possibility to support recent version of Synon. User should set it to Y2SY or U2SY depending on the Synon CA 2E version they are on. By default it is set to Y2SY.
* SQL source cross-referencing now works even if a disabled account is used to execute XA initialization/refresh/upgrade. This was a limitation that has been reported to us by a customer.
* When Query objects were removed from the library, even after re-initializing the X-Ref library, the **XQRYSRC** source file still contained members for the objects which were deleted. This has been fixed.
* When creating a new **Application Area** based on another **Application Area** and setting the **Application area rule** to fetch objects of specific component status, the Objects of **\*ALL** status were fetched and the Object list contained **FILE** type objects only (i.e. PGM type objects were missing). This has been corrected.
* Attempting to create a new **XREF** located on an ASP device from **XREFMENU** was not working for a specific scenario where a preliminary verification was returning a false indicator. This has been resolved.
* Please note the addition of the **Appendix P** as part of the X-Analysis User Manual that list down all the data area that control X-Analysis.
* Some regression issues found while indexing RPGLE members has been fixed in this release (from 13.2.14).
* When a dump situation is observed during the INIT/REFRESH execution, X-Analysis keep internally some information about it. Meanwhile, a particular scenario could lead to failing to record a DUMP occurrence and has been resolved.
* Misc dumps situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* A new warning dialog has been added when the user attempt to remove a **Test Process**/**Checkpoint Definition**/**Test Result Definition** or a **Test Result Comparison**. Such a warning dialog will allow the user the possibility to confirm/cancel the operation.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* Attempting to perform an **Export to Excel** on a huge X-Resize project having a **Detailed Impact Analysis** containing more than 1 million of records was leading to a problem since we were exceeding Excel limitation. This has been resolved by generating more than 1 excel sheets when required.
* Earlier in the **Converted Objects** editor, the original source library was displayed under the **Source Library** column which has now been changed to display in the **Conversion Library**.
* The XA client **Converted Object** List was not showing all the objects that were converted by the X-Resize process. This has been corrected.
* In the X-Resize **Set-up** editor under the ‘***General Parameters***’ tab, the ‘***Margin Flag for Converted Code’*** optionwas only accepting value starting with **Special characters(@#$), alphabets** and **numbers.** Now, all the validation has been removed for this option to make it sync with the server option.
* Inthe **X-Resize Search Words** editor, setting a blank value for the ‘**Change in Decimal'** option was storing '**00**’, This has been fixed. Along with that, the count on the editor was not getting refreshed after adding or deleting new records.

### Server-Side – Enhancements and Fixes

* X-Resize was putting the expanded size for those reference fields which were defined without using the REFFLD keyword in their DDS whereas those reference fields should have received their new size from the referenced fields themselves. This has been corrected.
* Also, earlier X-Resize was not able to successfully recompile the Join logical Files if any of their parent PF was not marked for conversion or recompile. X-Resize has now been improved to successfully compile such Join logical Files by bringing the necessary parent PF inside the conversion library. An appropriate warning message will also be generated to highlight such a scenario to the end-user.
* Earlier the converted DDL objects were created by issuing the Alter Table on the original DDL objects directly. Their respective DDL scripts presets in conversion library were not used for creating such objects.

In order to improve the DDL support inside X-Resize, the conversion process has been enhanced to preserve the original DDL scripts along with existing comments inside the conversation library and to add the appropriate Alter Table statements at the end of the script. The final DDL objects will now be created by compiling these converted DDL scripts only. For cases where the required DDL scripts are not present in customer's setup old route of creating converted object will follow.

* The execution of the commands **UPDPGM** and **UPDSRVPGM** were not logged in the X-Resize conversion process. This situation has been resolved in order to clearly identify if their execution was successful or not.
* Under some circumstance while converting a DSPF/PRTF, the X-Resize conversion process was marking the line as changed and then improperly writing the same line as it was before. This has been corrected.

# X-Suite Release 13.2.14

## Product: X-Analysis

#### Important Note:

#### Please refer to the section “[New Server Installation Manager](#_New_Server_Installation)” of XA 13.2.11 regarding a new tool provided to ease the installation of the XA Server.

#### Please refer to the section “[New requirements prior of installing X-Analysis on the server](#_New_requirements_prior)” of XA 13.2.10 regarding some new server side requirements introduced since that version.

### Installation

* Since the release 13.2.12a, all the releases contain the required updates in order to protect from the log4J vulnerabilities reported in December 2021.

For more details, please refer to the following Knowledge base articles:

* <https://www.myfreschesolutions.com/kb?kbnum=17147>
* <https://www.myfreschesolutions.com/kb?kbnum=17145>
* Some changes took places around the file names available from the portal containing the different components of X-Analysis. This has been done following feedback from customers in order to clarify the purpose of each files:
  + The XA Plugin working inside of eclipse/RDi, frequently referred as the XA Client, has been renamed to **XAPluginSetup13.2.14.msi**
  + The XA server component has been renamed to **XAServer13\_2\_14.zip**
  + The eclipse distribution, which is required only if eclipse or RDi are not already present on the customer’s computer, has been renamed to **Eclipse4\_4\_2.msi** (Note: this is the same version as before, no need to update it)
* The **Server Installation Manager** of XA 13.2.11, and following versions, are fully compatible with this new version of XA and can be used to install this new version of XA. The following improvements and bug fixes have been provided inside of the version 13.2.14:
  + The Server Installation Manager now supports transferring files using the SFTP protocol. Please refer to the **X-Analysis Installation & Upgrade Guide** for more information about the prerequisites.
* In previous versions, the MSI Remove option was removing the product from the system but not the plugin from Eclipse/RDi where it was also installed. This issue has been fixed. The X-Analysis plugin is now removed from Eclipse/RDi.

### Client-Side – Enhancements and Fixes

* The Source Editor had a limitation that it could not show source lines having more than 100 columns, and anything after 100 was chopped off. This has been corrected and now the Source Editor shows the entire source line, irrespective of how wide it is.
* A fix has been made to the **Object Where Used** option for scenarios where objects with the same name, but with different object types, were not getting displayed on the editor.
* A new message will now be displayed to the user if the import of an application area by excel sheet has failed.
* **Export All to Excel** for **Variable Where Used** now creates new sheet if the data to be exported exceeds 1 million rows. Also, for such kind of data, the **Variable Where Used** feature will not crash Eclipse if it has lesser memory than required for high amount of data.
* **File Field Where Used(FFWU)-> Update Reference** was not working properly for the files define in **‘Update and Add mode**' in the program. This has been corrected.
* “***Show Files***” on **Structure Chart Diagram** was showing multiple files of same name from different libraries which was not expected. This has been prevented.
* The application area data was sometimes showing some of the objects with a value of 00/00/00 when coming from a rule involving imported Production Data. This has been corrected.
* While using RDi Remote Explorer, when the user opts for VWU on the Program from LPEX editor, the cross-references having a base library name with a '.' (period) in their name were not fetched. Fixed both VWU and OWU to check for '.' (period) in the library, source physical file and member name.
* An application area named **EXCLUDE** was getting replaced by ‘**Delete**’ when shown on the Metrics. This has been corrected.
* Continuing on the X-Analysis client online help (F1) improvement started in 13.2.13, this version improves the context help content and provides extra hyperlinks across topics.

### Server-Side – Enhancements and Fixes

* Earlier, OWU was not working on copybooks which were defined on D spec without specifying “D” on 6th position. This will now work.
* Source scan was not showing any result in a customer's environment when an override of the member was failing in the specific environment. The issue has been fixed.
* X-Analysis failed to delete an override due to which initialization process was going into MSGW. This is now corrected.
* For some special cases the business rule data was not generated correctly in 13.2.14 and has been resolved in this version.
* An RPGLE parsing situation was taking a lot more time than expected and the root cause has been identified and fixed.
* This release contains further performance improvements around the INITIALIZATION and REFRESH execution.
* Misc dumps situations have been prevented from the Init and Refresh process execution.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* In X-Resize, the ‘**Override Compilation Options**' editor was not displayed correctly in all scenarios. This has been fixed. Also, provided new support to create and save compile commands with the object and member name '\***ALL**’ where member name would be editable and the value for the source and object type can be selected from the dropdown.
* Dialog messages have been updated to be more specific for ‘**DS Conflict Warning**’ and ‘**Converted Source**' options of '**Conversions**’ when no data is found to be displayed.

### Server-Side – Enhancements and Fixes

* X-Resize Initialization process has been improved to collect the *Object meta data* from the *Object application base libraries*, and *Source meta data* from the *Source application base libraries*. Earlier, X-Resize Initialization process was collecting both Object and Source meta-data from all the x-ref application base libraries, irrespective of their types.
* The ***source to object mapping*** of DDL tables and views was incorrectly fetched by X-Resize when there were more than one source member present with same name, inside the X-Ref application. This has been fixed.
* I-spec DS was not resized in the RPG III program after X-Resize conversion which has been fixed.
* In certain cases, X-Resize was capturing the incorrect length of O-Spec variables, which was causing incomplete conversion of such O-Spec variables in code. This has been fixed.
* In X-Resize’s Build List process, one of the embedded SQL statements was causing an SQL exception ***SQL0206***. This has been corrected.
* A dump scenario has been observed and prevented from the X-Resize program name XRRRCFIL.

# X-Suite Release 13.2.13

## Product: X-Analysis

#### Important Note:

#### Please refer to the section “[New Server Installation Manager](#_New_Server_Installation)” of XA 13.2.11 regarding a new tool provided to ease the installation of the XA Server.

#### Please refer to the section “[New requirements prior of installing X-Analysis on the server](#_New_requirements_prior)” of XA 13.2.10 regarding some new server side requirements introduced since that version.

### Installation

* This release 13.2.13, as well as 13.2.12a, contains all the required updates in order to protect from the log4J vulnerabilities reported in December 2021.

For more details, please refer to the following Knowledge base articles:

* <https://www.myfreschesolutions.com/kb?kbnum=17147>
* <https://www.myfreschesolutions.com/kb?kbnum=17145>
* The **Server Installation Manager** of XA 13.2.11 is fully compatible with this new version of XA and can be used to install this new version of XA. The following improvements and bug fixes have been provided inside of the version 13.2.13:
  + The “**Report an issue**” menu action can now be used to report an issue related to a failed installation of the server component while using the **Server Installation Manager**. A message will be displayed in the Server Installation Manager view to highlight any situation supported.
  + An issue was preventing the user from following the progress of the installation job running on the server.

If you have encountered this issue, version 13.2.13 of the MSI (Server Installation Manager) should be installed.

* + For Japanese environments: The Server Installation Manager was showing garbled characters in the License Agreement on Japanese machines. This issue has been fixed.
* The XA installation when using the Eclipse and IBM RDi “**Install New Software…**” wizard, was improved to have better/simpler dual installation support.
* The license validation process in X-Analysis was reporting the XAB0098 (Missing required license for product<>) error even when the license was valid. This issue has been fixed.

### Client-Side – Enhancements and Fixes

* With this release we are happy to introduce a frequently requested feature: **the ability to import the object usage information from another LPAR into the X-Analysis repository** (i.e. the production environment):
  + Using the IBMi command **DSPOBJD** the user will be able to prepare a file containing all the object details information from the production environments.
  + We are providing a new command, **CPYPRDOBJD**, that will extract the information from the file prepared with the **DSPOBJD** command and import them in the XA repository.
  + Importing object details from multiple production machines is also supported.
  + Once you have the production object details imported, you will see a new drop-down control that will allow you to select from which machine the object usage detail information should be displayed from in the **All Objects**, **Files**, and **Programs** viewers.
  + The **Application areas rules** have also been enhanced in order to benefit from the object details coming from production environments. For instance, you can create some rules based on a specific machine object details information, or have rules based on the **Minimum/Maximum object details value** found from any systems.
  + For more details, please refer to the X-Analysis User Manual. The **Appendix N - Importing data from Production machines** cover this feature.
* The **Detailed Impact Analysis** was not able to handle very large data information. For this reason it will now display a maximum of 20K records at a time, remaining records would be seen by using the **previous/next** button of the toolbar.
* Starting with 13.2.11, we have improved the XA documentation in order to provide an extra level of consistency in sections of information shared by multiple manuals. 13.2.13 brings this level of improvement inside of the XA Client online help (F1).
* Once an Application Area DMD has been created with the option **Display External Relationships** selected, clicking on **Restrict to Application Area** was also showing unrelated files. And furthermore, unselecting **Restrict to Application Area** from this scenario, was leading to improper results. Both scenarios have been corrected.
* The date in the object list editor appears incorrectly as 00/00/00 for specific scenario when the IBMi system date format set to DMY. Changes made to properly handle the DMY date format.
* In the Source Viewer, the compile-time array definition, mentioned after the last statement of the program, was not showing correct color coding. This has been fixed.
* The object list was unable to load on French and German environments due to presence of variant characters in the SQL query. Changes have been made to fix the issue.
* The XA Client preference setting “**Show Re-Engineered Screen for Screen/Report layout**” will no longer appear for users without the Modernization license.

### Server-Side – Enhancements and Fixes

* Some performance improvements have been introduced around the **INITIALIZATION/REFRESH** execution. As part of the effort, some new temporary files are being created and some extra disk space usage might be observed while the **INITIALIZATION/REFRESH** is executing. The temporary files will be removed at the end of the execution.
* After performing the execution of the **Option 78=Copy&Initialize** on a X-Ref, the configuration attributes of some files were not copied. This has been resolved.
* User point names for DBCS SYNON MODEL library is now supported with the implementation of an extended database table.
* During the UPGRADE process, the securing of IFS paths and files created at runtime by the XA Parsers was not working correctly. This has been fixed.
* We have modified our parser program to fix a looping issue observed during an initialization execution.
* Misc dump situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* In the **Test Compare Result editor**, a fix has been made for such tables that have reported certain successful comparisons, along with Errors for some records. Now, the **Test Compare Result editor** will display the appropriate error message for that table under **‘Tables with Errors’** node and all the other successful comparisons will also appear under the **‘Table Comparisons’** node, accordingly.

## Product: X-Sanitize

### Client-Side – Enhancements and Fixes

* A new option has been added to X-Sanitize in order to be able to “**Skip PreLoad Execution**”. For more information about the “**PreLoad Option**”, please refer to the **X-Datatest User Manual** sections “**Work With Data Replacement Options**” and “**Work With Replace Data**”.

### Server-Side – Enhancements and Fixes

* The Preload feature of X-Sanitize was performing implicit Data Type conversion which at certain scenarios was causing *Data Mapping Error*. This has been fixed.
* X-Sanitize was failing while processing those physical files which have UNIQUE keyword defined. This has been corrected. Now, X-Sanitize can successfully process unique records for such DDS files.
* On a significantly larger data set, the Preload function of X-Sanitize was resulting in high disk consumption. The Preload has now been improved for optimum disk utilization.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* For German XA Users, some X-Resize options were displayed in French, which has now been changed to English.

### Server-Side – Enhancements and Fixes

* X-Resize conversion process will now log some warning messages when HTML tags are present in the DSPF source.
* During the conversion process, some “Alter Table” errors were generated around files that have a REFCST defined over another file and the Parent file was not present inside the Conversion library. This has been prevented.
* X-Resize was capturing the object information from all the base libraries (i.e., Source & Object) of the x-ref application, after this fix, the object information will now only be picked from the Object libraries of the x-ref application.
* X-Resize conversion process was going in MSGW in case if there is extra increment present in the files. This has been corrected and now the file size will be adjusted according to the file present in base library.
* The X-Resize conversion process was changing the Source library informationfor the files which were marked in Convert and allowing the CRTPF command to fail. This issue has been fixed.
* Some dump scenarios have observed and fixed for X-Resize.

# X-Suite Release 13.2.12

## Product: X-Analysis

#### Important Note:

#### Please refer to the section “[New Server Installation Manager](#_New_Server_Installation)” of XA 13.2.11 regarding a new tool provided to ease the installation of the XA Server.

#### Please refer to the section “[New requirements prior of installing X-Analysis on the server](#_New_requirements_prior)” of XA 13.2.10 regarding some new server side requirements introduced since that version.

### Installation

* The **Server Installation Manager** of XA 13.2.11 is fully compatible with this new version of XA and can be used to install this new version of XA. The following bug fix has been provided inside of the version 13.2.12:
  + Under specific circumstances, the **Server installation manager** was not able to retrieve and download the XRSLReport spool file. This issue has been fixed. This issue was not preventing a successful installation only the XRLSReport could not be viewed in the view. The XRLSReport can be manually retrieved if the situation occurs.
* The submitted XA Installation job is now taking its job attributes from a job description called **XAINSTJOBD**. The job description is located in the **XAN4LOAD**library. The job*Initial library list* (**INLLIBL**attribute) is set to “XAN4LOAD, QGPL, QTEMP”. It uses to be taken from the current installer session.
* A new version of the XA Eclipse Runtime has been made available on the Fresche Portal. Meanwhile, the XA Eclipse runtime versions 13.1.0/13.2.0/13.2.08 and 13.2.12 are all fully compatible with the current version of X-Analysis. There is no need to upgrade any of those Runtime.

