

X-ANALYSIS PROFESSIONAL

Automated Graphical Documentation and Impact Analysis For
RPG and COBOL Applications on IBM i

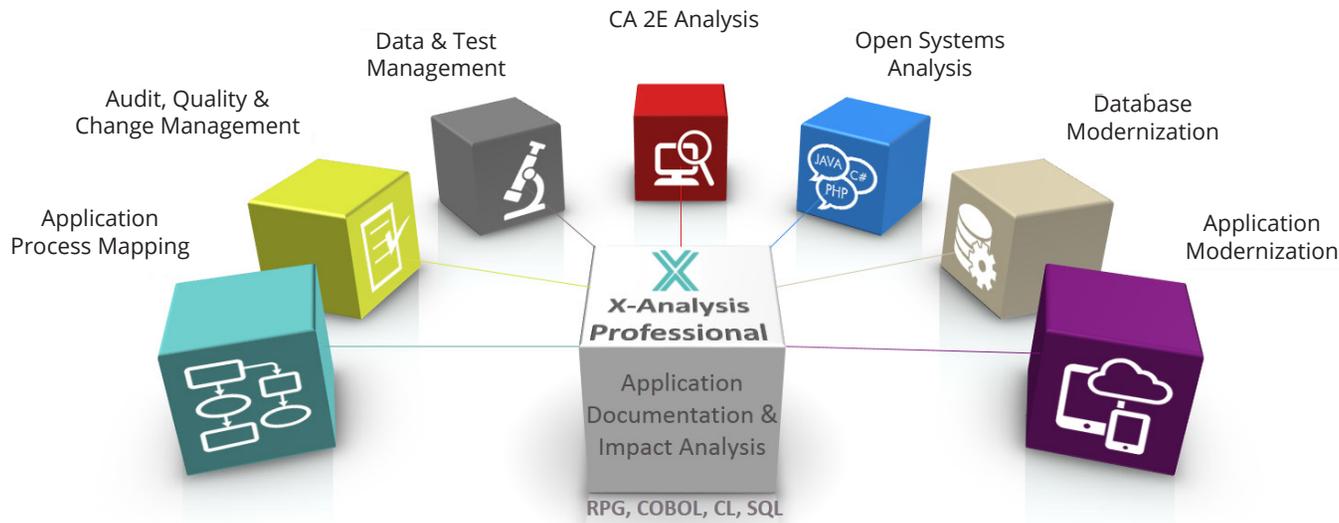
What's Inside

A description of X-Analysis Professional, the core functionality of the X-Analysis toolset. X-Analysis Professional provides automated and interactive analysis, documentation and impact analysis for RPG and COBOL applications on IBM i.



X-Analysis Professional

Gives You the Core Functionality of Automated Documentation and Impact Analysis



UNLOCKING VALUABLE KNOWLEDGE ON IBM i

The knowledge and information contained in your organization's business software has been accumulated over many years and is extremely valuable. This information covers the operation, metrics, and design of the software but is often tantalizingly just out of reach.

Without this knowledge, maintenance and changes to the system are not as efficient or effective as they could be, and the risk of problems increases exponentially the larger the enhancement required. This can lead to paralysis, where changes aren't made due to a lack of confidence in the outcome.

BUSINESS BENEFIT OF X-ANALYSIS PROFESSIONAL

Accurate and current information about an entire system can greatly improve the productivity of your IT staff and reduce maintenance costs by eliminating the need to research, catalog and assemble the information manually for each service request or modernization project.

X-Analysis Professional is the foundation for any decision you need to make about the applications running on your IBM i. Complete, automated analysis and documentation coupled with impact analysis smooth the path to efficient, well-managed development.



X-Analysis Professional:

The foundation of Fresche's application analysis and management tool suite for IBM i.

Some Highlights:

- ▶ Provides understanding at a program, application and system level.
- ▶ Automated extraction of relational data model from RPG and COBOL.
- ▶ Variable Tracing - Rich drill downs through multiple layers or variables and programs/files/screens in RPG, COBOL, CL, SQL.
- ▶ Interactive source code browser, structure chart diagrams and data flow diagrams
- ▶ Entity relationship diagrams.
- ▶ Objects and procedures - where used.
- ▶ Plug-in to Eclipse or WDSi/RDi/RDp
- ▶ Instant and automated structured drill-down browsing of test/live data.
- ▶ Browsing and analysis of data dictionary.
- ▶ Application Area diagrams.
- ▶ MS Word project/static documentation wizard.
- ▶ Visio and Open Office Draw exports.
- ▶ Subroutine layering diagrams (program structure charts).
- ▶ RPG as Pseudo code...



