

IBM CICS Performance Analyzer for z/OS, Version 5.4

Highlights

- IBM® CICS® Performance Analyzer for z/OS® (CICS PA), V5.4 provides comprehensive CICS Transaction Server (CICS TS) performance analysis and reporting
- Intuitive CICS Explorer® interface with application-centric view, customizable sheet views, in-depth analysis, powerful navigation, data filtering, and more
- Over 250 customizable report forms
- Batch reporting for more than 95 CICS TS and CICS Transaction Gateway (CICS TG) statistics
- Transaction tracking and transaction profiling reports
- Trending and capacity planning with historical database
- Statistics and performance alerts for early awareness of issues
- Faster problem resolution and elimination of system bottlenecks
- Ability to uncover trends that can lead to poor performance and outages

Understand and optimize CICS performance

As your business strives to compete in a challenging economic environment, your IT teams are under pressure to operate their systems at peak levels and within budgets. By using agile IT strategies, such as DevOps, cloud, RESTful services, event processing, and dynamic scripting you can benefit from today's mobile revolution. However, these strategies place even greater demands on your mission-critical CICS applications, increasing the risk of failure to comply with service-level commitments. To mitigate this risk, while keeping control over costs, your IT processes should include performance management to help ensure continued customer satisfaction.

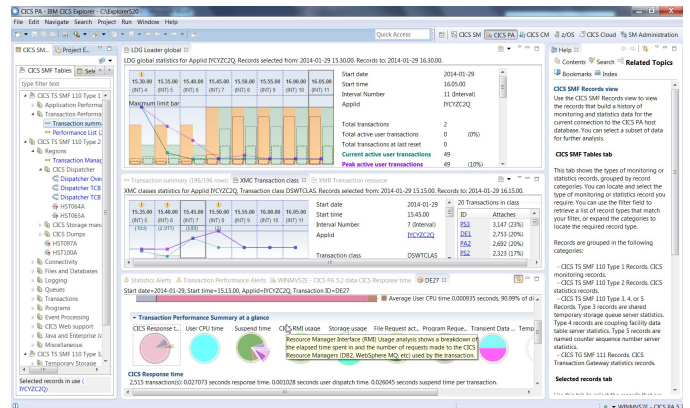


Figure 1 Performance metrics in CICS PA plug-in

CICS PA V5.4 supports all the IT service management processes that require a good understanding of CICS performance, from capacity planning and problem management to service-level management and system tuning.

Whether you plan, build, deploy, or manage complex mainframe CICS applications, the ease of use, level of detail, and flexibility of CICS PA make it easy for you to find new ways to improve CICS system performance, reduce maintenance costs, and strategically plan IT investments.

New in this release

- Support for CICS TS V5.4
- New transaction tracking reports for the new ASYNC API capability in CICS TS V5.4
- New CICS PA CPU and response time intensity derived fields
- Support for ORDER option in statistics summary report
- Ability to create CSV extracts by using statistics summary forms and statistics list forms
- Ability to export statistics data from multiple CICS TS and CICS TG releases into the same IBM DB2® table
- Symbolic variable representing week number for cyclic data sets

Performance management disciplines and the tools that support them are key components of successful IT service delivery processes. Good performance tools turn data into information and provide your team with the understanding they need to assess the impact of change, spot trends that might lead to poor CICS performance, and take rapid action to minimize any downtime or performance degradation, if problems do occur.

Performance tools also contribute to optimizing IT-resource usage and help you meet today's service-level agreements while supporting capacity planning exercises to satisfy future demands.

CICS PA is an offline performance analysis tool that combines ease of use, flexibility, and the level of detail required to meet the performance challenges of businesses today.

Designed to accurately detail how your enterprise uses CICS resources, CICS PA provides detailed reports and views of all aspects of CICS system and application performance, while helping you collect and manage historical performance data.

CICS system programmers and performance specialists can tailor these reports to access the critical data they need, quickly. Along with application developers, they can all benefit from the intuitive selection, tabular, and graphical views when using the CICS PA plug-in for the CICS Explorer (see Figure 1). CICS PA helps you gain the insight you need to manage CICS systems effectively, and enhance their function and efficiency.

