



**MODERNSYSTEMS**

# **WHITEPAPER**

**APPLICATION UNDERSTANDING & DOCUMENTATION  
WITH ENTERPRISE APPLICATION VIEWER (EAV)**



# Enterprise Application Viewer (eav™)

## Automated documentation:

- Program documentation
- JCL documentation
- Application documentation
- IMS, VSAM, Flat File Use

## Documentation Compliance:

- Sarbanes-Oxley compliance
- Basel II compliance
- HIPAA compliance

## Workbenches for:

- Impact Analysis
- Business Rules Isolation
- Research by Transaction
- Field-level Analysis
- Application Portfolio View

## Supported technologies:

- COBOL Programs
- Natural Programs
- JCL and PROC Streams
- IMS-DC Processing
- CICS Processing
- IMS Databases
- Adabas Databases
- VSAM Files
- IMS Transactions
- CICS Transactions

Many IT organizations are experiencing difficulties with application maintenance and enhancement that is caused by the “newness” of their technical teams and the lack of up-to-date documentation regarding the applications. Many have seen the “original design team” or “everyone that knew that system” move ahead to management, other technologies, or retirement. Identifying the source of some production problems is a week-long battle, when it once was a matter of minutes or hours.

The Enterprise Application Viewer (eav™) propels any IT organization into a state of fast problem resolution, accurate impact analysis, and complete up-to-date application documentation, regardless of how team members have come and gone. eav provides both business and technical teams with instant insight into application flow, cross-program or intraprogram flow, and even field-level usage across your entire enterprise.

## Reduce Costs

The Enterprise Application Viewer is a complete analytical team within a single tool. eav provides both application and business teams with the ability to quickly understand and follow the logic within applications, between applications and within programs.

IT teams no longer need technical specialists for each application. A core team of programmers and analysts can debug, maintain, and enhance multiple complex applications within any environment using eav.

With eav, organizations can reduce IT costs dramatically:

- Reduce maintenance costs, which often account for more than 75% of an IT budget
- Reduce downtime by resolving critical production issues in a fraction of the time
- Reduce project cost overruns by accurately estimating enhancements and new development efforts
- Maintain, enhance and develop applications with fewer team members
- Reduce IT project headcount by including business team members in IT analysis
- Maintain up-to-date application documentation with no human resources
- View statistics across all applications to make more information portfolio management decisions



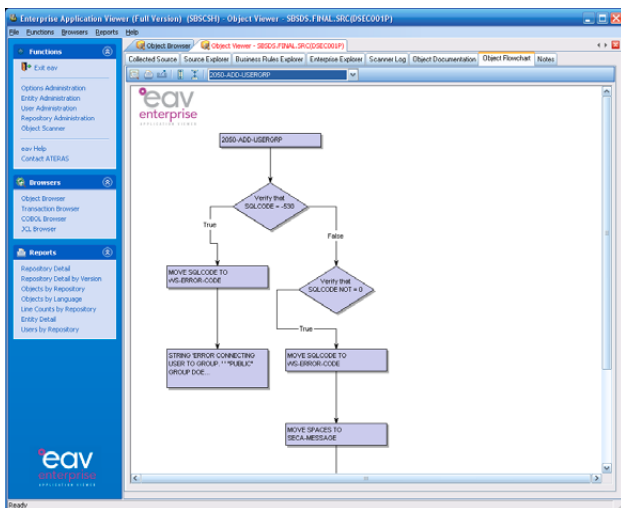
# Enterprise Application Viewer (eav™)

## Increase Productivity & Understanding

eav provides any IT programmer or business analyst the ability to research and resolve issues quickly. Even without prior knowledge of the application functionality and without in-depth knowledge of the programming language, minimal research can lead directly to the source of an issue.

With eav, any team member can:

- Begin analysis with an error message or a transaction ID
- Quickly isolate business rules leading to a result
- Become expert in complex application processing
- Perform fast and accurate research and impact analysis



## Reduce Risk & Define Impact

The Enterprise Application Viewer takes the guess work out of enhancement planning. Finally, your business and technical analysts have full visibility into your complex applications and can predict the impact of specific changes across your environment. Business Rules are visible and easy to analyze. Entire teams can become knowledgeable about any set of applications, eliminating the risk associated with a reduced or retiring technical staff. Your teams can visualize the impact of a change and predict the outcome of a change with only minutes of effort.

