

# **Energizer® for CICS**

## **User Guide**

**Version 4.2**

**July 6, 2001**



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  - license number and password (trial or permanent)
- operating-system and environment information
  - machine type
  - operating system type, version, and service pack or program temporary fix (PTF)
  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or PTF
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as `file system full`
  - messages from related software

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# About This Book

This book contains detailed information about Energizer<sup>®</sup> for CICS and is intended for system administrators, application programmers, and database administrators.

To use this book, you should be familiar with the following items:

- Customer Information Control System (CICS)
- Multiple Virtual Storage (MVS) systems, job control language (JCL), and the Interactive System Productivity Facility (ISPF)
- Virtual Storage Access Method (VSAM) and the access method services utility (IDCAMS)

## How This Book Is Organized

This book is organized as follows. In addition, a glossary of terms and an index are included at the end of the book.

<b>Chapter/Appendix</b>	<b>Description</b>
Chapter 1, "Overview"	provides a description of the product's functions, structure, and architecture.
Chapter 2, "Installation"	provides step-by-step instructions for installing the product components.
Chapter 3, "Customizing Energizer for CICS"	describes the product's function parameters and default values.
Chapter 4, "Starting and Stopping Energizer for CICS"	explains how to automatically and manually activate product components.
Chapter 5, "Online Reporting Facility"	describes how to use the online reporting facility to review the information created by the product

Chapter/Appendix	Description
Chapter 6, "Batch Reporting Facility"	describes the product's batch reporting features
Chapter 7, "Guidelines"	provides an in-depth description of the product's function parameters and default values
Chapter 8, "PC Graphic Analysis Facility"	describes how to install the application on a PC and produce reports
Chapter 9, "How to Evaluate Energizer for CICS"	outlines a typical evaluation process
Appendix A, "Sample Member Names"	provides sample, procedures, JCL, and copy books
Appendix B, "Summary of Installation Steps"	summarizes the steps required to install the product.
Appendix C, "Customization Checklists"	summarizes the steps required to customize the product for your environment

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Category	Document	Description
Installation documentation	<i>OS/390 and z/OS Installer Guide</i>	provides installation steps and describes AutoCustomization procedures
Installation documentation	<i>MAINVIEW Installation Requirements Guide</i>	describes the product's software and storage requirements
User documentation	<i>Energizer for CICS Messages and Codes Guide</i>	provides information about the various messages issued by the product
Other documents	<i>Energizer for CICS Release Notes</i>	describes product enhancements and fixes included in the current version of the product

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## Online Help

The Energizer for CICS product includes online Help. In the Energizer for CICS ISPF interface, you can access Help by pressing F1 from any ISPF panel.

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## Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example). The latest versions of the release notes and other notices are available on the Web at <http://www.bmc.com/support.html>.

## Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

### General Conventions

This book uses the following general conventions:

Item	Example
information that you are instructed to type	Type <b>SEARCH DB</b> in the designated field. Type <b>search db</b> in the designated field. (Unix)
specific (standard) keyboard key names	Press <b>Enter</b> .
field names, text on a panel	Type the appropriate entry in the <b>Command</b> field.
directories, file names, Web addresses	The BMC Software home page is at <b>www.bmc.com</b> .
nonspecific key names, option names	Use the <b>HELP</b> function key. <b>KEEPDICTIONARY</b> option
MVS calls, commands, control statements, keywords, parameters, reserved words	Use the <b>SEARCH</b> command to find a particular object. The product generates the <b>SQL TABLE</b> statement next.

---

Item	Example
code examples, syntax statements, system messages, screen text	<pre>//STEPLIB DD</pre> <p>The table <i>table_name</i> is not available.</p>
emphasized words, new terms, variables	The instructions that you give to the software are called <i>commands</i> .

This book uses the following types of special text:

**Note:** Notes contain important information that you should consider.

**Warning!** Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

**Tip:** Tips contain useful information that may improve product performance or that may make procedures easier to follow.

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# Chapter 1 Overview

Energizer for CICS is an innovative software product that maximizes CICS performance and availability by dynamically matching the CICS system environment to the current CICS workload. It provides significant resource savings with optimal CICS performance 24 hours a day, no matter what the transaction mix or workload.

Energizer for CICS provides the following key benefits:

- reduces CPU utilization and resources for all workloads, thereby dramatically increasing throughput
- reduces real storage usage, consequently improving CICS performance plus providing additional resources
- improves real-time system availability by eliminating bottlenecks, lockouts, and sympathetic outages
- provides spare CPU resources at peak demand periods, thereby meeting performance expectations
- matches the workload to available resources, thereby eliminating over commitment of resources and the resulting degradation of response time
- eliminates CICS program compression problems

## Energizer for CICS - How it Works

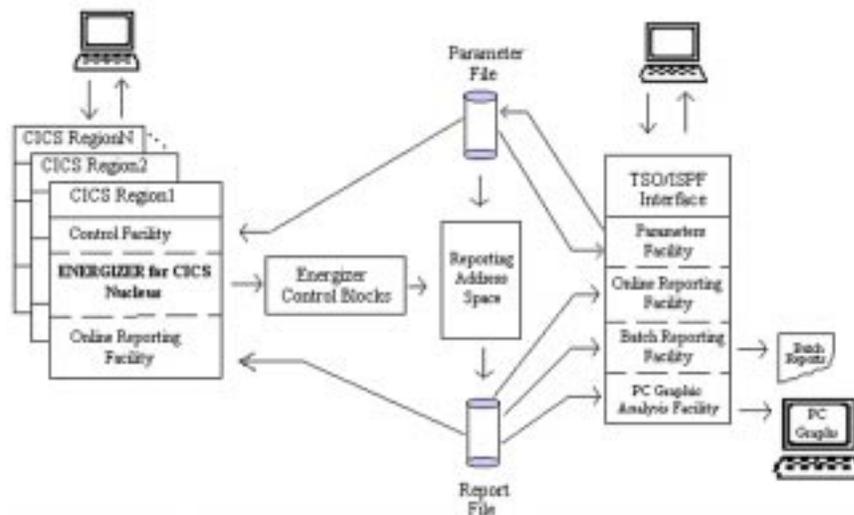
Energizer for CICS consists of independent functions that monitor resource utilization and specific CICS activities, make decisions based on the findings, and execute activities in order to enhance CICS performance. These functions

- dynamically control the number and duration of CICS MVS waits
- dynamically control when and how often MRO requests are processed
- dynamically control the number and use of long- and short-running MRO mirror tasks
- dynamically control the suspension of MRO mirror tasks
- dynamically control the use of CICS VSAM subtasking
- dynamically control the use of CICS Trace
- dynamically avoid CICS program compressions
- dynamically match CICS task dispatching to available real and virtual storage
- dynamically match the number of CICS tasks started to CPU and dynamic storage available
- dynamically manage CICS dispatch queues
- dynamically manage queues for CICS resources
- dynamically manage string and buffer allocations for files, transient data, and temporary storage
- provide customized dynamic task termination capability
- provide online and batch reporting information about the actions that Energizer for CICS executes in managing and enhancing CICS performance
- provide statistical and graphic analysis of Energizer for CICS and its effect on CICS, TSO, and batch activity

# Energizer for CICS Structure and Architecture

Energizer for CICS enables the user to have full control over its activities. Its services can be phased into the system gradually. Each function can be individually customized and activated separately. A simulation mode is provided for each function to verify the results before adjusting the CICS environment. Any function can be activated or deactivated online and the parameter values can be modified in real-time. Reporting facilities provide continuous detailed information about the activities and decision-making processes that Energizer for CICS executes in order to manage and enhance CICS performance.

Figure 1-1 Energizer for CICS Structure



Energizer for CICS consists of an online CICS component and a Reporting Address Space. These are interfaced with the TSO/ISPF and the CICS operational facilities. There are two VSAM files, the Parameter File and the Report File. The Reporting Address Space and the Report File are one per MVS image.

- The CICS component consists of a long-running CICS task performing multiple functions, and a front end to the MVS WAIT SVC.

The long-running task monitors CICS utilizations, detects CICS events, and makes adjustments to the CICS environment in order to optimize performance and avoid potential problems.

The local front end to the WAIT SVC uses patented technology to save CICS CPU resources.

- The Reporting Address Space provides a reporting platform for the rest of the product. It writes to the Report File all Energizer for CICS activities, which can then be continuously reviewed online under CICS and TSO, as well as with the Graphic Analysis Facility and the Batch Reporting Facility.
- The Parameters Facility is used to display, set, or change the permanent parameters of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation Mode features. The permanent parameters are contained in the Energizer for CICS Parameter File. Modifications to the Parameter File will take effect the next time the function is activated in the CICS region. The parameters can also be temporarily overridden during or after activation using the Energizer for CICS Control Facility. The Parameters Facility is accessed via the TSO/ISPF interface.
- The Control Facility is used to manually activate and deactivate the Energizer for CICS functions in the CICS region, view the current status of the functions, and temporarily change their parameter settings for the current activation of the function. It also provides a means for testing a function without actually performing the adjustments to the system. The Simulation Mode option will report on the proposed activities as they are needed without actually implementing their operations. Production Mode performs the adjustments to the system as needed.
- The Online Reporting Facility provides information online about the activities and operations that Energizer for CICS executed in order to enhance the CICS performance. Accessed from CICS and TSO, it displays the operational, statistical, and informational records from the Report File that were accumulated during the activation of the Energizer for CICS functions. The reasons for each action and the statistics for the action are displayed in an Activity Box associated with each action.
- The Batch Reporting Facility provides hard copy information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. It is accessed via the TSO/ISPF Interface or directly using a batch job. The PRINT option provides the same information that is displayed online in the Reporting Facility. The WORKSHEET and AVALSTAT options provide statistical information about the performance and availability of the CICS system, while the Batch/TSO Comparison Report provides statistical information about the Batch and TSO systems with and without Energizer for CICS.

- The Graphic Analysis Facility provides graphic analysis and statistical data about the CICS system and the activities and operations that Energizer for CICS executed in order to enhance CICS performance. The PC Graphic Analysis Facility is a Microsoft Access runtime application that does not require the user to have Microsoft Access installed. It processes downloaded statistical data from the Energizer for CICS Report File and graphically displays the data on an IBM-compatible PC.
- The Report File contains the actions and messages generated by the CICS component during the CICS session. The data can be displayed online using the Online Reporting Facility or Graphic Analysis Facility, or through the Batch Reporting Facility.
- The Parameter File contains the permanent parameter settings used by Energizer for CICS to monitor and tune a specific CICS region. The parameter settings in the file can be set, displayed, and modified using the Parameters Facility. The settings can be temporarily overwritten in the CICS region using the Control Facility.

The Energizer for CICS code that executes in the CICS region and uses only standard CICS parameters and interfaces with negligible overhead. Energizer for CICS can operate in multiple CICS regions and can be customized for each region separately.

Energizer for CICS activities are based on specific CICS events and resource utilizations. These activities consist of the following functions:

- Time-driven functions: At regular intervals, Energizer for CICS monitors CPU utilization in both the CICS address space and in the processing complex as a whole. It also monitors DSA usage, real storage usage, and the current page-in rate. When these resources exceed or fall below specific maximum or minimum thresholds, certain functions are activated that make changes to the CICS environment to enhance its performance or avoid potential problems.
- Event-driven functions: When Energizer for CICS encounters specific CICS events, such as MRO requests, CICS MVS waits, Short-On-Storage or MAXTASKS conditions, or VSAM subtask requests, decision-making logic is performed and actions are executed to provide optimal transaction throughput and resource usage.

The Energizer for CICS functions continuously save information about resource utilizations, CICS events, and actions taken. This information is then written to the Report File by the Reporting Address Space and can be immediately reviewed by means of the Online and Batch Reporting Facilities and the Graphic Analysis Facility.

# Energizer for CICS Reduces CPU Utilization and Real Storage Usage

Energizer for CICS will lower the CPU utilization and real storage usage for all CICS environments no matter what the workload or transaction mix. Each of the following functions can be activated separately to achieve significant resource savings. Together they provide the CICS system with additional resources that will be able to support more users, more transactions, and increased productivity.

## Dispatch Management

The Energizer for CICS Dispatch Management function dynamically controls the number and length of MVS waits. CICS uses a significant amount of CPU by going in and out of MVS waits. The Dispatch Management function uses a proprietary algorithm to evaluate the current workload and determine when and for how long CICS will issue MVS waits. The Dispatch Management function alone will save CPU resources as well as real storage usage.

## MRO Dispatch Management

The Energizer for CICS MRO Dispatch Management function dynamically controls the dispatching of Multi-Region Operation (MRO) requests. MRO requests utilize considerable CPU overhead. The MRO Dispatch Management function uses a proprietary algorithm to evaluate the current workload and determine when and how often the requests are processed. The MRO Dispatch Management function provides additional CPU savings for CICS systems that use the MRO option today.

## MRO Mirror Task Management

The MRO Mirror Task Management function dynamically controls the number and use of long- and short-running mirror tasks in CICS Multi-Region Operations. The tasks that handle cross-region requests are called 'mirror' tasks. Mirror tasks can remain attached to the MRO session for the life of the transaction (long-running), or be attached and detached for each request (short-running). The act of attaching and detaching mirror tasks increases CPU overhead and should only be used for tasks requiring two or less MRO requests.

## VSAM Subtask Management

The VSAM Subtask Management function dynamically controls the use of CICS VSAM subtasking in multiprocessor environments. When a CICS region reaches maximum capacity on one processor and has spare capacity on a second processor, CICS provides an option to off load specific I/O requests for VSAM data sets, temporary storage, and transient data. Additional processor cycles are required to run both the extra subtask and the communication between the processors. CICS VSAM subtasking increases the throughput of the CICS region, but at the expense of total CPU utilization.

In installations that use the VSAM Subtasking option, CICS subtasks all PUT operations regardless of CPU utilization and subtasks GET operations when CPU usage reaches 70%. The use of CICS VSAM subtasking when CPU utilization is below 75% - 85% wastes valuable CPU resources. Energizer for CICS saves these valuable resources by only allowing CICS to off load these VSAM I/O operations when CPU utilization reaches its throughput limit. It also turns off the appropriate subtask options when it calculates that CPU usage, without the active subtask function, would fall below the minimum threshold. Dynamically managing the use of VSAM subtasking saves considerable CPU resources for those installations using CICS VSAM subtasking and allows other installations to now utilize this CICS option economically.

## Program Compression

CICS 3.x has replaced the full program compression process with partial program compression of unused programs whenever the programs occupy more than a fixed percentage of free storage in the relevant DSA. The problem with this approach is that for most cases, the 50% target in the original CICS 3.x program management process is too low for above the line DSAs, and in times of stress, can be too high for below the line DSAs and DSAs that are defined for non-peak activity. In the revised 3.x logic, distributed in the first quarter of 1994, the 100% target results in program compression activity during system overloads, causing additional Short-On-Storage conditions.