### Client-Side – Enhancements and Fixes

* The Structure Chart Diagram has been improved in order to provide up to 99 levels. A new preference option has been added as **Maximum Level Depth** which is defaulted to 14 as before.
* The Copybooks **$CPSSR** and **$DPSSR** were missing in XAN4CDEM library due to which the "**Expanded Copybook**" option in the **Source Editor** was not available. Now, these copybooks have been added to the demo library and a different scenario has been introduced to show a sample for the category “**Source members with missing copy books”** of the **Problem Analysis**.
* A scenario where calling the **Screen/Report Design** was leading to an unexpected error “**No presentable Screen Design for** <displayFileName>**”** has been resolved in order to properly display the Screen/Report layout.
* For our Japanese user, the **File Field Detail** information could sometime contains improperly converted characters. This has been resolved.
* When data area XUSRDBREL is set to Y, the right click menu on a relation on a DMD allows an option to ‘Change Cardinality’ of the relation. This was not working even when the data area was set. This has been corrected. (Refer to chapter **Data Model Editing** of the **X-Analysis User Manual** for more detail).
* In a Business Rules mode, the indentation used in the code where **IF..ELSE..END** structure or **SELECT..WHEN..ENDSL** structure was incorrect. This has been corrected.

### Server-Side – Enhancements and Fixes

* The handling of mixed case RPG members was not correct for some scenarios due to which the XA parser was taking a long time to process some members. This has been fixed.
* In certain scenarios, where a Physical File and it’s associated logical files existed in multiple libraries included in the library list, and not all libraries contained the same set of logical files, then the Physical file and it’s associated logical files were incorrectly excluded from the repository. This has been corrected.
* Misc dump situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* The ‘**Subset/Archive Filter Criteria**’ option has been enhanced by implementing various validations to the dialog.

## Product: X-Sanitize

### Client-Side – Enhancements and Fixes

* A new option has been added to X-Sanitize in order to be able to “**Skip PreLoad Execution**”. For more information about the “**PreLoad Option**”, please refer to the **X-Datatest User Manual** sections “**Work With Data Replacement Options**” and “**Work With Replace Data**”.

# X-Suite Release 13.2.11

## Product: X-Analysis

#### Important Note:

#### Please refer to the section “[New requirements prior of installing X-Analysis on the server](#_New_requirements_prior)” of XA 13.2.10 regarding some new server side requirements introduced since that version.

### New Server Installation Manager

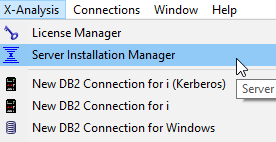
With this release we are happy to provide a new **Server Installation Manager** to ease the installation process of the Server part of X-Analysis. In summary this new tool will:

* Provide a way to upload the X-Analysis savefile on the IBMi
* Provide a way to install X-Analysis on the IBMi using the uploaded savefile
* Monitor the installation process and inform the user if the installation succeed or failed.
* Automatically extract/download the necessary files resulting from a failed installation to ease the investigation with support.

The **Server Installation Manager** is bundled with the XA Client.

In summary, to use the **Server Installation Manager**, you will need to:

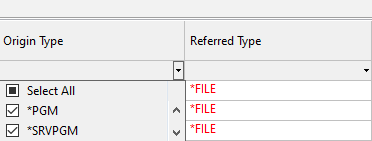
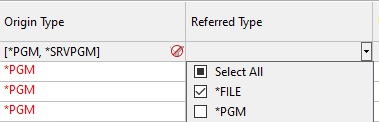
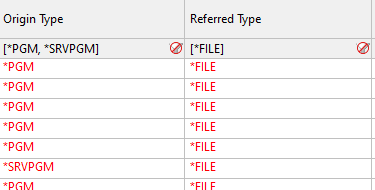
* Download from Fresche support portal both the **XA client MIS** and **XA Server Savefile** (or as a zip file)
* Install the XA Client.
* Start the **Server Installation Manager** from the eclipse/RDi menu **X-Analysis->Server Installation Manager**



Please refer to the **X-Analysis Installation and Upgrade guide** for more information.

The manual approach of installing X-Analysis server remain available as before.

### Client-Side – Enhancements and Fixes

* As done for the XA **User Manual** part of XA 13.2.10, almost all of the manuals have received several changes toward improving their visual layout and content.
* X-Analysis has been certified with version 9.6.0.11 of RDi.
* The **Application Area Diagram Summary** has been improved in order to provide a **Multi-Combo Box** as part of the filtering of the columns **Origin Type** and **Referred Type**. This will provide greater granularity on the filtering of those 2 columns type.
  + Multi-Combo-box while selecting 2 different *Origin Type* filter criteria
  + Multi-Combo-box while selecting 1 different *Referred Type* filter criteria 
  + Combined output where we can see 2 selections from *Origin Type* filter and a single one from *Referred Type*. 
* **Variable Where Used** has been improved to better report field declaration when it is read directly inside of an output parameter defined with DS with prefix added to the field name, while no MOVE or Eval are involved
* Relation between two files used in a Join File was not represented in the Data Model. Changes made to identify such relations and show them on the Data Model Diagram.
* Display and Printer files support has been improved to allow the possibility to see such kind of objects from the SCD Expanded mode (or Show File mode) as well as in the System Document.
* For our Japanese users:
  + A certain whitespace character was incorrectly showing up as a unreadable diamond shape character in the Object List in a Japanese language environment. This has been replaced by a blank.
  + In Japanese 2E environment, all the logic was grouped under a single User point - User Initialize Program, although there were several other user points defined. This has been corrected.
  + For Japanese users, **Annotation List Editor** was not opening on IBMi English machine, where 'Language Translation' is selected as 'No Translation'. This has been fixed.
* After running business rule extraction, some fields were not converted properly to display a long name when they were part of a “AND”/”OR” conditions, leading to improper information being observed in the Rule column of the XA client.
* The Business Rules Overlay now shows the code with expanded Copy books. Earlier the rules were shown over the unexpanded source of the member.
* In the **Data Model Diagram,** the **Owned by** references were not showing up when the 2E based repository had more than one 2E model library specified. This has been corrected.
* Inside of the **Problem Analysis** a fix has been provided to allow duplicate objects to be reported inside of the **Obsolete objects** category.
* A situation has been observed, and fixed, where the library information for a particular program was blank inside of the SCD.
* In the **Inverted Structure Chart**, the colour of the first object was not properly shown as per the function group. This has now been fixed.
* Inside an **Application Area**, the **AAD Summary** could sometime show references that are outside of the current Application Area until a reference is selected. The new default behaviour restricts to only show references that are part of the current Application Area.
* Variable call references were not showing on Object Where Used for two cases.
  + If there are multiple objects created in different libraries on the same member and the repository is initialized with duplicate \*YES then objects were missing on Object Where Used.
  + the Same scenario was not working for the REFRESH process

The issue has been fixed.

* The pseudocode of the source was getting truncated due to the improper handling of an **EVALR** operation appearing in the source code. This issue has been fixed.
* The **Export to Excel** of an SCD would contains a blank **Program** value for **SRVPGM** and **MODULE** usage type. This has been fixed.

### Server-Side – Enhancements and Fixes

* The installation process was generating a warning when trying to secure XA demo libraries. This issue has been fixed
* Our SQL parser requires JAVA 8 to be present on the IBMi machine. Until today`s release it was requiring that such a version of Java to be the default java on the machine. We have removed such a dependency about the default java version and, at runtime, will attempt to locate Java 8 or above on the system and use it if it is not the default java version available.
* A fix has been made around **Application Area Rules** that are based on **date** selection based on another **Application Area** to properly returns the expected objects.
* Misc dump situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* Delete functionality was not working properly on the ‘**Subset/Archive Filter**' and ‘**Filter Criteria**’ dialogs. This has been fixed.
* At the ‘**Subset/Archive filter**’ dialog, changing the Field Name will now reset the ‘**Operator**’ and ‘**Value**’ columns.
* Certain connection related situations prevented the **Archive & Purge Data** option from working properly. This has been resolved.

### Server-Side – Enhancements and Fixes

* Table comparison was failing when an SQL reserved word was used as a column name and has now been fixed.

## Product: X-Sanitize

### Server-Side – Enhancements and Fixes

* X-Sanitize has been improved in order to support the obfuscation of File-fields that have a dot character in their names.

## Product: X-Resize

### Server-Side – Enhancements and Fixes

* The Variable Where Used extraction process, of the X-Resize build execution, was looping in a specific situation. This has been fixed.
* The X-Resize conversion process was generating a dump in certain cases. This has been fixed.

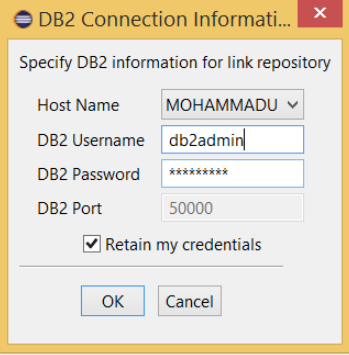
## Product: XA-Open

### Client-Side – Enhancements and Fixes

* **Linked mode** of **XA-Open** is now enhanced to optionally cache the DB2 password.

The "DB2 Connection Information" dialog now has an option “Retain my credentials” which can be used to remember the password during the linked repository expansion. As a result, the user does not have to provide such information every time.

Note: Standalone XA-Open repository access from XA Client was already enhanced to have "Retain my credentials" since version 13.2.08 - when IBM i repository access from XA Client was enhanced.



* The **Annotation** feature was no longer working inside of **XA-Open** and the situation has been corrected.

# X-Suite Release 13.2.10

## Product: X-Analysis

### New requirements prior of installing X-Analysis on the server

In order to improve the security around the installation of X-Analysis and around the different libraries and objects created by X-Analysis, some new requirements have been added to the installation of the server component.

The following requirement must be fulfilled before the installation could be attempted:

* The user profile executing the installation process must have **\*SECADM special authority** along with \*ALLOBJ or the user class as **\*SECOFR**. \*SECADM is a new requirement.

During the installation, the process will create the necessary user profile and authorization list in order to enable better object authority for **XA libraries/objects**:

* A new **XAOWNER** user profile will be created. The **XAOWNER** profile will become the owner of all the files that will be created during the installation. The **XAOWNER** user profile is required during the restore process. It is not intended to be used as the user to launch the installation. The following command will be executed by the installation process:

**CRTUSRPRF USRPRF(XAOWNER) USRCLS(\*PGMR) INLMNU(\*SIGNOFF) LMTCPB(\*YES) TEXT('X-ANALYSIS object owner') SPCAUT(\*NONE) MSGQ(QUSRSYS/XAOWNER)**

* A new authorization list named **XAAUTHLST** will created by the installation process. The **XAAUTHLST** list will identify which user profiles or group profiles are allowed to use X-Analysis.
  + The following command will be executed to create an authorization list that would allow any users to access X-Analysis:

**CRTAUTL AUTL(XAAUTHLST) TEXT('X-ANALYSIS Autorization List') AUT(\*ALL)**

* + Then the owner will be set to **XAOWNER** using the following command:

**CHGOBJOWN OBJ(QSYS/XAAUTHLST) OBJTYPE(\*AUTL) NEWOWN(XAOWNER) CUROWNAUT(\*REVOKE)**

* + The security administrator of the IBM i should refine the definition of the **XAAUTHLST** authorization list in order to restrict authority to some specific users or groups as it has been created with public authority by default. We also recommend changing the password of the **XAOWNER** user profile to \*None.

All of the other server-side installation requirements remain the same. We are inviting you to visit the **X-Analysis Installation And Upgrade Guide** for more details.

### Client-Side – Enhancements and Fixes

* The X-Analysis User manual received several changes toward improving its visual layout and content. This work will eventually be reflected inside of the other documents as well as inside of the online help.
* The following improvements have been added to the **Annotation List Editor** introduced inside of XA 13.2.09:
  + A right click content menu option are now provided and the options provided are based on the object type/attribute of the entry selected. It also provides an option to modify/edit the annotation.
  + The **Annotation tooltip** has been improved in a way where the temporary window created is better aligned with the eclipse/rdi window. Previous to the change, a large annotation could span over multiple screens.
  + The ability to call the **Annotation Template** has been added to the right-click menu of the **Annotation List** entry visible in the navigation panel.
* A small change took place in the **Metrics Dashboard** where the **Special Reports** option has been renamed to **Specialized Analysis**, in order to be consistent with the same report name used elsewhere.
* The **Metrics Analysis** (and **Metrics Analysis History)** has been improved in order to provide 2 columns for Source line count. The first column **Total Source Lines** (with comments and blank lines) and the newly added **Actual Source Lines** (excluding comments and blank lines).
* The following changes took places inside of **X2E-Analysis**
  + A new option has been added to the X2E-Analysis **Action Diagram** for Synon program in order to view the **Generated Source.**
  + The X2E-Analysis **Action Diagram** has been improved to show logic from internal functions such as RVTFLD.
  + Fixes have been made inside of **X2E-Analysis** to not fetch original Source for Internal Functions when zoomed from within the source editor.
* The following 2 restrictions mentioned in the release notes of XA 13.2.09 introducing the official certification of **Eclipse 4.18** have been resolved inside of XA 13.2.10:
  + Performing a Right-Click operation in the source viewer is currently not providing all the expected options
  + Exporting to MS Word, Excel or PDF is failing.
* The **Zoom Source** feature has been improved in order to also support objects coming from the linked repositories inside of the **All Procedures** and **Exportable Functions** editors. Similarly, the **External Procedures** and **SQL Procedures** editors have been enhanced to provide **Zoom Source** from double click and context menu.
* For our Japanese users:
  + In a Japanese environment, the **Variable Where Used** option from right click on an internal routine name from the **Action Diagram** did not bring any results. This has been corrected.
  + Some translations took places inside of the category names visible in the **Annotation List**.
  + Some entries in the **Screen Flow Diagram** **legend** have been translated to Japanese.
  + In Japanese, the text shown on the **Screen Flow Diagram** editor was not translated based on the selection of **Database Language Settings** option in Advanced page of Preferences. This has been corrected.
  + Some garbled characters have been observed and fixed in the Japanese version of **X2E-Analysis**.
  + Garbled characters were observed and prevented from the X-2E Analysis around the **Execute** line entries as well as around the **Internal Routines** for Japanese environment.
  + Dump was found on Japanese 2E cross-ref because of the incorrect translation of a Japanese character. This has been corrected.
  + Some User Point logic was missing from **Action Diagrams** in the Japanese version of **X2E-Analysis** and has been corrected.
  + On a Japanese environment, the **Complexity Metrics**, when exported to MS Excel showed character ‘??’ at the end of the program description. This has been corrected.
* For our French users:
  + Based on feedback received from our French partner, we have standardized some diagram names and actions around the names **Diagramme de flux**, **Diagramme de structure hierarchique** and **Diagramme de structure inversée.**
  + The Source Scan feature will start to report the number of records found as part of the windows header in a **French** environment. This feature was already part of the **English** and **Japanese** versions.
* The **OWU->Update References** also showed programs doing only Output to the file. The Data Flow Diagram shows Output in the right-hand section and not at bottom part, which shows only Update references. Changes were made to **OWU->Update References** to make it in sync with how DFD shows Update References.
* The **Source Scan** was not working if the search word contained '\_' and/or '%' characters. The issue has been fixed.
* A fix has been made to properly save the missing library and attribute during an update operation on an **Annotation**.
* A fix has been made in the **source viewer** to handle lines which were truncated on selecting the pseudo code option when it is applied on a Fully Free RPGLE code.
* When an **Application Area** is created based on another application area then the object list should be built based on the parent application but in a specific case, this was not working for LFs. This has been corrected.
* A correction has been made to the **Application Area** objects list to not exclude PF when only the LF is omitted in the Rule.
* The **Zoom Source** option sometimes failed to show the source because of some issues where the level fetching mechanism had an error. If such condition raised again, the **Zoom Source** will now default to level '2'.
* The **Zoom Source** option when taken from the **Object Where Used** was not working correctly when the library where the source exists and the library where the corresponding object exists were different. This has been corrected.
* For some specific sources having free format RPGLE but having a // comment at the end of line, the **flowcharting logic** was not handling the source line correctly, and was generating an incorrect flowchart. This has been corrected.
* The OWU feature on the **All Objects editor** was not working properly and has been corrected.
* A fix has been provided inside of the **Problem Analysis** for the category “**Number of GOTOs exceeds x**”.
* A correction to the **Problem Analysis** category '**Subroutine line exceed**' has been made to exclude the Mainline section for the calculation of this category.
* A fix has been provided inside of the **Problem Analysis** for the category “**Duplicate Logical Files**”.
* Attempting to generate a **Summary Report** several time could lead to such report to become non responsive. The situation has been resolved.
* A fix has been made to handle the case where adding and omitting the same objects of types \*QMQRY/\*QMFORM to an Application Area leaves the object displayed.
* A fix has been made for an issue preventing the creation of a flowchart from the system documenter on the sources containing copybooks.
* A fix has been made to handle the duplicate entries coming in the **Exportable Function list** editor.
* A fix has been made to handle the very specific scenarios of CLP programs where errors occurred in generating the process flow chart using the OpenOffice (but not in MS Visio).