## Reach Documentation Compliance

eav automatically updates its documentation repository every time that a production program changes, whether the change is made on your mainframe or in your network environment. With eav, all program and application documentation is always up-to-date without any effort from any of your team members. Unique in the documentation industry, eav's printed documentation can stand alone to fully document any program and its relationship to all other program artifacts. With eav's graphical workbenches, documentation and application research is completely interactive.

## Increase Agility

With the Enterprise Application Viewer, your IT team is armed with a tool suite to quickly change, enhance, and expand your application portfolio to better meet your business demands, increase your market potential and meet the ever-changing needs of your customers.

With eav, change is faster, simpler and safer.

## System Requirements

- Microsoft Windows 2000, XP, or Vista
- SQL Server 2005 or higher
- eav is installed using a standard Windows InstallShield program

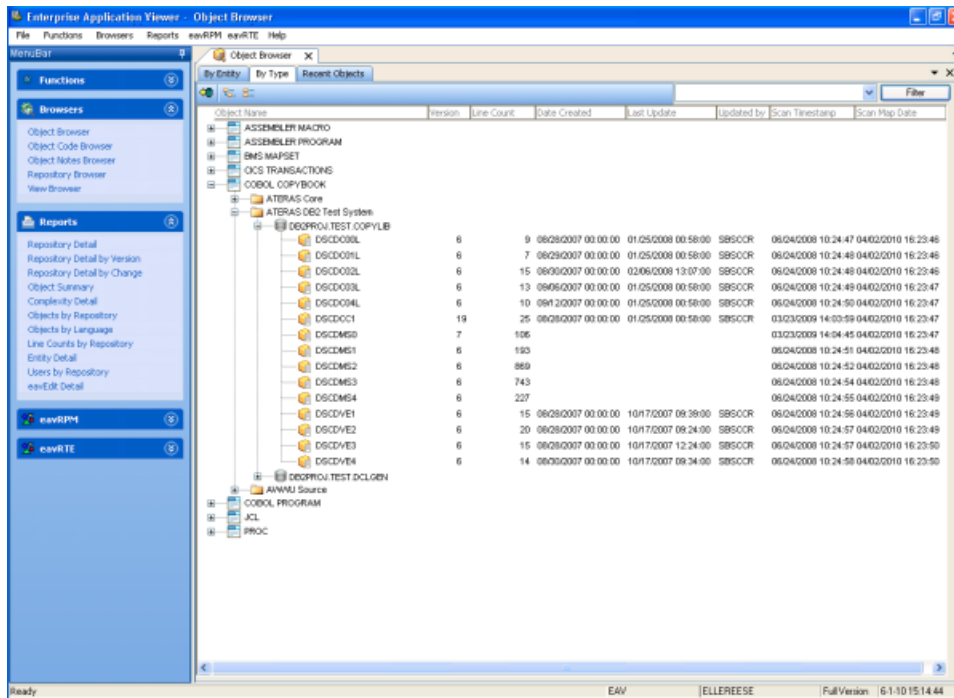
# Enterprise Application Viewer (eav™)

## Object Browser

The Object Browser provides a window into the complete list of application objects that comprise the enterprise. The objects may be programs, shared copy objects, screen or map layouts, plus more. The create date and last update date for each object is displayed, along with the object type.

Three different views of the objects are available to easily navigate the enterprise: By Entity, By Type, and Recent Objects. A filter may also be applied to reduce the displayed results to object names matching the filter term.

The object browser provides access to the Object Viewer for each object. Simply double click on an object to open the full scope of details in the Object Viewer.