X-Analysis Professional

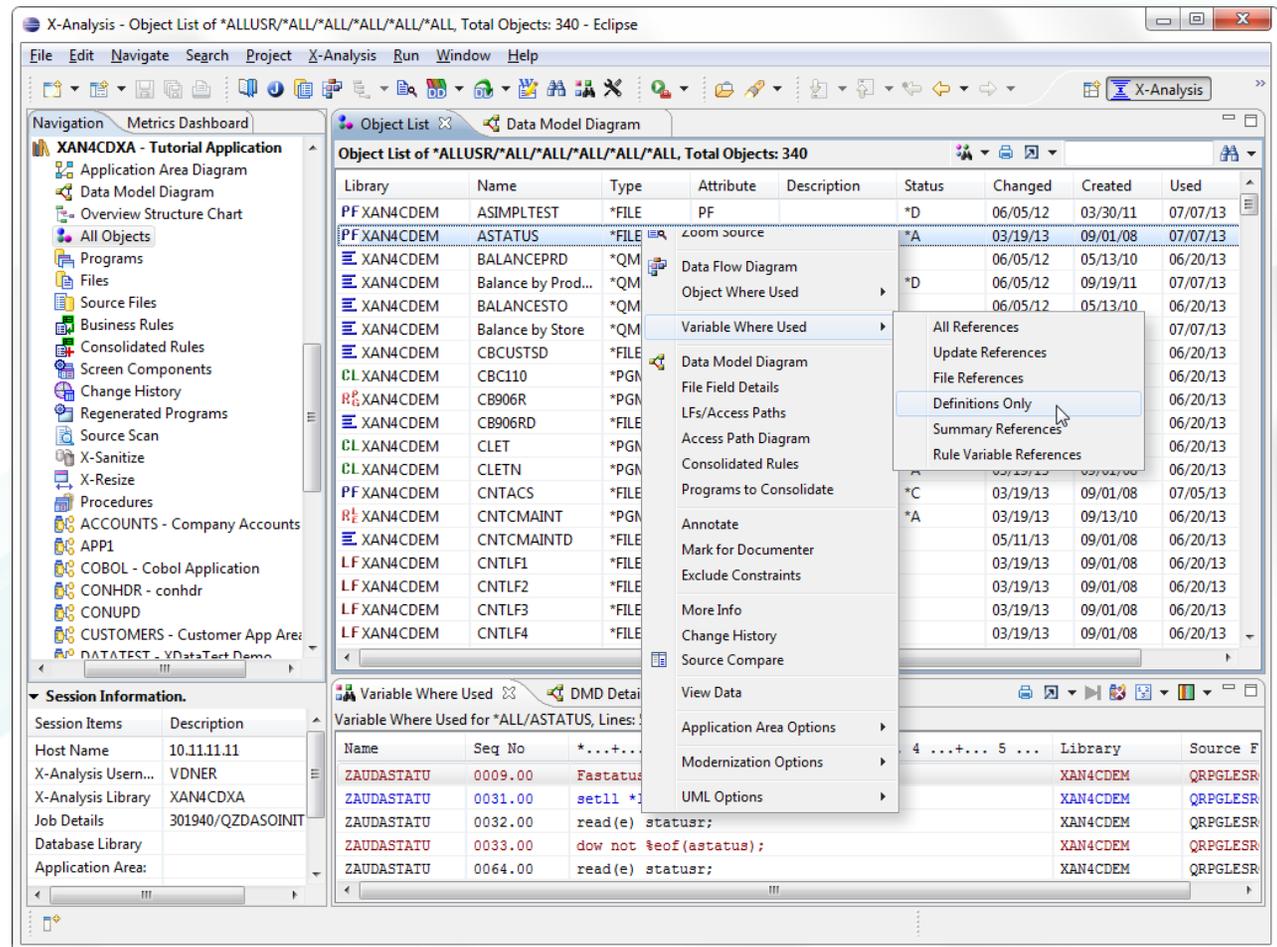
Automated Application Documentation and Impact Analysis

For the past 20 years, X-Analysis has given users critical insight into applications running on IBM i to help them better maintain, enhance and evolve those applications and better support business. X-Analysis Professional provides analysts, developers, architects and operations teams with detailed analysis and interactive diagrams that enable an in-depth understanding of RPG and COBOL applications and data. This suite of tools is used to document, analyze, abstract and describe systems in a simple and easy-to-understand manner that can then be shared throughout the organization, even with members who do not understand RPG, COBOL, or any programming language at all.

Introduction to X-Analysis Professional

Understanding an IBM i application is not always easy, especially if developers are not familiar with the system or if the documentation is not clear. In these cases, the system's source code is the only resource, and understanding it is a critical factor in managing and developing the system. X-Analysis Professional also allows developers to analyze and document their systems in detail, extract design information and easily update the base system, even if they aren't expert in the language it was programmed in.

In addition to fully documenting IBM i applications, X-Analysis provides organizations with the ability to perform impact analysis. This identifies all areas that would be impacted by any code changes, saving time and removing the risks typically associated with modifying code.



Intuitive graphical user interface
Program understanding at an application level
Solution for multi-level impact analysis and cross-referencing of complex RPG & COBOL applications
Graphical and Pseudo Code documentation of the entire system

Graphical Documentation - Automated

X-Analysis Professional is the most sophisticated and user-friendly analysis tool for instant interactive graphical documentation and cross-referencing of RPG and COBOL applications.

With X-Analysis Professional, you can easily abstract the implementation of the code to help visualize and easily understand the application design and flow, even for non-programmers. You can also sub-divide a system into application areas and drill down through any of these interactive diagrams to see high level information and details simultaneously.