### Server-Side – Enhancements and Fixes

* When upgrading an X-Ref using the XREFMENU **Option 77=Upgrade**, the user is no longer required to provide a setting regarding the **Index Source files** as the appropriate decisions will automatically take place based on the destination version. Similarly, the option as also been removed from eh XREFMENU **Option 78=Copy&Initialize**.
* For an RPGLE program with mostly fixed format code, if a fully free type comment was encountered, the remaining lines were incorrectly considered as Fully Free. This caused incorrect source levels as well as incorrect identification of subroutines. This has been corrected.
* SQL Parser
  + With respect to the SQL members, till now, X-Analysis was able to correctly map the generated object to its source -- But only when the object and source members name were same. In other words, when the SQL member name and generated object name did not match, then the mapping was incorrectly tracked, or was completely missing.

This incorrect or missing mapping led to various issues, like

* + - Zoom Source option would not work on such objects, from anywhere in X-Analysis - so message "Source Member not found in this Cross-Reference Library" was displayed.
    - Data Flow Diagram would not generate for the SQL objects whose object name and member name were different.

With this enhancement, now the mapping is corrected for **SQL Procedures** and **SQL Functions** - even if their object name does not match the source member name that they are defined in.

This correction of mapping will lead to improvement in various places in X-Analysis for such objects and sources, for example

* + - When object actions performed from Source View
    - DFD will be generated for such SQL Procedure and Functions
* Changes were made to restrict the context menu on CLP programs for the IBM command STRPCCMD and also on some other IBM commands.
* FAP(File Access program) logic was not introduced from XREFRESH and XA4MAINT process. This will work from both processes now.
* A REFRESH situation leading to improper information being captured in our reference table has been fixed.
* A situation around the upgrade of an X-REF was leading to a “Pointer not set for location” error. This has been prevented and fixed.
* An initialization execution that appeared as a looping issue for a customer lead to an optimization change that resolved the situation.
* A looping situation observed during the initialization execution has been observed and prevented.
* Misc dumps situations have been prevented from the Init and Refresh process execution.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* + A fix has been made to the **comparison editor** to better support JSON files with UTF-8 encoding scheme.
  + The ***'Show Code Coverage Results'*** option on XA-UI was not working in certain situations, this has been corrected.
  + For OS version **V7R4**, the options related to **Code coverage** were disabled on XA-UI even when the pre-requisites were met. This has been fixed.
  + **X-Subset** client was truncating messages received from the server when they were longer than 132 characters. The limit has been increased to 2000 characters.
  + When submitting an **X-Subset** or **X-Archive** job while another job was already running, an error message failed to notify the user of the situation and is now properly reported.
  + The XA UI has been improved to better trap error conditions sent by the execution of the server **X-Subset**, including **MSGW** situation.
  + Submitting a **subset** execution when no filter was specified would lead to an unexpected error. Now the situation is prevented and the user is informed to provide a filter.
  + The ‘**Subset/Archive filter’** dialog is now allowing both DDS and DDL files. Earlier, only DDS files were allowed.
  + Fix has been made to ‘**Subset/Archive Filter Criteria’** dialog to disallow character values and allow plus/minus sign before numeric values for numeric type fields.

### Server-Side – Enhancements and Fixes

* + X-Datatest with code coverage was failing on an ASP machine with French configuration and has been fixed.

## Product: X-Sanitize

### Server-Side – Enhancements and Fixes

* Improved X-Sanitize performance: starting with this release single member files will be processed directly and multi member files will be processed through overrides. Earlier all files were processed using alias.
* Improved X-Sanitize performance: In this release, all the instrumented code of X-Sanitize has been refactored to get the meaningful logs without increasing the overall execution time.
* X-Sanitize process was improperly logging a **WARNING: NOTUNIQUE** message for all the data types except the **ID** datatype, and a fix has been applied to prevent this.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

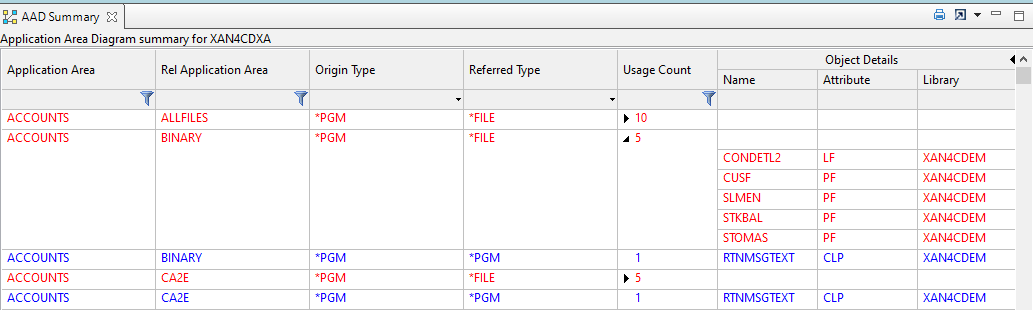
* **Variable Where Used (VWU)** feature was generating an exception on linking the IBM i repository with XA-Open XAN4CDXA (demo) repository. VWU is now working for this type of linked mode use.

# X-Suite Release 13.2.09

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* As part of this release, we are providing a new **Annotation List** editor, a single place to see all the annotations assigned to your objects, including the File/Field annotations:
  + 3-stage sorting has been provided on all columns
  + Text filtering capabilities has been provided to some columns while others can be filtered using a dynamic drop-down selector.
  + Double-clicking on any entry will open the **Annotation dialog**, allowing you the possibility to change/delete your annotation content.
  + When you hover the mouse on any annotation, a tooltip will display the annotation content.
  + Please reference the **X-Analysis User Manual** in order to get familiar with some of the **Regular Expression** syntax that could be useful to filter your annotation content. Refer to **Appendix L – REGEX Search**.
  + Please note that business rules annotations are not part of this display.
* Building on the improvement introduced inside of the 13.2.08 release for the **Application Area Diagram Summary**, we are providing in this release a feature that has been requested by several customers: the possibility to see the information on the objects used to build each relationship. If a single object was used then its information will be immediately displayed in the new dedicated area, otherwise the user can click to expand the list:

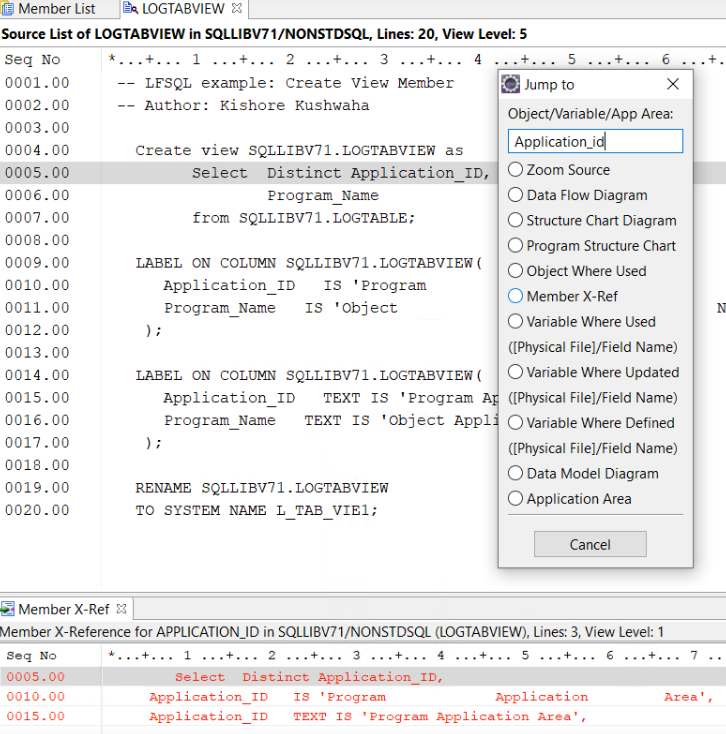


* The **Screen Flow Diagram**, which was originally restricted for our users with a Modernization license, is now available to any users with an **X-Advisor license**.
* X-Analysis has been officially certified on **Eclipse 4.18**. You can now use the XA Client on such version of eclipse. Please note the following 2 restrictions observed on such an eclipse version:
  + Performing a Right-Click operation in the source viewer is currently not providing all the expected options
  + Exporting to MS Word, Excel or PDF is failing.
* Please note that the demo application will start to have all of its application areas rebuilt at each releases starting with this release. It was not the case before.
* In some situations, the XA Client could freeze after connecting/disconnecting several times. This has been prevented.
* Performing a **JUMPTO** operation on a non-existent object used to create an empty DFD, SCD and PSC diagram. An **Object Not Found** error will now be reported instead.
* For the override data dictionary, changes were made to not allow multiple records with the same unique key values for **Override PIDS**, **Override Relationship** and **Override Relationship Details**. Upon trying to add the same unique key, a message dialog will inform the user and prevent the operation.
* On very specific cases a Java error occurred when accessing the structure chart diagram. Changes have been made to fix the issue.
* For our Japanese users:
  + For X2E-Analysis for **Japanese** support, several “garbled” scenarios over source containing Japanese characters have been resolved in the Action Diagram and also some dump scenarios prevented.
* The Objects and Programs list editors would sometime show duplicate object entries reported around stored procedure. This has been fixed.
* A fix has been made to correct the scenario for the **Inverted Structure Chart** where some programs are shown as expandable, but expansion reveals nothing.
* The source zooming from the **OWU** list editor incorrectly refers to the wrong source member. Changes have been made to correct the source zooming.

### Server-Side – Enhancements and Fixes

* No more installation errors will be reported when the QTEMP library is already part of the system library list.
* No more shared lock on **XAPROD/XLICTBLK** is present after **XREFMENU** terminates. This was impacting some customers where the only workaround to release such lock was to exit **XREFMENU**.
* The number of called internal routines on the DFD was not matching with the number of called internal routines from the Action diagram. This has been fixed.
* Incorrect fields were appearing in the business rule and have been corrected.
* We have fixed an issue where the Initialization process was appearing as looping under some very specific conditions.
* SQL Parser
  + SQL members of member type LFSQL were not correctly indexed. As a result, the related features were not working correctly - like *Variable Where Used* and *Member X-Ref*.

Now the indexing of such members is corrected, and related X-Analysis features generate correct results.



* + Several improvements have been made inside of the Source Viewer to better recognize SQL statements and their components while performing a right-click operation.
  + For SQL members, **Variable Where Used** Level 1 will now report indirect references from SQL statements inside Routines (Procedure and Function). Before this version such indirect references were reported only from SQL in Embedded SQL in RPG.
  + For the REFRESH process, the identification of SQL members to process is improved. This will lead to better performance in REFRESH.
* A locking situation has been observed and fixed by the DMD process.
* As MSGW situation has been observed and fixed during the initialization of a newly created XREF.
* Dump issue during the upgrade of an XREF has been prevented in the XA program XRVARATR.
* Some situations around **Variable Where Used** leading to dumps have been fixed.
* A dump situation has been prevented while analysing a source containing a **/COPY** statement where no copybook was specified.
* A dump condition has been observed and fixed from the XA program XRETCALL.
* Locking issue found from XREFRESH process due to which references entry were not populating in the reference file. This has been corrected now.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* + The **Spool file** support that was introduced in X-Analysis 13.2.08 has been improved in order to provide, in the **Test Compare Result** editor the information about differences that have been detected while comparing spool file content. It will now report the lines that have been **changed**/**deleted** or **added**.
  + A fix has been made to display the ‘**Number of records with differences**’ to exclude from such count rows that ***only*** contain ‘**Excluded columns**' list. This count would be displayed in the **comparison editor** as well as in **summary view** at the selection of ‘Table’ and 'Changed’ node of comparison editor.

### Server-Side – Enhancements and Fixes

* + X-DataTest process has been enhanced to support Table comparison to include **ROWID** and **XML** datatypes.
  + The JSON file generated by the X-Datatest was failing on a French environment. This has been fixed.
  + The JSON structure was becoming invalid on certain CCSIDs due to the use of variant characters. This has been fixed.
  + A fix has been made for X-Datatest to access the data areas stored on **ASP** device.
  + Existing spool files on the system were wrongly getting included in the spool file generated count. After the fix, the process will only include the spool files that are generated by the process.
  + The RUNSQL command used for writing the *Test Result History records,* was failing on IBMi machines that use comma as a Radix character (aka the decimal separator). This has now been fixed.

## Product: X-Resize

### Server-Side – Enhancements and Fixes

* X-Resize has been enhanced to report a warning under the **device problem category** when the given field’s extension exceeds the display size of the device file.
* The File Level keyword **EDTWRD** is now properly added **after** any continuation line ends in the DSPF during Resize. Before this fix, it was something wrongly added before.

## Product: X-Sanitize

### Client-Side – Enhancements and Fixes

* X-Sanitize has been improved to better support a large number of numeric ID columns. This improvisation has cut the overall obfuscation process execution time by approximately 50% around such datatype sanitization work.
* Some extra restrictions have been added:
  + For the **X-Sanitize project creation & update** feature, the **Data Library** **to Change** will no longer accept special values like Blank value, \*LOADLIB, or \*DBASELIB whereas **Data Library to Analyze** field will no longer accept a Blank value. The special value \*LOADLIB is allowed for this option.
  + Similarly, the **X-Sanitize command’s Output Data Library** field will also not support special values like Blank value, \*LOADLIB, or \*DBASELIB.

### Server-Side – Enhancements and Fixes

* For the creation of the X-Sanitize project, we have removed the possibility to specify \*LOADLIB as the data library to change. Similar changes have been applied on the client side to prevent changing the X-Sanitize setup with such value.
* The X-Sanitize Option 16 (PF Sequence) was not working properly and after this fix, the process is now obfuscating the file according to the PF Sequence.

# X-Suite Release 13.2.08

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* Please note that we have updated the Eclipse package (commonly referred as the XA Runtime) in order to change the Java Runtime Environment part of it. It is now packaged with Amazon Corretto JRE. The same version of eclipse 4.4 is provided and no change in the functionality is part of this change.
* Under some situation the un-installation of the XA Client was not reporting that eclipse is running and failed to bring the expected error Message Box while the uninstallation was not taking place. This has been fixed.
* The XA Client has been enhanced in order to be able to retain the credential information for any particular IBM i system. Simply select the option “**Retain my credentials**” and it might be the last time you will need to type in your password!
* The **Application Area Summary** has been improved with several **filtering** capabilities, similar to the ones available inside of the **Application Area List**.
* The **Application Area List** received the following changes:
  + The **Application Area List** has been improved in order to allow the possibility to sort by the **Parent App Area**.
  + Inside of the **Application Area List**, a change has been made to fix the alignment issue of the application area name containing annotation as it did not align with the other entries.
  + The **Application Area List** was not always sorted on the **application area** **name** and **parent app area level** initially at the time of opening the **Application Area List editor**. This has been fixed.
* For our Japanese users:
  + Several UI panels have been translated to Japanese regarding **Application Area** interactions, including
    - Creation of a new **Application Area**
    - Adding a single object to Application Area.
    - **Add objects with related objects**
    - Omitting a single object
    - Editing an existing **Application Area** rules
  + There were some missing phrases which were not translated to **Japanese** for the **System document** in the last release. They have been translated now.
* Bugfix: For **specialized metrics** following fix have been made:
  + Now a proper message gets displayed when a user tries to modify a report created by someone else instead of an update failed message.
  + The issue of throwing an error is fixed when the user submitted the report with a single field selected and after that select the 'view report' option.
  + Now SQL function **NOT**, **ORDER BY** and **ESCAPE** is supported in the filter criteria.
* Changes made to fix the issue of **Variable where used** search not working using the Search dialog invoked by **Ctrl+F** on changing the levels.
* In the **Application Area diagram** the count of the “**Other**” category for the nested application areas was not shown correctly and always displayed as 0. Changes made to correct this.
* In a very rare scenario, there were differences reported between **Object Where Used** and **Data Flow Diagram**, and some changes have been made to handle an observed exception appropriately to avoid the failure to write records.
* **Field Search** was not returning constant values, even if the option was selected. This has now been fixed.
* Few releases back, the File Metrics was modified to match the CRUD sheet. But the More Info logic was still the same.

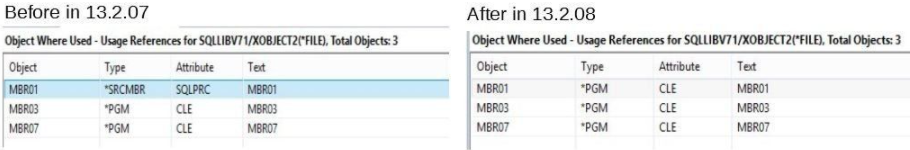
The treatment of usage codes A, B is different where B will add 1 to Create, Read and Update and A will add 1 to Create and Read.

Now the counts for CRUD sheet, File Metrics as well as More Info are common.

