

SOLUTION BRIEF

CA Application Quality and Testing Tools

How can CA
Application Quality
and Testing
Tools help you
produce quality
applications?





The integrated CA Application Quality and Testing Tools help customers successfully manage the testing and application performance management components of the application lifecycle. This suite includes solutions for debugging, fault analysis, file and data manipulation, quality assurance and automated application performance management.



executive summary

Challenge

Mainframe applications have continued to increase in importance in the last ten years as organizations expose those applications to Web users via SOA and Web services. Moreover, these applications contain invaluable, heavily customized logic and must often undergo significant updates to enable them to respond to evolving business needs. In addition, the impending retirement of many developers who have years of familiarity with the complex, business-critical mainframe applications they maintain must be addressed.

Opportunity

The CA Application Quality and Testing Tools help application development teams address these challenges by providing integrated solutions designed to automate and simplify the process of finding bugs, logic errors, performance problems and tuning opportunities. These tools speed application testing, help reduce cost and manage risk, and are tightly integrated with CA Endeavor® Software Change Manager (CA Endeavor SCM) to streamline application development. Moreover, new interfaces are enabling current and upcoming generations of developers to use them more effectively.

Benefits

The CA Application Quality and Testing Tools provide key benefits that include promoting application quality and performance, improving the productivity of developers, and simplifying mainframe testing, debugging and application performance management tasks. These tools also help organizations control costs by realizing more value from their investments through comprehensive platform support and technological currency. Other benefits include the ability to exploit opportunities offered by new hardware, including specialty engines, new operating system and subsystem releases, and new database releases.

Section 1: Challenge

Greater productivity, better applications

Application developers are struggling to do more with less as staffs are cut and cut again, so improving their productivity is increasingly important. And as new developers assume responsibility for mainframe applications, they expect to work with Web-based tools that embrace computing paradigms with which they are already familiar. Moreover, integrating mainframe applications with Web-based applications introduces significant new challenges, and testing and application performance become much more critical tasks to help deliver high-quality, Web-facing applications.

Improved integration and automation

Testing and debugging tools have traditionally been justified because they help application developers be more productive. Today, as fewer and fewer developers struggle to keep up with escalating development and maintenance tasks, these tools are especially valuable; most mainframe developers couldn't imagine finding bugs and logic problems without them. But as their workloads grow and their staffs decrease, they require better tool integration, along with expanded automation to help them perform their tasks more quickly and more easily.

A new generation of developers

The next generation of mainframe developers grew up with Web browsers, point-and-click interfaces and multiple Windows. The 3270 green-screen interface so familiar to traditional mainframe developers is very unfamiliar and unattractive to the 'Net Generation.' In order for them to maintain these mainframe applications, they require tools that use the same paradigms they take for granted.

Web-to-mainframe applications

Today, mainframe applications are exposed to Web users throughout the world who have no idea that they are accessing information on a mainframe. But with the great majority of mission-critical data on the mainframe and with decades of customized mainframe business logic embedded in mainframe applications, organizations have invested heavily in connecting their mainframe applications with the Web. These applications typically require significant updates to enable them to respond to evolving business needs.

These trends impact testing and performance analysis in two ways:

- Testing the back-end applications—for example, COBOL, PL/I and Assembler programs—continues to be important in order to confirm that the logic is still correct and to make sure that the code performs properly in the larger composite application.
- The performance of the entire application is critical because Web users expect immediate results, which means that analysts must be able to diagnose performance problems in all components of the composite applications, including the mainframe components. And these analysts are under increasing pressure not only to find and resolve problems quickly but also to proactively anticipate problems before they impact end users.