All DSAs are different sizes, and the fixed 50% target can represent different orders of magnitude of free storage. Below the line DSA can be at most 7 or 8 MB. Above the line DSA is usually 5 to 10 times as large. As a result, CICS performs unnecessary program compressions from the above the line DSAs. The additional reloads can cause response-time delays as well as increased disk activity and CPU utilization.

Energizer for CICS saves resources and prevents response-time delays by providing dynamic DSA utilization targets for the CICS program management function. It transforms the fixed 50% target into a dynamic variable, unique for each CICS DSA and set according to the DSA's size, free area, and task storage usage. Program compression is still executed by CICS program management routines. Energizer for CICS simply provides dynamic utilization targets for optimizing CICS program compression execution.

## Energizer for CICS Provides Real Time System Availability

Energizer for CICS provides real-time system availability by eliminating bottlenecks, slowdowns, system lockouts, and sympathetic outages caused by CICS demands for system resources. The following functions dynamically manage the queues for CICS logical resources and, in many circumstances, increase these resources in real-time avoiding queues and their impact on throughput and response time.

- VSAM Queue Management
- Transient Data Queue Management
- Temporary Storage Queue Management

These functions manage

- the number of VSAM file strings of CICS data sets
- temporary storage strings and buffers
- intra-partition transient data strings and buffers
- the number of requests that can wait for VSAM strings, LSR strings and buffers, temporary storage strings and buffers, and transient data strings and buffers

Logical resources used by CICS are predefined at system startup. Until now, they could not be increased, as needed, in real-time. If any of these resources is not immediately available, CICS puts the requesting task in a queue. These queues can keep growing because of an unexpected peak demand for a resource, or because of a slow disk response caused by contention for disk access or another disk problem. Eventually, CICS reaches MAXTASKS, the maximum number of concurrent tasks allowed in the system, or a Short-On-Storage stress condition caused by the waiting tasks. CICS is then locked out. In Multi-Region Operations, these lockouts can spread to connected regions as well, as requests queue up waiting to access the locked system. This is called a *sympathetic* outage. Multiple CICS systems grind to a halt.

Energizer for CICS eliminates these bottlenecks and lockouts by

- dynamically adding strings and buffers, as needed, to meet unexpected demands and disk access
- dynamically limiting the number of tasks waiting for strings and buffers when these resources can not be added
- dynamically terminating tasks waiting for these resources when CICS is approaching a stress condition or potential lockout, or when queue lengths exceed their limits

Energizer for CICS maintains full data integrity for all tasks and allows the user to identify specific tasks and files to be excluded or included in these queue management functions. By eliminating bottlenecks and averting potential lockouts and sympathetic outages, Energizer for CICS provides real-time CICS availability and increases throughput significantly.

## **MRO/ISC Queue Management**

The MRO/ISC Queue Management function dynamically manages the number of tasks that can wait for an interconnected session. The use of interconnected CICS systems has solved many CICS user problems but has also introduced another potentially disastrous problem. If one CICS system has a problem, it is likely to spread to other connected systems and affect multiple users.

The Energizer for CICS queue management functions eliminate most CICS bottlenecks and potential lockouts and sympathetic outages. However, Energizer for CICS provides an additional fail-safe mechanism to prevent problems from spreading from one CICS system to another. When CICS reaches the maximum number of tasks that can safely wait for an interconnected MRO/ISC session, Energizer for CICS will terminate any subsequent requests for sessions. This action will prevent this CICS system from locking out because of a Short-On-Storage condition or by reaching MAXTASKS. The MRO/ISC Queue Management function eliminates the threat of sympathetic outages and the massive disruption of service that is possible in interconnected CICS systems.

## Task Time-Out Management

The Energizer for CICS Task Time-Out Management function dynamically purges both active and waiting CICS transactions that have passed their allowable user-defined duration because of processing loops, program errors, ENQ problems, or overloaded systems. More and more mainframe CICS systems are used as information servers that are connected to intelligent client terminals, LANs, etc. A common characteristic of such a configuration is that if the server does not respond within a predetermined period of time, the connected client will time-out and therefore no longer expect a reply. Until now, there was no way for CICS to know that the request is no longer needed. Transactions continue to be processed unnecessarily, tying up resources for other waiting requests. The Energizer for CICS Task Time-Out Management function now allows CICS to synchronize its transaction processing with an external client server's time-out features and provide better real-time system availability and transaction throughput.

## Energizer for CICS Provides Spare CPU Resources at Peak Demands

Energizer for CICS provides spare CPU resources for both expected and unexpected peak demand periods. Until now, there has been no way to provide extra resources in real-time to meet unexpected demands. The following functions provide extra CPU during high usage by dynamically managing the use of the CICS Trace Facility and CICS VSAM subtasking. The results are increased throughput and satisfaction of performance expectations.

## Trace Management

The Energizer for CICS Trace Management function dynamically controls the use of the CICS Trace Facility. The CICS Trace Facility accounts for more than 25% of all the CPU resources used by CICS. During peak demand periods, this extra CPU utilization is significant, and often critical. Energizer for CICS provides a useful solution for utilizing this extra 25%+ resource during peak demand periods while maintaining full operation of CICS Trace during normal loads, and partial functionality during high usage.

To the system programmer, the CICS Trace Facility appears as a single service that can be either turned on or off in its entirety. In reality, the facility consists of multiple subfunctions that provide varied services. As CPU utilization approaches its throughput limit, Energizer for CICS automatically begins to turn off CICS trace services, one subfunction at a time, until CPU demands can be met. These subfunctions are turned off in reverse order of relative significance in diagnosing system problems as defined by the user. As soon as CICS no longer needs the extra CPU resources, the deactivated subfunctions are reactivated.

By dynamically limiting the use of the CICS Trace Facility during peak demand periods, Energizer for CICS provides spare CPU resources when needed to meet expected service levels during peak loads. The CICS Trace Facility can now be permanently enabled in all CICS installations.

**Note:** The Energizer for CICS Trace Management function does not impact any of the CICS performance products that are driven by the CICS Trace Facility.

## VSAM Subtask Management

The Energizer for CICS VSAM Subtask Management function dynamically manages the use of CICS VSAM subtasking. It provides additional CPU resources during peak demand periods by off loading VSAM I/O operations to other processors when the CICS region reaches maximum capacity.

CICS VSAM subtasking requires additional processor cycles to run both the extra subtask and the accompanying communication. It adds high overhead to total system processing and should only be used when the CICS region requires additional CPU resources. Many installations cannot afford CICS VSAM subtasking because of its high total overhead. Until now, there was no way to restrict the use of CICS VSAM subtasking to critical peak periods only.

Energizer for CICS on the other hand, dynamically limits the use of CICS VSAM subtasking to peak demand periods only. It only allows CICS to off-load VSAM I/O activity to other processors when the CICS region requires additional resources. VSAM PUT and GET operations are only subtasked when CPU utilization reaches a critical threshold. These subtask functions are then deactivated again when CPU utilization reaches normal usage levels. By restricting the use of CICS VSAM subtasking to critical periods only, Energizer for CICS provides spare CPU resources when needed during critical peak load periods without impacting total CPU utilization during the entire day. Now all installations have the ability to use CICS VSAM subtasking.

# Energizer for CICS Dynamically Matches Workload and Available Resources

Energizer for CICS minimizes response time and maximizes throughput by dynamically matching the current workload with available resources. The following functions ensure that both real and virtual storage are not over committed, CPU utilization is optimized, and the beneficial CICS options of VSAM subtasking and CICS Trace are operated efficiently and economically.

## Transaction Class Management

The Transaction Class Management function dynamically regulates the maximum number of tasks that CICS can consider for dispatching without over committing resources. If resources are available, optimal CICS system performance is obtained by allowing multiple tasks to run concurrently. On the other hand, if resources are over committed, concurrent tasks should be reduced to avoid system stress conditions. Until now, there has been no way to match CICS task dispatching to available real and virtual storage in real-time.

## Storage Management

CICS 4.1 and later allows storage to be added dynamically to the below- and above-the-line CICS DSAs. This storage is obtained in real time from MVS and made available to CICS. Energizer for CICS manages in real time the sizes of the CICS DSAs by handling the SIT parameters DSALIMIT and EDSALIMIT. When a peak condition arises and more storage is necessary, Energizer for CICS will, within user-specified bounds, allocate more MVS storage to CICS. When storage is no longer required or when storage is grossly over defined, Energizer for CICS will return the excess storage to MVS. Energizer for CICS will always ensure that enough MVS storage is left both below and above the line for MVS services.

## Maxtasks Management

The Energizer for CICS Maxtasks Management function dynamically regulates the maximum number of tasks that can be started and handled by CICS in a reasonable manner. If dynamic storage and CPU resources are available, additional tasks should be allowed to run to optimize CICS performance. If these resources are not available, less tasks should be activated to avoid thrashing, bottlenecks that may never be resolved. Until now, there has been no way to match the internal CICS maximum tasks parameter to available CPU and DSA resources in real time.

The various Energizer for CICS queue management functions eliminate many of the common causes of the MAXTASKS condition and the resulting CICS lockout. The Maxtasks Management function completes this service by dynamically matching the CICS maximum tasks number to actual CPU and storage available. It adjusts the number optimally when CPU utilization exceeds a maximum threshold, DSA utilization approaches a Short-On-Storage condition, or the current number of tasks is approaching MAXTASKS.

Energizer for CICS ensures that at any particular point in time, the MAXTASKS value is matched to the resources available. CICS will only reach MAXTASKS when there are truly no resources left to handle additional tasks.

## VSAM Subtask Management

The Energizer for CICS VSAM Subtask Management function dynamically matches the use of CICS VSAM subtasking to available CPU resources. Because VSAM subtasking adds additional overhead to total CPU capacity, it should only be used when CICS reaches maximum capacity in the region. Until now, this was predefined by CICS when it subtasks all PUT operations, regardless of CPU utilization, and subtasks GET operations when CPU utilization reaches only 70%.

Energizer for CICS, on the other hand, matches VSAM I/O subtasking with the current CPU capacity. It allows CICS to off load VSAM activity to other processors only when resource utilization in the CICS region reaches its throughput limit. Optimizing the use of VSAM subtasking not only saves considerable resources for your total system, but also provides maximum throughput both during normal workloads and when needed during high CPU capacity periods.

## Trace Management

The Energizer for CICS Trace Management function dynamically matches the use of the CICS Trace facility to available CPU resources. Running the CICS Trace facility increases processing requirements by 25% in the CICS region. During peak demand periods, this extra overhead significantly impacts both response time and throughput. Often, expected service levels are not met. Until now, there has been no way to control the use of the CICS Trace facility in real time in order to limit its services as needed.

Energizer for CICS dynamically controls the number of active CICS trace functions when CPU utilization exceeds a critical threshold. The Energizer for CICS Trace Management function automatically begins to turn off CICS trace functions, subfunction by subfunction, until the CPU usage falls below this critical point. When CPU utilization falls below a safe threshold, the deactivated subfunctions are reactivated, one by one, as long as CPU resources are available for the service.

By matching the use of CICS Trace services to CPU resources available, an installation can take full advantage of all the debugging and problem-determination benefits of CICS Trace during most of the day and maintain expected service levels at all times, even at peak demand periods.

## Energizer for CICS Eliminates CICS Program Compression Problems

Energizer for CICS improves CICS performance and increases throughput by optimizing the program management process.

## Program Compression

The program compression process is based on a static DSA free storage target. Since all DSAs are different sizes, the fixed target can represent different orders of magnitude of free storage. As a result, CICS compresses programs prematurely from some DSAs, causing unnecessary response-time delays during program reloads. For other DSAs that are defined too small for peak loads, the target may be too high during times of stress. This can lead to unnecessary SOS conditions.

Energizer for CICS resolves these issues by transforming the static CICS program management function into a dynamic, load-responsive process. The storage target is no longer a constant, but rather, a dynamic variable that is unique for each CICS DSA and is based on the DSA size, free area, average program residency time, and task storage usage. Program compression is still executed by CICS, but the process is optimized by Energizer for CICS providing dynamic utilization targets.

**Table 1-1 Summary of Functions**

Functions/ Benefits	Reduces CPU Utilization	Reduces Real Storage Usage	Provides System Availability	Provides Spare CPU Resources	Matches Workload and Resources	Eliminates Program Compression Problem	Improves Response Time	Improves Transaction Throughput
Dispatch Management	X	X		X	X		X	X
Maxtasks Management			X		X		X	X
MRO Dispatch Management	X	X		X	X		X	X
MRO Mirror Task Management	X			X	X		X	X
MRO/ISC Queue Management			X		X		X	X
Program Compression	X	X	X	X	X	X	X	X
Storage Management		X			X		X	X
Task Time-Out Management			X		X		X	X
Temporary Storage Queue Management			X		X		X	X
Trace Management	X			X	X		X	X
Transaction Class Management		X	X		X		X	X
Transient Data Queue Management			X		X		X	X
VSAM Queue Management			X		X		X	X
VSAM Subtask Management	X			X	X		X	X



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# Chapter 2 Installation

Energizer for CICS maximizes CICS performance using only standard CICS parameters and interfaces. CICS Releases 4.1, and Transaction Server 1.2, 1.3, and 2.1 (denoted as 5.2, 5.3, and 6.1 respectively) are supported.

## MVS Requirements

- MVS/XA: all current releases are supported
- MVS/ESA: all current releases are supported
- OS/390: all current releases are supported
- Product libraries: 730 tracks on 3390 DASD
- Product VSAM data sets: 210 tracks on 3390 DASD per report file
- SMP/E VSAM data sets: 375 tracks on 3390 DASD
- SMP/E non-VSAM libraries: 110 tracks on 3390 DASD

## CICS Requirements

- CICS release 4.1, and Transaction Server 1.2, 1.3, and 2.1 (denoted as 5.2, 5.3, and 6.1, respectively) are supported.
- All MRO and ISC systems are supported.
- For CICS 4.1: Apply IBM APAR PN72337 before allowing the Transient Data Queue Management function to purge any waiting tasks. Refer to “Recommendations” on page 2-14, for specific parameter settings related to this fix.

- For CICS release 5.2: Apply IBM PTF UQ24583 before activating the PERM transaction of Energizer for CICS on a remote CICS system via CRTE.
- For CICS/DB2: Make sure IBM APAR PN15555 (for DB2 2.3) is installed before allowing the Trace Management function to disable writing USER entries to the Trace Table. Refer to “Recommendations” on page 2-14 for specific parameter settings related to this fix.
- For ACF2/CICS: Users of ACF2/CICS Release 6.2 must apply the Computer Associates APAR TC5164R, and users of ACF2/CICS Release 6.3 must apply the Computer Associates APAR TC5164S.