# Enterprise Application Viewer (eav™)

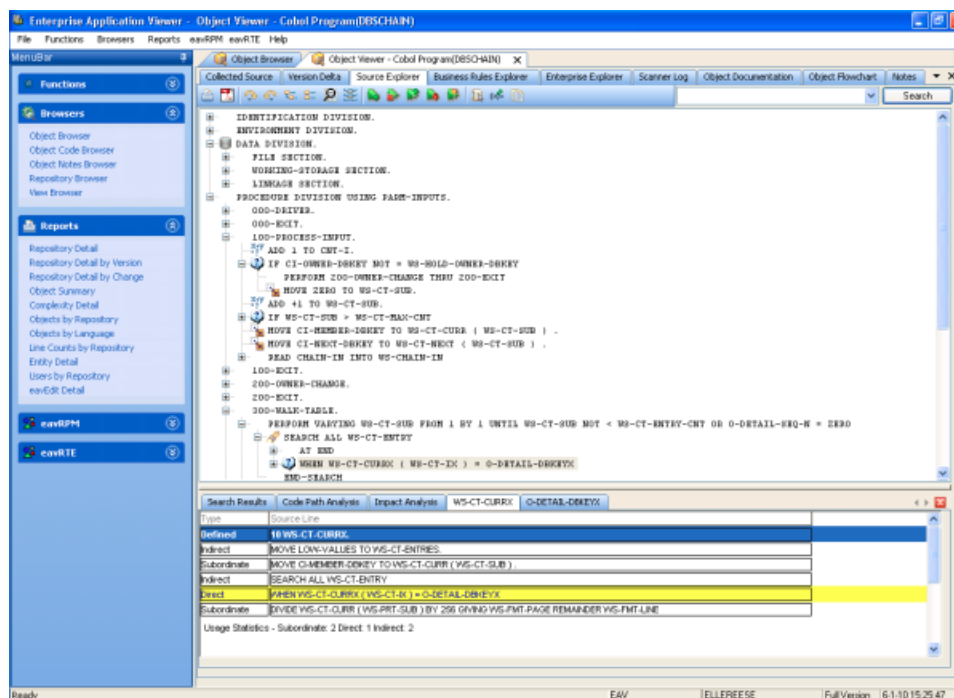
## Business Rules Explorer and Source Explorer

Business rules, decision logic, and full source code detail are easily accessed through the Business Rules and Source Explorer workbenches in the Object Viewer. The analyst has full capability to search within and across all source objects, and can set bookmarks and make notes for any source object.

The Business Rules Explorer presents a “tree diagram” of each application program or object. The business or technical analyst can collapse or expand each decision point to isolate, review, or extract the Business Rules. Icons and colors make particular verbs more readily visible within the objects and the code is presented with an English basis for ease of understanding.

The Business Rules and Source Explorers provide detailed information about each variable on any line of code. By double clicking any line of code, the analyst sees:

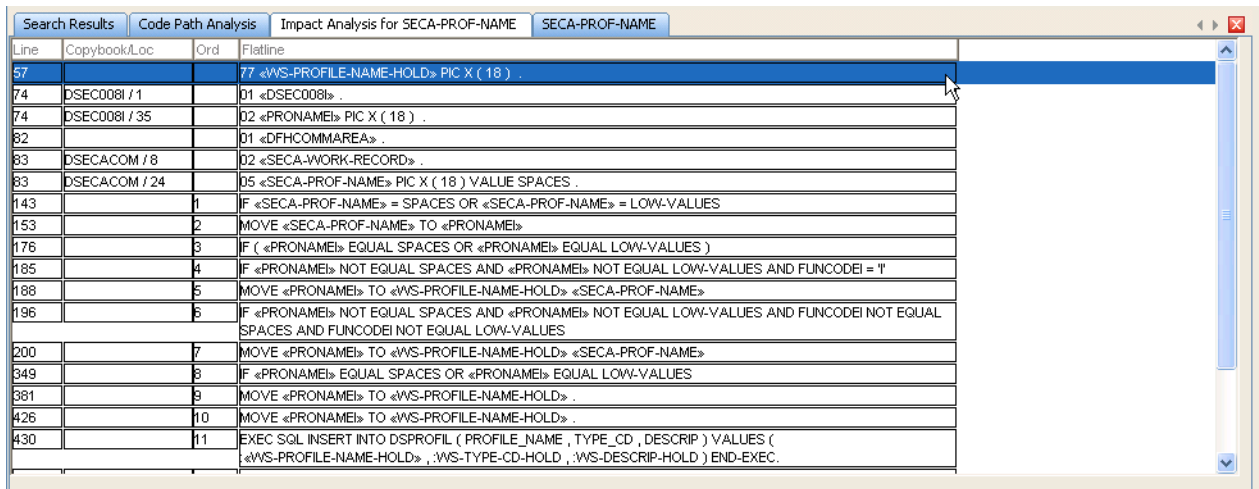
- The line of code that defines each variable
- All other lines of code that reference each variable
- All lines of code that reference any owner or group level for each variable
- All lines of code that reference any elementary items under each variable