With CICS PA, you can:

- Produce regular reports for ongoing performance management.
- Run performance reports to analyze fluctuations in transaction volume
- Identify the effect of new applications on your CICS systems.
- Improve the productivity of CICS systems by knowing when to increase resource availability during high demand cycles.
- Estimate system and resource requirements to prepare for enterprise growth.
- Avoid online problems by using alerts to highlight developing performance issues.

- Give developers access to performance information with the CICS PA plug-in for the CICS Explorer.

CICS PA can help you discover new ways to improve CICS system performance, lower maintenance costs, and strategically plan IT investments.

Complete view of your CICS systems performance

The reports and views provided by CICS PA are designed to enable comprehensive analysis of your CICS systems — with a detailed overview of transaction volume and performance — so that you can evaluate resource usage and forecast demands accurately. CICS PA's analysis programs use the performance and accounting data written to IBM z/OS System Management Facilities (SMF) data sets to generate reports.

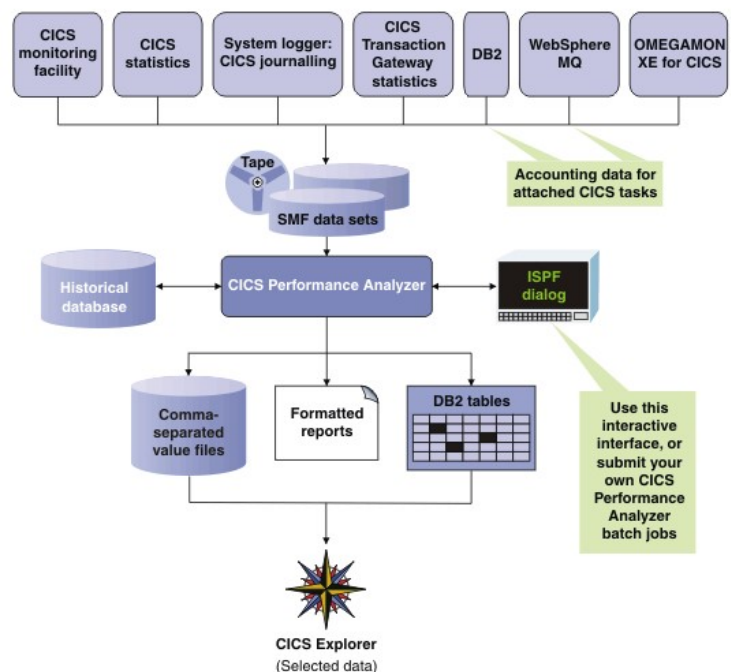


Figure 2 CICS PA provides consolidated reporting of all CICS-related metrics.

This data includes information collected by CICS Monitoring Facility (including IBM IMS™ data), CICS Statistics and CICS Server Statistics, CICS TG for z/OS statistics, DB2 for z/OS, IBM MQ, and the z/OS System Logger. CICS PA also includes support for the new and updated performance metrics and statistics introduced in CICS TS V5. See Figure 2 for a diagrammatic representation of the information flow in CICS PA.

CICS PA collects performance and statistics data about a wide variety of CICS system and application resource usage, including:

- CICS TS V5 applications and platforms
- Asynchronous service
- Atom feeds
- Business events
- Channel usage by programs and containers
- CICS web support
- Data mapping conversion
- Files and databases
- Java™ Virtual Machine (JVM)
- Journal and log streams
- Resource signatures
- Secure Sockets Layer (SSL)
- Task control block (TCB)
- Temporary storage and transient data
- Terminals and basic mapping support
- Transactions and programs
- Virtual storage and Dynamic Storage Area (DSA)
- MQ Monitor and Connections
- Monitoring and dispatcher
- Web services and web services addressing

CICS PA also supports the SMF 112 records generated by IBM Tivoli® OMEGAMON® XE for CICS, and the user fields added by OMEGAMON XE for CICS into SMF 110 performance records. With this data, you can produce CICS PA reports that detail your applications' use of third-party databases, such as Adabas, CA-Datcom, SUPRA, and CA-IDMS. You can also use the data to report on those transactions that have exceeded Tivoli OMEGAMON XE resource limiting thresholds.

Visualize performance with CICS Explorer

The CICS PA plug-in for the CICS Explorer makes it even easier for you to analyze your CICS performance data. The CICS Explorer enables users with broader and less-specialized skills to access the power of CICS PA, and deliver additional value when it is used in conjunction with other CICS tools.