* Changes were made to fix the issue of mismatch of Access paths count between File metrics and More info view.
* **VWU** was not working properly from the **LPEX** editor if the selected variable name was in the lowercase.
* The XA Pseudo code was trimming the Factor2 to 10 characters, even though it is longer. This has been fixed.
* On the IPv6 environment, the Application temp folder and the PCF folder are not accessible due to the presence of some invalid characters in the path in the IPv6 address format. Such situation was impacting the **Export** functionality over IPV6 environments and has been resolved in this release.
* In some specific scenario where the Source file had low record size, then the **Zoom Source** did not bring up the source correctly. This has been fixed.
* On selecting the screen/report layout option from the system documenter for the internal PRTF, nothing was output to the generated document and also the screen fields of PRTF was not documented in the document generated. This issue is now fixed.
* The **Export** options (Word, Excel and PDF) from the **Object/Files/Programs** editor would sometime generate a java exception error and this situation has been corrected.
* The demo application has been extended to include some **User Defined Program**. Please refer to the file **XUSRCMDS** for some example call.

### Server-Side – Enhancements and Fixes

* The text of the cross-ref was not updating on newly cross-ref when created through **78 option (Copy&Initialize)**.
* The **XREFRESH** process was populating the object of same name from lower library instead of higher library of the cross-ref in the Program reference table. This has been corrected now.
* The effective source type was not properly assigned for non-standard COBOL copybook members and has been corrected.
* SQL Parser
  + In 13.2.08, when user define an external SQL user defined function with string literal as parameter of “EXTERNAL NAME” clause, X-Analysis is able to identify the SQL UDF as external function and report the members where the Object name is specified as string literal in “EXTERNAL NAME” clause. User can see the reference in X-Analysis client, **Object Where Used > All References**.
  + **Object Where Used-> All References** and **Usage References** was reporting incorrect type and attribute for some SQL members.



* + For Cobol Embedded SQL member with ‘**BEGIN DECLARE SECTION**’ statement, object and field references were not reported from all SQL statements. This has been corrected in this release.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

Spool file support is coming inside of X-Datatest and this release will introduce the first steps toward this goal and upcoming releases are expected to bring full spool file support. The current release contains the following support:

* The **Run Test Process (Generate Test Result)** option, which is used to generate a new **Test Result** from the result of the configured **Test Process**, will automatically save any spool files created by the Test Process.
* A new **Test Management Options** named **Test Result Spool File Exclusion** has been added to provide the possibility to identify which spool file(s) we want to be part of the comparison execution. By default, no spool files will be compared.
* The **Test Compare Result** editor will now start reporting **Missing Spool Files** and **Unexpected Spool Files**.

In the upcoming releases we are looking to bring in the Test Compare Result editor some sections to highlight any differences that could be observed while comparing the spool files content.

* In a test environment where both a subset library and the application base library were involved, X-Datatest failed to inform the user that the comparison execution revealed differences. This has been corrected.
* The X-DataTest UI was unable to open generated JSON report whenever there were no changed records observed by X-DataTest for any of the tables being compared. For the cases where at least one changed record was present it was working fine. This has been corrected.

## Product: X-Sanitize

### Client-Side – Enhancements and Fixes

* For the creation of the X-Sanitize project, we have removed the possibility to specify \*LOADLIB as the data library to change. Similar changes have been applied on the client side to prevent changing the X-Sanitize setup with such value.

# X-Suite Release 13.2.07

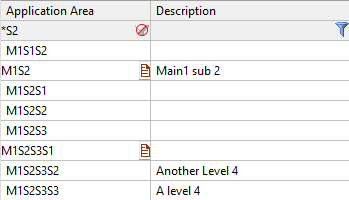
## Product: X-Analysis

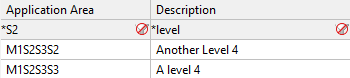
### Client-Side – Enhancements and Fixes

* Installation:
  + Please note that the minimum version of eclipse supported is now version 4.4, and the minimum version of RDi supported is version 9.5. The XA Runtime part of XA 13.2xx is not requiring any changes to support this change.
  + The "Browse for Folder" dialog displayed by the XA client installation to browse for an Eclipse location is now appearing on top and is now visible to the user. In previous versions, the dialog was hidden and the user was not able to access it easily.
* The **Application Area List** is receiving some exclusive new enhancements that we hope will please our users since we are looking forward to bring them elsewhere in other areas of the XA Client:
  + We are introducing for the first time the concept of **Filters** that allow the possibility to dynamically filter the information already displayed using some criteria that support wildcards.
    - The columns supporting such **Filters** are identified by a symbol part of the column header which now cover 2 rows. In the context of the **Application Area List**, the columns **Application Area, Description,** and **Owner** are supporting the **Filters**:



* + We can enter some filtering criteria in one or multiple columns and, as we do, the list of records will refresh accordingly. We can start the query with a “\*” (the filter always assumes a “\*” at the end), or anywhere in the filter value. In all case the filtering is case-insensitive:





* + We can reset completely the **filters** by clicking on the filtering symbols.
  + We are also introducing a different user experience with the sorting feature of the **Application Area List.** First you will see a new indicator when you click on a column in order to force the sorting to be base on it, which is currently missing from other XA windows. Also, until today, the sorting was based on a 2-stage approach, being Ascending or Descending. With today’s **Application Area List** we are introducing a **3-stage** approach, being **Ascending**/**Descending**/**Back to Default**. That 3rd stage will restore the UI to the default sorting, which is, for this window, the sorting on the **Parent App Area** to reproduce the hierarchical representation of the Application Areas. This 3-stage approach is currently on “trial” as we would like to grab our user’s feedbacks before bringing it to other parts of the product.
* For our Japanese users:
  + Our Japanese users will be happy to know that we have completed the translation of the **Documenter** (**Document Manager**)
  + The XA Client interface related to the Instrumentation Control has been translated for our Japanese customers.
  + The Japanese UI showed an incorrect usage for Called Commands. It showed Called Access Paths in Japanese. This has been corrected.
* Various changes for **Instrumentation Control** options took places:
  + The **Control Option** will now be available on newly created, but not yet initialized, x-ref
  + When no previous entry is present at the x-ref level, the **Apply** button will be enabled only when the user changes the values.
  + The **Restore Default** option is no longer available for x-ref level.
* Specifying Generating a System Documentation from the Application area was failing during the generation of the business rules inside of an excel sheet when objects with same name and different object types were present. This has been fixed.
* From the **Application Area Lis**t, when we attempted to either expand or delete an Application Area having a **“-”** character as part of its description would lead to an error. This has been fixed.
* On newly created cross-ref of Synon, the zoom source option was showing the actual source of the member instead of Action Diagram. This has been corrected now.
* The sorting on the **Application Area List** column **Refresh Seq** was not behaving as expected when more than 9 entries were present. This has been corrected.
* XA was logging the '**Visio not detected**' message even when no Visio specific option was selected in the **Documenter**. This has now been fixed.
* Attempting to use the XA-Analysis plugins into an environment running eclipse 4.18 would lead to some errors since several API calls are deprecated in that version. This has been fixed.

### Server-Side – Enhancements and Fixes

* Installation:
  + The server installation process is now handling duplicate records in the XA license table file. The warning 'Failed to generate XLICTBLK file' is not reported anymore in this specific scenario.
* The archiving process was going into **MSGW** when the source members size was greater than 509000. The issue has been resolved.
* The ‘**Overview Structure Chart**’ and ‘**Structure Chart Diagram**’ pages were displaying files external to an Application Area when the **'Restrict to Application Area**' option was selected. This has been fixed now to display only files that are part of the application area.
* The build data model was not populating the files properly when same object is present in multiple base libraries. After the fix, the files are populating correctly.
* The Data queue entries were not populating in the object reference table when **PARM** cases were having Data queue name, or when the data queue is called through '**CALL(E)**'. This has been fixed.
* Attempting to call the command **XA4SRCMNT** through **XACMD** would sometime lead to an intermittent **CPF4101** error. This has been fixed.
* A scenario leading to a **Decimal data error** during the **business rules** process has been fixed.
* A looping issue, which has also been reported as generating a dump, has been resolved in the initialization execution.
* The build data model was not populating the files properly when same object is present in multiple base libraries. This has been fixed.
* The Initialization process with business rules parameter set as **\*YES** was generating dumps from program XRBLDJOIN and XREXTPCALL. This has been fixed.
* A looping situation in the Refresh process has been identified and fixed.
* At the end of the execution of the initialization process some verifications were done which could be impacted when a lot of spool files are already present on the system. This situation has been fixed.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* X-Datatest has been improved in order to provide a way to automatically generate the **Test Result** through the execution of the already configured **Test Process**. A new option named **Run Test Process (Generate Test Result)** has been added to the **Test Process** context menu and, calling it, will execute the **Test Process** without the comparison part, and save the results as a new **Test Result**, similarly to the manual **Save Test Result** option. This will ease considerably the creation of the expected **Test Result.**

A new command has been added, **XGENTSTR/XGENTSTRC**, to perform the same from a batch or interactive call.

* We are also providing a way to see the **Test Result** creation history. Please refer to the new context menu option **Show Test Result History** available from any **Test Results**.

### Server-Side – Enhancements and Fixes

* The X-Subset process was failing when more than 999 files were selected by the filter criteria specified. This has been fixed.

## Product: X-Sanitize

### Server-Side – Enhancements and Fixes

* X-Sanitize has been enhanced to support decimal values up to 63 decimal positions. Both **Packed-Decimal** and **Zoned-Decimal** are supported.
* The X-Sanitize has been enhanced to support Unique keys by using the generated proper names data.
* Changing the X-Sanitize search word would change the search word in Searches but not in related exclusion records leaving the exclusion record orphaned. This has been fixed now.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

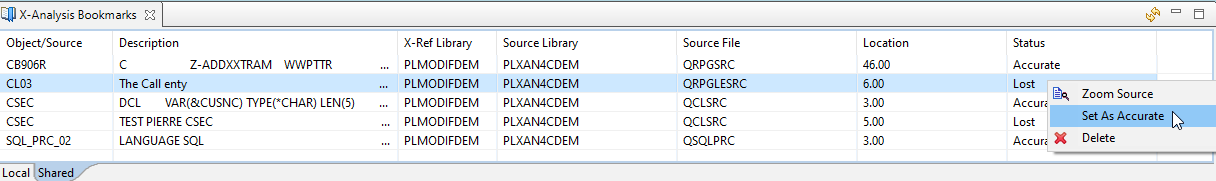
* Since version 13.2.04, XA-Open required to be executed with the “Run As Administrator” authority. This requirement has been removed.

# X-Suite Release 13.2.06

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* Please note that we expect this release of X-Analysis 13.2.6 to be the last version supporting **Eclipse 4.2/RDi 9.0**. With the next version of X-Analysis, the minimum version to be supported will be **Eclipse 4.4 and RDi 9.5**.
* From the “**X-Analysis Bookmarks**” editor it is now possible to set a bookmark listed as “**Lost**” or “**Out of sync**” back to an “**Accurate**” state. This could be used when we know that a bookmark is properly set without waiting for the next REFRESH job execution.



* For our Japanese users:
  + The “**Usage**” information has been fully translated to Japanese. This “**Usage**” information is visible inside of the **Object Where Used** list and the **Documenter** output for instance.
  + The spreadsheet created from the **Export CRUD** has been completely translated for our Japanese users.
  + Lower case characters would appear as garbled from a running problem analysis while the setting of the CCSID was at 65535 on a Japanese environment. This has been corrected.
  + The Japanese text in the generated PDF file from the various export options provided by X-Analysis, such as **Object list, FFD, etc**., and also in the **Legends** as well as the selected options list in the **System documenter** were not displayed. This has been corrected.
* Specifying a **Data Area** **type** object as an **Application Area Rule** would fail to include the programs using it when the option “**Include Referred Programs**” was set to **Yes**. This has been fixed.
* Similarly, taking the option “**Include programs updating Data Area**” from an **Application Area Rule** would lead to no programs to be display on the application area. This has been fixed.
* When a local **bookmark** which was marked in a pre 13.2.03 client version, is attempted to be shared in the 13.2.03 or newer client version, it was throwing an error message. This has been corrected.
* A scenario of moving a **child application area** toward another child application area was resulting in showing such application area twice in navigation view.
* The **XA Client** was generating an error when the **hostname** was specified with a name containing 4 words separated by 3 dots. This has been corrected.
* The **X-Analysis for Eclipse** **shortcut** batch file was changed and only one window (the one for RDI or for Eclipse) will now open.
* The **zoom source** option from the **2E action diagram** via double click or context menu was not working correctly due to not identifying the name of the internal routine or program when it was containing DBCS characters. This has been fixed.
* The Length and Decimal position for the **Screen Fields list** under **Screen/Report Layout** were appearing incorrect since 13.2.03 because of a field resize. This has been corrected.
* The **Show Override Files** mode in the **SCD** was incorrectly showing the overridden files for programs which were called repeatedly. The overridden files should be shown only for the first call made to them inside the structure.
* As part of this release, we are introducing an improved way to generate execution logs for server side job execution such as the Init and Refresh. The improved mechanism will allow the possibility to increase, or even decrease from the XA client, the log level of a job that is already executing.

Although the new functionality is documented inside of **Appendix L** of the XA User Manual, we recommend to use it in the context of a support activity.

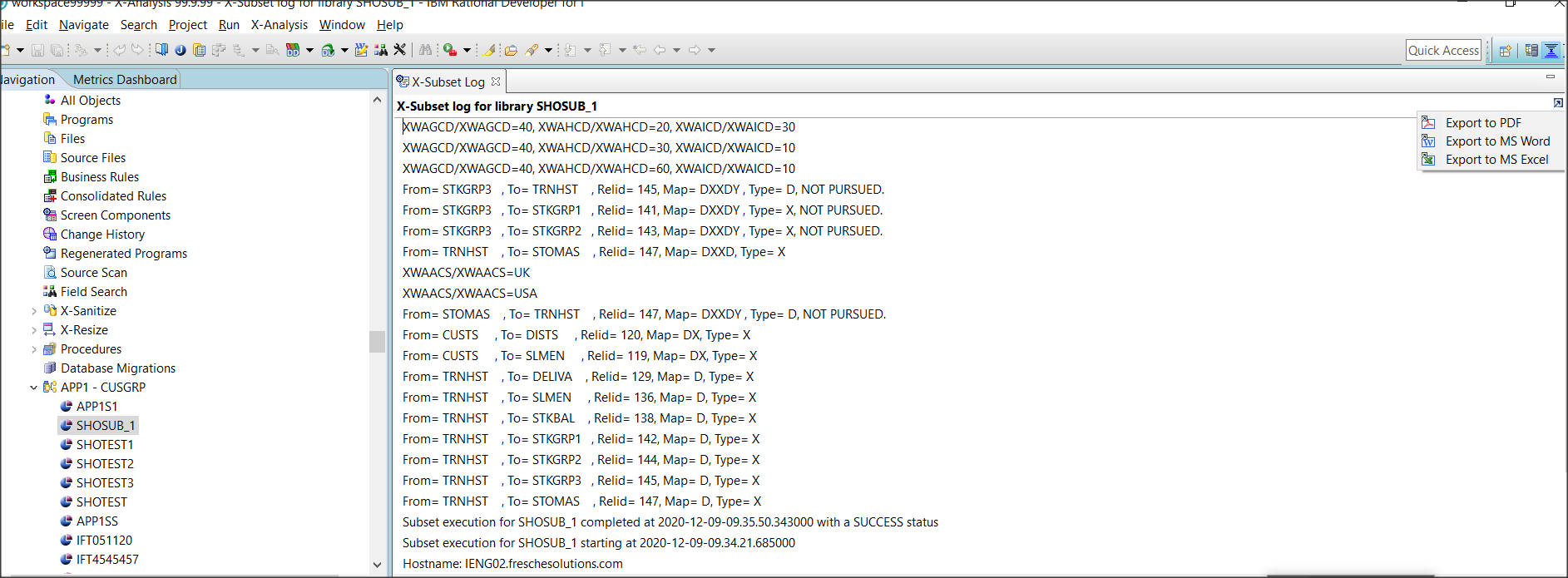
### Server-Side – Enhancements and Fixes

* During the **REFRESH** execution, the process extracting “**Variable Where Used**” information was processing all members that existed in the X-Ref library, instead of doing this only on changed or newly added members. We have resolved the situation which should improve the overall performance of the **REFRESH**.
* When a cross-ref was initialized with **duplicate \*YES**, then the source and object mapping for the member was not getting populated correctly in the XA mapping table due to which **zoom source** option was opening the incorrect source. This has been corrected.
* The source and object mapping for the member was not getting populated correctly in the XA mapping table due to which the **zoom source** was not working properly. This has been corrected.
* After the XREFRESH process, the component status column of **ALL Objects** **list** was populating blank for files (**PF\***). This has been corrected now.
* The **Unicode** field name was not populating correctly for the file containing **Alias**. This has been fixed.
* At the time of Initialization, the **Sequence number** was not considered in **Building the Application Area List**. This has been corrected.
* Under certain circumstances, the owner of **XA JOBD** objects was not set to **QPGMR** as expected. This has been fixed.
* The object inventory program has been corrected to properly update the object inventory table during a **Refresh**.
* During the generation of **data modeling**, not all scenarios were reporting the dependent LF for the relation. Changes has been made to ensure that when using the **\*PGMLOGIC** method in data modeling, the dependent LF is always identified and recorded.
* After an XREFRESH, the Object Reference table was not populating the **\*PGM** entry when a program is a **\*MODULE** and **\*PGM**. Only **\*MODULE** entries were coming. A change was applied so that now both the **\*MODULE** and **\*PGM** entries are populating.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* A new option has been added to export the execution log from the last **X-Subset** execution. This is available from the “**Show X-Subset log**” window.