Section 2: Opportunity

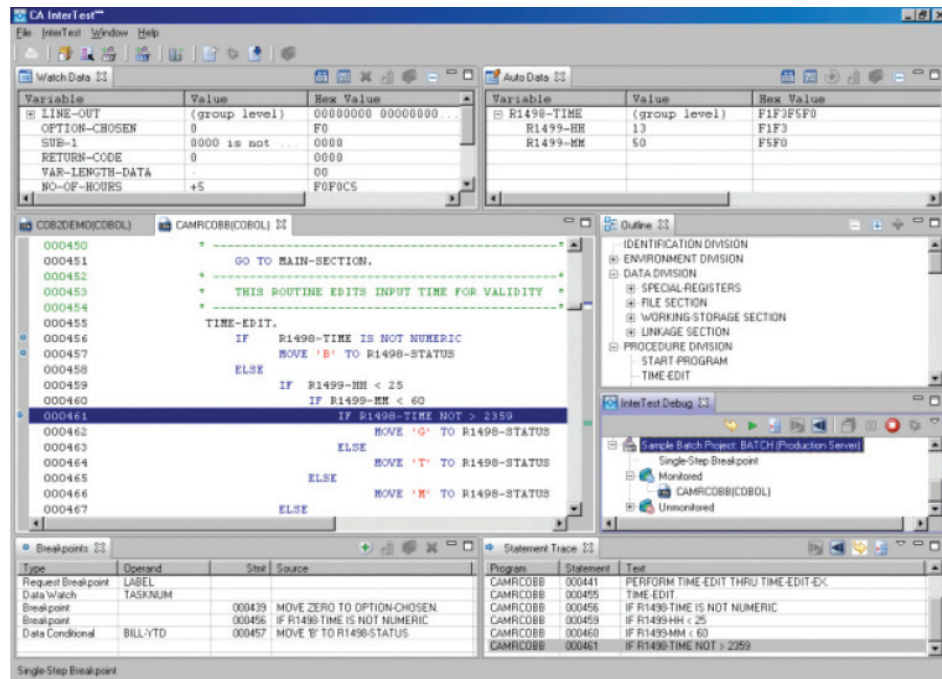
The CA Technologies family of Application Quality and Testing Tools

The family of Application Quality and Testing Tools from CA Technologies is a comprehensive solution designed to address the key challenges facing application developers today:

- **Improved integration and automation:** Integration among the tools helps testers move easily from one task to another—for example, from abend analysis to debugging, or from debugging CICS programs to debugging batch programs. Moreover, these tools automate processes to help speed detection and correction of problems. The tools share a common symbolic file for source listings so that a single set-up step makes symbolic information available to all the testing tools. In addition, the tools integrate with other products from CA Technologies. For example, the Testing Tools integrate with CA Lifecycle Management products—CA Endeavor SCM, CA Librarian® and CA Panvalet®—to streamline program updates and testing and to help users be more confident that they are using the correct version of the program listing whenever a change is made. Integration between CA Mainframe Application Tuner (formerly TriTune® and APC™ for TriTune®) and CA SYSVIEW® Performance Management (CA SYSVIEW) enables CA SYSVIEW to initiate CA Mainframe Application Tuner measurements when it detects an application performance problem.
- **A new generation of developers:** The next generation of mainframe developers grew up with Web browsers, point-and-click interfaces and multiple Windows, not the 3270 green-screen interface so familiar to traditional mainframe developers. For them to maintain these mainframe applications, they require tools that use the paradigms to which they are accustomed. New Eclipse-based graphical interfaces for CA InterTest™ for CICS and CA InterTest™ Batch have already simplified debugging for developers, and those interfaces will soon be extended to the CA SymDump®, CA File Master™ Plus and CA Mainframe Application Tuner products. The CA InterTest interfaces have also been validated by IBM as “Ready for IBM Rational Software,” supporting their integration in an IBM Rational Developer for System z (RDz) environment.

Figure A

The CA InterTest user interface provides an easy-to-use interface for the traditional mainframe user and the new generation of mainframe programmers.



The CA Application Quality and Testing Tools also support CA Mainframe Software Manager™ (CA MSM), the CA Technologies solution that dramatically simplifies and standardizes the acquisition, installation, configuration, deployment and maintenance of our mainframe products. This means a new generation of systems programmers can more easily install and maintain them through an intuitive Web interface.