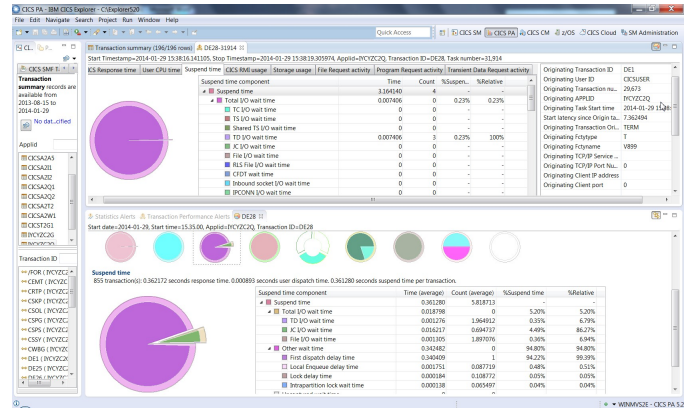


Figure 3 CICS PA plug-in with linked performance views

The CICS PA plug-in provides intuitive navigators, selectors, and tabular and graphical views with access to over 450 CICS performance metrics. Over 95 statistics classes are also provided, giving you even more insight into the performance of your CICS system, enabling analysis of CPU, response time, TCB usage for threadsafe analysis, storage, VSAM file, DB2, and IBM MQ usage, and many other resources. You can use statistics alerts to find out when key metrics start to get out of line.

The CICS PA plug-in for the CICS Explorer includes selectors, navigators, and views to display over 95 statistics classes, grouped in more than 20 categories (see Figure 4).

With the CICS PA plug-in you can quickly create CSV files from subsets of your DB2 data sources, so that you can analyze your CICS system offline, share data with other users, or provide a benchmark for comparison.

Developers and systems staff can use the plug-in to view transaction performance alerts and statistics alerts, through which you can access detailed visualization and analysis of the complex metrics related to the alert. Alerts are linked to the raw performance list record. Standard layout templates select and organize the key information to show the type of alert from more than 450 available metrics.

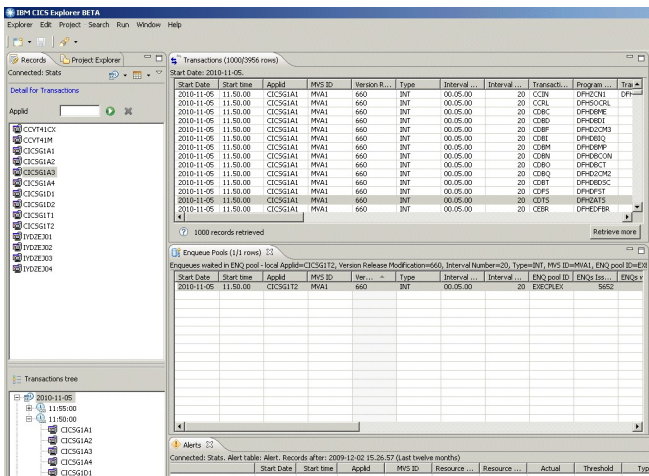


Figure 4. CICS PA plug-in with linked statistics views

Visualization of both performance intervals and individual transactions includes pie charts and time-series graphs, context information about the transaction such as alert, web service and transaction context, along with transaction origin and previous hop data. Hover help is available in addition to detailed contextual help. This advanced visualization and guidance can help development and systems staff, including those who are new to CICS, to understand complex CICS performance metrics and bottlenecks. It also helps to identify and resolve performance issues quickly.

Links between statistics alerts and the related statistics records, combined with built-in contextual links to related classes, help you find out what's going on more quickly. For example, you can link directly from a specific transaction class record to all transaction records for that class (see Figure 3). Statistics records can also be used to provide context when linking to performance records.

Contextual linkage between the CICS Explorer and the plug-ins for CICS PA, CICS Configuration Manager (CICS CM), and CICS Interdependency Analyzer (CICS IA), provides a rich, integrated, problem-solving experience.