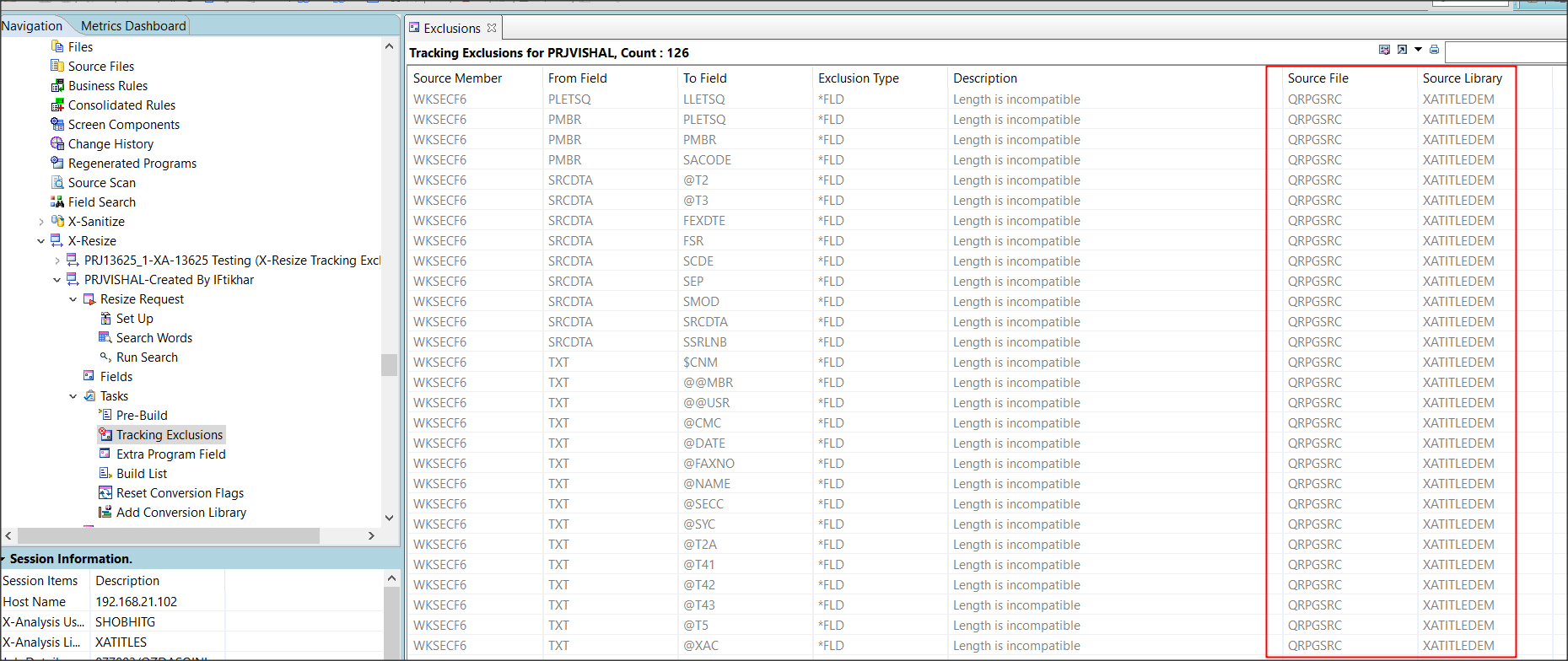


* A new verification has been added to make sure the **Data Model** has been executed prior of accepting a new **X-Datatest** execution.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* The X-Resize “Tracking Exclusions” screen of the XA Client has been extended to include 2 new information: “**Source file**” and “**Source Library**”. They are also part of the export to PDF/word/Excel.



### Server-Side – Enhancements and Fixes

* The REF file sources and objects will now be copied to the conversion library even when they are not reported by the build list process in **X-Resize**.
* If the library sequence was changed for any existing XA repository then the **X-Resize** search results were not correct as **X-Resize** was still working with the old library sequence. This has been fixed.

## Product: X-Sanitize

### Server-Side – Enhancements and Fixes

* Under a specific situation, **X-Sanitize** failed to process all the expected records. The root cause has been identified and fixed.
* X-Sanitize Option 10 "**Generate Proper Names**" was failing when the source file contained null values in some file fields. This has been corrected.

# X-Suite Release 13.2.05

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* Introduced inside of XA 13.2.04, the **Application Area list Viewer** is receiving some improvement inside of this new release:
* Using the **right-click context menu**, it will now be possible to call the **annotate** functionality that allow the possibility to add/edit/delete an **annotation** for a given Application Area.
* Also, as part of the Application Area name, an **icon** will be present to highlight the fact that an **annotation** exists for such an application area. Double-clicking the **icon** will reveal the annotation content.
* The sorting facility has been improved to indicate, as part of the column name, which one is currently ordering the information as well as the direction of the ordering (ascending/descending).
* The context menu part of the **Application Area list Viewer** was allowing the possibility to create a new child application area, but until today it was not possible to create a top-level Application Area. Look at the new **“+”** icon now available in the window’s header to create such a new top-level Application Area.
* The **All Object, Programs** and **Files** list viewers have been enhanced to also provide the **Days Used** information. This information will appear under a new column named **Days**. Until now, the information was only available from the **More Info** on the object/program/file.
* A new preference setting has been added to the XA client to control the number of XA Client logs to preserve. A log file is created for each execution session of the X-Analysis client. Previously, only 10 session logs were preserved. The default value for this new preference is set to 10, but the user can now set the value from 1 to 9999.
* The default status for a shared bookmark has been renamed from “Active” to “Accurate”. The 3 possible status are “**Accurate**”, “**Out of sync**” and “**Lost**”
* Right click functionality for VWU and Member Xref was not showing the correct word when string literal have delimiter such as ' +-/=<>():;,''"|'. This has been fixed now.
* View data, Data dictionary and Data dictionary overrides functionality was not working in the Kerberos environment. This has been fixed now.
* When performing a **Display Difference Analysis**, the **Changed programs** were not properly reported. This has been fixed.
* When performing a View Data option on a PF, it would sometime attempt to do such operation on the LF instead. This has been corrected to always refer to the PF for such operation.
* Sharing a bookmark that was already shared lead to a duplicate bookmark to appear as shared. This is now prevented and the user is notified of the situation.
* In the X-Analysis Client, **Metrics Analysis editor** with a single record colored in blue, while exporting to an Excel file was resulting in all the consecutive lines to also be colored in the same blue color. This has been fixed.
* In some circumstances the process flow chart could run out of resources causing a stackoverflow error due to a looping issue, observed in the case of sources containing multiline IF-ELSE block. This has been fixed, moreover a fix was also made to correctly display the text blocks for the 'DCL' keyword if it contains multiline text as a value.
* When the Screen Report option was selected from within the Source editor and the library of source member and library of corresponding object were different, then this option did not work correctly and has been corrected.
* Some correction of the Japanese translation for the metrics Analysis function was performed.
* A situation has been observed where some invalid date assigned to some customer objects would cause a crash with Null Pointer Exception while accessing the Program List. The situation has been trapped to prevent such crash over invalid date condition.

### Server-Side – Enhancements and Fixes

* Installation
  + The installation of the server component over an ASP environment was leading to a warning situation over a missing SQL file. This has been corrected.
  + At installation time, the X2EGEN and X2EMDL demo libraries would not attempt to be installed if they were already installed, but starting with this release the new version of the libraries will be installed.
  + When submitting the installation job, one of the following 2 messages will be provided immediately to the user:

Information message when the job is submitted:

**INSTALLATION JOB (INSTALLXA) WAS SUBMITTED**.

Error message when failed to submit the job:

**INSTALLXA INSTALLATION JOB FAILED TO BE SUBMITTED. PLEASE CHECK THE JOB LOG**.

* During the REFRESH execution, the process extracting “Variable Where Used” information was processing all members that existed in the X-Ref library, instead of doing this only on changed or newly added members. We have resolved the situation which should improve the overall performance of the REFRESH.
* A recursive situation observed inside of a customer application could lead the initialization to get in an infinite loop while extracting the information for override details. This has been fixed/prevented.
* The initialization was attempting to write a duplicate record in one of the XA table and was throwing an error due to the unique access path on file. This has been corrected now.
* After an initialization, the Component Status column for PF38 file were showing as blank. This has been corrected now.
* SQL Parsing
  + For the SQL statements which are present inside the SQL routine body or standalone compound statement, XA will now report variable where used/updated results more accurately and correctly. The improvements will be reflected mainly in the following cases:
    - Variable Where Used on qualified files and fields.
    - Variable Where Updated on qualified and unqualified files and fields.
    - Variable Where Used on qualified and unqualified variables.
    - Variable Where Updated on unqualified variables.

Please refer to the following samples from the demo application:

* + - XAN4CDEM/QSQLSRC(CONSTPROC.SQLPRC)
    - XAN4CDEM/QSQLSRC(VWUTSTPROC.SQLUDF)
  + For the SQL statements which are present outside the SQL routine body, XA will now report variable where used/updated results more accurately and correctly. The improvements will be reflected mainly in the following cases -
    - Variable Where Used on qualified files and fields.
    - Variable Where Updated on qualified and unqualified files and fields.

Please refer to the following samples from the demo application:

* + - XAN4CDEM/QSQLSRC(TEMPTABLE.SQL)
    - XAN4CDEM/QSQLSRC(VWUOUTCOMP.SQLUDF)
  + In SQL member and RPG Embedded SQL, the variable being updated in the SET statement will now be reported by *Variable Where Used → Update References.*

In the example below, FULLADDR was not reported in *Variable Where Used → Update References,* and now it will be reported.

SET FULLADDR = GET\_ADDRESS( ADDR, PIN );

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **ESQLVUPD1** from the Source File **QRPGLESRC** as well as the source member **VWUPDTST** from the source file **QSQLSRC.**

* + Qualified SQL Variables in SELECT INTO, FETCH INTO and SET statement will be reported in *Variable Where Used* and *Variable Where Used → Update References*.

In the below example, BEG2.ADDR and BEG2.PIN were not reported in *Variable Where Used* and *Variable Where Used → Update References* and now these will be reported.

SELECT EMPADDR, EMPPIN

INTO BEG2.ADDR, BEG2.PIN

FROM EMPADDRESS

WHERE EMPID = 101;

In SQL member and RPG Embedded SQL, the LHS variable in SET statement will now be reported *Variable Where Used → Update References.*  
In the below example, FULLADDR was not reported in *Variable Where Used → Update References,* and now it will be reported.

SET FULLADDR = GET\_ADDRESS( ADDR, PIN );

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **VWUPDTST** from the Source File **QSQLSRC**.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* Even though it is not supported to have more than one X-Subset jobs executing in parallel, it was possible for a several users to submit multiple jobs, leading them to become in MSGW state. We will now prevent such situations by refusing any new X-Subset jobs request if one is already executing (Client and server implementation).
* In the Subset Data dialog, the user was allowed to input a Subset Library name with more than 10 characters, leading to an error during its creation. This has now been restricted to a maximum of 10 characters.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* The X-Resize interface has been extended to provide a separate listing of the **Copybooks to Recompile** inside the **Objects/members** node. Until now, they were reported as part of the **Copybooks to Change**. Performing a right-click operation over **Copybooks to Recompile** will provide a context menu to **Zoom Source.**

### Server-Side – Enhancements and Fixes

* X-Resize was improperly generating warnings such as “No XOBJECT record found…” for Copybooks. This has been corrected.

## Product: X-Sanitize

### Server-Side – Enhancements and Fixes

* X-Sanitize will now attempt to sanitize all the members of a multi-member file. Until this enhancement, only the first member was handled by X-Sanitize.
* During a Copy & Init execution (option 78), the X-Sanitize project was not copied. This has been fixed.

# X-Suite Release 13.2.04

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* Inside of X-Analysis 13.2.03, we have introduced “**the quickest way to open and expand any Application Area**” with the introduction of the “**Jump to**” an Application Area, but with this version, we are introducing **the best and easiest way to visualize and manage all of your Application Areas** with the new “**Application Area List**” window.

The “**Application Area List**” window has been created with, in mind, customers having a lot of Application Areas as it provides a complete list of all the **Application Areas** part of the X-Reference application. By default, the information is listed in a way to recreate the hierarchical representation of the Application Areas where the child Application Areas appears immediately under its parent, but the information can be sorted by any columns (sorting by “**Parent App Area**” will bring back the default sorting). Performing a “**right-click**” on any entry will reveal a context menu to perform common actions such as creating a new sub-Application Area, moving an Application Area, or even opening the Application Area… which might become even faster than using the “**Jump to**” Application Area when already interacting with this new window (**Bonus**: double-click also open the Application Area!). And if you want to have a full list of all your Application Area outside of X-Analysis, you will surely appreciate the export or printing tools that are part of the **Application Area List**” window.

We think this new option will be so useful that we put it at the top of the available entries when expanding an X-Reference application.

Stay tuned for future improvement on this new “**Application Area List**” window.

* The flowchart for Fully Free RPG sources has been enhanced. Statements such as **SELECT, FOR, DOU, IF** are correctly handled now. The D-SPEC specification is also correctly removed.
* In a Japanese environment, the **Long Name** value of a **File Field Details** would be containing the field name instead of the expected text value as it is the case in non DBCS environments. For instance, this situation occurred in the demo application for the file DELIVA. This has been corrected.
* When creating a new X-Ref the XA Client was allowing a description value of more than 30 characters, leading to potential corruption of the value. The UI has now been corrected to allow only 30 characters.
* After some changes for Flowcharting that were released in 13.2, the Flowchart exported to Open Office was broken and no flowchart was generated. This has been fixed.
* In Application Area Rule, using the rule type of “**Problem Analysis**”, the Problem Category “**\*ANY -All Categories**” was still appearing in English for our Japanese users. The entry has been translated.

### Server-Side – Enhancements and Fixes

* When upgrading an X-Ref at 13.2.03 or higher, the user-defined Problem Analysis groups and categories will be retained.
* After performing an Upgrade the Change history was reset. This has been resolved and the change history is now maintained.
* Our internal demo application has been extended to provide a sample scenario involving a menu created from a source member type **MNUDDS** and called by a source member **MNUCMD**. Please refer to the source members **CUSTMENU** and **CUSTMENUQQ** from the source file **QDDSSRC**.
* In some special conditions, the internal table XAGWU was not properly recovering its storage after its records were deleted. The conditions have been identified and the situation resolved.
* Creating Application Area rules based on **Problem Analysis** was generating inconsistent results for the categories **NOFILEOBJ** (“No file found for existing source member”) and **EXCGOTO** (“Number of GOTOs exceeds 0”). This has been fixed.
* Earlier, in a specific case, the XA program was not able to parse completely CL members due to which XA was not able to extract all the relevant information. This has been corrected.
* Variable Program Call was not working for CL program in which the Variable used in the Call contained an Open Identifier qualifier. This has been corrected now.
* A REFRESH would normally convert its execution toward a full INIT when too many files have been changed since the last REFRESH/INIT. Meanwhile, it was improperly counting members from the event source file, misleading its decision to convert to an INIT. This has been fixed.
* The application area refresh process was producing dumps due to an array index out of range. This has been fixed now.
* SQL Parsing
  + In previous versions of XA, the jobs spool file QPRINT received logging from the SQL member cross-referencing, even when there were no errors. The lines were the initial and ending lines of the SQL cross-referencing.

Now this logging into QPRINT is turned off by default, and the logging is still available (as in past) in the log files generated in the user home directory. Only exceptional errors will go into QPRINT, and this will also be stopped in a subsequent release.

A new log configuration file log\_config.xml is added to the installation directory “/xanalysis/<XA version>/XAParsers”;

This log configuration can be modified, when required, to reenable logging into QPRINT, and to have even more extensive logging into the user home directory log file. However, these changes to the log configuration file will normally never be required.

* + The SQL parser was not properly executing on non-English and non-Japanese machine (ex: CCSID 297). The situation has been resolved.