# Enterprise Application Viewer (eav™)

## Impact Analysis

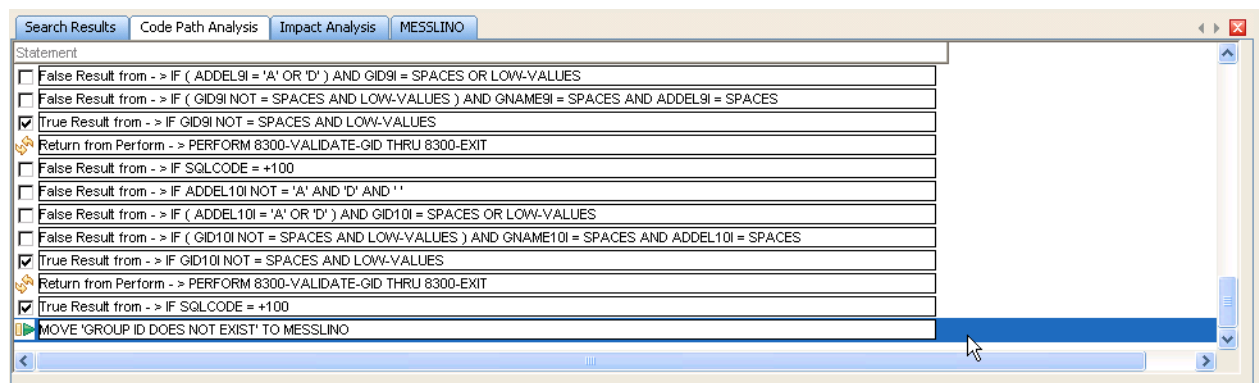
The impact analysis feature of eav allows programmers to determine the complexity of changes to variables and fields across an application. By starting with the program definition of a field, analysts can review all lines of code that reference the field across the entire application with detail such as the program name & line number of the reference. Bookmarks can be set for all references and double clicking on any line of the results brings the user to a view of that line of code in the relevant Source Explorer window. A full impact analysis can be performed with a few clicks.



Line	Copybook/Loc	Ord	Flatline
57		77	«WS-PROFILE-NAME-HOLD» PIC X ( 18 ) .
74	DSEC0081 / 1	01	«DSEC0081» .
74	DSEC0081 / 35	02	«PRONAME» PIC X ( 18 ) .
82		01	«DFHCOMMAREA» .
83	DSEACOM / 8	02	«SECA-WORK-RECORD» .
83	DSEACOM / 24	05	«SECA-PROF-NAME» PIC X ( 18 ) VALUE SPACES .
143		1	IF «SECA-PROF-NAME» = SPACES OR «SECA-PROF-NAME» = LOW-VALUES
153		2	MOVE «SECA-PROF-NAME» TO «PRONAME»
176		3	IF ( «PRONAME» EQUAL SPACES OR «PRONAME» EQUAL LOW-VALUES )
185		4	IF «PRONAME» NOT EQUAL SPACES AND «PRONAME» NOT EQUAL LOW-VALUES AND FUNCODEI = 'I'
188		5	MOVE «PRONAME» TO «WS-PROFILE-NAME-HOLD» «SECA-PROF-NAME»
196		6	IF «PRONAME» NOT EQUAL SPACES AND «PRONAME» NOT EQUAL LOW-VALUES AND FUNCODEI NOT EQUAL SPACES AND FUNCODEI NOT EQUAL LOW-VALUES
200		7	MOVE «PRONAME» TO «WS-PROFILE-NAME-HOLD» «SECA-PROF-NAME»
349		8	IF «PRONAME» EQUAL SPACES OR «PRONAME» EQUAL LOW-VALUES
381		9	MOVE «PRONAME» TO «WS-PROFILE-NAME-HOLD» .
426		10	MOVE «PRONAME» TO «WS-PROFILE-NAME-HOLD» .
430		11	EXEC SQL INSERT INTO DSPROFIL ( PROFILE_NAME , TYPE_CD , DESCRIP ) VALUES ( «WS-PROFILE-NAME-HOLD» , WS-TYPE-CD-HOLD , WS-DESCRIP-HOLD ) END-EXEC.