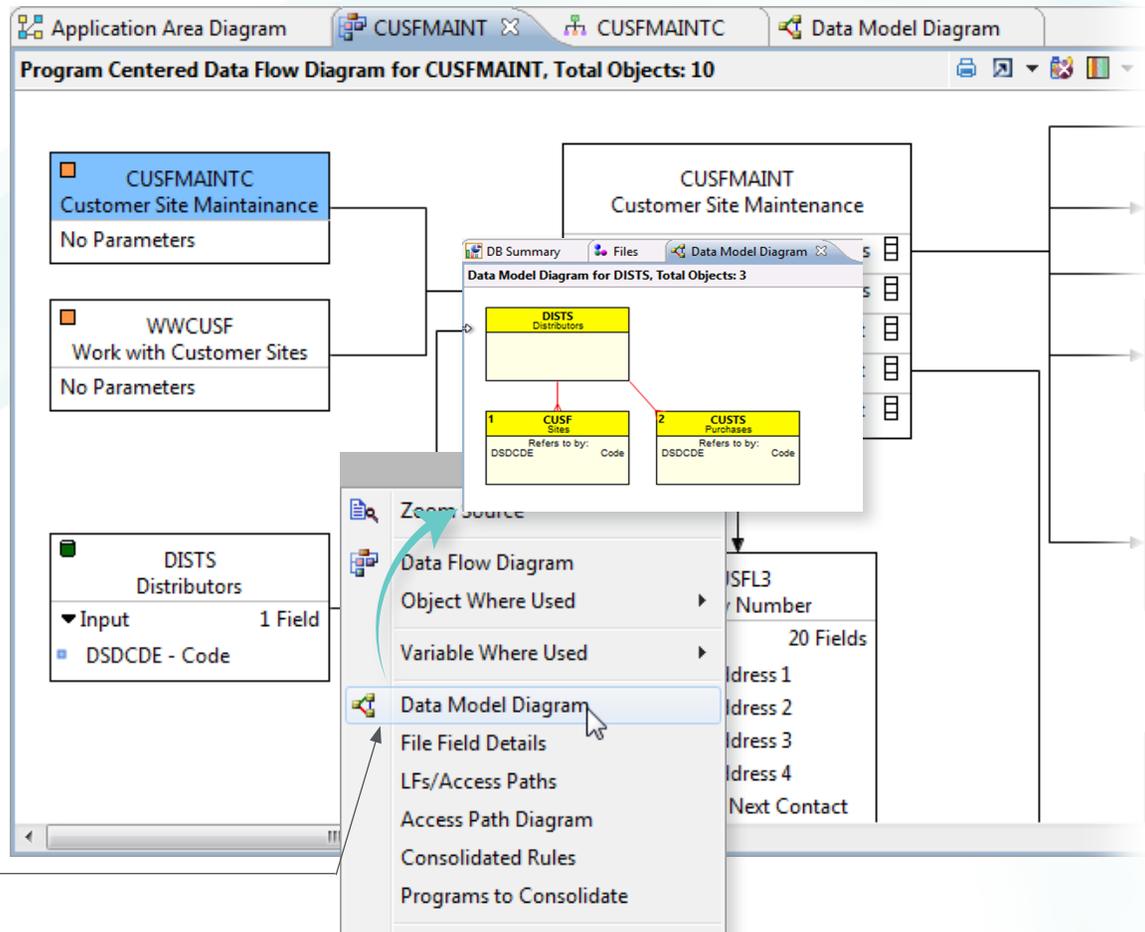
X-Analysis Professional provides powerful go-anywhere-from-anywhere hyper-navigation capabilities while analyzing:

- ▶ Application interfaces
- ▶ Call structures
- ▶ Data flows
- ▶ Screen flows
- ▶ Subroutine diagrams
- ▶ Data model diagrams
- ▶ Variable tracing diagrams.

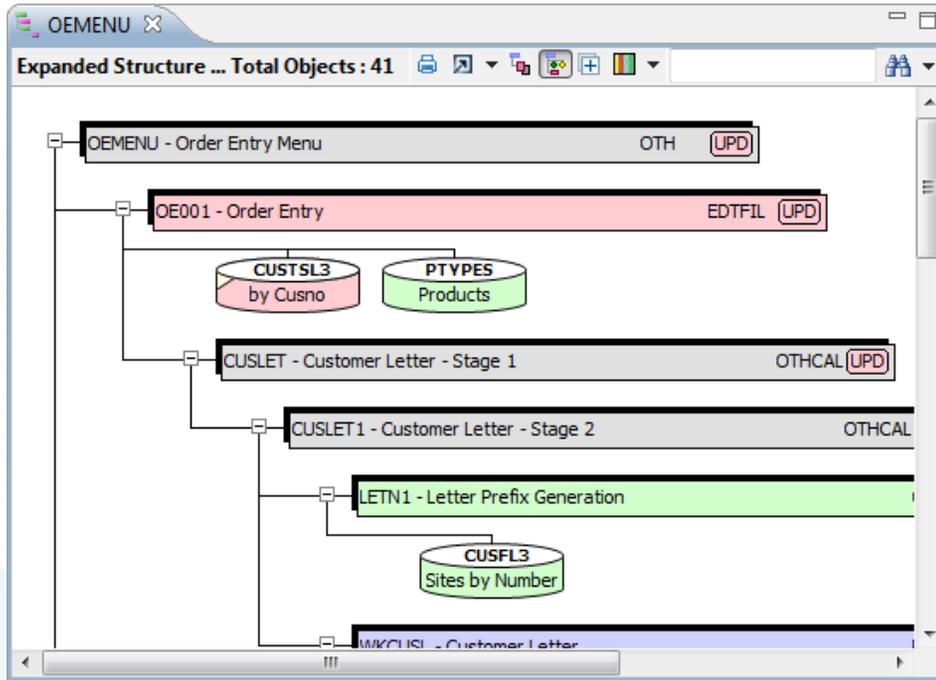
These interactive, color-coded diagrams are downloadable, exportable (Word, Visio, JPG) and integrated with RDi/p or Eclipse.

X-Analysis Professional lets you hyper-navigate from anywhere to anywhere. Pop-up menus drive your navigation and permit deep drill-downs.