### Documentation

* If you took a copy of the X-Analysis User Guide available on the first few days after the release of XA 13.2.03 you might have noticed that several images were missing. This was eventually resolved and refreshed on the [myfreschesolutions.com](http://myfreschesolutions.com/) site and is also part of this 13.2.04 update.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* When the X-Datatest comparison was not reporting any differences but there were some tables that couldn’t be compared, the test result was wrongly reported as “**Passed**”. Now, the same situation will report a failure so the user could investigate the situation.
* Upon completion of the **Run Test process** or **Run Test process with Code coverage**, the completion notification on XA-UI will now display **X-DataTest Notification** instead of X-Test Notification.
* A typo was visible in the Test compare result editor and Summary view editor as it would not display the correct spelling for the text *“Displaying”*. This has been corrected.

### Server-Side – Enhancements and Fixes

* X-Datatest failed to handle situations where the customer data contained some control characters. Now the X-DataTest comparison would handle all the **control characters** ranges through **(U+0000 through U+001F)** in the user data and they would be escaped in the generated JSON report.

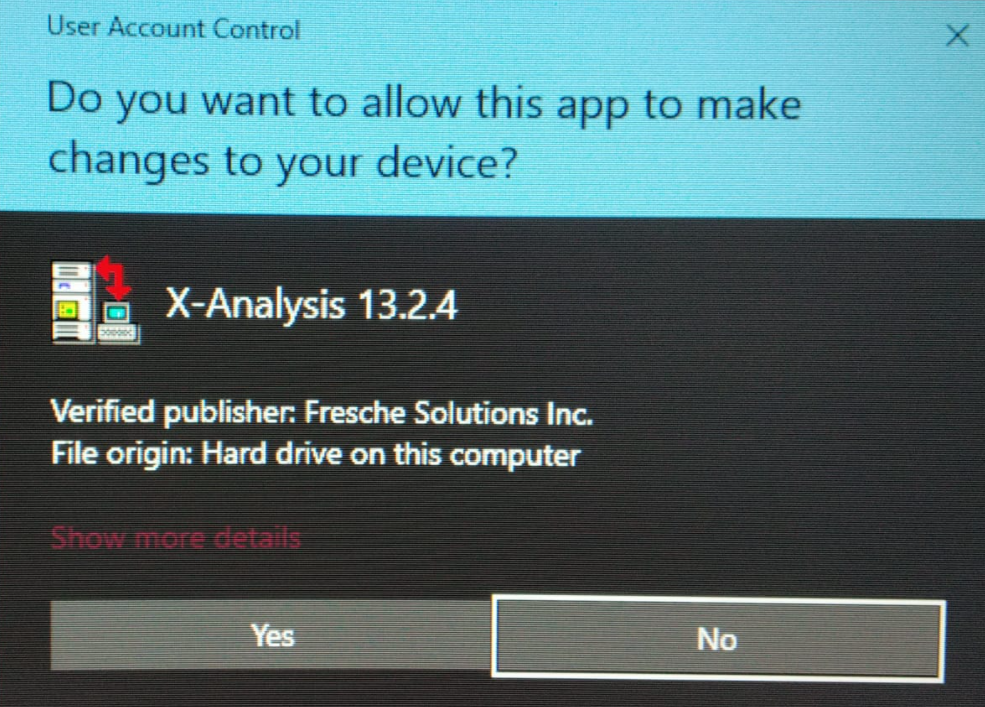
## Product: X-Resize

### Server-Side – Enhancements and Fixes

* A warning will be logged in the X-Resize process to capture the DS/DS-subfield and sub-string interaction with the re-sized field.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

* As a result of internal changes in XA-Open to access source code on Subversion (SVN), XA-Open now needs elevated execution. This means that the application shortcuts and the scheduled tasks created now execute with the highest privileges, or “Run As Administrator” authority. On selecting XA-Open shortcuts the user will be prompted with User Account Control (UAC) dialog to confirm execution.
  + “Run as Administrator” authority is set for XA-Open shortcuts:
    - ‘XA-Open > Initialise Standalone Application’
    - ‘XA-Open > Initialise IBM i Linked Application’
    - ‘XA-Open > Schedule Refresh’
  + Scheduled tasks created now execute with highest privileges
  + UAC dialog presented will be this with the version 13.2.04: 

# X-Suite Release 13.2.03

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* With this release we are introducing some improvements around bookmarks located on source members that are changed by developers, impacting the real position of a given bookmark.

When a source file containing some bookmarks has been updated by a developer, X-Analysis will attempt to locate the original line of such bookmark and refresh its position. Such an effort will be done during the **REFRESH/INIT** execution. Although we can’t guarantee that all kinds of code change will allow the possibility to reposition the bookmarks, we will make sure the user will be notified of the state of any bookmark.

To do so, we are introducing inside of the “**X-Analysis Bookmarks**” window a new column named “**State**” with the following possible values:

* **ACTIVE**: The bookmark is known to be properly located inside the source member.
* **OUT OF SYNC**: The source member has changed since the last refresh and the bookmark might be out of sync. The next **REFRESH/INIT** execution will look at such bookmarks to attempt to resolve their position.
* **LOST**: The last **REFRESH/IN**IT was not able to find the proper location of the bookmark inside of the source member. The user is expected to create a new bookmark and to delete this one. A zoom source operation will open and highlight the last know position of the bookmark to help the user.

You will also notice that the Location column of the “**X-Analysis Bookmarks**” window contains the source line sequence number instead of the source line number, for better accuracy.

Note that such improvements are currently only available for “shared” bookmark. We can easily convert a “**local**” bookmark as “**shared**” using a right-click operation from the “**X-Analysis Bookmarks**” window.

* What is the quickest way to open and expand any Application Area? It is through the newly introduced support of “**Jump to**” an Application Area.

We know that some of our customers have a lot of Application Areas created at different hierarchical levels. Attempting to get to a specific application area normally require scrolling the full list and expanding manually each of them parts of the hierarchy.

The “**Jump To**” an Application Area will do everything for you as long as you provide it the name of the Application Area that you want to work with. (Hotkey: **<CTRL><SHIFT><J>**)

* Including objects in a new Application Area normally requires selecting objects using the “**Add To Application Area**”, “**Add to Application Area With Related Objects**” or “**Omit from Application Area**”.

If you have a lot of Application Areas to choose from, the process of repeatedly finding and selecting the same application area can be time consuming.

Starting with this release, the Application Area name used for any of those operations will become the default selection of subsequent operation calls. So, if you do an “**Add To Application Area**” operation over the application area named “Sales”, you will see that such application area will be selected by default when you will attempt to perform any of the 3 mentioned operations.

* The creation of an Application Area Rules based on object type of “**Program**”, “**Entry Point Program**” or “**All Objects Types**” will now provide the option to select **CLE** (ILE C Programs) as an Object Attribute. As for other Object Attribute, this will support the “**Select**”, “**Omit**” and “**And**” selection.
* The X-Analysis client now supports the connection to an IBM i server configured with **Kerberos** authentication. This means that if you already have a Kerberos configuration between your PC and your IBM i, then you will be able to connect to it from the **X-Analysis client** without providing your credentials. You will see under the “**X-Analysis**” menu of Rdi/Eclipse a new option to configure a new connection using **Kerberos**.
* Starting with this version, our Japanese users will be able to see the Problem Analysis groups and categories fully translated into Japanese.

It will also be possible for our Japanese users to **Add** and **Edit** their own Problem Category groups and Program Category through the Audit option “**Edit Problem Categories**”. They will also be able to **deleting** them.

Non-Japanese users will continue to benefit from such functionality using the English version of the Problem Analysis group and categories.

Similarly, attempting to define an **Application Rules based** on **Problem Analysis category** will start displaying such categories in Japanese.

* The “**Report an Issue**” option available in the XA Client has been enhanced to include several extra pieces of information to help Fresche’s support team better understand the runtime environment. The information is visible in a new report file named “**report.txt**” which is part of the zip file generated by the “**Report an issue**”.
* The structure chart diagram was not showing properly the file override. This has been corrected.
* When a Source member of type C is compiled into an object of type CLE, the Zoom Source on such an object was not able to fetch the source. This has been corrected.
* The **Edit Problem Analysis Categories** did not show all the categories. It did not show some categories for which no objects were found. This has been corrected to show all the categories irrespective of whether Problem Analysis found any object for that category.
* For Object Where Used->All References, where references were found in a Source Physical file (in a member without an object), and the source attribute was a non-standard one, the Type column always showed \*PGM. This has been changed to type **\*SRCMBR**, which allows the “Zoom Source” and Variable Where Used options on the right-click.
* When we create an Application area rule and build it, immediately followed by exporting it to an excel sheet, the description of the app area was missing. This has been fixed now.
* When the Data Model Diagram was included in the System document, the detailed DMD table had several columns with incorrect headings. This has been corrected.
* For a user using TD/OMS integrated with X-Analysis, the View Data option never worked, when taken from Data Flow Diagram and when X-Analysis perspective was not open.
* Programs list should show some additional columns when **Business Rules** have been run on the X-Ref. But for an application without any device files (DSPF/PRTF), this did not show the additional columns. This has been fixed.
* Right-click functionality ( Variable Where Used and Member-Xref functionality ) was not working on some specific variables and objects in the EXEC-SQL block.  
  For instance, inside of the demo source member **ESQLINDRF1**, attempting to perform a right-click on most fields and variables present in the sample (such as telno, :itemcost, :custname, :sale, etc. ), will simply not work. This has been fixed now.
* On a 64-bit Eclipse/RDi the Flowchart option on the System Documenter was disabled. It should be enabled to use the File API method to generate the flowchart. This has been provided now.
* In the 13.2.02 version, the **Application Area rules** was not working properly on a Spanish machine. This has been corrected.
* When the object description had a specific combination of Japanese characters, selecting the Data Flow Diagram on that object was causing the Eclipse to become unresponsive. This has been fixed.

### Server-Side – Enhancements and Fixes

* XA server installation has been enhanced to better manage object locks in the XAPROD library.

Also, XAINSTALL command has now 2 new parameters:

* Interaction with locks (INTERACTLK keyword)

The default value is "N". No reply messages sent to the console in case of object locks are detected.

If the user wishes to be prompted during the installation process when object locks are detected in the XAPROD library, "Y" must be specified. When locks are detected, the user is prompted with a confirmation message for each object lock.

Once all lock messages have been displayed, the user can cancel the installation process or have XAPROD object locks removed by terminating concurrent XA processes holding the locks and then resume the installation process.

* Installation of the demo libraries (INSTLDEMO keyword)

The default value is "Y" and all the demo libraries will be installed during the process. If the user does not want demo libraries to be installed, "N" must be specified.

* The **\*UPG** “**Index Source Files**” option will no longer be allowed on repositories at 13.2.xx (remains applicable for pre 13.2.00 repo). Instead, the \*ALL option must be used.
* SQL Parsing
  + The SQL parser has been extended in order to be able to extract information about file/fields and object references from the SQL commands “**CREATE MASK**”, “**CREATE PERMISSION**” and “**CREATE VARIABLE**”, resulting in improved DFD result around those commands.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **CRTVAR01** from the Source File **QRPGLESRC**

* + It has also been extended in order to be able to extract information about function/procedure references from the SQL calls to “**GRANT**”, “**REVOKE**” and “**DROP ROUTINE**”, resulting in improved DFD result around those commands.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **SQL\_PRC\_04** from the Source File **QSQLPRC**.

* + X-Analysis will now report in the Data Flow Diagram Field Attributes information coming from SQL calls performed through **RUNSQL**. Until now, only object references were reported from **RUNSQL**.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **RUNSQLUPD1** from the Source File **QCLSRC**. Doing a DFD on file ITEMS will show are reference to an UPDATE call done through **RUNSQL**.

* + When any SQL reserved word is used as an alias without using AS keyword in SQL query, then the parsing of such SQL statement failed, and then indexing would not have produced correct results. In such case the object references, field attributes, Variable Where Used … all could be incorrect, incomplete, or missing altogether. This has been fixed.

Here is an example around the SQL keyword RANK in following SQL:

EXEC SQL

CREATE TABLE TAB1 (

SELECT

NAM VARNAME,

TYP USAGETYPE,

HNAM HOSTNAME,

VVARSQ RANK,

SEQ NBROFELEM,

FROM

XAGWU) WITH NoData

* Under some specific conditions, attempting to run the Problem Analysis using XA 13.2.xx could lead into a MSGW job execution. This has been fixed.
* The initialization process was giving dumps due to mixed cases in source member, so we have modified the RPGLE parsing program and few related programs to prevent the dump issues.
* A dump situation has been observed inside of the internal program “XARADECR” and has been prevented/fixed.
* A looping situation involving the Problem Analysis job has been observed and prevented in this release.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* The X-Datatest “Test Compare editor” has been extended to include an optional top-level node to highlight “**Tables with errors**”. If any errors occurred while attempting to compare a table, this node will list such table(s) with errors. The summary section of such table(s) will highlight the error information. The information about the tables that encountered some errors are also visible inside of the JSON file.
* In the Summary at the Table Comparison node, the “**Number of Tables With Difference Observed**” would not always reflect the reality. This has been corrected

### Server-Side – Enhancements and Fixes

* Subset logs and subset reports will be available to the user after the Xref upgrade for those subset executions which are coming from the previous XA versions (i.e. before 13.2.02) to the XA version 13.2.03. (Note: The subset logs and subset reports have been introduced in 13.2.02)
* The performance of X-Datatest process on large files has been improved considerably in this release.
* In X-DataTest, the **Restore Checkpoint** process was failing even though the User has the bare-minimum authorities required to restore a checkpoint (i.e. \*USE and \*SAVSYS). This has been corrected.
* The **X-Subset** **report** is failing to show the data if the value of the field ‘Original Source’ is bigger than an integer data type(in java) and instead a data type mismatch error is logged. This issue is fixed

## Product: X-Resize

### Server-Side – Enhancements and Fixes

* In X-Resize, tracking exclusion file was accumulating the data when pre-build process is executed multiple times. After this fix, the tracking exclusion file will clear old data with each pre-build process execution.

## Product: X-Sanitize

### Client-Side – Enhancements and Fixes

* In X-Sanitize, the search word addition window on the client-side was not providing a way to specify the “**Date Format**” when a **Date datatype** is involved, although this was possible from the server UI. Also, from both the client and server UI, it was allowing the *minimum field value* to be given a greater value than the *maximum field value* of the search word. Both situations have been fixed.

### Server-Side – Enhancements and Fixes

* The X-Sanitize process is not copying the obfuscated data into the file of the obfuscating library if such file is having **GENERATE ALWAYS** field in it. This issue is fixed.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

* As part of 13.2.02, we start providing in the **DFD** information about Command-line calls performed from an **AMXW COBOL** program using a call to the function (intrinsic) **HPCICOMMAND/NLHPCICOMMAND**. In this release, we are improving the detection of the STRING created and sent to this function/intrinsic by supporting the **STRING** creations that are part of **IF-ELSE**, created from a **MOVE** part of **IF-ELSE**, as well as part of **IF-ELSE inside of WHEN**.

# X-Suite Release 13.2.02

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* When exporting and importing the application area rules, the description information, if provided, will now be included in the export, and used when creating a new application area
* The internal API used by integrators has been extended to support SSL connections. Refer to the setSecure() method from the API documentation.
* Please note that our demo application has been extended in order to generate a sample “Delete Without prior read” problem analysis category.
* The specialized analysis reports of metrics were not generating on CCSID 5026. This has been corrected.
* When a new Application Cross Reference was created using the XA Client and when a description of longer than 50 characters was supplied, the description text appeared to be corrupted. This has been resolved.
* The XA client was not allowing a library name containing a yen character. This has been resolved.
* When performing a fresh installation of XA over a new workspace, a New connection node (IBM i) was not created by default. This has been corrected.
* When an application area rule is created on the basis of a Problem Analysis category and exported as an Excel sheet, then it could not be correctly imported to another application area. This has been corrected.
* On windows 10 environment where multiple XA Clients are installed, the shortcut for “**X-Analysis for Eclipse**” could be missing from the Start menu of some installation. This has been corrected.
* As part of the 13.2.00 release, we have provided a simplified approach for the Structure Chart Diagram preferences, but in some circumstances, the previous preferences from a past installation could have been copied over and impacting the new behaviour. This situation has been corrected.
* Importing an application area rules would fail when some comparison text is longer than 10 characters. This has been fixed.

### Server-Side – Enhancements and Fixes

* Until now, for the HANDLER and EXTNAME keywords support, XA was only retaining the information about variables sent to them but was not retaining the information about a constant or actual value. In this release, we are extending our support toward constant and actual values passed to HANDLER and EXTNAME keywords.
* SQL Parsing
  + The SQL Parser has been enhanced in order to provide more accurate information when using the Variable Where Used feature on a **field/variable** that receives values from an SQL function having a **field/variable** as an argument. In such cases, Variable Where Used will report each line of code where the **field/variable** is used and also where the **field/variable** of the function argument is used.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **ESQLINDRF3** from the Source File QRPGLESRC.

* + The Variable Where Used feature on a field that either receives values from another field or from an expression involving fields will now return the lines of code where the field is used and also where the mapping field is used. This normally occurs around the UPDATE, as in this example:

“**UPDATE EMPLOYEE SET EMPNAME = FIRSTNAME || ' ' || LASTNAME;“**

When Variable Where Used is requested on EMPLOYEE.EMPNAME it will return line information about FIRSTNAME and LASTNAME.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **ESQLUPD01** from the Source File QRPGLESRC.