## Code Path Analysis

A code path analysis is useful for determining what decisions are made before a certain line of code is triggered with a program. This feature is accessed by right clicking on the target line of code. The result is displayed at the bottom of the screen with each decision linked to the original line of code for full exploration.



Statement
<input type="checkbox"/> False Result from -> IF ( ADDEL9I = 'A' OR 'D' ) AND GID9I = SPACES OR LOW-VALUES
<input type="checkbox"/> False Result from -> IF ( GID9I NOT = SPACES AND LOW-VALUES ) AND GNAME9I = SPACES AND ADDEL9I = SPACES
<input checked="" type="checkbox"/> True Result from -> IF GID9I NOT = SPACES AND LOW-VALUES
Return from Perform -> PERFORM 8300-VALIDATE-GID THRU 8300-EXIT
<input type="checkbox"/> False Result from -> IF SQLCODE = +100
<input type="checkbox"/> False Result from -> IF ADDEL10I NOT = 'A' AND 'D' AND ''
<input type="checkbox"/> False Result from -> IF ( ADDEL10I = 'A' OR 'D' ) AND GID10I = SPACES OR LOW-VALUES
<input type="checkbox"/> False Result from -> IF ( GID10I NOT = SPACES AND LOW-VALUES ) AND GNAME10I = SPACES AND ADDEL10I = SPACES
<input checked="" type="checkbox"/> True Result from -> IF GID10I NOT = SPACES AND LOW-VALUES
Return from Perform -> PERFORM 8300-VALIDATE-GID THRU 8300-EXIT
<input checked="" type="checkbox"/> True Result from -> IF SQLCODE = +100
MOVE 'GROUP ID DOES NOT EXIST' TO MESSLINO

# Enterprise Application Viewer (eav™)

## Text Documentation

The text documentation is provided in Adobe PDF format and contains a Table of Contents for easy access. The document produced for each source object consists of several sections that provide details about the object, its Business Rules and its Interfaces to other objects:

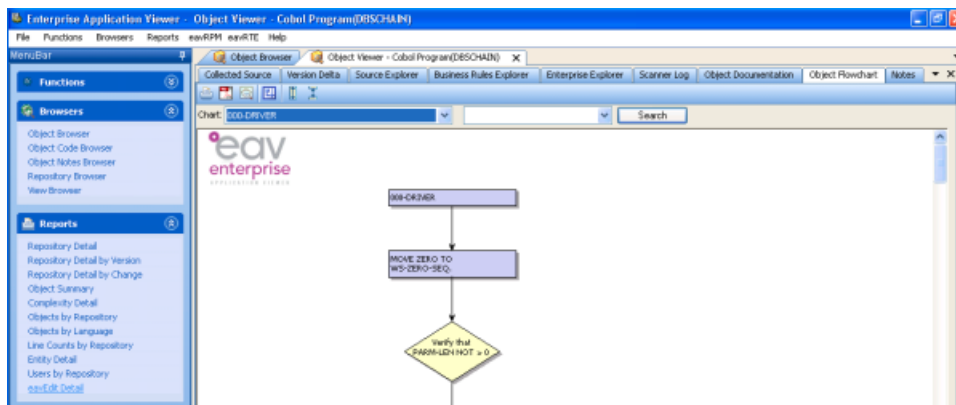
- The Information section provides summary information about the object, its creation and its updates. This information pinpoints those portions of each application that are being changed most often.
- The Listing section shows the source lines for the object, providing line numbers that may be used throughout the documentation for reference.
- The Verb Statistics lists all of the language verbs (MOVE, IF, PERFORM, etc.) that are used in the source object and shows the number of times that each verb is referenced. These statistics help to quickly measure the complexity of a source component.
- The Element Usage Statistics section cross-references each element and the lines of code that reference that element, that reference its higher-level group elements, and that reference its lower-level elements. This information is vital for impact analysis.
- The Dead Element Detail section lists all variables that are defined to the program, not referenced within the program, not contained within any group level element that is referenced, and that do not contain any subordinate elements at are referenced. This provides the necessary information to allow cleanup of elements within the program and assists with impact analysis.
- The Business Rule Detail section lists every paragraph or section in the object along with the English interpretation of the Business Rules contained in that section. This section provides any Business Analyst with the information needed to isolate the business rules and process flow within the application object.
- The External Reference Detail section lists all calls, links, transfers and invokes to other programs or objects so that all interface points are readily available to the analysis teams.
- The Referenced By Detail section shows all calls, links, transfers and invokes that are made from other programs or objects to the current program object. This provides instant information regarding the flow of control to the current object.
- The File Detail section summarizes all database and file access performed by the object. This Database and File Access information assists in any process or impact analysis.

Additional documentation may be included if components such as JCL or Maps are present in the system.

# Enterprise Application Viewer (eav™)

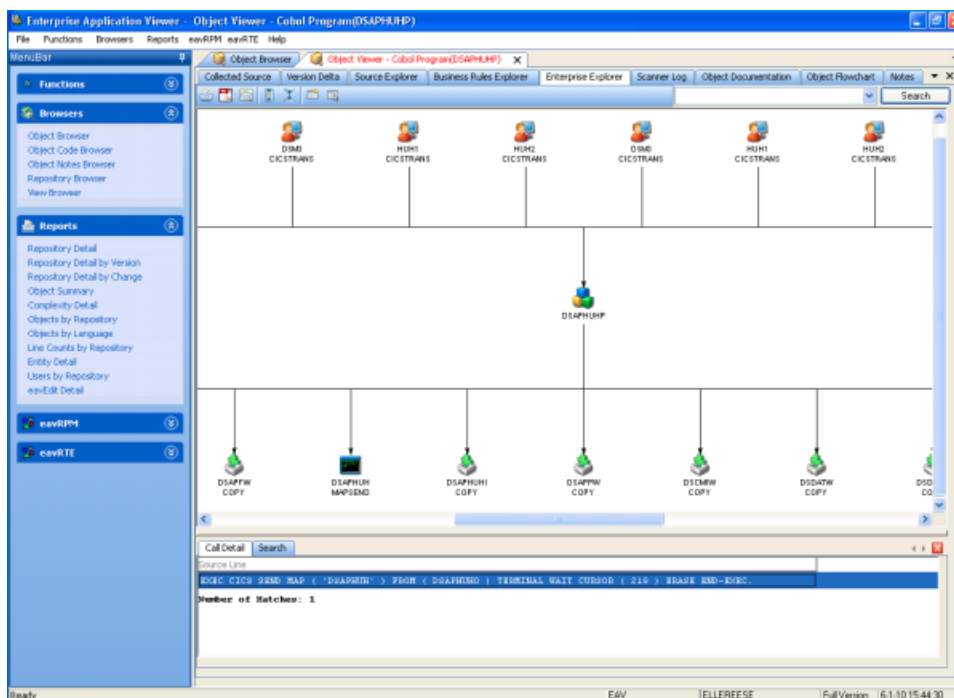
## Program & Application Diagrams

The Object Flowchart is provided as a graphic within a PDF document and also in Microsoft Visio format. The diagrams summarize all of the Business Rules within each program and allow the analysis teams to follow the flow of each program using a pictorial representation. eav provides an overall program flow and individual paragraph flows.