- ▶ Document system functionality for audit, interfacing or planning purposes
- ▶ Improve quality and lower cost of maintenance tasks
- ▶ Fill the gap of system knowledge when key people leave
- ▶ Accelerate system learning and research for developers and analysts



Graphical Documentation - Diagrams



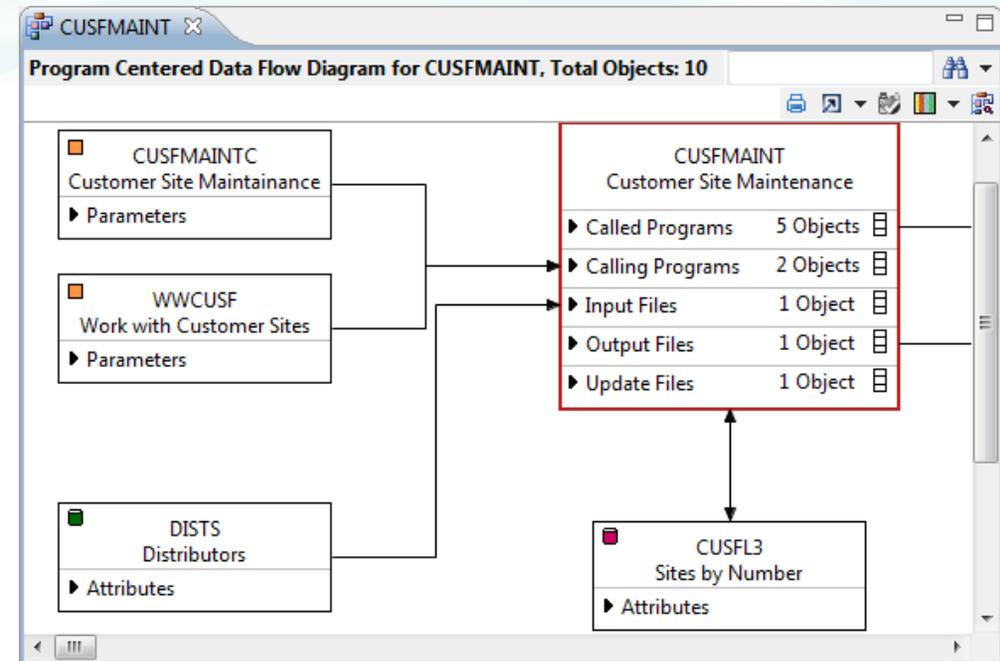
Structure Chart Diagram

A Structure Chart Diagram (SCD) gives a graphic representation of how control passes from one program to another program within the application. This follows the call structure down the complete stack. The diagram also reveals data input objects and also automatically derives a summarized description of each of the objects in the diagram. Color-coding also reveals important functional aspects such as updates, prints, and displays, which help the user to zero in on commonly sought after details.

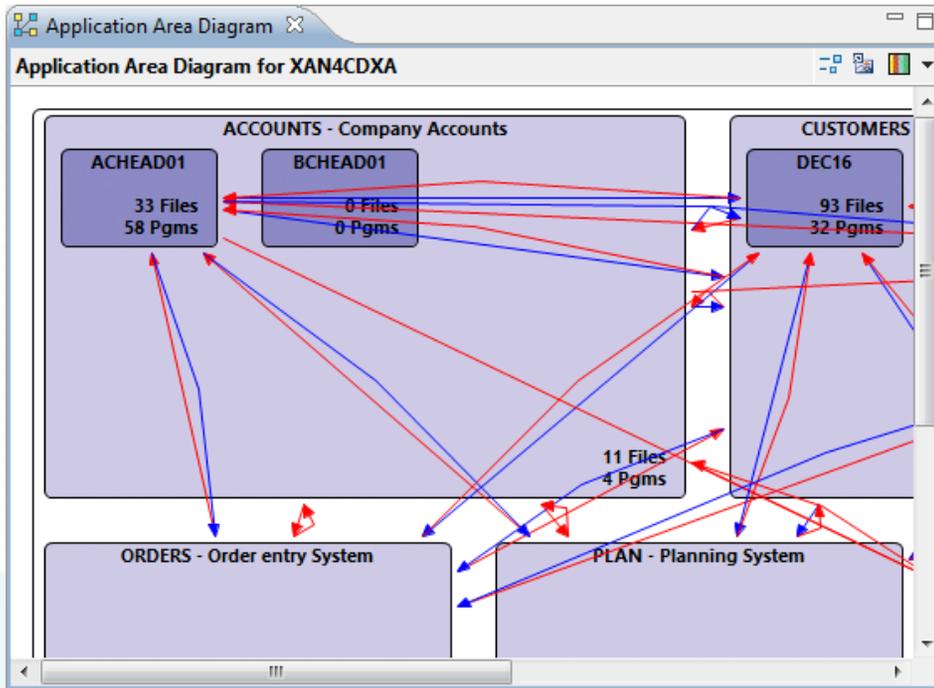
Related diagrams: Hierarchical Structure Chart, Inverted Structure Chart, Program Structure Chart

Data Flow Diagram

A Data Flow Diagram (DFD) is a graphical representation of where a program/object is used, showing the files and programs accessed by the subject object. It is color-coded and shows both flow of data at a high object level and contextual information about the specific variables/parameters passed between objects.