## Hardware Requirements

- CPU: Energizer for CICS will run on any CPU that is capable of running one of the supported releases of CICS.
- Cartridge Drive: one cartridge drive is required for product installation.

## First-Time Implementation Procedures

This section provides step-by-step instructions for implementing Energizer for CICS. The product libraries must be installed before the procedures described in this section can be performed. See the *OS/390 and z/OS Installer Guide* for information about installing the product’s software libraries.

**Note:** These steps are applicable for the first time Energizer for CICS is implemented on your system. If a previous version is already installed, refer to “Migrating from a Previous Version” on page 2-21.

### Step 1: Install the Product

Install the product libraries into an SMP/E environment. See the *OS/390 and z/OS Installer Guide*.

## Step 2: Allocate the VSAM Files

Allocate the Energizer for CICS VSAM files. Use the sample JCL provided in BBSAMP library member ECSJVDFN, as shown in Figure 2-1 on page 2-4.

**Report File (PEREPORT):** A single file must be allocated for each MVS image in which Energizer for CICS is to be used. This process allocates a second report file that might be referenced if the first one becomes full.

**Parameter File (PEPARMS):** This file can be a single data set allocated and accessed from all CICS regions using Energizer for CICS.

Refer to “Maintaining Files” on page 2-19 for a discussion of the files’ maintenance and space requirements.

Figure 2-1 Member ECSJVDFN

```

***** Top of Data *****
/**
/** Member: ECSJVDFN
/**
/** This JCL defines the Parameter file and two Report files.
/**
/** Edit the following variables:
/** -----
/** your.energize.cics
/**         The high level qualifier for the VSAM data
/**         set names to be defined.
/** volser
/**         The DASD volume serial Id where the data
/**         sets are to reside.
/** -----*
//DEFINE EXEC PGM=IDCAMS,
//        REGION=800K
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
DELETE your.energize.cics.PARMS PURGE ERASE
SET MAXCC=0
DEFINE CLUSTER (NAME(your.energize.cics.PARMS)
RECORDS(100 100)
VOLUMES(volser)
FSPC(0 0)
KEYS(12 0)
RECSZ(100 900)
SHR(3,3)
DATA (NAME (your.energize.cics.PARMS.DATA)
CISZ(4096))
INDEX (NAME (your.energize.cics.PARMS.INDEX))
DELETE your.energize.cics.REPORT PURGE ERASE
SET MAXCC=0
DEFINE CLUSTER (NAME(your.energize.cics.REPORT)
RECORDS(50000 5000)
VOLUMES(volser)
FSPC(0 0)
KEYS(22 0)
RECSZ(200 4086)
SHR(2,3)
DATA (NAME (your.energize.cics.REPORT.DATA)
CISZ(4096))
INDEX (NAME (your.energize.cics.REPORT.INDEX))
DELETE your.energize.cics.REPORT01 PURGE ERASE
SET MAXCC=0
DEFINE CLUSTER (NAME(your.energize.cics.REPORT01)
RECORDS(50000 5000)
VOLUMES(volser)
FSPC(0 0)
KEYS(22 0)
RECSZ(200 4086)
SHR(2,3)
DATA (NAME (your.energize.cics.REPORT01.DATA)
CISZ(4096))
INDEX (NAME (your.energize.cics.REPORT01.INDEX))
//

```

## Step 3: Update the CSD File and CICS Tables: PLTPI, PLTSD

Use the sample JCL provided in the BBSAMP library member ECSJGDFN. This job executes the CICS utility DFHCSDUP, which upgrades the CSD with a resource definition group named ENERCICS.

**Note:** There are several points to keep in mind if you are migrating from older versions of Energizer for CICS. If you plan to continue running Energizer for CICS release 4.1, do not update the CSD. If you are migrating from 4.1 and do not plan to continue running that version, you can upgrade the CSD to remove resource definitions no longer required.

**PLTPI:** This table entry is optional and only needs to be installed if you want Energizer for CICS automatically activated at CICS startup. The PLTPI entry is provided in member ECSCPLTI. Add this entry and assemble PLTPI. This entry must appear *after* the PROGRAM=DFHDELIM statement.

**Note:** An alternate method of automatically starting Energizer for CICS functions at CICS startup is to activate the PEPI transaction from a sequential terminal.

**PLTSD:** The PLTSD entry is provided in member ECSCPLTS. Add this entry *before* the PROGRAM=DFHDELIM statement in the PLTSD and assemble PLTSD. This table entry is optional and only needs to be installed if you want Energizer for CICS termination to be part of the non-immediate termination procedure. Energizer for CICS functions will terminate automatically at CICS shutdown. However, it is preferable to terminate them via PLTSD.

Figure 2-2

### Member ECSCPLTI

```

***** Top of Data *****
      SPACE
*-----*
*
* Member: ECSCPLTI
*
* Energizer for CICS PLTPI Entry
*-----*
* Insert the following entry AFTER the entry for DFHDELIM.
*
*-----*
      SPACE
      DFHPLT TYPE=ENTRY,
            PROGRAM=P100PEPI
      SPACE
***** Bottom of Data *****

```

**Figure 2-3 Member ECSCPLTS**

```

***** Top of Data *****
      SPACE
*-----*
*
* Member: ECSCPLTS
*
* Energizer for CICS PLTSD Entry
* -----
* Insert the following entry BEFORE the entry for DFHDELIM.
*
*-----*
      SPACE
      DFHPLT TYPE=ENTRY,
            PROGRAM=PL00PESD
      SPACE
***** Bottom of Data *****

```

## Step 4: Update the CICS Startup JCL

Update the CICS startup JCL for each CICS that will use Energizer for CICS. Use the sample JCL statements that are provided in the install JCL library member ECSCJCLS.

- Add the appropriate Energizer for CICS load library to the DFHRPL library concatenation.
- Add the DD statements for the Energizer for CICS VSAM files (PEREPORT and PEPARMS).

**Note:** BMC Software recommends that you specify the DSNames of these files in the CSD file instead of using DD statements.

- In order to use the CICS user interface to browse additional report files, add definitions for the files.
- Add the DD statement for the Energizer for CICS Authorized Load Library (PEAPFLIB).

**Figure 2-4 Member ECSCJCLS**

```

***** Top of Data *****
/*
/* Member: ECSCJCLS
/*
/* Sample DD statements for the Energizer for CICS files to be
/* inserted in the CICS startup procedure:
/*
//DFHRPL DD DISP=SHR,DSN=other.load.libraries
// DD DISP=SHR,DSN=energize.cics.BBLINK
/*
/* It is recommended to specify the DSNames of the PEPARMS and
/* PEREPORT files in the CSD file instead of using the two DD
/* statements below.
/*
//PEPARMS DD DISP=SHR,DSN=your.energize.cics.PARMS
//PEREPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
/*
/* This DSN is the BMC distribution library containing the
/* Energizer for CICS load modules.
/*
//PEAPFLIB DD DISP=SHR,DSN=energize.cics.BBLINK
/*
***** Bottom of Data *****

```

## Step 5: Set NEWSIT = YES in the CICS SIT Startup Overrides

The CICS parameter NEWSIT=YES *must* be specified in the SIT overrides for CICS startup.

**Warning!** Failure to set this parameter may cause the CICS parameters, dynamically set by Energizer for CICS, not to be restored to their original values during a subsequent CICS startup.

## Step 6: Customize the CLIST for the TSO/ISPF Interface

Customize the CLIST for activating the Energizer for CICS TSO/ISPF interface. Enter the appropriate libraries that were created in Step 1. Use the sample JCL provided in the BBSAMP library member ECSPISPF.

Figure 2-5 Member ECSPISPF

```

***** Top of Data *****
/* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * */
/* MEMBER: ECSPISPF */
/* */
/* MODIFY THE PROC STATEMENT VARIABLES AS FOLLOWS: */
/* - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - */
/* LLIB -- ENERGIZER LOAD LIBRARY */
/* PLIB -- ENERGIZER ISPF PANEL LIBRARY */
/* MLIB -- ENERGIZER ISPF MESSAGE LIBRARY */
/* SLIB -- ENERGIZER ISPF SKELETON LIBRARY */
/* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * */
/* */
PROC 0 LLIB ('energize.cics.BBLINK') +
      PLIB ('energize.cics.BBPLIB') +
      MLIB ('energize.cics.BBMLIB') +
      SLIB ('energize.cics.BBSLIB')

/* */
/* ESTABLISH THE ISPF ENVIRONMENT */
/* */
CONTROL NOLIST NOMSG NOCONLIST
ISPEXEC LIBDEF ISPLLIB DATASET ID('&LLIB')
ISPEXEC LIBDEF ISPMLIB DATASET ID('&MLIB')
ISPEXEC LIBDEF ISPPLIB DATASET ID('&PLIB')
ISPEXEC LIBDEF ISPSLIB DATASET ID('&SLIB')
/* */
/* */
/* INVOKE ENERGIZER/CICS ISPF INTERFACE */
/* */
ISPEXEC SELECT PGM(P100IS00) NEWAPPL(PRFM) PASSLIB NEWPOOL +
      PARM('&LLIB')
/* */
/* */
/* CLEAN UP AND RELEASE RESOURCES ACQUIRED BY THE DIALOG */
/* */
CLEANUP: +
ISPEXEC LIBDEF ISPLLIB
ISPEXEC LIBDEF ISPMLIB
ISPEXEC LIBDEF ISPPLIB
ISPEXEC LIBDEF ISPSLIB
END
***** Bottom of Data *****

```

## Step 7: Initialize the Functional Parameters and Set Passwords

Use the TSO/ISPF interface to initialize and customize the parameter values for each function and set the product passwords for Energizer for CICS activation. See Chapter 3, “Customizing Energizer for CICS” for details about customizing functions and setting passwords.

**Note:** See “Recommendations” on page 2-14 for specific parameter settings that may be necessary for your installation.

## Step 8: Customize the Reporting Address Space JCL

Customize the Reporting Address Space JCL. The Energizer for CICS reporting facilities require the activation of the Energizer for CICS Reporting Address Space.

Customize a uniquely named catalogued procedure. Use the sample procedure that is provided in the BBSAMP sample library member ECSPRASM, as shown in Figure 2-6 on page 2-9. Modify the library names appropriately. The procedure should then be copied to the MVS procedure library.

At least one Report File (DDname REPORT) must be specified in the Reporting Address Space JCL. Up to 99 additional files (DDnames REPORT01, REPORT02, ..., REPORT99) can also be specified. If the Report File becomes full, the Reporting Address Space will automatically switch to the file with the next consecutive REPORTnn DDname. See “Reporting Address Space” on page 4-3.

**Note:** The BMC Software License Facility stores password information in the load library identified at the time you defined the Energizer for CICS password. A load library other than the product load library is often used to store the password information. That load library must be concatenated to the STEPLIB DD statement of the reporting Address Space.

**Figure 2-6** Member ECSPRASM

```

/**
***** Top of Data *****
/**
/** Member: ECSPRASM
/**
/** This JCL starts the Reporting Address Space
/**
/** Edit the following variables:
/** -----
/** procname
/**      The name for this procedure.
/**
/** energize.cics.BBLINK
/**      This DSN is the BMC distribution library containing the
/**      ENERGIZER load modules.
/**
/** bmc.license.LOADLIB
/**      This DSN is the USER load library where you have
/**      instructed the BMC license facility to place the
/**      product authorization table for ENERGIZER. This
/**      load module will have a name like ECSTBL3x.
/**
/** your.energize.cics
/**      The high level DSN qualifier for this Reporting
/**      Address Space.
/**
/**-----*
//procname PROC
//P100RASM EXEC PGM=P100RASM,
//      REGION=32M,TIME=180
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//BMCP SWD DD DISP=SHR,DSN=bmc.license.LOADLIB
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//REPORT01 DD DISP=SHR,DSN=your.energize.cics.REPORT01
//PEPARMS DD DISP=SHR,DSN=your.energize.cics.PARMS
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SNAPMAIN DD SYSOUT=*
//SNAPRPRT DD SYSOUT=*

```

Model Started Task: When the procedure is placed into a MVS procedure library, the Reporting Address Space may be started using an operator start command. For example,

```
/S procname
```

where procname is the procedure member name.

## **Step 9: Establish APF Authorization for the APF Authorized Load Library**

Data sets concatenated to the Report Address Space STEPLIB statement must be APF authorized.

## **Step 10: Install the SVC Routine and Start the Reporting Address Space**

Install the Energizer for CICS SVC Routine and start the Energizer for CICS Reporting Address Space. Both the CICS component of Energizer for CICS and the Reporting Address Space require the Energizer for CICS SVC to be installed. The Energizer for CICS Reporting Address Space is required for writing the reporting data to the Report File.

Use the sample JCL that is provided in the BBSAMP sample library member ECSJSIRP, shown in Figure 2-7. When this JCL is executed, a start command will be issued for the procedure specified in the PARM or SYSIN statements, thereby activating the Energizer for CICS Reporting Address Space. Refer to Dynamic SVC Install in this chapter for details concerning the SVC routine.