The Enterprise Explorer is a separate workbench that provides a diagram of the inter-relationships between the programs, and provides details on the methods used for inter-program communication.

Because the diagrams are produced in Visio format, they are available to the business, design and development teams for modification when defining enhancements and changes to the programs.

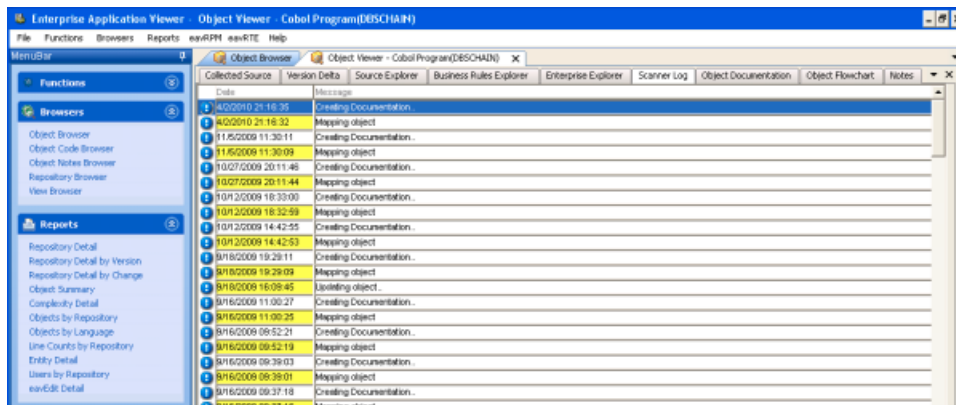




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## Scanner Log

The Scanner Log provides an audit trail of all changes that have been made to each source object over time. This audit trail is automatically updated when any change to the original mainframe source code is detected.



## Auto-Update

Any source program or shared source object can be set for auto-update within the eav. In this mode, the eav engine automatically retrieves any new versions of the source object and creates new up-to-date versions of all of the related documentation. The Version Delta tab highlights the changes between the previous version and the current version.