Graphical Documentation - Diagrams



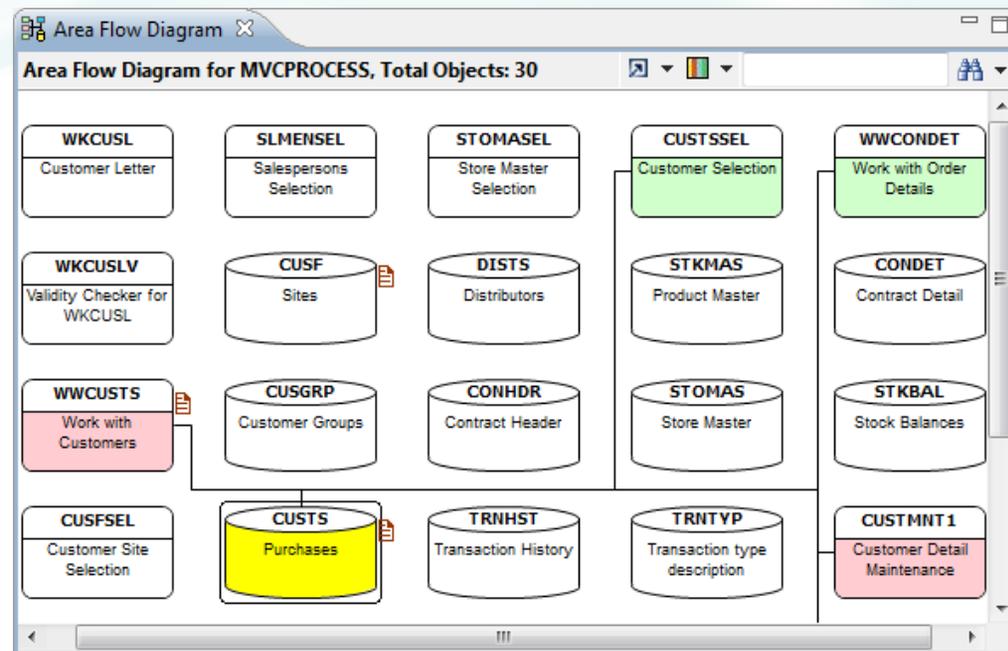
Application Area Diagram

Entire IBM i applications are often too large to effectively comprehend or carry out wholesale change. For this reason, it is often necessary or helpful to subdivide a system into application areas. The reasons and specifications for these areas may also change with time. X-Analysis provides facilities for subdividing an application area into groups of objects that meet user-defined selection criteria. These criteria might be based on function or even generic name. X-Analysis then uses the sophisticated cross-reference information and data model relationships to automatically include all related elements such as programs, displays or files in the application area.

These are just several of the diagram types available - to see more, please contact your Fresche representative.

Area Flow Diagram

Area Flow Diagrams display programs and files in an application area along with the relations between them. All diagrams are color-coded. A drop-down legend to the upper right of each diagram explains the significance of the colors. All diagrams are exportable to Visio.



Automated Relational Data Modeling

Effective data modeling is crucial to the management of databases designed for business and commercial use. X-Analysis Professional helps programmers and systems analysts save time and effort by automatically extracting and documenting the data model buried in their RPG or COBOL application code.

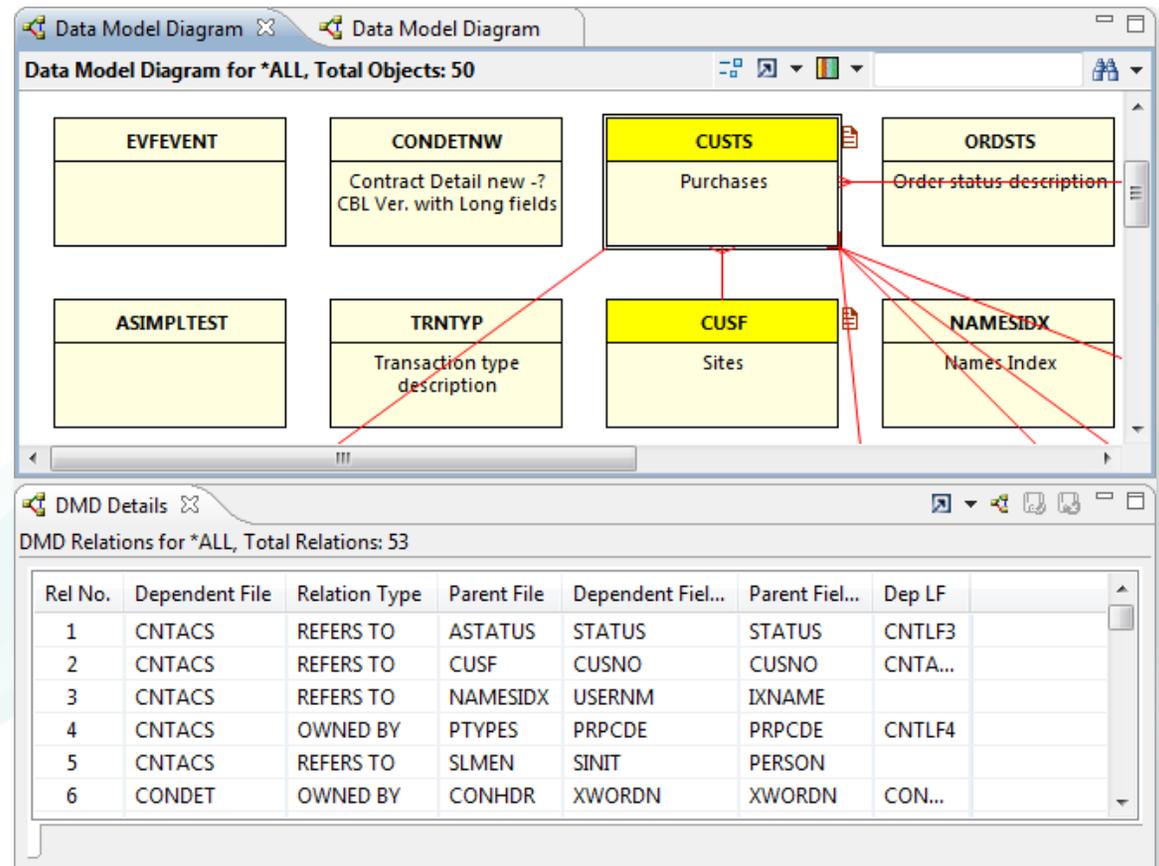
Business Success is Driven by Data

The effective management of information or business data has become a key differentiator for successful businesses. Many IBM i applications span 30 or more years of ongoing development, including database design and data input changes. Business pressures produce a constant architectural erosion of original database designs. This can make the management and access of critical business data increasingly difficult.

