

Boosting productivity and quality in COBOL software development

The growing complexity of enterprise applications poses new challenges to application developers. They need tools for software analysis and testing that combine speed and comprehensiveness.

Compuware Xpediter/DevEnterprise is an advanced analysis and testing tool for both COBOL and PL/I that provides an intuitive understanding of application functionality, quick assessment of risk and comprehensive documentation of testing efforts.

Xpediter/DevEnterprise helps IT managers get the most from their resources by taking the guesswork out of determining which code needs to be modified and what the consequences of those changes will be.

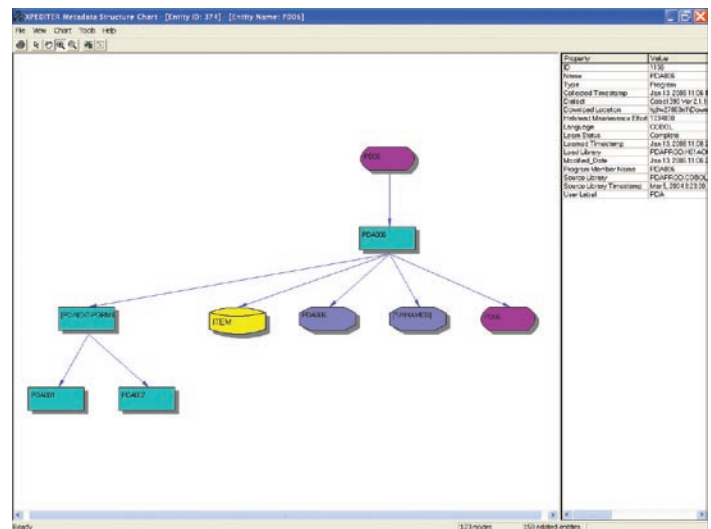
Thorough and easy-to-understand analysis

Xpediter/DevEnterprise allows developers to quickly identify the components of their application and then see the impact of a potential change. For example, a developer could identify all Customer Numbers across multiple applications, then determine how a change to one of them could impact multiple programs and jobs—even in other applications. Not only can you recognize how your change may affect other applications, but you can also understand how other programs may unknowingly impact your application. This will also allow you to discover where sensitive fields are used in your application to help you prepare security measures.

Xpediter/DevEnterprise can also augment program maintenance by identifying code flaws such as unexecuted statements, recursions and potential runaway paths. All of this will result in cost savings by enabling more accurate project estimates, reducing errors in testing and production, decreasing time to market and improving quality.

ID	Name	Type	CHMS Type	Code Division	Other	Desc Type	File Len	Foreign Key	Include	Length	Level	Linkage
1316	APPDCTSYCEMAILADDRESS	Date term					33			120	6	
1317	APPDCTSYCEMAILADDRESS	Date term					36			120	6	
1318	APPDCTSYCEMAILADDRESS	Date term					36			120	6	
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1398	APPDCTSYCEMAILADDRESS	Date term					36			120	6	
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1400	APPDCTSYCEMAILADDRESS	Date term					36			120	6	

The Metadata Analyzer shows all e-mail addresses across applications.



The Metadata Analyzer charts a CICS application.

“DevEnterprise’s Metadata Analyzer has robust query tools that allow developers to find quick answers to how data and other programming elements are related to one another.”
Jeff Oliver, Project Manager, Conseco

For integration and web enablement projects, Xpediter/DevEnterprise assists in identifying key business functions and access points. It can also help you with segmenting programs into separate components for business logic, data access and user interface to simplify access to the application from other platforms.