- Web-to-mainframe applications:** Organizations have invested heavily in connecting mainframe applications with the Web, and therefore the back-end mainframe applications must be thoroughly tested and performance problems in the entire Web-to-mainframe application must be quickly diagnosed and resolved. The Application Quality and Testing tools provide comprehensive testing functionality, from debugging and abend analysis to test data generation and quality assurance. Moreover, our integrated cross-enterprise application performance management solution helps organizations detect and resolve problems quickly and can proactively alert analysts to performance problems before they impact end users.

Key capabilities

Source level debugging

CA InterTest for CICS: This CA Technologies tool for testing and debugging IBM CICS Transaction Server applications is written in COBOL, PL/I, Assembler and Language Environment. This automated testing solution helps you detect and resolve errors interactively as they occur, without having to recompile or end the test session. CA InterTest for CICS delivers significant improvement over manual debugging methods for the IBM CICS Transaction Server and z/OS environments. CA InterTest for CICS supports the latest versions and Web-enablement capabilities found in IBM CICS Transaction Server. With CA InterTest for CICS you can use interactive facilities with your actual source listing for debugging multiple problems within a single session, facilitating problem solving and saving time. In addition to its traditional ISPF-like interface, CA InterTest for CICS offers an intuitive Eclipse-based interface.

CA InterTest Batch: CA InterTest Batch offers powerful debugging capabilities that help you more quickly and easily test batch COBOL, Assembler and PL/I programs, as well as IMS/DC applications and DB2 for z/OS stored procedures—including nested DB2 stored procedures. Its traditional interface is extremely easy to learn and supports ISPF, native TSO and CA Roscoe® Interactive Environment (CA Roscoe) users, and it shares a common Eclipse-based interface with CA InterTest for CICS.

Abend analysis and resolution

CA SymDump® for CICS: CA SymDump for CICS is a comprehensive online facility that lets you diagnose transaction-level failures and internal traces in an IBM CICS Transaction Server environment. CA SymDump for CICS presents dumps in easy-to-read source statement format. Like CA InterTest for CICS, it generates an automatic breakpoint display at the source statement that triggered the abend. CA SymDump for CICS is essential in resolving problems in production where it is not practical for CA InterTest for CICS to monitor all programs. CA SymDump for CICS is also helpful in resolving sporadic problems that cannot be easily re-created. Like CA InterTest for CICS, CA SymDump for CICS supports the latest versions and Web enablement capabilities found in IBM CICS Transaction Server. It also supports COBOL, Assembler and PL/I and includes detailed database information for abending IMS and DB2 for z/OS applications.

CA SymDump® Batch: CA SymDump Batch provides comprehensive diagnostic information for batch abends in both test and production environments. Its symbolic support makes it easy for you to resolve abends without having to decipher hexadecimal dumps. It supports COBOL, Assembler and PL/I symbolically and includes detailed database information for abending IMS for z/OS, DB2 for z/OS and CA IDMS™/DB database applications.

CA SymDump® System: CA SymDump System provides comprehensive abend diagnostic information for z/OS systems in both test and production environments. CA SymDump System automatically captures and reports on all system dumps from any job, with specific environmental information for z/OS, IBM CICS Transaction Server, IBM MQSeries, JES2, DB2, IMS, CA Datacom®/DB and CA Roscoe. CA SymDump System produces both summary and detailed reports, and formats storage areas and control blocks to help you quickly diagnose and correct problems using either the menu-driven ISPF interface or the optional Web interface.

CA Optimizer®/II: CA Optimizer/II is an integrated tool that improves the various phases of the IBM COBOL for OS/390 and IBM Enterprise COBOL for z/OS development process—from developing to

testing to production. The three components of CA Optimizer/II—Optimizer, Detector and Analyzer—can improve system performance, programmer productivity and program dependability. Features include automatic object code optimization, source-level tuning facilities, testing and debugging facilities, statistical reports and quality assurance facilities.

File viewing and manipulation

CA File Master™ Plus: CA File Master™ Plus is the CA Technologies file and data manipulation tool for z/OS test and production environments. It is designed to help you more easily browse and edit data, make quick changes to production or test files, compare two file versions, define and populate test files, and more efficiently manage data sets and PDS members. CA File Master™ Plus supports online and batch functions for sequential files, PDS members, VSAM files, as well as IAM as an alternative to VSAM, and it allows you to work either interactively via ISPF or by issuing batch commands.