Business professionals become increasingly frustrated with their older systems because they know the data is there, but they just can't get it quickly enough. X-Analysis Professional helps solve this problem by providing you with a key map to exploit competitive business data buried in IBM i application databases.

Some additional benefits of having an explicit data model from X-Analysis include:

- ▶ Data quality can be regularly automated and managed
- ▶ Using the explicit model to create accurate test data will help improve data quality proactively
- ▶ BI initiatives and reporting tools can be populated with the data model for higher report development productivity by users
- ▶ Database modernization can be seeded productively with the data model including long field and object names



- ▶ Complete foreign key relationships in diagrams and text, describing parent-child relationship join rules
- ▶ Automated generation of data model through propriety design recovery extraction algorithms (RPG and COBOL)
- ▶ Entity relationship diagrams
- ▶ Visio exports for graphical diagrams
- ▶ Browsing and analysis of data dictionary, and much more...

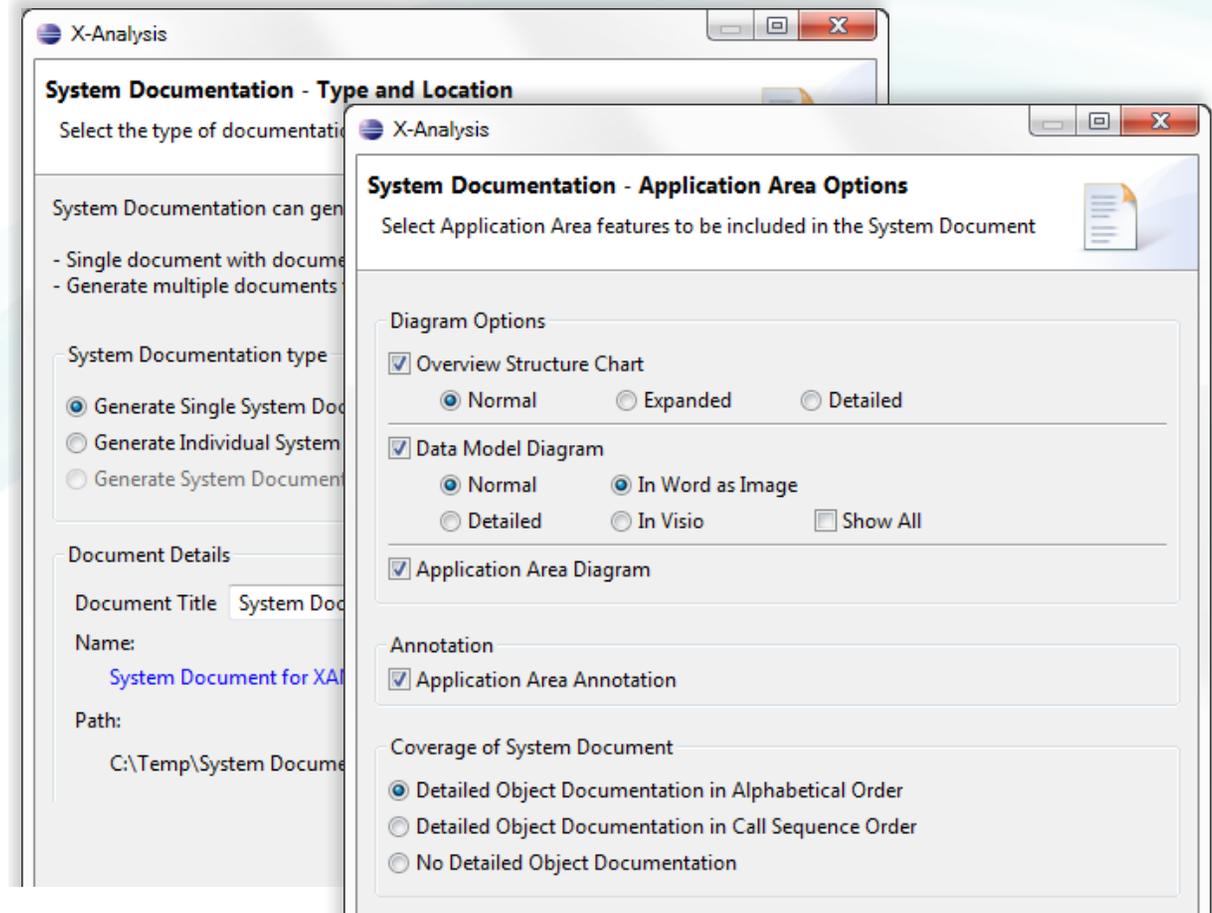
Graphical Documentation - Flexibility

A Wide Array of Functionality

X-Analysis Professional provides numerous ways to view your application code and architecture. In addition to the diagrams described above, the tool offers the following:

- ▶ **RPG as Pseudo Code:** With a single click, RPG can be viewed as a form of structured English or pseudo code. Mnemonics are substituted with file/field/variable texts and constants or literals. Pseudo code is a great help even for experienced professionals as it explains the program logic in simple English.
- ▶ **Diagrams in Visio:** Any interactive diagram produced by X-Analysis 10 in the client can be automatically exported instantly to MS Visio with a single click. In addition to this, an RPG or COBOL program can be produced as a data flow chart interactively while browsing the source from within X-Analysis. If the RPG program is in Pseudo Code mode, the Data Flow Chart will use the narratives from the Pseudo code. This enables non-System i technologists and analysts to assimilate information at a detailed level of the application without any dependency on RPG or COBOL experts.
- ▶ **Lists and result sets:** Any source, object, or impact-analysis result list can be directly exported to formatted MS Excel, Word or Open Office with a single click while using the client.