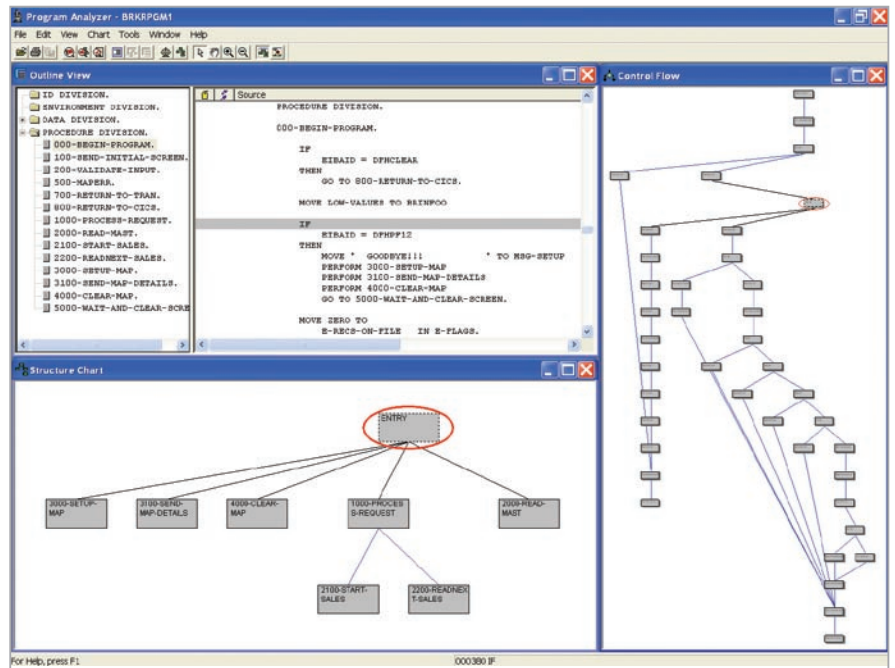
Xpediter/DevEnterprise graphically displays a program’s logical structure, current scope of the testing effort and detail on the percentage of un-executed statements. This information is then combined into the Relative Risk Metric. This makes it possible to assess risk based on quantifiable data and determine if additional testing is required. It also provides the focus on where the additional testing may be needed.

As developers perform their usual iterations of unit, integration and regression testing, Xpediter/Code Coverage sits in the background and collects test execution statistics. Information from batch, IMS and CICS applications populates a code coverage repository. This repository provides the basis for reports documenting the thoroughness of testing activity at the system, test, program and user ID level.

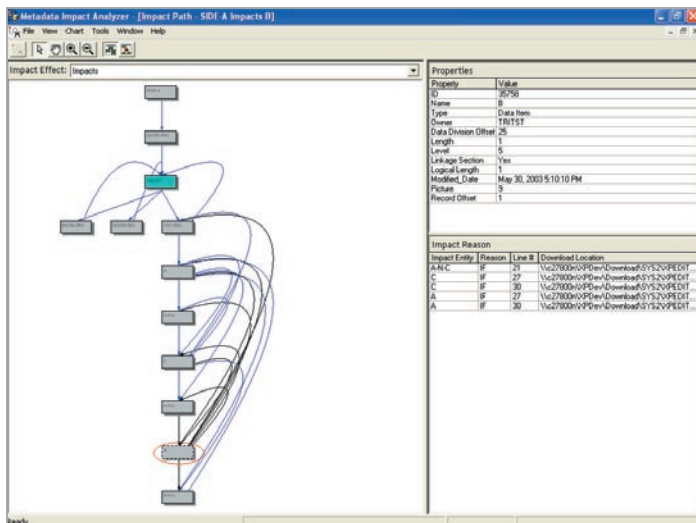
Simple point-and-click navigation makes the Xpediter/Code Coverage functionality easy to use. Color-coded displays of program logic branches indicate the level of code complexity and testing concentration. Xpediter/Code Coverage helps you understand which programs

	Risk	Verbs Executed	Total Verbs	Branches Executed	Total Branches	Filtered Verbs Executed	Fi
System: ORDER	80	493(26%)	1863	111(20%)	562		
Test ID: NEWORDS	93	212(25%)	847	50(18%)	274		
ACMEING (03/20/00-11:07:01) Dpt=N,Debug=N	74	47(24%)	189	4(11%)	34		
ACMEUPD (03/20/00-11:10:53) Dpt=N,Debug=N	90	64(12%)	503	16(8%)	186		
MENU (03/21/00-12:39:02) Dpt=N,Debug=N	71	101(65%)	155	30(55%)	54		
Test ID: CHGORDS	90	232(28%)	827	54(21%)	254		
ACMEING (03/20/00-11:07:01) Dpt=N,Debug=N	68	67(35%)	189	6(18%)	34		
ACMECHG (03/13/00-10:30:52) Dpt=N,Debug=N	84	64(13%)	483	18(11%)	166		
MENU (03/21/00-12:39:02) Dpt=N,Debug=N	71	101(65%)	155	30(55%)	54		
Test ID: DELORDS	64	49(26%)	189	7(21%)	34		
ACMEING (03/20/00-11:07:01) Dpt=N,Debug=N	64	49(26%)	189	7(21%)	34		

Xpediter/Code Coverage provides business function analysis. This screen shows programs affected by adding, changing and deleting an order.