CA File Master™ Plus for IMS: CA File Master™ Plus for IMS is a file management and data manipulation tool for IMS test and production environments. It is designed to help you more easily browse and edit data, make quick changes to production or test files, define and populate test files, and efficiently manage IMS data segments. CA File Master™ Plus for IMS allows you to work either interactively via ISPF-like functionality or by issuing batch commands. The learning curve of CA File Master™ Plus for IMS is easy because it shares similar design elements and architecture with CA File Master™ Plus.

CA RC/Update™ for DB2 for z/OS: CA RC/Update for DB2 for z/OS (CA RC/Update) provides a development environment for the application developer, an editor and data copy feature for the end user, and sophisticated object management facilities for the DBA. It enables you to create and maintain DB2 objects, edit, browse, compare, and copy DB2 data, and test embedded SQL in programs. The product also provides an easy-to-use, intuitive process for inserting, deleting, and modifying data in referential structures.

Test data generation, date simulation and file aging

CA Datamacs™ Test Data Generator: CA Datamacs Test Data Generator (CA Datamacs) creates test data from existing files, from CA Datacom®/DB, CA IDMS™/DB and IMS for z/OS databases, or from scratch. Only a few simple entries are necessary to generate comprehensive and meaningful test data. With CA Datamacs you can test your programs more thoroughly and discover errors earlier when they are easier and less expensive to resolve.

CA Date Simulator: CA Date Simulator is an automated tool that enables simulation of sensitive dates and times during testing processes by allowing for virtual reset of the z/OS system clock to any date. CA Date Simulator enables you to more thoroughly test the accuracy of applications that perform date-driven processing logic and rely on accurate system time management.

CA FileAge: CA FileAge is a date field management product that ages date fields, converts fields to a new format, and analyzes data to locate date fields. It provides the ability for periodic incrementing of date fields in quality assurance, application training and product demonstration databases to help provide date field currency. It also enables efficient conversions of date field size and format to new record formats without the need for manually created conversion programs.

Automated quality assurance testing

CA Verify® Automated Regression Testing for CICS; CA Verify Automated Regression Testing for VTAM: CA Verify for CICS and CA Verify for VTAM are the CA Technologies tools for automating application and system testing. You can use these tools to perform numerous types of testing, including unit, regression, stress, concurrency, migration and system. With these tools you can more thoroughly test new or revised application and system changes to help reduce production problems. They also help you streamline major system changes such as z/OS, IBM CICS Transaction Server or TSO upgrades and system maintenance.

Automated application performance management

CA Mainframe Application Tuner (formerly TriTune and APC for TriTune): CA Mainframe Application Tuner is an automated, drill-down application performance management solution for z/OS systems that provides measurements that track the performance of mainframe applications. It includes the Performance Management Assistant, the automation and data mining engine for performance tracking and large-scope analysis. Running in the background, it can watch over your environment for poorly performing applications and automatically initiate CA Mainframe Application Tuner measurements. CA Mainframe Application Tuner pinpoints application program delays and presents this information for analysis through an easy-to-use interactive interface. CA SYSVIEW can automatically initiate CA Mainframe Application Tuner measurements when it detects an application performance problem so that analysts have the drill-down data they need to quickly resolve the issue.

Section 3: Benefits

Faster, easier path to quality applications

The CA Application Quality and Testing Tools provide key benefits that include improving application quality, helping to achieve reliable application performance, and helping organizations control costs and reduce risks.

Improving application quality

Well-tested applications perform better in production and help organizations meet the evolving needs of their internal and external customers. Because mainframe applications are typically very complex, automated tools can help programmers identify and correct problems that they might otherwise miss. The integrated CA Application Quality and Testing Tools solution helps developers with key phases of testing, from finding bugs and analyzing abends to creating test data, updating files and databases, and performing QA tests.

Reliable application performance

Meeting Service Level Agreements (SLAs) is a key requirement for application development managers. When internal applications suffer from poor performance or—even worse—are unavailable, employees cannot work productively. Because most organizations are struggling to do more with fewer staff, reduced productivity is unacceptable. When external applications perform poorly, the impact on the organization is even greater. Customers who cannot access a Web application on one site may turn to a competitor's site—and they may never return. The financial impact of poorly performing business applications can be very significant.