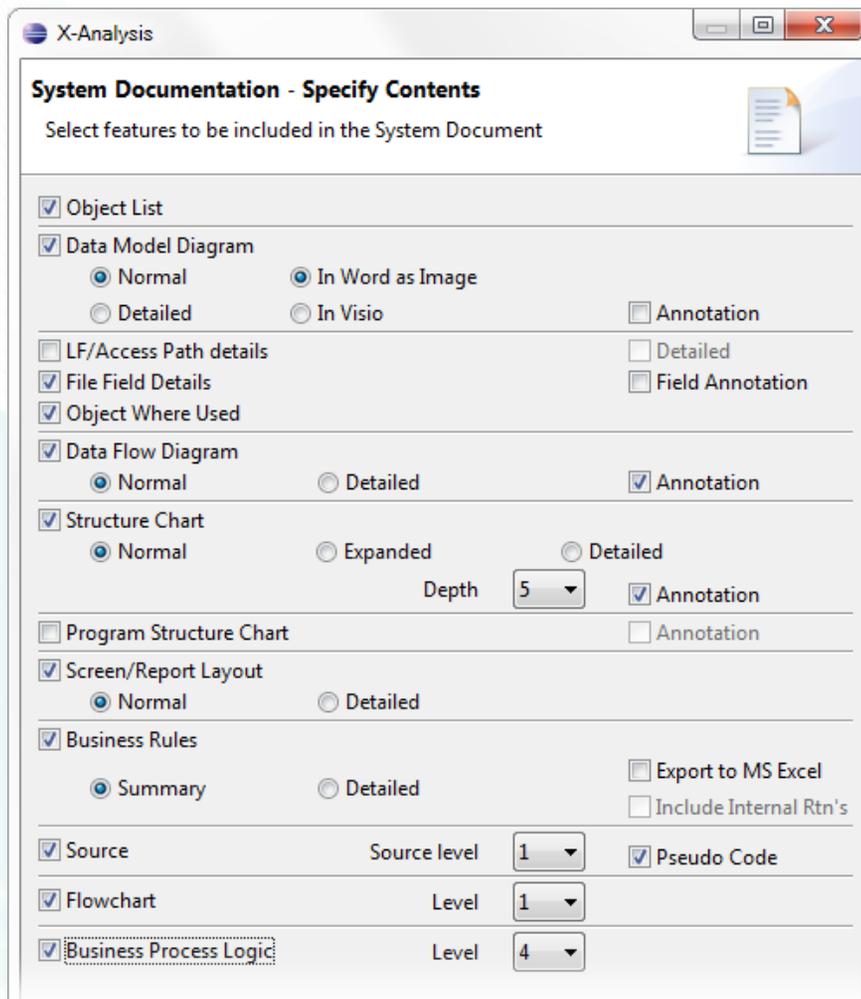
- ▶ **Microsoft Word Project Documentation Wizard:** Documents often take weeks to produce manually. With a simple wizard, a user can select any of the graphical diagrams, lists, flowcharts, annotation and business rule summaries generated interactively by the client interface, and collate the information into a single document with contents and index. This can be done for a single object, an application area, a list of objects, or an entire system. These documents can be edited and distributed as required.



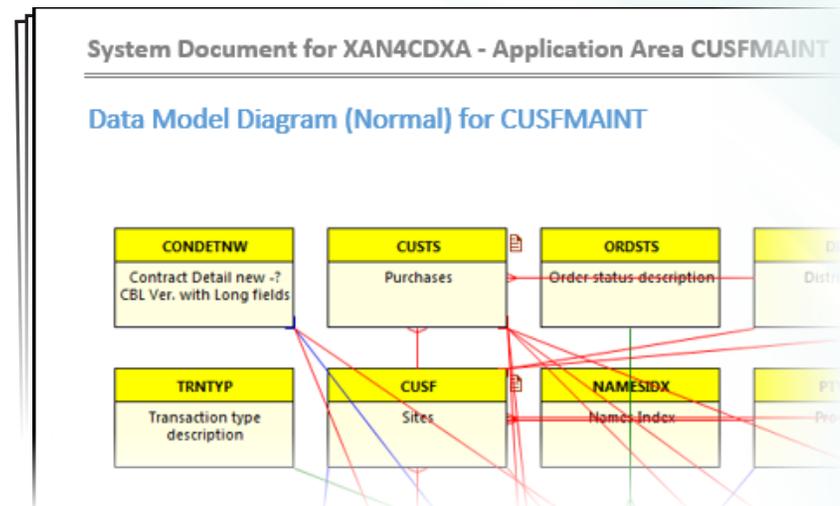
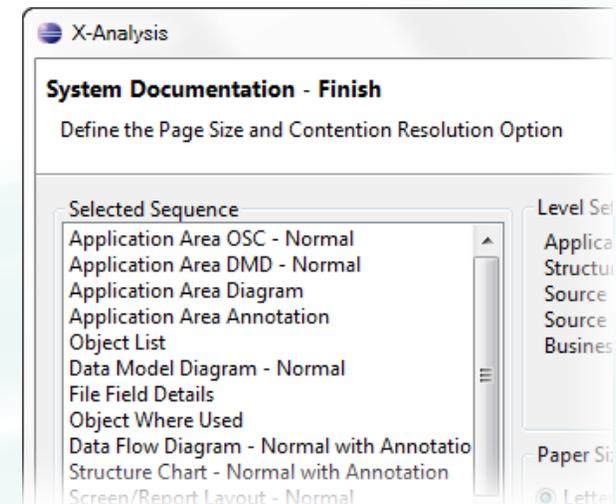
Graphical Documentation - Flexibility

As Much Detail As You Need

These are just some of the configuration screens that let you customize the system documentation to fit your exact needs.