The Program Analyzer shows source, program and paragraph structure charts.



With the Metadata Analyzer, you can locate specific data fields across the application. Impact Analysis shows the movement of fields through multiple programs, even as the fields change names.

The screenshot displays the Code Coverage tool's output as a table. The table has columns for File, Lines, Covered, Hit, Total, Metrics, Critical, Size, Time, and Evaluate. It lists various system components like SYSTEM.BEING, SYSTEM.BOOT, and SYSTEM.CODE, along with their respective metrics and coverage percentages.

Xpediter/Code Coverage displays the Relative Risk Metric.

and specific lines of code are affected when a business function executes. If a section of code is designated as high risk and the modified code contains a critical business function, the need for additional testing would be indicated.

Xpediter/DevEnterprise's continuously updated analysis makes it possible to create and develop test cases that ensure testing of all critical functions of an application before the application is exposed to a wide range of customers, suppliers and business partners.

Integrated tools from Compuware

Xpediter/DevEnterprise provides a complete set of integrated tools for application analysis:

- Metadata Analyzer
- Program Analyzer
- Impact Analysis
- code segment creator
- sophisticated editor.

Xpediter/DevEnterprise documentation with the addition of Xpediter/Code Coverage provides statistical information about each paragraph in a program, helping testing staff decide where to focus time and effort. These include:

- Relative Risk Metric
- Halstead metrics
- McCabe metrics
- filter information
- user-identified data items
- execution counts
- verb types
- percentage of verbs still unexecuted
- execution counts.

Documentation and reports

Developers can generate a complete set of graphical or source-based documentation, including enhanced source listings, data name cross references, structure diagrams and metric reports. Developers and QA analysts can extract information to query using the database of their choice.

Portfolio Analysis

The Portfolio Analysis facility provides the following reports that include necessary information to manage your applications using metrics:

- Halstead metrics
- McCabe metrics
- Diagnostics and code flaws



“To me, Xpediter is a key tool for us, because it makes IT a science rather than an art.”

*Barry Staldine, Vice President
Health Systems, Conseco*

Code Coverage Reporting

The wide range of standardized reports offered by Xpediter/DevEnterprise keeps IT managers up to date on program analysis and test coverage. Generated at the system and program levels, these reports indicate whether testing thresholds have been met. Other reports detail verb and branch coverage.

Developers can generate customized system and program-level reports using filters to specify reporting criteria. Developers and testers use these filters to report ad hoc coverage results on specific sections of source code. They can select code that includes the fields changed, that have been ensuring that altered code is tested.

Using Xpediter/Code Coverage data with the static analysis from Xpediter/DevEnterprise, developers can easily determine how well a given test or series of tests actually exercised parts of a program. Developers are equipped with the flexibility of monitoring the entire program or specific statements, with the ability to view results online. You can save results to a file for further analysis, or export them for record-keeping.

Xpediter®

**Interactive debugging and analysis—
driving high-quality mainframe development, faster.**

Compuware Xpediter combines the automation developers need with the metrics their managers require to move applications quickly—and confidently—into production. Because Xpediter automates the analysis, testing and debugging process, developers make the right changes the first time around, avoiding costly trial and error.

- Interactive mainframe analysis and debugging
- Full application visibility using key metrics
- Solutions for sourcing management, process improvement and legacy modernization

To learn more, visit

www.compuware.com/xpediter

Compuware products and professional services—delivering IT value

Compuware Corporation (NASDAQ: CPWR) maximizes the value IT brings to the business by helping CIOs more effectively manage the business of IT. Compuware solutions accelerate the development, improve the quality and enhance the performance of critical business systems while enabling CIOs to align and govern the entire IT portfolio, increasing efficiency, cost control and employee productivity throughout the IT organization. Founded in 1973, Compuware serves the world's leading IT organizations, including 95 percent of the Fortune 100 companies. Learn more about Compuware at www.compuware.com.

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