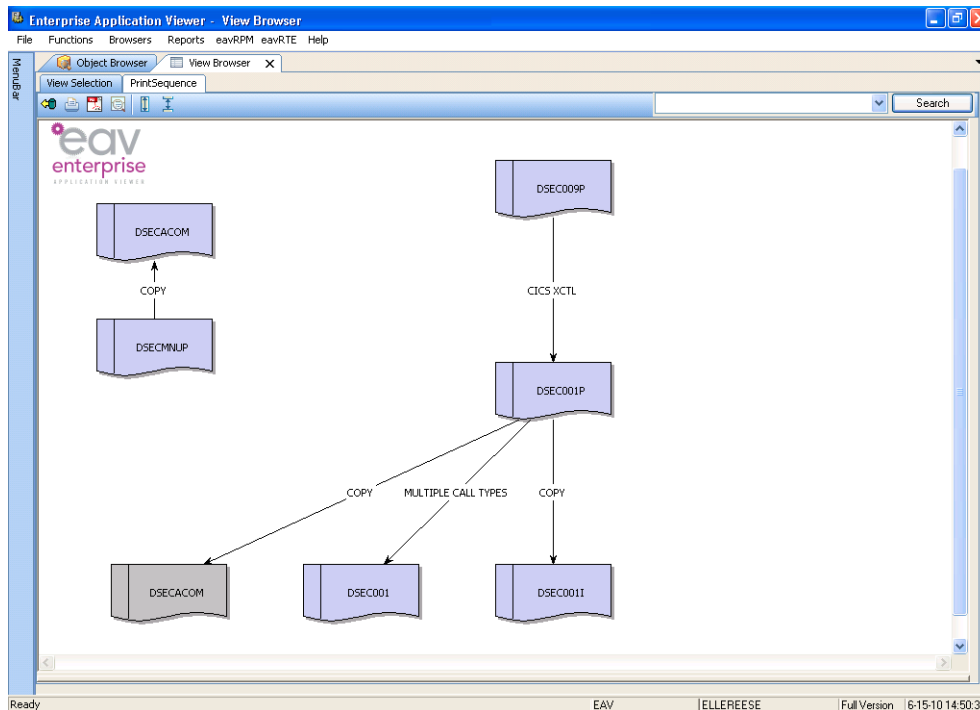
## eavEdit

The eavEdit function allows programmers to edit code within eav, test the code, and then release the code to the production environment. eavEdit is accessed by checking out code on the Collected Source tab of the Object Viewer or by clicking on the eavEdit link under the Functions menu.

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## Logical View Creation

A visual depiction of the interaction between objects can be very helpful to programmers in understanding how a system works. Creating these logical views is easy using eav's View Browser feature. Full control of the view creation is in the hands of the user, allowing them to add objects as desired. The relationships between the selected objects are clearly marked with the commands displayed on the relationship lines and an informative note made be added to be displayed when the mouse is hovered over the relationship. Each object is linked back to itself in the Object Viewer, making the needed information a double click away.



## System-Wide Reports

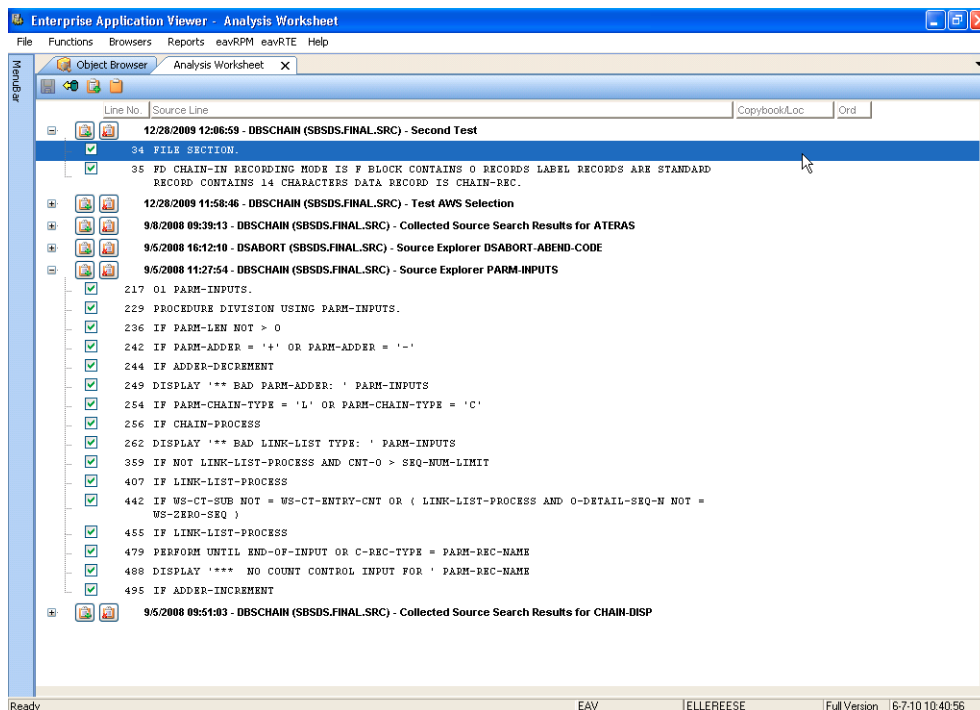
A number of reports can be generated within eav to help with system analysis. These reports may be generated as a PDF, or exported into a variety of file formats for further manipulation such as:

- CSV
- Excel
- XML
- DIF

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## Analysis Worksheet

The analysis worksheet feature of eav can help in saving data for future reference or in exporting data to a spreadsheet for further manipulation. Right click options within the results displayed at the bottom of the code explorers enable copying blocks of code to the analysis worksheet. Once the code is present on the analysis worksheet it may be copied to the computer clipboard for export to other programs. Data on the analysis worksheet may also be shared with other eav users using right click features within the worksheet.



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