System documentation automatically published to MS Word can be as detailed as you need it. Full documentation in Word includes a table of contents, index, color-coded legend, and all of the interactive charts, diagrams, object lists, references, etc., that you specify.



Impact Analysis - Fields, Variables, Levels

X-Analysis Professional saves you weeks of manual analysis in just a few seconds with capabilities at both an object and a variable level. The variable level impact analysis can track where used information starting from a single field or variable, through all iterations and associated variables and fields and down through the entire call stack of a system with a single click. It can reduce analysis tasks done manually or with older tools down from weeks into seconds with absolute accuracy and confidence.

Download any output, drill-down into the source for more detail, or view results-coded visual diagrams for quicker and more focused analysis.

- ▶ Field where used
- ▶ Variable where used
- ▶ Where used levels
- ▶ Specialized where used

The screenshot shows the X-Analysis Professional interface. The main window displays a table of fields for variable CUSNO. A context menu is open over the CUSNO field, showing options like 'File/Field Where Used', 'Variable Where Used', and 'Annotate'. A sub-menu is open for 'File/Field Where Used', showing 'All References', 'Update References', 'File References', 'Definitions Only', and 'Summary References'. Another window titled 'Variable Where Used' is open, showing a table of variables and their usage across different levels (Level1 to Maximum Tracking).

Name	Seq No	*...+... 1	*...+... 2	*...+... 3	*...+... 4	*...+... 5	Library	Source File
CUSCPY	0058.00	C		ADD 1		CUSNO		QRPGRSRC
CUSCPY	0070.00	C		WRITERCUSF6				QRPGRSRC
CUSCPY	0076.00	C		Z-ADDCUSNO		SCUSNO		QRPGRSRC
CUSF	0026.00	A		CUSNO	SP 0	TEXT ('Cu		QDDSSRC
CUSFL3	0003.00	A		K CUSNO				QDDSSRC
CUSFMAINT	0058.00	C	cusno	chain (e)	rcusf			QRPGLSRC
CUSFMAINT	0125.00	C		eval	zcusno = cusno		XAN4CDEM	QRPGLSRC
CUSFMAINT	0154.00	C		eval	cusno = zcusno		XAN4CDEM	QRPGLSRC
CUSFMAINT	0176.00	C		update (e)	rcusf		XAN4CDEM	QRPGLSRC

And So Much More...



X-Analysis Professional:

The foundation of
Fresche's application
analysis and management
tool suite for the IBM i.

X-Analysis Professional Summary of Functionality

- ▶ Variable Tracing - drilling down through multiple layers or variables and programs/files/screens in RPG, COBOL, CL, SQL
- ▶ Interactive source code browser
- ▶ View RPG as Pseudo code
- ▶ Interactive structure chart diagrams
- ▶ Interactive data flow diagrams
- ▶ Object where used
- ▶ Procedures where used
- ▶ Plug-in to Eclipse or WDSr/RDi/RDp
- ▶ Subdivide system into application areas and embed into other application areas
- ▶ Application Area diagrams
- ▶ Restrict diagrams or show the objects that belong to an application area only.
- ▶ MS Word project/static documentation wizard
- ▶ Visio exports for graphical diagrams

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- ▶ Subroutine layering diagrams (program structure charts)
- ▶ Link to LPEX editors
- ▶ Indented source code views
- ▶ Program understanding at an application level, rather than a complete system level.
- ▶ All other modules have use of application level control as opposed to entire system level functionality
- ▶ Object annotation repository or Word-based documentation
- ▶ MS Word/Visio/JPG exports of all lists and graphical diagrams.
- ▶ Automated generation of relational data model from RPG/COBOL
- ▶ Entity relationship diagrams
- ▶ Instant and automated structured drill-down browsing of test/live data
- ▶ Browsing and analysis of data dictionary
- ▶ Builds CRUD map and matrix for all DB IO
- ▶ Supports embedded SQL and SQL procedures



About Fresche Solutions

As a leading expert in IBM i management and modernization, Fresche Solutions helps enterprise organizations transform their business to improve financial performance, increase market competitiveness, remove risk and add business value. Our team of experts has successfully completed hundreds of transformation projects within the most complex enterprise environments, helping organizations future-proof their business by modernizing their business processes, technologies, infrastructure, and methodologies. Committed to 100 percent customer satisfaction, Fresche's services and solutions span the complete IBM i modernization spectrum from concept to maintenance, and include Discovery Services, Modernization Solutions, and Application Management Services & Transformation. For more information about our company, visit us on the Web at www.freschesolutions.com

X-Analysis Professional is the foundation of the full X-Analysis toolset, a suite of productivity tools for your IBM i applications. Following is a brief description of the other modules in the suite:



X-Analysis Professional: The foundation tool, with all of the basic functionality.



CA 2E Analysis: Everything required to analyze and document CA 2E applications.



Application Process Mapping: Business rule and relational data model extraction and documentation of application processes and flows.



Application Modernization: RPG, COBOL and CA 2E (Synon) automatically converted to Java.



Audit, Quality and Change Management: Auditing of core application functionality - including design, quality and complexity - to identify and change problematic areas in the application.



Database Modernization: Automated conversion of DDS to DDL, including creation of constraints, long field names and views.



Data and Test Management: Analysis of data quality; data archiving, data subsetting and data masking. Test data automation and management.



Open Systems Analysis: Cross-referencing and documentation of Java, C#, PHP, VB/VB.NET and PowerBuilder.

How to get on board: X-Analysis products are available as a complete package or as individual modules. At Fresche Solutions, we work closely with you to assess your needs and recommend the best solutions. To get started, contact us using the information below:

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