Figure 2-7 Member ECSJSIRP

```

/*-----*
***** Top of Data *****
/*-----*
/*
/* Member: ECSJSIRP
/*
/* P100SIRP - Energize for CICS Dynamic SVC Install Program.
/*
/*
/* Input Parameters:
/*
/* Specified on the EXEC statement or using SYSIN
/* statements.
/*
/* A positional function keyword, optionally followed
/* by one or more keyword parameters.
/*
/* Any keyword parameters that are irrelevant to a
/* function are ignored.
/*
/*
/* Function keywords:
/*
/* May be one of the following keywords.
/*
/* INSTALL - Dynamically install the CLOSE TYPE=T SVC.
/*
/* If WAIT=YES is also specified (see below),
/* the WAIT SVC will also be installed.
/*
/* LISTCSA - List the entries in the Energizer for CICS
/* CICS CSA area.
/*
/* REINSTALL - Dynamically reinstall the SVC routines that
/* are currently at the top of the SVC chain.
/*
/* RELEASE - Release an entry in the CSA area.
/* The ASCB, ASID, JNAME, JNUM, and TCB
/* parameter keywords are required values.
/* The FORCE parameter keyword is optional.
/*
/* REMOVE - Dynamically remove the SVC routines from
/* the SVC chain if they are NOT at the top
/* of the chain.
/* Otherwise, this is identical to REINSTALL.
/*
/*
/* Additional parameters:
/*
/* May follow the function keyword in any order.
/*
/* ASCB - 1 to 8 hexadecimal characters
/* (leading zeroes are optional)
/*
/* Address of the ASCB of the CICS region
/* owning the CSA entry to be released.
/*
/* * When the entry to be released is in a
/* "SIGNING-ON" status (complemented ASCB),
/* then the exact ASCB from the relevant
/* CSA entry should be given as input.
/*
/* ASID - 1 to 5 decimal characters
/* (leading zeroes optional)
/*
/* Address Space Id value of the CICS region
/* owning the CSA entry to be released.
/*
/* FORCE - YES | NO (default = NO)
/*
/* When FORCE=YES is specified for the INSTALL
/* or REMOVE functions:
/*
/* Force the action even when there are CICS
/* regions still using the Dispatch Management
/* functions.
/*

```

```

/**          When FORCE=YES is specified for the RELEASE
/**          function:
/**
/**          Release the specified CSA entry even when
/**          the Dispatch management functions are
/**          active in the specified CICS region.
/**
/** JNAME    - 1 to 8 alphameric characters
/**
/**          Job Name of the CICS region owning the CSA
/**          entry to be released.
/**
/** JNUM     - 1 to 5 digits
/**          (leading zeroes optional)
/**
/**          Job Number of the CICS region owning the CSA
/**          entry to be released.
/**
/** NUMCICS  - 1 to 255 (default = 10)
/**
/**          The number of CICS regions that will use the
/**          Dispatch Management functions.
/**
/** PROCNAME - Name of the member containing the procedure
/**          to activate the Reporting Address Space.
/**          This procedure must reside in a procedure
/**          library that is searched on your system,
/**          such as, SYS1.PROCLIB.
/**
/** TCB      - 1 to 8 hexadecimal characters
/**          (leading zeroes are optional)
/**
/**          Address of the Task Control Block of the CICS
/**          region owning the CSA entry to be released.
/**
/** WAIT     - YES | NO (default = NO)
/**
/**          Dynamically install the WAIT SVC screening.
/**
/**
/** Examples:
/**
/**          When you wish to install the CLOSE TYPE=T SVC routine,
/**          allocate space for 5 CICS regions, and automatically
/**          activate the Reporting Address Space using procedure
/**          RASPROC, then code the PARM= value as follows:
/**
/**          PARM='INSTALL,NUMCICS=5,PROCNAME=RASPROC'
/**
/**          When you wish to reinstall the SVC routine, then code
/**          the PARM= value as follows:
/**
/**          PARM='REINSTALL'
/**
/**-----*
/**
/** Edit the following variables:
/** -----
/** energize.cics.BBLINK
/**          The DSN of the BMC Software load library.
/**
/** function,param1=abc,param2=def,...
/**          The function to execute and the required
/**          parameters.
/**
/**-----*
/**P100SIRP EXEC PGM=P100SIRP,REGION=2000K,
/**          PARM='function,param1=...'
/**STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
/**SYSPRINT DD SYSOUT=*
/**SYSABEND DD SYSOUT=*
/**
***** Bottom of Data *****

```

The Energizer for CICS Reporting Address Space can also be manually activated as a batch job or as a started task. Use the sample JCL that is provided in the BBSAMP sample library member ECSJRASM, shown in Figure 2-8 on page 2-13. Modify the library names in the JCL appropriately.

At least one Report File (DDname REPORT) must be specified in the Reporting Address Space JCL. Up to 99 additional files (DDnames REPORT01, REPORT02, ..., REPORT99) can also be specified. If the Report File becomes full, the Reporting Address Space will automatically switch to the file with the next consecutive REPORT $nn$  DDname. Refer to “User-Initiated Startup and Shutdown CICS Functions” on page 4-5 for a more detailed discussion of Report File switching.

Figure 2-8

## Member ECSJRASM

```
***** Top of Data *****
/*
/* Member: ECSJRASM
/*
/* This JCL starts the Reporting Address Space
/*
/* Edit the following variables:
/* -----
/* procname
/*      The name for this procedure.
/*
/* energize.cics.BBLINK
/*      This DSN is the BMC distribution library containing the
/*      ENERGIZER load modules.
/*
/* bmc.license.LOADLIB
/*      This DSN is the USER load library where you have
/*      instructed the BMC license facility to place the
/*      product authorization table for ENERGIZER. This
/*      load module will have a name like ECSTBL3x.
/*
/* your.energize.cics
/*      The high level DSN qualifier for this Reporting
/*      Address Space.
/*-----*
/*procname PROC
/*P100RASM EXEC PGM=P100RASM,
/*      REGION=32M,TIME=180
/*STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
/*BMCPSWD DD DISP=SHR,DSN=bmc.license.LOADLIB
/*REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
/*REPORT01 DD DISP=SHR,DSN=your.energize.cics.REPORT01
/*PEPARMS DD DISP=SHR,DSN=your.energize.cics.PARMS
/*SYSPRINT DD SYSOUT=*
/*SYSABEND DD SYSOUT=*
/*SNAPMAIN DD SYSOUT=*
/*SNAPRPRT DD SYSOUT=*
```

**Note:** The BMC Software License Facility stores password information in the load library identified at the time you defined the Energizer for CICS password. A load library other than the product load library is often used to store the password information. That load library must be concatenated to the STEPLIB DD statement of the reporting Address Space.

## Step 11: Activate Functions

Activate Energizer for CICS via the Energizer for CICS Control Facility Screen. See “Control Facility Screen (C21)” on page 4-8.

**Note:** Due to VSAM restrictions, BMC Software recommends that you activate the Energizer for CICS functions in CICS after activating the Energizer for CICS Reporting Address Space.

Refer to “Recommendations” on page 2-14 for specific instructions that may be necessary for your installation.

## Step 12 Install the PC Graphic Analysis Facility

Install the PC Graphic Analysis application on an IBM-compatible personal computer. Refer to Chapter 8, “PC Graphic Analysis Facility” for installation instructions.

## Recommendations

- For CICS 4.1: Apply IBM APAR PN72337 before allowing the Transient Data Queue Management function to purge any waiting tasks. Without the fix, make sure that the MAXIMUM TASKS TO WAIT parameter is set to the default value of **999** and the PURGE ALL WAITING TASKS parameter is set to the default value of **NO** on the Transient Data Queue Management Parameter Screen (Screen I10H) of the TSO/ISPF interface.
- For CICS 5.2: Apply IBM PTF UQ24583 before activating the PERM transaction of Energizer for CICS on a remote CICS system via CRTE.
- For CICS/DB2: Make sure IBM APAR PN15555 (for DB2 2.3) is installed before allowing the Trace Management function to disable writing USER entries to the Trace Table. Without the fix, make sure the Trace Option Level for USER is set to **0** on the Trace Options Table Screen (Screen I1AT).
- For ACF2/CICS: Users of ACF2/CICS release 6.2 must apply the Computer Associates APAR TC5164R and users of ACF2/CICS release 6.3 must apply the Computer Associates APAR TC5164S.
- If you have disabled the CICS Trace via the MONITOR FOR CICS, do not activate the Trace Manager.

- If you are running the MONITOR FOR CICS release 1.3 or later, set the Trace Option Level for the Monitoring Manager to **0** on the Trace Options Table Screen (I1AT).
- If you have a product that cancels tasks for using excessive CPU, specify the Energizer for CICS long-running task PET0 on that product's exclusion list, this task runs 24 hours a day.
- If you have a product that prevents tasks from initiating other tasks via EXEC CICS START TRANSID, specify the Energizer for CICS tasks PEPI, PEOB, and PETF on that product's exclusion list. The programs activated by these tasks. P100PEPI, P100PEOB, and P100PETF, respectively should likewise be excluded.
- In order to realize the maximum CPU savings by Energizer for CICS, BMC Software recommends that users of non-IBM Data Base Management Systems run the CICS regions at a higher MVS dispatching priority than the DBMS regions.

## Dynamic SVC Install and Table Maintenance

The Energizer for CICS SVC routines front-end the standard CLOSE TYPE=T SVC (SVC 23) and the standard WAIT SVC (SVC 1) and can be dynamically installed and reinstalled at any time without interfering with any MVS or CICS activities.

Both the CICS component of Energizer for CICS and the Reporting Address Space require the Energizer for CICS front-end to the CLOSE TYPE=T SVC to be installed and the Energizer for CICS Table to be built in the MVS ECSA. When activated, some functions of Energizer for CICS also dynamically install a front-end to the standard WAIT SVC (SVC 1).

While the front-end to the standard CLOSE TYPE=T SVC (SVC 23) is required by all Energizer for CICS components, the front-end to the standard WAIT SVC (SVC 1) is only required for the services performed by the Energizer for CICS Dispatch Management function, MRO Dispatch Management function, and MRO Mirror Task Management function. The front-ending of the standard WAIT SVC is, by default, limited to CICS regions where these functions are active—and only for the duration of their activity. This is done by using SVC Screening. You enable and disable SVC Screening for a specific region by using the General Parameter Screen (Screen I101) of the TSO/ISPF Interface.

## Dynamic SVC Installation

To dynamically install or reinstall the Energizer for CICS CLOSE TYPE=T SVC routine and to build or rebuild the Energizer for CICS table use the sample JCL in member ECSJSIRP. See Figure 2-9 on page 2-17. This JCL runs the P100SIRP batch utility program. The input to the program is passed via PARM on the EXEC statement or via SYSIN control cards. The input consists of a positional function keyword, optionally followed by one or more keyword parameters. The function keyword may be one of the following keywords:

**Table 2-1**      **Function Keywords**

Keyword	Description
<b>INSTALL</b>	Dynamically install the Energizer for CICS CLOSE TYPE=T SVC routine.
<b>REINSTALL</b>	Dynamically reinstall the standard CLOSE TYPE=T SVC routine if the Energizer for CICS SVC routine is currently on top of the SVC chain.
<b>REMOVE</b>	Dynamically remove the Energizer for CICS CLOSE TYPE=T SVC routine from the SVC chain if is NOT on top of the SVC chain. Otherwise this is identical to REINSTALL.

**Note:** The REINSTALL and REMOVE functions will be processed only if the Energizer for CICS Reporting Address Space is not active and if there are no CICS regions currently using the Energizer for CICS functions. Otherwise, the FORCE=YES option must be used (see below).

The following keyword parameters may follow the INSTALL and REINSTALL function keywords, in any order, separated by commas.

**Table 2-2**      **Keyword Parameters**

Parameter	Description
<b>NUMCICS=<i>n</i>:</b>	The number of CICS regions that will use Energizer for CICS. The default is 10.
<b>PROCNAME=<i>procname</i>:</b>	Name of member in SYS1.PROCLIB that contains the procedure to activate the Energizer for CICS Reporting Address Space. If this keyword is not specified, the Energizer for CICS Reporting Address Space will not be automatically started by the P100SIRP utility.
<b>FORCE=YES:</b>	For the REINSTALL and REMOVE functions, this will force reinstallation of the standard SVC, or removal of the SVC, respectively, even if CICS regions are still using one of the Energizer for CICS functions or if the Reporting Address Space is still active. If not specified, reinstallation or removal will not be carried out. The default is NO.

When using SYSIN control cards as input to the P100SIRP program, keep in mind the following:

- If a PARM input exists, the SYSIN input is ignored.
- Up to 8 control cards are allowed. Blank cards or cards beginning with an asterisk are considered comments.
- The program reads from the first non-blank within columns 1 to 72 in the card to the first blank afterward within columns 1 to 72.
- If the last character in the card is a comma, the next card is read. Otherwise, all following cards are ignored.

**Figure 2-9 Sample ECSJSIRP INSTALL Function**

---

```
//ECSJSIRP    JOB
//           EXEC    PGM=P100SIRP,REGION=2000K,PARM=( 'INSTALL, NUMCICS=5',
//           'PROCNAME=ECSPRASM' )
//STEPLIB    DD     DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT   DD     SYSOUT=*
//SYSABEND   DD     SYSOUT=*
```

---

**Figure 2-10 Sample ECSJSIRP INSTALL Function using SYSIN control cards**

---

```
//ECSJSIRP    JOB
//           EXEC    PGM=P100SIRP,REGION=2000K
//STEPLIB    DD     DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT   DD     SYSOUT=*
//SYSABEND   DD     SYSOUT=*
//SYSIN      DD     *
//           INSTALL,
//           NUMCICS=5,
//           PROCNAME=ECSPRASM
//
```

---

The first successful activation of the program will allocate the following approximate amounts of storage in the MVS common storage:

- In the SQA: 8,000 bytes.
- In the ECSA: 9,400 bytes, plus an additional 9,250 bytes for each CICS region specified in the NUMCICS parameter.

To ensure successful automatic activation of all the Energizer for CICS components, BMC Software recommends that you add the ECSJSIRP JCL as part of the IPL procedure, or alternatively, as a preliminary step to the startup JCL of each CICS region. There is no harm in repeated execution of the SVC installation process because the SVC front-end will only be installed once.

**Note:** The size of the Energizer for CICS table depends on the NUMCICS parameter entered in job ECSJSIRP.

The following steps should be carried out to increase the size of the table. Refer to Chapter 4 “Starting and Stopping Energizer for CICS” for instructions on deactivating the various components of Energizer for CICS.

1. Shut down Energizer for CICS in all CICS regions.
2. Wait about 60 seconds and then terminate the Energizer for CICS Reporting Address Space.
3. Run job ECSJSIRP with the REINSTALL function.
4. Run job ECSJSIRP with the INSTALL function and specify a NUMCICS value larger than the current number of entries in the table. If nothing is specified, a default value of 10 is assumed.

## Table Maintenance

The Energizer for CICS table maintenance procedures will, in most cases, never be needed. The procedures are only used if the Energizer for CICS Table is defined with too few entries (NUMCICS was set too low during the dynamic SVC installation) or Energizer for CICS has some internal problem that prevents it from reusing an entry. If the maintenance procedures are needed, a LISTCSA function should be executed first to examine the status of each entry in the table. The RELEASE function can then be used for releasing a not in use entry.

**Warning!** Completely unpredictable results will occur if an entry that is in use is released.

Customer Support may also request a LISTCSA output in order to aid in problem determination.

The Energizer for CICS table maintenance procedures use the same sample JCL that resides in member ECSJSIRP in the Energizer for CICS BBSAMP sample library. The input to the program is passed via PARM on the EXEC statement or via SYSIN statements and consists of a positional function keyword, optionally followed by one or more keyword parameters. The function keyword may be one of the following keywords:

**Table 2-3**      **Keywords**

<b>Keyword</b>	<b>Description</b>
<b>LISTCSA</b>	List the entries in the Energizer for CICS Table
<b>RELEASE</b>	Release an entry in the Energizer for CICS table. The ASCB, ASID, JNAME, JNUM, and TCB parameters are required for this function.

All the following keyword parameters (except FORCE) must be specified with the RELEASE function and may follow the function keyword, in any order, separated by commas. See Figure 2-11 on page 2-19 for an example.