* + When the Variable Where Used search is performed on a variable that receives value from another variable or an expression involving variable as part of an SQL expression, will return the lines of code where the variable is used and also where the mapping variable is used. This situation will be supported for SELECT, SET, DECLARE and FETCH CURSOR statements.

Here is a sample case:

**SELECT :FIRSTNAME || ' ' || :LASTNAME INTO :ENAME**

**FROM sysibm.sysdummy1;**

A Variable Where Used search on **:ENAME** will also include lines about **:FIRSTNAME** and **:LASTNAME**.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **ESQLINDRF1** from the Source File QRPGLESRC.

* + As part of 13.2.01, we have provided some Variable Where Used search support around SQLRPG source member that does not have an associated object, i.e. for instance if the statements in an SQL source member have not been executed in order to create the database object(s), and not included by another member having an associated object. For 13.2.01 the Variable Where Used feature was only providing direct reference report and in 13.2.02 the Variable Where Used feature will start to provide indirect reference too.

For instance, for the following SQL statement:

“**SELECT EMP\_ID into :name from EMP**“

a Variable Where Used on EMP\_ID on 13.2.01 will qualify only “**EMP\_ID**”, while on 13.2.02 it will also qualify **“:name**”.

Please note that the Demo application has been enhanced to demonstrate this. Refer to Source member **OBJLESMBR1** from the Source File QRPGLESRC.

* Source members of type SQLRPGLE were sometimes inconsistently handled as RPGLE, instead of SQLRPGLE. This has been corrected.
* The process has been improved to track the system name if the source file name and DDL table name is different. This was previously impacting the FFWU results in such situation.
* FFWU Update reference was not properly reported for file/field that are processed via a Query Management Query (QMQRY). This has been resolved.
* The calculated number of source lines for a CA-2E action diagram was incorrect. This has been corrected.
* The Specialized Analysis was not including PF38 attribute objects properly and has been corrected.
* The refresh process failed to properly report Variable Where Used information when a source member was either added/modified and no changes were observed on the object. This has been fixed
* In some situations, it has been observed that an Overlay field was incorrectly reported as Data Structure. A correction has been implemented to report it as a Field.
* The REFRESH process was not working properly when the data area XDLTCLREF is set as \*YES. The situation has been corrected.
* RPG Embedded SQL cross referencing was missing reporting all the references when the SQL in the Embedded SQL block had words or functions which started with SQL reserved keywords like IF in IFNULL function
* Earlier, references of COBOL variables defined in REDEFINES keyword were not getting tracked. Starting with this version, those references will also be tracked.
* A problem has been corrected that resulted in tables named XARRPVCR and XAXPROTO with an empty procedure name value.
* The parsing of an ESQL source line of 80 characters length that also contains some tab characters could lead to parsing errors. This has been fixed.
* When a copybook was not the same type as the member that included it, the results were incorrect. This has been corrected.
* At the end of the installation of the server component of X-Analysis, the DEMO application is also installed. If for any reason, an error should occur during the installation of the **DEMO**, the X-Analysis installation will no longer rollback itself.

## Product: X-Datatest

### Client-Side – Enhancements and Fixes

* Inside of **X-Subset**, a new option has been added to the XA client in order to be able to visualize the execution log file generated from the more recent X-Subset execution. Give a try to the new “**Show X-Subset log**” option.
* **X-Subset** has been extended to provide a new report showing the different aspects of your subset. Information such as the source/target schema and tables, number of Rows, size, etc., are now reported directly in the XA Client. This is available using the new “**Show X-Subset report**” option.
* The Code coverage Test comparison result's icon appearing on the **Code Coverage Report list** editor was not in sync with the Test comparison result's icon appearing on the **Test Result** node of the navigation panel. This has been corrected.
* Test Result icons was not showing up correctly when the Base RunID and Test RunID were different than the actual Base library and Test Library names. This has been corrected.
* The X-Datatest UI could fail to open the JSON comparison report when the compared data contains some special characters in it. This has been fixed.

### Server-Side – Enhancements and Fixes

* The X-Subset data option "**\*REPLACE**" was not working for certain scenarios and the X-Subset Job was going into MSGW. This has been fixed.
* During its execution, X-Subset will generate extra log information inside of its log file (XSSLOGL) in order to provide more information about the subset execution

## Product: X-Db Modernize

### Server-Side – Enhancements and Fixes

* After upgrading to a newer version of X-Analysis, the X-DB Modernize project definition was not retained. The upgrade will now retain some definitions settings for X-Db Modernize projects.
* For second conversion case, ie; “Surrogate Table for Keyed PFs and Index for PF keys”, PFs with no keys are converted to suffixed surrogate table + DDS LF with PF name. This behaviour was broken in 13.0.06 and has been fixed.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* The newly generated warning for X-Resize condition DBF\_XRX introduced in 13.2.01 was not showing up properly in the XA client as only the message ID would be displayed instead of the message information. This has been fixed.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

* Command-line calls performed from an **AMXW COBOL** program using a call to the function (intrinsic) **HPCICOMMAND/NLHPCICOMMAND** are now reported inside of the Data Flow Diagram.

# X-Suite Release 13.2.01

## Product: X-Analysis

### Client-Side – Enhancements and Fixes

* Starting with 13.2.01, during the installation of the XA-Client, you will have an option to have “**non-sensitive computer configuration data be sent to Fresche Solutions Inc.**”

Such pieces of information will help us better understand our customers around the world and for this reason we hope you will accept it.

* We are improving the Problem Analysis categories “**Update without prior read**” and “**Delete without a prior read**” in two ways:

1) We are now able to report if a given source member has more than one occurrence of the reported situation. In such case, each occurrence will be reported individually by the report. This will impact the “**Total**” count reported by the Problem Analysis category.

2) The zoom-source option will now position the cursor to the actual source line where the problem has been detected. Additionally, the “**Additional Details**” of the report will also contain the **line sequence** information. This approach, to show the Line Sequence instead of the line number, will eventually be brought to other Problem Analysis supporting this.

* For our **X-Analysis Advisor** and **X-2E Analysis** users, we are bringing a simplified way to export the data model for use in modelling tools like Erwin and Infosphere Data Architect(IDA). Since those tools can import DDL related information, we are providing a new “**Export as DDL**” option for **X-Analysis Advisor** and **X-2E Analysis** licensee.
* The **File Metrics** and the **CRUD Sheet** logic was different when the usage for a file in a program was marked as 'A' or 'B'. **CRUD sheet** counts a “Read” as well as “Create” reference for A and “**Create**”, “**Read**”, “**Update**” a reference for 'B'. **File Metrics** was counting A as only **Create** and B as only **Update**. This has been corrected.

### Server-Side – Enhancements and Fixes

* The installation of the server is now delivered as a complete version rather than as a PTF for the maintenance releases, and hence does not require anymore that the corresponding GA version be installed as a prerequisite.
  + Meanwhile, if you install a maintenance release and attempt to initialize an X-Ref that is currently initialized with a previous GA/major release, you will be forced to use the \*UPG option instead of the \*ALL option.
* SQL Parsing
  + As an improvement from 13.2.00, we are introducing the support for qualified field and File references in Embedded SQL. This means that Variable Where Used can be performed on each individual element of the qualified field or file reference, or a combination of those.

For example,

SELECT FNAME INTO :NAME FROM SALES

WHERE SALES.FNAME = 'Scott'

For the above **SALES.FNAME**, the following can be searched via Variable Where Used feature

**FNAME**

**SALES**

**SALES.FNAME**

Although less commonly used, we also support a third level of qualification involving the library name.

* + When an **SQLRPG source member** does not have an associated object, i.e. for instance if it hasn’t been compiled and not included by another member having an associated object, the source member wasn’t part of any Variable Where used report inside of 13.2.00. With this new version, we are now reporting variable, identifier and constant references correctly for such members which do not have associated object if they are included in a member which have an associated object or if they have the member type of SQLRPG, SQLRPGLE.
  + Please note that we have consolidated the log file for our RPG SQL parser. This means that dynamic and static SQL parsing have been regrouped.
* Earlier, FFWU was not able to track references from Copy Books but after the fix the references will be tracked from copybook as well.
* Some dumps have been observed coming from the internal program named XREXTPCALL and have been prevented.
* Earlier, Incorrect object references were being displayed in the Data Flow Diagram for Embedded SQL in RPG. The issue has been fixed.
* When the procedure body is defined in the program and prototype is not defined within the program or copybook in that case a few XA files were not getting populated and this impact DFD also. Now it has been corrected.
* When the flowchart option was taken on an RPG program in a Japanese environment, and for an IF statement, the field on the Factor-1 position was replaced with a long description, the statement was not correctly identified as a Decision box, and was shown as a normal source line. This has been corrected.
* In a very specific scenario where multiple objects with the same name but with different object types existed in the same application area and were related to each other, the Area Flow Diagram showed the same object twice. This has been corrected.
* VWU was not able to track references of **%SUBST** keyword and qualified variables defined in D Spec. This has been corrected.
* The RPG Parser failed to parse some situations where some additional information was present on the same line of a /INCLUDE source line. This has been fixed.
* A special situation involving the Source Scan around a double byte blank character has been resolved.
* During the execution of an Upgrade, one of the Logical files was not handled properly by the upgrade and was removed. This has been fixed
* The **change** option of the “**Work with X-Analysis/4 Application Libraries“ (XARWKLIB)** screen has been modified to be able to handle the case if more than one record exists for the same library type and sequence
* Earlier, if any module is bound to a service program and that service program is then bound with any program then the references of module were not getting captured corresponding to the program in Data Flow Diagram. Now all references are being displayed in DFD.
* For the Synon object, some incorrect Japanese characters were showing up in the action diagram (generated when double-clicking the object) and also some special characters were also missing. This has been fixed.

### Documentation

* While bundling the X-Analysis User Guide for 13.2.00, some important sections from the 13.1 User guide were omitted from the 13.2 version. We have resolved this situation with this updated User Guide.
* The “**Search Variable**” option in Specialized Report was missing from both the online help and from the X-Audit tutorial. This has been resolved.
* The description of the data area XDLTCLREF has been updated in the User Guide.
* We have refined the description of “**Application Area Diagram**” inside of the User Guide.

## Product: X-Datatest

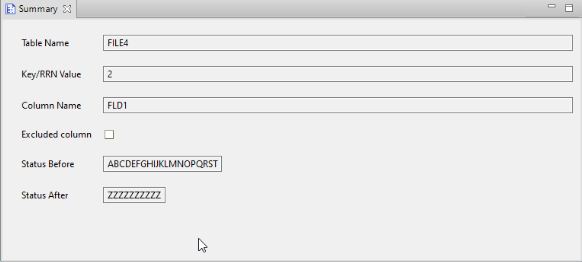
### Client-Side – Enhancements and Fixes

Inside of the new Test Comparison editor introduced with version 13.2.00, we have provided the capability to easily and quickly identify the differences observed inside of any given column of any rows using the “**Status Before**” and “**Status After**” columns of the comparison editor.

Although this approach will fit most scenarios, we are aware that for very long column values and for changes where only a small part of the value has changed, it would be easier if we could have the “**Before**” and “**After**” values aligned instead of next to each other.

For those scenarios, we are introducing in the **SUMMARY** of the column with differences the **BEFORE** and **AFTER** values reported in a way that it will be easy to compare them.

The **SUMMARY** panel will also include a notification if the column was excluded from the comparison process.



### Server-Side – Enhancements and Fixes

* A test comparison involving a large vargraphic column defined as 16000 vargraphic was improperly truncated during the processing of the JSON file. This has been fixed.
* A change introduced inside of X-Subset for 13.2.00 was limiting the process of the parameter **Include Owner** when the parameter **Include All Dependents** was either at **\*YES** or **\*ALL**. Such restriction has been fixed.

## Product: X-Resize

### Client-Side – Enhancements and Fixes

* X-Resize will now warn users when the Build List (XBLDLISTS) identifies a file with an Action Code value of DBF\_XRX. The warning will appear inside of the Warnings section of the XA Client “Inquiries” node. Previously, these files would have been automatically added to the list of files to be recompiled, even though it was necessary to do so. This situation also caused any programs referencing the file to also be recompiled.

## Product: XA-Open

### Client-Side – Enhancements and Fixes

* After installing XA-Open 13.2.00 using the new default path of XA that includes a subfolder named “X-Analysis” lead to the XA-Open scheduled refresh tasks to fail. This was a known situation highlighted in the “**XA 13.2.00 known issues and limitations**” section of the release notes. Starting with 13.2.01, the situation is now resolved and there is no need to install XA-Open in an alternative path.

# X-Suite Release 13.2.00

## Product: X-Analysis

### XA 13.2.00 known issues and limitations

In this section we will highlight some of the limitation and known issues that couldn’t be addressed before releasing the product:

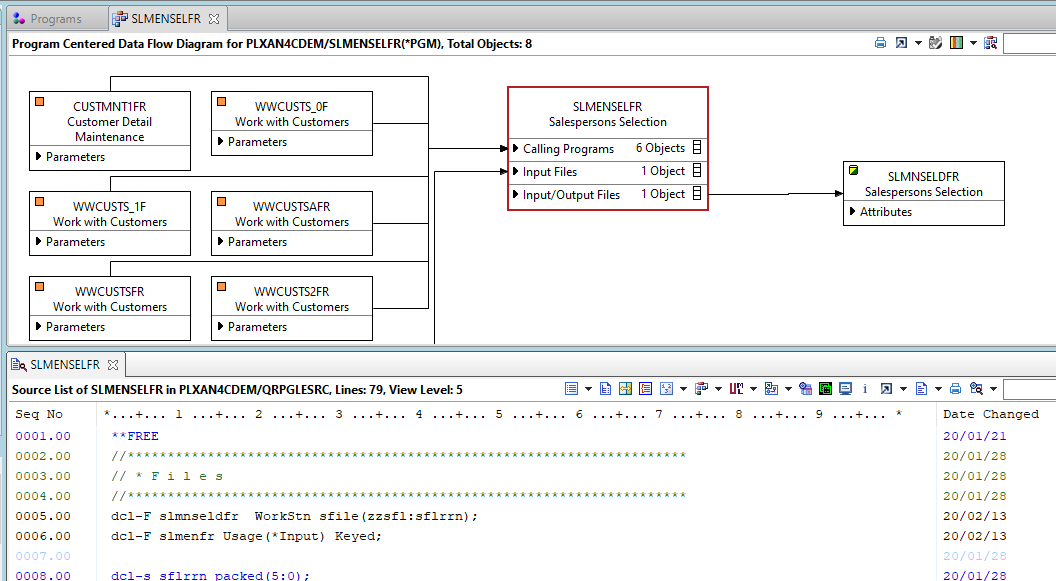
* If you are an **XA-Open** user upgrading to XA 13.2.00, please install the XA Client in a different folder than the one suggested by default. The default installation path contains the folder named "**X-Analysis**" part of it and this impacts the scheduled refresh tasks part of the upgrade.  **Please install the XA client in a folder not containing "X-Analysis" in its name**.  This situation is not affecting new XA-Open customers, only those upgrading to this new version. **This has been resolved in XA 13.2.01.**
* For Embedded SQL support in RPG, the Variable Where Used search over a field qualified by a file ( file1.field1 ) will return no records. We are working at resolving this situation in an early maintenance release. **This has been resolved in XA 13.2.01.**
* The significant changes and enhancements made to the processing of RPG and SQL syntax has resulted in an increase in the time required to Initialize and Refresh the cross reference. We will be improving the performance of the process in the upcoming maintenance releases. **This has been improved in XA 13.2.01**

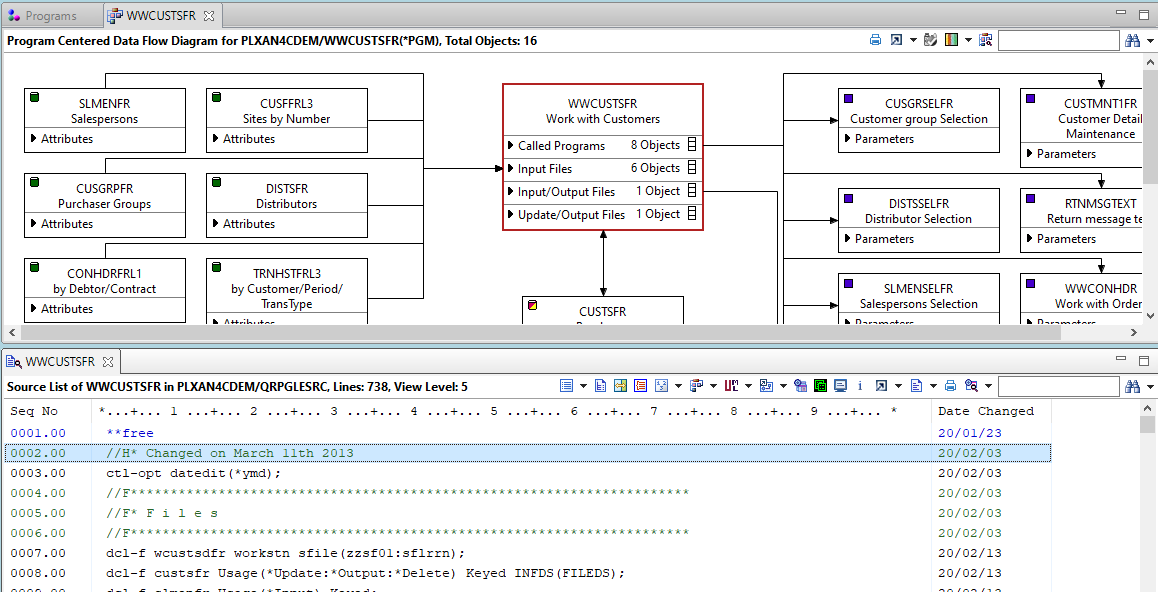
### New & Noteworthy

#### Fully Free RPG

Support for Fully Free RPG has been extended considerably in this release as our initialization and refresh processes have been redesigned to extract more Object Dependency as well as Variable Dependency information.