The CA Technologies automated and integrated cross-enterprise Application Performance Management solution helps analysts quickly detect and resolve performance problems. CA Mainframe Application Tuner plays a key role in this solution by giving analysts the drill-down details that help them more quickly identify the line of code or SQL where the problem exists and by identifying potential tuning opportunities that can save money.

Controlling costs and reducing risks

It is widely accepted that the earlier problems are found during application development, the less it costs to correct them. Automated testing tools help developers find problems in test rather than in production where they can be very costly to resolve. Applications with errors can also pose risks; for example, logic errors that are challenging to detect may produce erroneous and damaging results. By helping developers find these errors and prevent problems, the CA Application Quality and Testing Tools help organizations control application development costs and reduce risks.

Section 4:

The CA Technologies advantage

CA Technologies has 30 years of recognized expertise in robust, reliable, scalable, and secure enterprise-class IT management software. The Application Quality and Testing Tools are a key component of the Mainframe 2.0 initiative from CA Technologies to change the way the mainframe is managed forever by helping you maximize the value of our mainframe products and by providing a simplified experience and innovative solutions that deliver value more quickly and flexibly.

An integrated application lifecycle

The CA Application Quality and Testing Tools are an integral component of the CA Application Lifecycle Management solution, which also includes industry-standard products for application development, software change management and workload automation. Integration among components—for example, between the testing tools and CA Endeavor SCM, and between CA SYSVIEW and CA Mainframe Application Tuner—helps speed application development and problem resolution.

Preparing for a new generation of developers

The CA Application Quality and Testing Tools benefit from the CA Technologies commitment to practical innovation that will help a new generation assume responsibility for mainframe management and mainframe applications. Eclipse-based interfaces have already simplified the use of our debugging products, and these interfaces will soon be extended to our abend analysis, file and data management and performance management products. Moreover, the CA Application Quality and Testing Tools support CA MSM, which automates and simplifies their installation and maintenance. CA MSM enables organizations to more quickly take advantage of new releases and maintenance and helps a new generation assume responsibility for supporting these products.

Services, education and support

Go Live with CA Technologies integrates Services, Education, Support, Partners and Communities in a seamless process to help you get started quickly, successfully deploy CA technology, and continue to expand the value from your initial deployment. A highly knowledgeable support team is available to help organizations implement the CA Application Quality and Testing Tools, achieve a successful deployment and get the desired business results as quickly as possible. CA Technologies field-proven mainframe best practices and training help you lower risk, improve use/adoption and ultimately align the product configuration to your business requirements. CA Technologies has been successful in converting many customers from competitive tools to our Application Quality and Testing Tools and our services team leverages that experience to help make each conversion as fast and easy as possible. Formal education classes available in a classroom setting or via the Web help new users quickly become effective. Dedicated 24x7 support is available not only to resolve problems but also to answer questions and help you be successful with the CA Application Quality and Testing Tools.

Section 5:

Next steps

The CA Application Quality and Testing Tools are an integrated set of easy-to-use tools that enhance mainframe application quality and reinforce testing best practices. The tools include solutions for debugging, fault management, file manipulation, test data generation, regression testing and automated application performance management, and address quality requirements across a spectrum of programming languages and database platforms in both batch and IBM CICS Transaction Server environments. These tools speed application testing and help you reduce cost, improve quality and manage risk throughout the application life cycle.

To learn more about how CA Application Quality and Testing Tools can help you build quality into your application development cycle, visit ca.com/appquality.

CA Technologies is an IT management software and solutions company with expertise across all IT environments—from mainframe and distributed, to virtual and cloud. CA Technologies manages and secures IT environments and enables customers to deliver more flexible IT services. CA Technologies innovative products and services provide the insight and control essential for IT organizations to power business agility. The majority of the Global Fortune 500 rely on CA Technologies to manage their evolving IT ecosystems. For additional information, visit CA Technologies at ca.com.