**Table 2-4** Parameters

Parameter	Description
<b>ASCB=<i>n</i>:</b>	The address (hexadecimal) of the Address Space Control Block of the CICS region owning the Energizer for CICS Table entry to be released. Note: If the entry to be released is in a "SIGNING-ON" status, the exact four byte ASCB from the relevant entry should be given as input. This address may appear as a negative number.
<b>ASID=<i>n</i>:</b>	Address space ID (decimal) of the CICS region owning the Energizer for CICS Table entry to be released.
<b>JNAME=<i>n</i>:</b>	Job name of the CICS region owning the Energizer for CICS Table entry to be released.
<b>JNUM=<i>n</i>:</b>	Job number of the CICS region owning the Energizer for CICS Table entry to be released.
<b>TCB=<i>n</i>:</b>	Address of the Task Control Block (hexadecimal) of the CICS region owning the Energizer for CICS Table entry to be released.
<b>FORCE=YES:</b>	(Optional) Release the specified Energizer for CICS table entry even if one of the Energizer for CICS dispatch functions is still active in the CICS region. The default is NO.

**Warning!** Completely unpredictable results will occur if an entry that is in use is released.

**Figure 2-11** Sample ECSJSIRP RELEASE Function

```
//ECSJSIRP JOB
// EXEC PGM=P100SIRP,REGION=2000K,
// PARM=( 'RELEASE,ASCB=00F86580,ASID=00098,JNAME=CICS32,JNUM=02626',
// 'TCB=00AD9E88' )
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//
```

## Maintaining Files

Energizer for CICS uses two VSAM files: a parameter file which contains the permanent parameter settings used by Energizer for CICS to monitor and tune the CICS region, and a report file which contains the actions and messages generated by Energizer for CICS during CICS activity.

## Parameter File

The parameter file needs no maintenance. Only one copy of the file is necessary, and it can be shared among all CICS regions. The file should be defined locally to each CICS as read-only. Updates to the parameter file are done via the Energizer for CICS Parameters Facility of the TSO/ISPF interface.

If Energizer for CICS cannot access the file when it starts up, it will execute according to the default parameter values, which do not contain the AUTOSTART option. Each function will have to be started manually using the Energizer for CICS Control Facility in CICS. Once the functions are activated, the parameters can be changed online. If the parameter file becomes unavailable while the functions are active, it will have no effect on continued Energizer for CICS operation.

## Report File

The Energizer for CICS Report file requires periodic maintenance. One copy of the file is required for each MVS Image, and it can be shared among all CICS regions within an MVS Image. The file should be defined locally to each CICS region as read/browse-only. Updates to the Report file are continuously performed by the Energizer for CICS Reporting Address Space. All Energizer for CICS activities and messages are written to this file.

On a weekly or biweekly basis, the Report File should be archived, deleted, and redefined. The rule-of-thumb for computing an appropriate size for the Report File is that on the average, 15 records are written to the Report File during each Energizer for CICS reporting interval for each CICS region. The reporting interval is defined on the General Parameters Screen of the Parameters Facility and has a default value of 600 seconds (10 minutes). If Energizer for CICS is active 24 hours a day using the default Reporting Interval, the number of records written to the file each day for each CICS region equals  $15 * (24 * 60) = 2160$  records per day. If the file is redefined on a weekly basis, it should be defined to hold at least  $7 * 2160 = 15,120$  records for each CICS region.

**Note:** If CICS requires significant Energizer for CICS activity, such as during a peak load, the number of records written to the file should be greater. When running in simulate mode, the number of records written to the file may increase when Energizer for CICS constantly reports actions that were not taken because the product is running in simulate mode.

To avoid losing data, define a secondary allocation for the Report File. Define additional files to be used when the primary Report File fills up. If the Report File should run out of space, Energizer for CICS will attempt to automatically switch to another file. If this is not possible, Energizer for CICS will send the appropriate messages to the console requesting the specification of a new Report File. The operator can then manually specify the DSName of a new Report File to be used by the Reporting Address Space. In the meantime, Energizer for CICS activity will continue without the Report File. Reporting data will be saved in buffers in storage until they fill up. “Refer to User Initiated Start-up and Shut-down – Reporting Address Space” in Chapter 4 for a more detailed discussion of Report File switching.

## Migrating from a Previous Version

To migrate to a new Energizer for CICS version, perform the following steps. The Reporting Address Space for version 4.2.00 and prior versions may be active at the same time. This enables the migration of individual CICS regions to the new release without effecting the processing of the current release. The following steps describe the procedure to migrate all CICS regions to the new release at the same time. Start at step 4 to migrate individual CICS regions.

**Note:** Before migrating to a new version of Energizer for CICS, the product’s software libraries must be installed as described in the *OS/390 and z/OS Installer Guide*.

- Step 1** Deactivate Energizer for CICS in *each* CICS region where it is currently active, *or was previously active*. If migrating from a 4.10x version of Energizer for CICS prior to 4.104, use transaction PECL. Otherwise, use transaction PECU.
- Step 2** About a minute after Energizer for CICS has been deactivated in all the CICS regions, terminate the Reporting Address Space. Use the STOP or FSTOP options of the console MODIFY command (see Chapter 4, “Starting and Stopping Energizer for CICS”).
- Step 3** Remove the current Energizer for CICS SVC routine from the system by executing the P100SIRP batch program from the *current* Energizer for CICS APF—authorized load library. Use member ECSJSIRP in the BBSAMP Library. Use the REINSTALL or, if necessary, the REMOVE functions. See “Dynamic SVC Installation” on page 2-16.

**Note:** Do not use the FORCE option unless instructed by your local support representative.

- Step 4** Upgrade the CSD file and CICS tables, as described in “Step 3: Update the CSD File and CICS Tables: PLTPI, PLTSD” on page 2-5.
- Step 5** Change the DSName of the Report File in the PEREPORT DD statement in the CICS Startup JCL of all the CICS regions to the DSName of the new report file. BMC Software recommends that you specify this DSName in the CSD file and not in a DD statement. See “Step 4: Update the CICS Startup JCL” on page 2-6.

Make sure that the Reporting Address Space JCL, and the TSO/ISPF CLIST reference libraries are updated with the new programs.

The Parameter File does not change and can therefore still be used without changes.

- Step 6** Change the DSName of the load library in the CICS startup JCL. See “Step 4: Update the CICS Startup JCL” on page 2-6.
- Step 7** *If you are migrating from a version older than 4.1.00*, allocate a new, single report file large enough to hold the reporting data for all the CICS regions that use Energizer for CICS. See “Maintaining Files” on page 2-19. You can optionally merge the contents of the existing Report Files into this single file prior to activating the new version of Energizer for CICS. Use the sample JCL in member ECSJVMRG of the Energizer for CICS BBSAMP sample library. See Figure 2-12 on page 2-23

Otherwise, *do not* reallocate and initialize the Energizer for CICS VSAM files unless explicitly stated in the instructions for the new release.

If you want to continue using the data in the exiting report files of Energizer for CICS, you will have to merge their contents into the new report file.

Figure 2-12 Member ECSJVMRG

```

***** Top of Data *****
/*
/* Member: ECSJVMRG
/*
/* Merge report files from Energizer for CICS releases prior
/* to release 4.1.00
/*
/* Edit the following variables:
/* -----
/* 1st.cics.input
/*      The first CICS report file DSN qualifier.
/* 2nd.cics.input
/*      The second CICS report file DSN qualifier.
/* your.energize.cics.REPORT
/*      The output DSN of the report file.
/*
/* Insert addition input report files when appropriate.
/*
/*-----*
//MERGERPT EXEC PGM=IDCAMS,
//      REGION=3000K
//SYSPRINT DD SYSOUT=*
//C1RPT DD DISP=SHR,DSN=1st.cics.input.REPORT
//C1RPT01 DD DISP=SHR,DSN=1st.cics.input.REPORT01
//C2RPT DD DISP=SHR,DSN=2nd.cics.input.REPORT
//C2RPT01 DD DISP=SHR,DSN=2nd.cics.input.REPORT01
//OUT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSIN DD *
REPRO INFILE(C1RPT) OUTFILE(OUT)
REPRO INFILE(C1RPT01) OUTFILE(OUT)
REPRO INFILE(C2RPT) OUTFILE(OUT)
REPRO INFILE(C2RPT01) OUTFILE(OUT)
/*
***** Bottom of Data *****

```

- Step 8** Use the CICS TSO/ISPF interface to specify the product password. See Chapter 3, “Customizing Energizer for CICS” for more information.
- Step 9** Initialize any new functional parameters, if necessary. Use the Energizer for CICS TSO/ISPF interface. See Chapter 3, “Customizing Energizer for CICS” for more information.
- Step 10** Install the new Energizer for CICS SVC routine by executing the P100SIRP batch program from the *new* Energizer for CICS APF.
- Step 11** Start the Reporting Address Space from the *new* load libraries (if not already automatically started by Step 12). See “Step 11: Activate Functions” on page 2-14.
- Step 12** Restart each CICS region where Energizer for CICS is to be activated.



---

# Chapter 3 Customizing Energizer for CICS

Energizer for CICS is easy to use. Once it is started, it needs no further attention. Each service of Energizer for CICS runs as an independent function. Each Energizer for CICS function can be individually activated (using the online Control Facility), or customized to start up automatically in the region. Customizing Energizer for CICS for your CICS system is done via the Energizer for CICS TSO/ISPF interface. The TSO/ISPF interface is activated by the Energizer for CICS CLIST, customized during installation.

**Note:** If not required by other ISPF applications, BMC Software recommends that you deselect the Long Message in Pop-Up option on the ISPF Settings screen (Option 0 on the ISPF Primary Option Menu), before activating the Energizer for CICS CLIST.

Customization of Energizer for CICS consists of two simple steps:

1. Specifying the files to be used by the TSO/ISPF interface with the Dialog Management Screen (Option 4 on the Energizer for CICS Primary Menu).
2. Setting the default parameters of the functions with the Parameters Facility (Option 1) and modifying them, if necessary, with the individual function parameter screens.

**Note:** After initial installation of Energizer for CICS in your system, it is best to try the product using the default parameters for all the functions. In most cases, the default values provide optimal performance. See “Parameters Facility” on page 3-6. Customize only the Automatic Startup and Production/Simulation Mode parameters according to your installation needs.

## Primary Menu (I00)

Energizer for CICS displays its TSO/ISPF Primary Menu when you activate the Energizer for CICS TSO/ISPF interface. (Refer to your installation of Energizer for CICS for activation of the TSO/ISPF interface via the Energizer for CICS CLIST.)

**Figure 3-1 Primary Menu**

```

USERID  BCGWJ3                ENERGIZER/CICS                DATE  01/02/20
REL  4.200                    PRIMARY MENU                TIME  11:22
                                                    I00

OPTION  ===>

ENTER ONE OF THE FOLLOWING OPTIONS  :

      1  PARAMETERS FACILITY      APPLID =                (FULL/GENERIC/BLANK)
      2  BATCH REPORTING FACILITY
      3  ONLINE REPORTING FACILITY
      4  DIALOG MANAGEMENT
      5  PRODUCT AUTHORIZATION
      X  EXIT

COPYRIGHT BMC SOFTWARE INC.  1992 - 2001  ALL RIGHTS RESERVED
ENERGIZER/CICS 4.200  03/01/01  ESA ASSEMBLED 01/26/01 13.56
-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12=

```

The Energizer for CICS Primary Menu lists five options. To select an option, enter the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option you selected.

The options are described below.

1. **Parameters Facility:** Used for specifying the parameters of each of the Energizer for CICS functions and setting their Automatic Startup and Production/Simulation Mode features for a specific CICS region.

**APPLID:** Enter the APPLID of the CICS region. Enter the generic form of the APPLID using the wildcard suffix "\*" to get a list of the corresponding CICS regions, or leave it blank for a complete list of APPLIDs in the Parameter File. Make sure that the Parameter File has been specified on the Dialog Management Screen (Option 4) before accessing the Parameters Facility.

2. **Batch Reporting Facility:** Used for producing hard copy reports of the actions that Energizer for CICS executed in order to enhance CICS performance. Make sure that the Report File has been specified on the Dialog Management Screen (Option 4) before accessing the Batch Reporting Facility.
3. **Online Reporting Facility:** Used for displaying information about the actions that Energizer for CICS executed in order to enhance CICS performance. Make sure that the Report File has been specified on the Dialog Management Screen (Option 4) before accessing the Online Reporting Facility.
4. **Dialog Management:** Used for specifying the data sets and other default settings that will be used by the Energizer for CICS TSO/ISPF interface and setting the product passwords for Energizer for CICS activation.
5. **Product Authorization:** Used for obtaining authorization to run the product, see the “BMC Software Product Authorization” appendix in the *OS/390 and z/OS Installer Guide* book.

Options 1 and 4 are explained in the sections that follow. Option 2 is explained in Chapter 6 “Batch Reporting Facility,” and in chapter 8 “PC Graphic Analysis Facility.” Option 3 is explained in Chapter 5 “Online Reporting Facility.” Option 5 is described in the *OS/390 and z/OS Installer Guide* book.

Press **Enter** to process the selection.

Press **PF3** or **PF4** to return to the ISPF screen from which you activated the Energizer for CICS TSO/ISPF interface.

## Dialog Management Screen (I40)

Energizer for CICS displays the Dialog Management screen when you select Option 4, Dialog Management, from the Energizer for CICS Primary Menu.

**Figure 3-2 Dialog Management Screen**

```

USERID MYUSERID          ENERGIZER/CICS          DATE 01/03/01
REL 4.200                DIALOG MANAGEMENT      TIME 08:20
                                                I40

OPTION ===>
ENTER DATA SET NAMES AND DDNAMES:

ENERGIZER/CICS REPORT DATA SET          DDNAME ===> PEREPORT
====> BCVM.ECS42.SJSC.RPT

ENERGIZER/CICS PARAMETER DATA SET       DDNAME ===> PEPARMS
====> BCVM.ECS42.SJSC.PRMS

ENTER CICS APPLID:          ENTER CICS VERSION:
====> BCVCT61C              =====> 6.1

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN  F5=
          SWAP  F10=   F11=     F12=

```

The Dialog Management panel is used to specify the names of files used by the application. Use this screen to set the defaults for the TSO/ISPF session. The Parameters Facility requires the Parameter File, which can be shared by multiple regions. The Online Reporting Facility, the Batch Reporting Facility, and the Graphic Analysis Facility require the Report File, which can also be shared by multiple CICS regions.

When you enter the CICS APPLID and CICS VERSION at the bottom of the screen, all TSO/ISPF interface screens that require this information will automatically default to these values.

Enter the data set names next to the arrow on the line below the data set description. To change an existing data set name, type over the entry. BMC Software recommends that you do not change the default DDNAME of the report data set.