In order to provide some sample case from the X-Analysis demo application, several existing programs have been converted to Fully Free format (with suffix name FR) and are available to demonstrate the enhanced Object Dependency and Variable dependency tracking information. Here are some sample cases extracted from the demo application with Fully Free RPG code:





#### Variable Backtracking

In order to complement the Variable Where Used functionality we are introducing a new tool intended to help visualize why a given line has been included in the tracking report. Although it is easy to understand the results reported at Level 1, it can quickly become difficult to understand why some entries are being reported as the depth of the tracking is increased. That is where the **Variable Backtracking** feature will help.

The Variable Backtracking feature allows a drilldown into a specific tracked line and explains what variables at lower levels led to the variable being tracked as well as what variables are then tracked at higher levels. This allows for a much faster understanding of how data moves between variables.

Please refer to section “**Variable Where Used**” of the User`s guide for more information.

#### Improved analysis of SQL

As SQL is used in more and more ways, it has become equally as powerful and as prevalent as other programing languages traditionally used on the IBM i. SQL can be used in Procedures and Functions as well as embedded into CL, RPG and Cobol. Embedded SQL can also be Dynamically created or Statically defined. The analysis process for SQL has been redesigned to better process all of these variants using a common framework and is better equipped to respond to the many ways that SQL can be used on the IBM i.

The initialization and refresh processes have been improved to provide additional Variable Where Used (VWU) details for SQL embedded within RPG. Here are some areas where VWU has been improved for Embedded SQL:

* VWU can be performed on Identifiers and constants in the SQL query
* Host variables are now tracked as an identifier in SQL statements
* VWU can be performed on a hostvar, an hoststruct or hoststruct.hostvar.
* Improved File/Field to Variable mapping for VWU
  + VWU can be performed on SQL Fields to see references of variable which are mapped to the fields in the file
  + VWU can be performed on a host variable to see references of SQL File/Field which are mapped to the variable.
  + The following statements have File/Field to variable mapping
    - SELECT Statement
    - INSERT Statement
    - UPDATE statement
    - DECLARE – FETCH statement
    - SET status
* Similarly, the “VWU Update Reference” has been extended accordingly:
  + When an SQL statement updates a file, the “VWU Update Reference” on the filename will report the source lines where that filename is being updated.
  + When a host variable is updated by an SQL statement, then the “VWU Update Reference” on any of its elements (Variable, indicator, or structure) will report the lines where the element is updated.
    - Host variables are updated in following SQL Statements:
      * INTO clause of a FETCH statement
      * SELECT INTO clause
  + When an SQL statement updates a field, “VWU Update Reference” on the filename will report the source lines where that fieldname is being updated.
    - The following SQL statements update fields:
      * UPDATE statement – Assignment clause
      * INSERT statement – Insert columns
      * MERGE statement – Update and insert clause

#### Other SQL Enhancements

* When the CREATE ALIAS, clause is used inside of a procedure written using SQL or if the SQL embedded within RPG, X-Analysis will now report the actual table name referred to rather than the alias.
* Table names specified in quotes inside of an SQL UPDATE statement are now properly handled and are appearing in the DATA FLOW DIAGRAM.

### Client-side Enhancements

* During the installation of the X-Analysis Client, the user will now be prompted to specify the path of which RDi/Eclipse version to install into. A default path will be provided representing the default location the installer is intending to install.
* The Data Flow Diagram has been enhanced to fully support Japanese.
* When a search operation is performed from the source editor it is now possible to simply hit the RETURN key to position the cursor to the next occurrence of the search string in the source rather than clicking on the icon repeatedly.
* The Structure Chart Diagram preferences have been simplified and now provide the possibility to fetch an unlimited depth of data.
* The Program Structure Chart (PSC) is now able to display external procedures called when the call is being done using Free RPG syntax within a fix RPG source.
* Changing the CCSID of a machine after the initialization took place on a repository could impact how the data will be displayed on the client UI. For this reason, a warning will now be displayed when the user opens the repository and such a condition has occurred.
* 4 New Problem Analysis categories have been added to X-DB Transform:
  + Identification of files with DATFMT and TIMFMT: "**PFs/LFs with DATFMT or TIMFMT properties**"
  + Report of DDS data types whose DDL data type mapping would result in a change of RFID: “**DDS data type with no DDL equivalent**”
  + Report of referenced but non-existent trigger program: “**Referenced trigger program does not exist**”
  + Report of commands that are not compatible with LF surrogated: “**Command not compatible with LF surrogate**”
* If you have more than one instance of RDi/Eclipse where you would like to have the XA Client to be installed, please note that we have changed the procedure to do so. The new procedure is now compatible with the “Install New Software” wizard of Eclipse. Please refer to the chapter “XA Plugins in Multiple Eclipse/RDi Applications” of the X-Analysis Installation and Upgrade Guide, or the section with the same name of the Online help.
* Please note that windows 7 is no longer supported.
* Please note that the XA Runtime provided with XA 13.2.00 is exactly the same as for XA 13.1.00. If you are already using that previous version of the runtime, there is no need to upgrade it.

### Server-Side Enhancements

* X-Analysis 13.2.00 requires IBM i version 7.1 as a minimum.
* Some attributes of the previously installed X-Analysis supplied Job Description will be carried over during the installation of a new release. Since several customers are manually updating the X-Analysis XAN4 files, the following attributes will be copied from the previous installation to the new one: JOBQ, TEXT, JOBPTY, OUTPTY, LOG, LOGCLPGM
* The Demo application has been extended with some Fully Free RPG sample programs. Look for Programs with names ending with “FR” in order to explore how X-Analysis documents these programs.
* When a compile time array was used in an RPG program to contain literals used in creating a Dynamic SQL statement, the resulting SQL statement was not being constructed correctly. This has been Corrected.

### Client-side – Fixes

* In the Database Summary screen, the columns for "Foreign Keys from Child" and "Foreign keys to Parent" were incorrectly showing interchanged values. This has been corrected.
* Some improper Japanese characters appeared in the Documenter dialog and have been corrected.
* When multiple versions of X-Analysis are installed on a given Windows 10 machine, the “X-Analysis for Eclipse” shortcut could be missing in some versions and not visible from the start menu. This has been resolved.
* Source and Flowchart options should only be enabled in the documenter wizard when security authority is set to Y (XARWKAUT). This has been corrected.
* Several problems were encountered when the EXPORT to PDF option was selected and a Japanese CCSID was in use. These have been corrected.
* Problem Analysis generated an incorrect entry about missing source for a program when the program existed in Multiple Libraries. This has been corrected.
* A source scan on the string value of '0' would lead the search operation to fail. This has been corrected.
* The logic used to classify programs into High, Average and Low Complexity groups based on the Maintainability index(MI) has been reviewed and corrected. Since the Maintainability index starts with 1 (Least Maintainable) and goes higher as the program becomes easier to maintain, the distribution has been changed as follows:
  + Any object for which the MI is higher than the HIGH value is grouped as a low complexity object.
  + Any MI value between AVERAGE and LOW is grouped as an average complexity object.
  + Any MI value lower than LOW is grouped as a high complexity object.

### Server-side – Fixes

* In some situations, the X-Analysis initialization job would get into a MSGW with the following error being generated “Cannot allocate the X-Analysis library“. This has been resolved.
* Some initialization scenarios were causing a MSGW situation as well as a program DUMP. This has been resolved
* In some specific situations, the XAXREF was producing dumps. The root cause has been resolved.
* The physical file and dependent logical file were not being correctly captured in the object list when the logical file had the same name as the physical file and the library containing the Logical File was in a library higher in the library list. This led to the physical file being identified as a duplicate object and therefore it was not processed. This has been corrected now.
* A situation around one of the X-Analysis internal tables was generating messages such as “Member XVARFLDWD at maximum size, increment not allowed”. The root cause has been identified and fixed.
* Switch indicators were not getting converted correctly while converting the internally described printer file to an externally described file because the source type of the converted RPG member was assigned incorrectly by the conversion process. This has been corrected.
* Some scenarios involving variable program calls for the CBLLE source type have not been reported. This has been corrected.
* During the X-Analysis initialization of a repository on a Japanese environment, the error CPF5097 was occurring and the process stopped. This has been resolved.
* FTP Members were indexed improperly as if they contained SQL commands. This has been corrected.
* A source scan involving an “AND” condition with a very long second search string could lead to a dump from the generated server-side job. This has been resolved.
* Data Queue references were not getting populated at the time of Refresh process. The process has now been modified to capture Data Queue details at the time of Refresh.
* File based application area rules were being incorrectly affected by the “Include Referred Files” setting. The “Include Referred Files” setting should only be used in a program-based application area rule. This has been corrected.
* A constant value passed by a COBOL program was not properly reported as a called program in the Data Flow Diagram, Structure Chart Diagram, etc. when a CL program was being called. This has been corrected.
* In some circumstances, the job submitted by the XDLTRLS command to delete a release of XA could fail because the XAPROD library was not included in the Library List. This has been resolved.
* The source change date of the member was showing incorrectly in Change History if the two or more members with same name existed in the specified list of libraries and the cross reference was initialized with parameter: DUPLICATE(\*YES).
* The refresh process would generate a DUMP when more than 250 libraries were included in the cross-reference library list. This has been resolved to allow more than 250 libraries. The refresh process can now support up to 999 libraries
* The demo libraries XAN4CDEMCU and XAN4CDEMPT that are referred by the X-Audit Tutorial for demonstrating Difference Analysis and PTF Analysis have been reintroduced in this release.

## Product: X-Datatest

### New & Noteworthy

***New File Comparison Method***

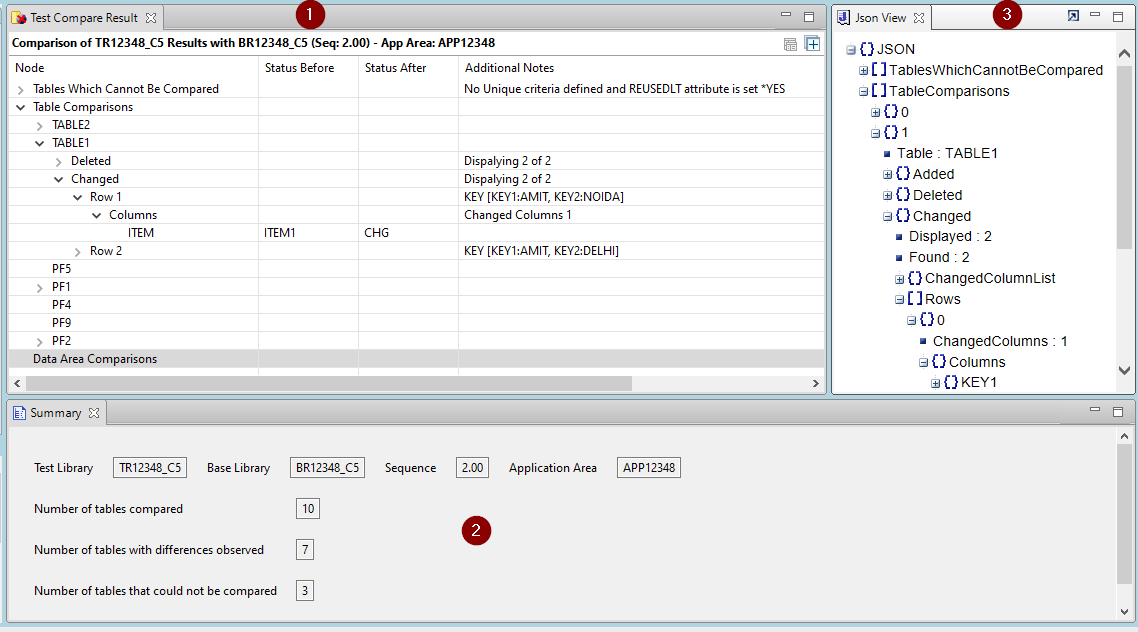
The file comparison process used during regression testing has been redesigned to be compatible with null capable columns and will now allow comparisons between files that have different format IDs. This means that if columns are added, removed or the length of the column has changed, the regression testing process will be able to report differences in the data when the files are compared.

***New File Comparison Artefact***

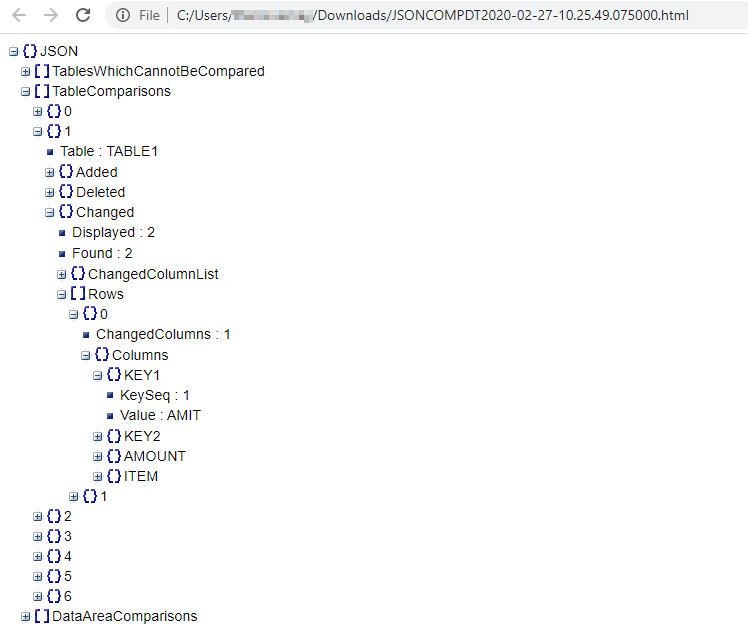
The results of the regression testing process are now stored in a self-describing JSON file that is stored on the IFS and can be exported as an HTML file. This allows the results of the regression testing process to be easily retained as a documentation artefact, distributed, analyzed and ultimately archived to comply with any governance requirement.

#### New File Comparison Editor

In this release we are introducing a completely new Comparison Editor that will provide better clarity when analyzing the results of the regression test. The information is now visible using 3 different views:



1. The Test Compare Results panel, known as the “Comparison Editor”, is the central place to find information about differences observed during the TestProcess. This is where we can find information about the records that have been changed/added or deleted, as well as differences observed from the Data Area Comparisons. We expect this view to be the one receiving the most of the interaction from the users.
2. The Summary panel provides a dynamic summary based on the node previously selected inside of the “Test Compare Result” view (Comparison Editor).
3. The JSON View panel displays the JSON file with minimal formatting. This view provides visibility to the raw JSON data and supports the export of a hierarchal HTML document that has expandable/collapsable nodes. The exported file can then be browsed independently of the X-Analysis client.



### Client-side Enhancements

* A new option named “***Populate unrelated files***“ has been added to the Create Subset Option to allow the user the possibility to specify if files with no filter criteria or dependency should receive all the records or not. The default is NO.

### Server-Side Enhancements

* When an overlay sub-field represent 100% of another sub-field, X-Resize will consider both as a single field to be resize. This way, the DS Offset calculation (i.e. the cumulative changes applied to a single DS) would be properly calculated.
* The DS Offset limit (i.e. the cumulative changes applied to a single DS) that supported by X-Resize has been extended from its current limit of 99 bytes to a limit of 99,999 bytes. If the new limit is reached, a new message will be added to the Warning section of the X-Resize execution and no MSGW situation will occur.

### Client-side – Fixes

### Server-side – Fixes

* X-Subset was processing the dependents and owners of the selected file even though the user had selected not to process any of the owners and dependents. This issue has been fixed.
* The Prebuild process of X-Resize/X-Unicode was going into a MSGW status. This has been resolved.

## Product: X-Unicode

### Server-side – Fixes

* On the first execution of X-Unicode over a new project, it was behaving as if the conversion type was set as \*REPLACE even if it was set as \*ADD. This led to missing some expected comment lines. This has been fixed.

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