Build reports and extract data

CICS PA comes with more than 250 standard reports designed to meet your reporting and analysis objectives. You can easily tailor these reports to your specific requirements or create your own reports using an easy-to-follow Interactive System Productivity Facility (ISPF) dialog. The ISPF dialog also enables you to view statistics online, and create and manage a historical database for trend analysis

and capacity-planning purposes. You can then submit your report requests as part of a job-scheduling or automation process.

The ISPF dialog allows reports to be generated as PDF files, making it even easier to share reports with other users (see Figure 5).

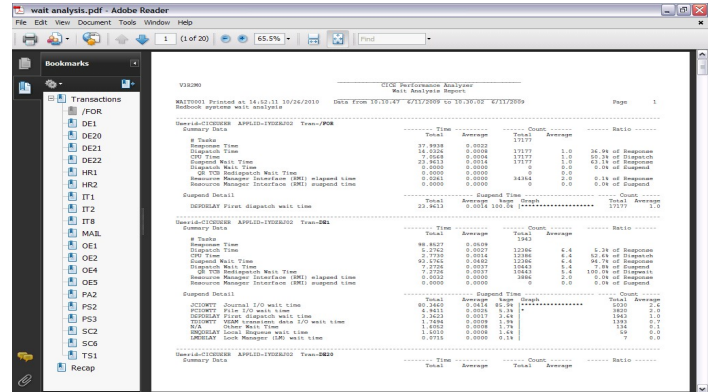


Figure 5. Sample PDF with bookmarks for each transaction

Using the information produced by just a few of the many standard CICS PA reports (see Figure 6), you can:

- Create transaction tracking reports for monitoring and measurement of transaction performance from the perspective of transaction flow.
- Identify potential sources of performance bottlenecks using performance wait-analysis reports.
- Analyze CICS, CICS Server, and CICS TG statistics online and with the CICS PA plug-in for the CICS Explorer.
- Use distribution reports to help you understand the range of a transaction response time for performance problem determination.
- Evaluate the performance of CICS applications and platforms, introduced in CICS TS V5.
- Analyze external subsystems use by CICS systems, including DB2 and IMS databases.
- Use z/OS system-logger reports in conjunction with CICS logger reports to provide a comprehensive analysis of the log-stream activity for all your CICS systems.
- Understand how well your CICS transactions meet your response-time goals, using IBM z/OS Workload Manager reports.

Using report sets, report forms, and object lists gives you the flexibility to tailor the format and content of your reports and data extracts. You can report performance data by individual or grouped transactions, by application, or by terminal. You can group similar transaction data — for example, all transactions from a specific application — to deliver quick, relevant processing and report generation.

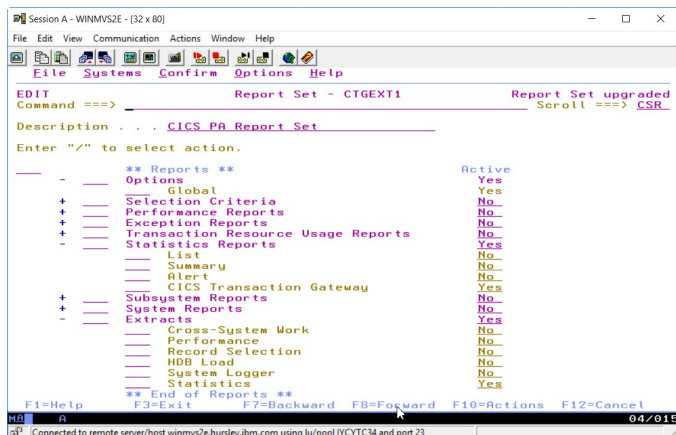


Figure 6. Use the report set menu to select reports and extracts

Consolidated, *transaction-group* reports help you gain a better perspective of the whole system. You can also select and sort records, and customize and format reports to fit your preferences. With CICS PA, you get relevant, useful information presented in a way that improves your ability to plan and communicate your resource needs effectively.

List reports for CICS TS and CICS TG statistics can be created, providing a wealth of valuable diagnostic and planning information for all DevOps roles. These reports are simple and flexible, and can be customized to include key metrics and the order in which they appear on the report. Powerful filtering capabilities enable selection criteria to be applied, based on pre-defined statistics alert thresholds.

Performance and statistics *alert* reporting automates the generation of batch reports that highlight occasions when key CICS performance or statistics metrics exceed specified thresholds. You define the conditions that interest you in terms of field values of CICS TS performance and statistics records, or CICS TG statistics records, and use those conditions to report on performance and statistics stored in SMF files or historical databases.