**ENERGIZER/CICS REPORT DATA SET (PEREPORT):** This file contains the activities and messages generated during the activation of the Energizer for CICS functions in the CICS regions. The data can be displayed using either the Online Reporting Facility (described in Chapter 5) or the Batch Reporting Facility (described in Chapter 6). This file is required by the Online Reporting Facility, the Batch Reporting Facility, and the Graphic Analysis Facility. Refer to your installation of Energizer for CICS for the name of your Report File.

**ENERGIZER/CICS PARAMETER DATA SET (PEPARMS):** This file contains the permanent parameter settings used by Energizer for CICS to tune and monitor a specific CICS region. These parameters will take effect when the CICS region is brought up and the specific function for which the parameters relate is activated. To change the parameter settings in this file, use the Parameters Facility described below. To *temporarily* change the parameter setting for an activated function during a CICS session, use the online Control Facility described in Chapter 4. Refer to your installation of Energizer for CICS for the name of your Parameter File. This file can be shared by multiple regions.

**CICS APPLID:** Specify the default VTAM Application Identification to be used for the Energizer for CICS TSO/ISPF interface. It will automatically be the default CICS APPLID for the Parameters Facility and will be displayed at the top of all the parameter screens.

**CICS VERSION:** Specify the CICS version and release of the default CICS APPLID. This will be the default CICS version for the Energizer for CICS Parameters Facility. Some parameter ranges and defaults are also different. The parameter screens differ for these functions. The majority of functions are common to all releases. Verify this field for each CICS APPLID to be initialized and/or customized.

Press **Enter** to save the changes.

Press **PF3** to return to the Energizer for CICS Primary Menu.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Parameters Facility

The Energizer for CICS Parameters Facility is used to display, set, and change the parameter values of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation mode features. The current parameter values are contained in the Parameter File. The parameter settings displayed on the parameters screens for each function include either the default settings for each function or your customized settings. Modifications to the Parameter File will take effect the next time the function is activated in the CICS region. The parameters can also be temporarily overridden after the function is activated using the Energizer for CICS Control Facility.

Each function has its own AUTOSTART and Production/Simulation MODE parameter settings. The Autostart feature sets the function to automatically start when the CICS region is activated. The function can otherwise be manually activated in the region using the Energizer for CICS Control Facility. The Production/Simulation Mode Feature sets the permanent mode of operation for the function: PROD will report and perform the adjustments to the system as needed; SIML will only report the actions to the Report File. The mode of operation can be temporarily changed during manual activation of the function in the CICS region. The General Parameters screen allows you to globally set the AUTOSTART and MODE parameters for all the functions.

The Energizer for CICS Parameters Facility also contains the APPLID List Screen which is used as a maintenance facility for the Parameter File. This screen displays a list of APPLIDs contained in the Parameter File. It is accessed by either leaving the APPLID field blank on the Energizer for CICS Primary Menu to get a complete list of CICS APPLIDs, or by entering the generic form of the APPLID using the wildcard suffix \* to get a list of the corresponding CICS regions. The Parameters Facility APPLID List screen is used to select an APPLID for parameter customization or perform file-maintenance activities (such as copying parameter records, resetting parameter values to default values, or deleting the APPLID records from the Parameter File).

Before accessing the Parameters Facility, make sure that the Parameter File has been specified on the Dialog Management Screen (Option 4) .

## Parameters Facility APPLID List Screen (ILA)

The Parameters Facility APPLID List screen is displayed when you select Option 1, Parameters Facility, from the Energizer for CICS TSO/ISPF Primary Menu and enter a generic APPLID or leave the APPLID field blank.

**Figure 3-3 Parameters Facility APPLID List Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             PARAMETERS FACILITY      TIME 13:06
                                APPLID LIST          ILA
OPTION ==>

ENTER: 'S' - SELECT APPLID; 'D' - DELETE APPLID ; '?' - QUERY APPLID
       'C' - COPY APPLID; 'R' - COPY WITH REPLACE; 'I' - RESET TO DEFAULTS
-----
  APPLID  VER  TO APPLID STATUS
- CICS21  2.1
- CICS32  3.2
- CICS33  3.3
- CICS41  4.1
- CICS51  5.1
- CICS52  5.2
- CICS53  5.3
**END**

F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=UP
F8= DOWN  F9= SWAP  F10=     F11=     F12=

```

The Parameters Facility APPLID List screen is used to select CICS APPLIDs for parameter customization or perform file maintenance activities on the APPLID records in the Parameter File. It displays a complete list of all APPLIDs contained in the Parameter File if the APPLID field on the Energizer for CICS Primary Menu was blank. If the APPLID field contained a generic form of the APPLID with a wildcard suffix \*, only the corresponding CICS APPLIDs will be displayed.

To select an APPLID for parameter customization, type an **S** in the field preceding the APPLID and press **Enter**. Energizer for CICS displays the Parameters Facility screen (I10) described in the next section. The **APPLID** field on the top of this screen cannot be modified when the screen is reached from the APPLID List screen. Press **PF3** to return to the APPLID List screen to select the next APPLID for customization or to process the next APPLID, if multiple APPLIDs were selected.

The following maintenance commands can be entered in the field preceding the APPLID. Multiple requests will be processed separately, one at a time, upon completion of the previous request.

**? - QUERY APPLID:** Display general information about the parameter settings of this APPLID: CICS version and release, AUTOSTART and MODE settings, and the status of the parameters records for each function. See Figure 3-4 on page 3-9. Press **PF3** or **Enter** to return to this screen or to process the next request.

**C - COPY APPLID:** Copy the current APPLID parameter settings to the CICS APPLID entered in the **TO APPLID** field. Existing parameter settings will not be replaced. Use **COPY WITH REPLACE (R)** to replace all parameter values. Parameter settings that are missing for the current APPLID will be created and set to default values in the new APPLID parameter records.

**Note:** Ensure that the CICS regions identified by APPLID and TO APPLID have the same CICS version and release.

**R - COPY WITH REPLACE:** Copy the current APPLID parameter settings to the CICS APPLID entered in the **TO APPLID** field, replacing all existing parameter values. Use **COPY APPLID (C)** to copy only the non-existing parameter values. Parameter settings that are missing for the current APPLID, will be created and set to defaults in the new APPLID parameter records.

**I - RESET TO DEFAULTS:** Reset all the parameter settings for the APPLID to their default values according to the CICS version and release. Parameter settings that are missing will be created and set to default values. When you type over the VER field with a new CICS version and release, the parameters will be reset to the default values for the new version.

**D - DELETE APPLID:** Delete all the parameter records for this APPLID from the Parameter File. A box will be displayed asking for confirmation of the delete operation. Press **Enter** to delete or **PF3** to cancel the request.

**U - UPDATE CICS VERSION:** Change the CICS version and release of the APPLID in the Parameter File. Type over the **VER** field with a new CICS version and release. *No other* parameter values previously set for the APPLID will be changed.

Press **Enter** to process the request. The **STATUS** field will display the completion status of the request. One of the following return codes will also be displayed for the **COPY (C)**, **COPY WITH REPLACE (R)**, or **RESET TO DEFAULTS (I)** commands:

**RC=0:** Function successfully completed. All parameter values processed.

**RC=4:** Function successfully completed. Existing parameter values not replaced.

**RC=20:** Function failed. Contact Product Support.

Press **PF3** to return to the Energizer for CICS Primary Menu.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

**Figure 3-4 Parameters Facility APPLID List Query Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                   PARAMETERS FACILITY            TIME 13:29
                                APPLID LIST                    ILA

OPTION ==>

ENTER: 'S' - SELECT APP
       'C' - COPY APP

APPLID  VER  TO AP
_ CICS21 2.1
_ CICS32 3.2
_ CICS33 3.3
_ CICS41 4.1
? CICS51 5.1
_ CICS52 5.2
_ CICS53 5.3
**END**

F1=HELP  F2=SPLIT
F8=DOWN  F9=SWAP  F

                                APPLID = CICS51                PRESS PF3
                                VERSION = 5.1                AUTOSTART = NO        TO CONTINUE
                                MODE = PROD                    = PROD                    AUTO-
                                DISPATCH MANAGEMENT           YES NO PROD
                                MRO DISPATCH MANAGEMENT      YES NO PROD
                                MRO MIRROR TASK MANAGEMENT   YES NO PROD
                                MRO ISC/QUEUE MANAGEMENT     YES NO PROD
                                PROGRAM COMPRESSION MANAGE   YES NO PROD
                                STORAGE MANAGEMENT           YES NO PROD
                                VSAM QUEUE MANAGEMENT         YES NO PROD
                                TRACE MANAGEMENT            NO
                                VSAM SUBTASK MANAGEMENT       YES NO PROD
                                MAXTASKS MANAGEMENT          YES NO PROD
                                TEMPORARY STORAGE QUEUE MANA  YES NO PROD
                                TRANSIENT DATA QUEUE MANAGE YES NO PROD
                                TASK TIME-OUT MANAGEMENT     YES NO PROD
                                TRANSACTION CLASS MANAGEMEN YES NO PROD
  
```

## Parameters Facility Screen (I10)

Energizer for CICS displays the Parameters Facility screen

- when you select Option 1, Parameters Facility, from the Energizer for CICS Primary Menu and enter a non-generic CICS APPLID
- when you select an APPLID from the Parameters Facility APPLID List screen

**Figure 3-5 Parameters Facility Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                   PARAMETERS FACILITY            TIME 13:38
                                CICS APPLID = CICS51          I10

OPTION ==>

ENTER: 'S' TO SELECT FUNCTION

_ GENERAL                    _ TEMPORARY STORAGE QUEUE MANAGEMENT
_ DISPATCH MANAGEMENT        _ TRANSIENT DATA QUEUE MANAGEMENT
_ MRO DISPATCH MANAGEMENT    _ TASK TIME-OUT MANAGEMENT
_ MRO MIRROR TASK MANAGEMENT _ TRANSACTION CLASS MANAGEMENT
_ MRO/ISC QUEUE MANAGEMENT
_ PROGRAM COMPRESSION MANAGE
_ STORAGE MANAGEMENT
_ VSAM QUEUE MANAGEMENT
_ TRACE MANAGEMENT
_ VSAM SUBTASK MANAGEMENT
_ MAXTASKS MANAGEMENT

INITIALIZE TO DEFAULTS _ (Y) COPY TO APPLID ==> REPLACE _ (Y)

-----
F1= HELP  F2= SPLIT  F3= END   F4= RETURN F5=          F6=          F7=
F8=       F9= SWAP  F10=      F11=       F12=         F6=          F7=
  
```

The various Energizer for CICS Parameters screens are used to display, set, or change the parameter values of the Energizer for CICS functions and set their Automatic Startup and Production/Simulation Mode features. The Parameters Facility screen is used to select a function for parameter modification and to globally initialize the parameters for a CICS APPLID to the system default values or copy them to another CICS APPLID. Modifications to the parameters will take effect the next time the function is activated in the CICS region.

**Note:** Because of VSAM file-sharing limitations, it is advisable to exit the Control Facility screen in the CICS region before activating a function with the new parameter values.

Energizer for CICS can be installed in any CICS region. Because the functions are independent of one another, they can be activated separately in each region. The exception is the MRO Dispatch Management function, which, for best results, should be active in all connected CICS regions. The functional parameters can be different for each region. Unless the default parameters are desired, the parameters must be set for each CICS region where the function will be active. If you enter the VTAM Application Identification of CICS in the **CICS APPLID** field, each of the subsequent functional parameter screens will apply to that CICS region only. The CICS APPLID field on each screen displays the applicable region. To set the parameters for multiple CICS regions, you must return to this menu and enter a new CICS APPLID. If the Parameter File is not shared among your different CICS regions, you must also return to the Energizer for CICS Primary Menu and select Option 4, Dialog Management, to redefine the Parameter File.

**Note:** If you entered the Parameters Facility screen from the APPLID List screen, you must return to that screen, by pressing **PF3**, to select another APPLID.

**CICS APPLID:** Enter the VTAM Application Identification of the CICS region where Energizer for CICS will be active. The default is the APPLID entered on the Dialog Management screen. This field cannot be modified when the screen was reached from the APPLID List screen.

**INITIALIZE TO DEFAULTS:** Indicate whether to replace existing parameter records (**Y**) or only create new parameter records (**blank**). Type **Y** to update the Parameter File with the default values for all the functions. Press **Enter** to process the initialization. After initialization, customize a function, if necessary, by selecting it, as described below, and typing over the default entries.

**Note:** If the APPLID does not exist, Energizer for CICS will initialize the parameters to the default values for the CICS version entered on the Dialog Management Screen (Option 4). Otherwise, the parameters will be initialized to the default values for the CICS version currently defined for the APPLID.

**COPY TO APPLID:** Specify an additional CICS APPLID to copy all the current parameter settings. Indicate whether to replace existing parameter records (**Y**) or only create new parameter records (**blank**). Press **Enter** to process the duplication. To modify a functional parameter for the new CICS region after duplication, type over the **CICS APPLID** field above, select the function, press **Enter**, and type over the parameter entry.

**Note:** If you are not using the REPLACE option, make sure that the CICS regions identified by the **APPLID** and **COPY TO APPLID** fields have the same CICS version and release. Select **General** to display the CICS version of the APPLID.

**REPLACE:** Indicate whether to replace existing parameters (**Y**) or only create the parameter records that are missing (**blank**). This field applies to both INITIALIZE TO DEFAULTS and COPY TO APPLID.

**Note:** To simplify customization of Energizer for CICS in multiple CICS regions, initialize the first CICS region to the default values, customize the parameters as needed, copy the parameters to subsequent CICS regions, and customize each region if different. Verify the CICS version and release of each region.

The screen lists the Energizer for CICS functions. To select a function, type **S** in the field preceding the function and press **Enter**. Energizer for CICS displays the parameter screen for the function that you have selected. After entering the changes to the parameters, press **Enter** to update the Parameter File. Press **PF3** to return to this menu.

**Note:** As soon as you display a functional parameter screen, a parameter record for that function will be created with the default parameter values (if it does not already exist).

For multiple selections, enter an **S** in the field preceding each function and press **Enter**. Energizer for CICS will display the parameter screen for the first function you selected. After entering the changes to the parameters, press **Enter** to save the changes. Press **PF3** to display the parameter screen for the next function you have selected. When you have completed all the requested functions, press **PF3** to return to this menu.

**Note:** Be sure to press **ENTER** to save the changes on each parameter screen. PF3 will *not* update the Parameter File.

The functions and their parameter settings are described below. Each function also has its own AUTOSTART and Production/Simulation MODE parameter settings described previously.

**Note:** Be sure to modify the CICS VERSION field on the Dialog Management screen, if necessary, to get the appropriate CICS version and release.

**General:** The General Parameters screen is used to set the parameters for Energizer for CICS features that are used by multiple functions. The general parameter settings include the CICS version and release of the current region, the DDNAME of the Report File, the standard interval length used by the time dependent functions, the interval length used by the Reporting Function for writing records to the Report File, the interval length used by the Reporting Function for summary reports, the SVC Screening setting for the region, the default AUTOSTART and MODE parameters for all the functions, and the Exception Message Routing Option.

**Dispatch Management:** The Dispatch Management function dynamically controls when and for how long CICS will issue MVS waits. The Dispatch Management parameter settings include a CPU utilization threshold for managing the MVS waits and internal parameters that should only be changed based on the recommendation of Product Support personnel.

**MRO Dispatch Management:** The MRO Dispatch Management function dynamically controls when and how often Multi-Region Operation (MRO) requests are processed. MRO Dispatch Management parameter settings include internal parameters that should only be changed based on the recommendation of Product Support personnel.

**MRO Mirror Task Management:** The MRO Mirror Task Management function dynamically controls the number and use of long- and short-running mirror tasks in CICS Multi-Region Operations. The MRO Mirror Task Management parameter settings include the number of mirror tasks to keep active as a percentage of MAXTASKS, and the list of files to be included/excluded from the long-running mirror setting.

**MRO/ISC Queue Management:** The MRO/ISC Queue Management Function controls the number of tasks that can wait for an interconnected MRO/ISC session. The MRO/ISC Queue Management parameter settings include the maximum number of tasks allowed to wait for a session and a control parameter to purge waiting tasks during stress conditions.

**Program Compression Management:** The Program Compression Management function provides dynamic DSA utilization targets for the program management process of CICS. The parameter settings include maximum and minimum storage factors, and DSA utilization thresholds for determining when program compression is necessary.

**Storage Management:** The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations might be prevented before they occur. The function dynamically increases and decreases the CICS internal parameters DSALIMIT and EDSALIMIT, which are the upper limits of the amount of storage that CICS can allocate for the below- and above-the-line DSAs, respectively.

**VSAM Queue Management:** The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets and the number of requests that can wait for file strings and LSR strings and buffers. The VSAM Queue Management parameter settings include the maximum number of strings that can be added to a file, the maximum number of tasks allowed to wait for file strings and LSR strings and buffers, the parameter settings to cancel tasks when CICS is short on storage, at MXT, or at CMXT/MAXACTIVE for the appropriate task class, the parameter setting for restoring original string values prior to termination of the function, the specific files and tasks to be included/excluded from the function, the specific tasks to be excluded from termination during stress conditions, a file specification list for customizing the functional parameters for a specific file, and internal parameters that should only be changed based on the recommendation of Product Support personnel.

**Trace Management:** The Trace Management function controls the number of CICS trace subfunctions that are active whenever the CPU utilization exceeds a user-defined critical threshold. It will automatically begin to turn off CICS trace subfunctions, one by one, until the CPU usage falls below this critical point. When the CPU utilization falls below a second user-defined threshold, the deactivated trace subfunctions are reactivated, as long as the CPU resources are available for the service. Trace Management parameter settings include the maximum and minimum limits of CPU utilization for turning on and off CICS trace subfunctions, identification of CPU utilization to monitor, and a Trace Options table for prioritizing CICS trace subfunctions deactivation.

**VSAM Subtask Management:** The VSAM Subtask Management function dynamically controls the use of sub tasking CICS requests to VSAM based on user-defined limits of CPU utilization. When CPU utilization exceeds these thresholds, the function allows CICS to utilize VSAM sub tasking for PUT and GET operations. The function also turns off the appropriate subtask option when it calculates that the CPU usage without the active subtask will fall below the minimum defined. VSAM Subtask Management parameter settings include the separate minimum limits of CPU utilization for VSAM PUT and GET operations before activating VSAM Sub tasking, and an internal parameter that should only be changed based on the recommendation of Product Support personnel.

**Maxtasks Management:** The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the CICS Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, MAXTASKS and short-on-storage conditions, or if the current number of tasks is approaching MAXTASKS. Maxtasks Management parameter settings include the maximum limits of DSA and CPU utilization, maximum and minimum values for CICS MAXTASKS, starting value for CICS MAXTASKS, and a control parameter to allow reduction of MAXTASKS below its original value.

**Temporary Storage Queue Management:** The Temporary Storage Queue Management function dynamically manages the number of CICS temporary storage strings and buffers and the number of requests that can wait for these resources. Temporary Storage Queue Management parameter settings include the maximum number of temporary storage strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

**Transient Data Queue Management:** The Transient Data Queue Management function dynamically manages the number of CICS transient data strings and buffers and the number of requests that can wait for these resources. Transient Data Queue Management parameter settings include the maximum number of transient data strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

**Task Time-Out Management:** The Task Time-out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. Task Time-out Management parameter settings include the default maximum duration and purge conditions for all tasks handled by the function, a control parameter to create detailed action messages for each purged task, and a Task Age table for customizing these parameters individually for specific tasks.

Transaction Class Management: The Transaction Class Management function matches the workload processed to the resources available by dynamically increasing and decreasing the internal CICS parameters, MAXACTIVE and PURGETHRESH, for each transaction class, based on current storage availability and CPU utilization. When the CPU and/or DSA utilization exceeds user-defined thresholds, Energizer for CICS reduces the MAXACTIVE and/or the PURGETHRESH values for that class until the resources are again available. When the CPU and DSA usage fall below minimum thresholds and CICS is approaching the MAXACTIVE limit, Energizer for CICS increases the limit for that class. Transaction Class Management parameter settings include the minimum and maximum CPU and DSA utilization thresholds, the minimum and maximum MAXACTIVE and PURGETHRESH values allowed, the transaction class priority, the type of utilization measurement to use, a modification indicator, and a list of tasks to be included/excluded from the function.

Press **Enter** to process the selection.

Press **PF3** to return to the Energizer for CICS Primary Menu or to the Parameters Facility APPLID List screen.

Press **PF4** to return to the ISPF screen from which you invoked Energizer for CICS.

## General Parameters Screen (I101)

The General Parameters screen is displayed when you select General from the Parameters Facility screen.

**Figure 3-6 General Parameters Screen**

```

USERID L99087          ENERJZER/CICS          DATE 99/08/02
REL 4.100              GENERAL PARAMETERS      TIME 13:48
                                      I101
OPTION ==>              CICS APPLID = CICS51
                                      DEFAULT

CICS VERSION           ==> 5.1              5.1
DDNAME OF REPORT FILE ==> PEREPORT         PEREPORT
ACTIVATION INTERVAL   (TUNINTV) ==> 30      30      (1 - 300)
REPORT BATCHING INTERVAL (REPINTV) ==> 30    030     (5 - 300)
REPORTING INTERVAL    (REPFREQ) ==> 600     600     (60 - 3600)
USE SVC SCREENING     ==> YES              YES     (YES, NO)

TCCOUNT               ==> YES              * INTERNAL *
AUTOSTART              ==> NO              NO      (YES, NO)
MODE                   ==> PROD           PROD    (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END   F4= RETURN  F5=      F6=      F7=
F8=      F9= SWAP   F10=      F11=      F12= EXC MSG

```

The Energizer for CICS General Parameters screen is used to set the parameters for Energizer for CICS features that are used by multiple functions and define the characteristics of the CICS region. These settings include

- DDNAME of the Report File used by all the functions
- standard interval length used by the time-dependent functions
- interval length used by the reporting function for writing records to the report file
- interval length used by the reporting function for summary reports
- SVC Screening setting for the region
- default AUTOSTART parameter for all the functions
- default MODE parameter for all the functions when Energizer for CICS is activated in the CICS region

An Exception Message Routing option allows the user to direct Energizer for CICS exception-type action messages to the computer console and/or to a user-defined transient data queue destination. Individual exception messages can also be customized separately.

**CICS VERSION:** The CICS version and release installed in this region as obtained from the default value entered on the Dialog Management Screen, or as specified on the Transaction List Screen.

**DDNAME OF REPORT FILE:** Specify the customized DDNAME of the report file used by Energizer for CICS to capture all of the specific messages generated during the activation and operation of Energizer for CICS in the CICS region. The contents of this file can be displayed using the Online Reporting Facility and Batch Reporting Facility. See Chapter 5, “Online Reporting Facility” and Chapter 6, “Batch Reporting Facility”, respectively.

**Default:** PEREPORT

**Format:** eight-character name

**Restrictions:** BMC Software recommends that you use the default file name.

**ACTIVATION INTERVAL (TUNINTV):** Specify the length of time between two successive monitoring checks of the CICS system by the Energizer for CICS lon- running tuning transaction. This is the standard interval length that will be used for a problem free CICS system operating at low to medium utilization. Energizer for CICS will adjust this time interval, depending on resource utilization and problem situations.

**Default:** 30

**Range of Values:** 1-300 seconds

**Restrictions:** This parameter should only be changed based on the recommendation of Product Support personnel.

**REPORT BATCHING INTERVAL (REPINTV):** Specify the length of time (in seconds) between two successive updates of the Report File by the Energizer for CICS Reporting Address Space.

**Default:** 30

**Range of Values:** 5-300 seconds

**Restrictions:** This parameter should only be changed based on the recommendation of Product Support personnel.

**REPORTING INTERVAL (REPFREQ):** Specify the length of time in seconds between two successive Energizer for CICS summary reporting activities.

**Default:** 600

**Range of Values:** 60-3600 seconds

**Restrictions:** This parameter should only be changed based on the recommendation of Product Support personnel.

**USE SVC SCREENING:** Specify whether to use the Energizer for CICS Screened Front-End to the MVS WAIT SVC (YES) or the Energizer for CICS General Front-End (NO) in order to provide the Dispatch Management, MRO Dispatch Management, and MRO Mirror Task Management services. The Screened Front-End is effective only in the particular CICS region. If you specify yes, and some other product has already installed a Screened Front-End in that CICS region, Energizer for CICS will attempt to use the Energizer for CICS Front-End to the MVS WAIT SVC. If you specify no, and there is no Energizer for CICS General Front-End installed for the MVS WAIT SVC, Energizer for CICS will issue an error message when attempting to start the Dispatch Management functions. The services of the Dispatch Management and MRO Dispatch Management Functions cannot be activated without the installation of the Energizer for CICS SVCs. The MRO Mirror Task Management function can be activated but with limited services. Refer to “Dynamic SVC Install and Table Maintenance” on page 2-15.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**AUTOSTART:** Specify whether to automatically start all of the functions in Energizer for CICS when the CICS region is brought up. The default for this parameter is NO. The user can selectively set the AUTOSTART parameter for each function separately. The default for each of the individual Energizer for CICS functions is also NO. In order to automatically activate the functions in the region, either change this parameter to YES, which will set their AUTOSTART parameter to YES, or change the setting to YES for each function that you want automatically activated. To manually activate a function, use the online Control Facility. See Chapter 4, “Starting and Stopping Energizer for CICS”.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** Use this parameter to globally set the AUTOSTART parameter for all the functions. The AUTOSTART setting for each function will override this global parameter.

**MODE:** Specify the mode of operation for all of the functions in Energizer for CICS. **PROD** sets all the Energizer for CICS functions to production mode; all activated functions will report and perform the adjustments to the system as needed. **SIML** sets all the functions to simulation mode; the activated functions will only report the proposed actions to the Report File. The actions will not actually be implemented. The default setting for this parameter is **PROD**. The default setting for all the functions is also **PROD**. In order to restrict a function from making adjustments to the system, change the **MODE** setting for that function to **SIML**.

**Default:** **PROD**

**Range of Values:** **PROD/SIML**

**Restrictions:** Use this parameter to globally set the **MODE** parameter for all the functions. The **MODE** setting for each function will override this global parameter.

**INTERNAL PARAMETER:** This parameter should only be changed based on the recommendation of Product Support personnel.

Press **PF12** to access the Exception Action Message Routing screen. If changes were made to the General Parameters screen, press **Enter** to save the changes before accessing the Exception Message option.

Press **Enter** to save the changes. A message is displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Exception Action Message Routing Screen (I1mg)

The Exception Action Message Routing screen is used to specify whether to direct Energizer for CICS exception-type action messages to the console and/or to a user-defined transient data queue destination when an exception message is written to the Report File. Exception messages are action messages indicating exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources.) The user can also indicate whether to include the Action Box with the message, decide whether to send the message even if the action was not taken, and specify the maximum time allowable between generating the message and sending it to the console and/or transient data queue destination.

**Figure 3-7 Exception Action Message Routing Screen**

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL    4.100          GENERAL PARAMETERS          TIME  13:58
                                EXCEPTION ACTION MESSAGE ROUTING          I1MG
OPTION  ==>          CICS APPLID = CICS52
                                DEFAULT
SEND MESSAGES TO CONSOLE          ==>  NO          NO          (YES, NO)
TD DESTINATION TO SEND MESSAGES  ==>  NONE        NONE
SEND ACTION BOX                   ==>  NO          NO          (YES, NO)
SEND MESSAGE IF ACTION WAS NOT TAKEN ==>  NO          NO          (YES, NO)
MAXIMUM MESSAGE AGING (SECONDS)  ==>  120        120        ( 5 - 3600 )

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=          F11=          F12= MSG LIST

```

The Exception Action Message Routing screen sets the parameters globally for all exception-type action messages. Each exception message can be customized individually with separate parameters and destinations by using the Exception Action Message List Screen (I1ML) and Message Routing Attributes screen (I1MD). Press **Enter** to update the Parameter File. Press **PF3** to return to the General Parameters screen.

**SEND MESSAGES TO CONSOLE:** Specify **YES** if you want all of the exception messages to be directed to the console. The default is **NO**. Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**TD DESTINATION TO SEND MESSAGES:** Specify the transient data queue destination for all exception messages. The default is **NONE** (i.e. exception messages will not be sent to a transient data destination). Individual exception messages can be directed to customized destinations using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

**Default:** NONE

**Range of Values:** NONE or one–four character transient data queue name

**Restrictions:** None

**SEND ACTION BOX:** Specify **YES** if you want to include detailed information about each of the exception messages. These are the details contained in the Activity Box on the online Reporting Facility. Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**SEND MESSAGE IF ACTION WAS NOT TAKEN:** Specify **YES** if you want to send the message even if the action was not taken (i.e., the message is followed by \* NOT TAKEN \*). Specific exception messages can be excluded from this specification by using the Exception Action Message List (I1ML) and Message Routing Attributes screen (I1MD).

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MAXIMUM MESSAGE AGING (SECONDS):** Specify the maximum time allowable, in seconds, between generating the message and sending it to the console and/or transient data queue destination. Specific exception messages can be customized individually by using the Exception Action Message List Screen (I1ML) and Message Routing Attributes Screen (I1MD).