IBM offers extensive online help and detailed documentation for CICS PA, making it easy to tailor your reports — such as setting format and content — to present the information you need, when you need it.

Scenario: Discover CICS performance trends

CICS PA provides a powerful historical database (HDB), which you can use to accumulate the performance data you want at the level of detail you need for reporting over long periods, without requiring large amounts of storage or processing time. You can then produce reports from the HDB instead of the SMF data sets. You can also extract selected performance data from the HDB to DB2 tables for use by the CICS PA plug-in for the CICS Explorer, or to CSV files, which can be generated from the plug-in.

This flexible facility helps you collect and manage historical performance data for your CICS systems and enables you to retrieve and analyze historical data easily.

The CICS PA historical database function provides:

- Short-term history data, detailing individual transaction performance to use in performance problem analysis.
- Long-term history data summarized over time, which can be used for trend analysis and capacity planning.
- Statistics history data for use in performance analysis and reporting.
- A powerful and flexible definition facility for historical data repositories.
- Comprehensive reporting facilities.
- A facility to export and load historical data into DB2 databases to analyze and generate reports, using DB2 reporting tools, such as IBM Query Management Facility™.

The CICS SupportPac CP12 is available online, from ibm.com/cics/panaly/support/, to enable you to easily export CICS statistics or performance data to a DB2 table or CSV file. SupportPac CP12 provides sample macros for using that exported data to create reports and charts using PC-based tools.

Scenario: Evaluate and improve system performance

CICS PA facilitates cross-system performance evaluation. You can analyze CICS systems that

employ multi-region operation (two or more discrete CICS systems communicating together), advanced program-to-program communication (APPC), and DB2 subsystems. By identifying exception events that cause performance degradation, CICS PA can help you to reduce maintenance costs and save you time.

An online statistics-reporting facility is available through the CICS PA ISPF dialog. This facility enables you to conduct comprehensive analysis and reporting of CICS statistical data, either directly from an unloaded SMF data set or from a CICS PA HDB. The online statistics-reporting facility includes the following features:

- Tabular reporting and sorting by field (column)
- Forms you can use to design personalized reports
- Hyperlinks you can use to jump directly to related reports
- A print facility, either to a data set or to SYSOUT

CICS PA complements your online monitoring tools, such as IBM Tivoli® OMEGAMON® XE for CICS. You can respond quickly to online performance issues, because CICS PA can interrogate detailed CICS performance data to identify the cause of the problem. CICS PA also complements the enterprise-wide, historical-performance capabilities of Tivoli Decision Support for z/OS with more detailed CICS performance data. These tools and capabilities can be used to focus on issues such as CICS performance problem determination, bottleneck analysis, tuning, and capacity planning.

CICS Tools — your pathway to success

CICS PA is one of the four core foundational CICS tools that exploit and augment the latest operational efficiency and service agility enhancements in CICS TS V5.4 in a way that positions you for the next transformational era in technology. Its use can help to move you towards providing a service delivery platform for cloud computing.

CICS Tools can help you to optimize your CICS resources and achieve greater capacity and improve the availability of your critical enterprise systems. Their powerful automation capabilities can speed service delivery, improve standardization, and reduce risk, while rich discovery, advanced visualization, and comprehensive reporting provide the insight needed to ensure that your applications run smoothly and changes are efficient and reliable.

Support for the application and platform resources introduced in CICS TS V5 help you to achieve value from the new version of CICS more quickly. The CICS Tools include modern interfaces integrated with CICS Explorer, helping both new and experienced IT personnel to be more productive with minimal training delay. Foundational enhancements continue to extend the Tools capabilities in many areas.

Aside from CICS PA, other core foundational CICS Tools are:

- IBM CICS Configuration Manager for z/OS V5.3
- IBM CICS Deployment Assistant for z/OS V5.3
- IBM CICS Interdependency Analyzer for z/OS V5.3

For more information

To learn how you can enhance the performance of your CICS systems using CICS PA, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/products/en/cics-panaly

For hardware and software requirements, go to the System requirements tab of this web page.

To learn more about other IBM CICS Tools, visit:

ibm.com/software/data/enterprise-application-servers/cics/products/tools/

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