**Default:** 120

**Range of Values:** 5 - 3600

**Restrictions:** None

Press **PF12** to access the Exception Action Message List screen. If changes were made to the Exception Message Routing screen, press **Enter** to save the changes before accessing the Exception Action Message List.

## Exception Action Message List (I1ml)

The Exception Action Message List screen is used to select the exception messages that are to be individually customized with separate parameters and destinations. Messages that are highlighted will be sent to either the console or a transient data destination according to their attributes. To select an exception message from the list, type **S** in the field preceding the message code and press **Enter**. Modify the global parameter settings by typing over the entries and press **Enter** to save the changes. Press **PF3** to return to the Exception Action Message List.

To delete the customization of an exception message, type **D** in the field preceding the message code and press **Enter**. The parameters for the exception message will return to the global values set by the Exception Action Message Routing screen (I1MG). Press **PF3** to return to the Exception Action Message Routing screen.

**Figure 3-8 Exception Action Message List Screen (CICS 5.2)**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             GENERAL PARAMETERS      TIME 14:04
                                EXCEPTION ACTION MESSAGE LIST      I1ML

OPTION ==>                                CICS APPLID = CICS52

- AC003C - AC010C - AC011C - AC013C - AC014C - AC016C - AC017C - AC018C
- AC019C - AC020C - AC021C - AC022C - AC024C - AC025C - AC027C - AC028C
- AC029C - AC040C - AC041C - AC042C - AC043C - AC044C

ENTER: D - DELETE; S - SELECT
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN  F5=       F6=       F7=
F8=        F9= SWAP   F10=        F11=        F12=
    
```

## Message Routing Attributes Screen (I1md)

The Message Routing Attributes screen is used to customize the parameters for an individual exception action message. The parameters are the same as on the Exception Action Message Routing Screen (I1MG). Modify the values by typing over the entries. Press **Enter** to save the changes. Press **PF3** to return to the Exception Action Message List.

**Figure 3-9 Message Routing Attributes Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             GENERAL PARAMETERS        TIME 14:09
                                MESSAGE AC003C ROUTING ATTRIBUTES          I1MD
                                CICS APPLID = CICS52
OPTION ==>           DEFAULT

SEND MESSAGES TO CONSOLE      ==> NO          NO          (YES, NO)
TO DESTINATION TO SEND MESSAGES ==> CSMT       NONE
SEND ACTION BOX              ==> NO          NO          (YES, NO)
SEND MESSAGE IF ACTION WAS NOT TAKEN ==> NO       NO          (YES, NO)
MAXIMUM MESSAGE AGING (SECONDS) ==> 120       120        ( 5 - 3600 )

```

PRESS ENTER TO SAVE CHANGES

```

-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=       F9= SWAP  F10=     F11=     F12=

```

## Dispatch Management Parameters Screen (I13@)

The Dispatch Management Parameters Screen is displayed when you select Dispatch Management from the Parameters Facility screen.

**Figure 3-10 Dispatch Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             DISPATCH MANAGEMENT PARAMETERS        TIME 14:11
                                CICS APPLID = CICS53
OPTION ==>           DEFAULT

DISPATCH PARAMETER          ==> 4          4          (0-10)
CICS CPU % UTILIZATION      ==> 10         10         (0 - 99)
AUTOSTART                   ==> NO          NO          (YES, NO)
MODE                        ==> PROD        PROD        (PROD, SIML)

COUNTLIMIT                 ==> 200         * INTERNAL *
BASEADJ                     ==> 2          * INTERNAL *

```

PRESS ENTER TO SAVE CHANGES

```

-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=       F9= SWAP  F10=     F11=     F12=

```

The Energizer for CICS Dispatch Management Parameters screen is used to set the parameters for the Dispatch Management function. The Dispatch Management function dynamically controls the number and length of MVS waits issued by CICS. When scheduling a task for execution, CICS uses a significant amount of CPU going in and out of MVS waits. The Dispatch Management function uses a proprietary algorithm to evaluate the workload and determine when and for how long CICS will issue MVS waits.

**Note:** The Dispatch Management function cannot be activated without the installation of the Energizer for CICS Front-End to the MVS WAIT SVC. Refer to “Dynamic SVC Install and Table Maintenance” on page 2-15. Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function with the same mode of operation, and vice versa.

**DISPATCH PARAMETER:** This is an internal parameter.

**Default:** 4

**Range of Values:** 0 - 10

**Restrictions:** This parameter should only be changed based on the recommendation of Product Support personnel.

**CICS CPU % UTILIZATION:** Enter the CICS CPU utilization threshold as a percentage. The Dispatch Management function will start managing the number and length of MVS waits when CICS CPU utilization exceeds this percentage.

**Default:** 10

**Range of Values:** 0 - 99

**Restrictions:** This parameter should only be changed based on the recommendation of Product Support personnel

**AUTOSTART:** Specify whether to automatically start the Dispatch Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

**Note:** Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function, and vice versa.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Dispatch Management function. **PROD** will report and perform the adjustments to the system as needed. **SIML** will only report the actions to the Report File.

**Note:** Setting the mode of operation of the Dispatch Management function will set the same mode for the MRO Dispatch Management Function, and vice versa.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

**INTERNAL PARAMETERS:** These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## MRO Dispatch Management Parameters Screen (I1C\$)

The MRO Dispatch Management Parameters Screen is displayed when you select **MRO Dispatch Management** from the Parameters Facility screen.

Figure 3-11 MRO Dispatch Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             MRO DISPATCH MANAGEMENT PARAMETERS TIME 14:20
                                                I1C$

OPTION ==>          CICS APPLID = CICS41

                                DEFAULT
AUTOSTART              ==> NO          NO          (YES, NO)
MODE                  ==> PROD        PROD        (PROD, SIML)

LIMIT1                ==> 40          * INTERNAL *
LIMIT2                ==> 25          * INTERNAL *
LIMIT3                ==> 2          * INTERNAL *
LIMIT4                ==> 99          * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

The Energizer for CICS MRO Dispatch Management Parameters screen is used to set the parameters for the MRO Dispatch Management function. The MRO Dispatch Management function dynamically controls the dispatching of Multi-Region Operation (MRO) requests. MRO requests utilize considerable CPU overhead. The MRO Dispatch Management function uses a proprietary algorithm to evaluate the current workload and determine when and how often the requests are processed.

**Note:** The MRO Dispatch Management function cannot be activated without the installation of the Energizer for CICS Front-End to the MVS WAIT SVC. Refer to “Dynamic SVC Install and Table Maintenance” on page 2-15. Activation of the MRO Dispatch Management function will automatically activate the Dispatch Management function with the same mode of operation, and vice versa.

**MRO DISPATCH PARAMETER:** This is an internal parameter. This parameter is part of the Dispatch Management function.

**Default:** 2

**Range of Values:** 1 - 255

**Restrictions:** This parameter should only be changed based on the recommendation of product Support Personnel.

**AUTOSTART:** Specify whether to automatically start the MRO Dispatch Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4.

**Note:** Activation of the MRO Dispatch Management function will automatically activate the Dispatch Management function, and vice versa.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the MRO Dispatch Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Note:** Setting the mode of operation of the MRO Dispatch Management function will set the same mode for the Dispatch Management function, and vice versa.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

**INTERNAL PARAMETERS:** These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## MRO Mirror Task Management Parameters Screen (I1D@)

The MRO Mirror Task Management Parameters Screen, as shown in Figure 3-12 on page 3-28, is displayed when you select **MRO Mirror Task Management** from the Parameters Facility Screen.

**Figure 3-12 MRO Mirror Task Management Parameters Screen**

```

USERID  L99087          ENERGIZER/CICS          DATE  98/03/11
REL    3.700          MRO MIRROR TASK MANAGEMENT PARAMETERS  TIME  14:24
                                                1100

OPTION  ==>          CICS APPLID = CICS51
                                                DEFAULT

MRO LONG RUNNING FILE LIST          ==>  INCLUDE  INCLUDE  (INCLUDE, EXCLUDE)

AUTOSTART MODE          ==>  NO      NO      (YES, NO)
                              ==>  PROD   PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN  F5=
F8=        F9= SWAP   F10=    F11= FILES  F12=

```

The Energizer for CICS MRO Mirror Task Management Parameters screen is used to set the parameters for the MRO Mirror Task Management function. The MRO Mirror Task Management Function dynamically controls the number and use of long- and short-running mirror tasks in CICS Multi-Region Operations. Mirror tasks are tasks that handle cross-region requests. Mirror tasks can remain attached to the MRO session for the life of the transaction (long-running), or be attached and detached for each request (short-running). Attaching and detaching mirror tasks increases CPU overhead and should only be implemented for tasks requiring two or less MRO requests. CICS provides the MROLRM system initialization parameter to specify whether mirror tasks should be long-running or short-running. This single parameter is set for all files and tasks within the region. The MRO Mirror Task Management function allows the user to explicitly define which files should utilize long-running or short-running mirror tasks.

**Note:** This service of the MRO Mirror Task Management function cannot be activated without the installation of the Energizer for CICS Front-End to the MVS WAIT SVC. Otherwise, only the long-running service will be available. Refer to Chapter 2, “Installation.”.

**MRO LONG RUNNING FILE LIST:** Specify whether the files listed on the next screen will be included or excluded from the MRO Mirror Task Management function. An EXCLUDE setting means that the files listed will have short-running mirror tasks unless CICS decides otherwise. All files not on the list will have long-running mirror tasks. An INCLUDE setting means that the files will have long-running mirror tasks. All files not on the list will have short-running mirror tasks unless CICS decides otherwise.

**Default:** INCLUDE

**Range of Values:** INCLUDE/EXCLUDE

**Restrictions:** None



**MODE:** Specify the mode of operation for the MRO Mirror Task Management function. **PROD** will report and perform the adjustments to the system as needed. **SIML** will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## MRO/ISC Queue Management Parameters Screen (I10F)

The MRO/ISC Queue Management Parameters screen is displayed when you select **MRO/ISC Queue Management** from the Parameters Facility Screen.

**Figure 3-14 MRO/ISC Queue Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             MRO/ISC QUEUE MANAGEMENT PARAMETERS  TIME 14:28
                                                              I10F

OPTION ==>                                CICS APPLID = CICS53
                                          DEFAULT

MAXIMUM TASKS TO WAIT FOR A SESSION  ==> 5      5      (0 - 999)
PURGE ALL WAITING TASKS DURING STRESS ==> YES    YES    (YES, NO)

AUTOSTART                                ==> NO     NO     (YES, NO)
MODE                                     ==> PROD   PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=
    
```

The Energizer for CICS MRO/ISC Queue Management Parameters screen is used to set the parameters for the MRO/ISC Queue Management function. The MRO/ISC Queue Management function dynamically manages the number of tasks that can wait for an interconnected session. The use of interconnected CICS systems has solved many CICS user problems but has also introduced another potentially disastrous problem. If one CICS system has a problem, it is likely to spread to other connected systems and affect multiple users.

The Energizer for CICS queue management functions eliminate most CICS bottlenecks, potential lockouts, and sympathetic outages. However, Energizer for CICS provides an additional fail-safe mechanism to prevent problems from spreading from one CICS system to another. When CICS reaches the maximum number of tasks that can wait for an interconnected MRO/ISC session, The MRO/ISC Queue Management function will terminate any subsequent requests for this session. This action will prevent CICS from locking out because of a Short-On-Storage condition or by reaching MAXTASKS. It eliminates the threat of sympathetic outages and the massive disruption of service inherent in interconnected CICS systems.

**Note:** If the XZIQUE user exit is enabled in CICS, the MRO/ISC Queue Management Function will automatically terminate itself so that it will not interfere with this exit. It should be noted, however, that using this function *instead* of the XZIQUE user exit generates significantly less overhead.

**Note:** If the QUEUELIMIT parameter has a value other than NO in the CONNECTION definition for the remote system, the function will not handle tasks waiting for sessions to this system.

**MAXIMUM TASKS TO WAIT FOR A SESSION:** Specify the maximum number of tasks that will be allowed to wait for an MRO/ISC session.

**Default:** 10

**Range of Values:** 0 - 999

**Restrictions:** None

**PURGE ALL WAITING TASKS DURING STRESS:** Specify whether all waiting tasks can be purged during detected MAXTASKS or Short-On-Storage stress conditions.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**Note:** If you do not want Energizer for CICS to purge any waiting tasks, set **MAXIMUM TASKS TO WAIT FOR A SESSION** to **999** and **PURGE ALL WAITING TASKS DURING STRESS** to **NO**.

**AUTOSTART:** Specify whether to automatically start the MRO/ISC Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the MRO/ISC Queue Management function. **PROD** will report and perform the adjustments to the system as needed. **SIML** will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

# Program Compression Management Parameters Screen (I17@)

The Program Compression Management Parameters screen is displayed when you select **Program Compression Management** from the Parameters Facility screen:

Figure 3-15 Program Compression Management Parameters Screen

```

USERID  L99090          ENERGIZER/CICS          DATE  99/08/03
REL  4.10              PROGRAM COMPRESSION MANAGEMENT PARAMETERS  TIME  14:46
                                                117@
OPTION  ===>
                                                CICS APPLID = CICS41
                                                DEFAULT
MINIMUM STORAGE FACTOR %          ===>  45          45          ( 0 - 100 )
MAXIMUM STORAGE FACTOR %          ===>  85          85          ( 0 - 100 )
HIGH DSA % UTILIZATION            ===>  85          85          ( 0 - 100 )
HIGH EDSA % UTILIZATION           ===>  95          85          ( 0 - 100 )
AUTOSTART                         ===>  NO          NO          (YES, NO)
MODE                              ===>  PROD         PROD         (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN F5=
F8=        F9= SWAP   F10=      F11=      F12=      F6=      F7=
    
```

The Energizer for CICS Program Compression Management Parameters screen is used to set the parameters for the Program Compression Management function. This function provides dynamic DSA utilization targets for the program-management process. It transforms the fixed CICS free storage factor into a dynamic variable, set according to the size, free area and task storage usage of the DSA.

**MINIMUM STORAGE FACTOR %:** Enter the minimum value for the storage factor as a percentage. This is the minimum amount of DSA that Energizer for CICS will allow for loaded programs.

**Default:** 45

**Range of Values:** 0 - 100

**Restrictions:** Minimum Storage Factor % must be less than Maximum Storage Factor %.

**MAXIMUM STORAGE FACTOR %:** Enter the maximum value for the storage factor as a percentage. This is the maximum amount of DSA that Energizer for CICS will allow for loaded programs.

**Default:** 85

**Range of Values:** 0 - 100

**Restrictions:** Maximum Storage Factor % must be greater than Minimum Storage Factor %.

**Note:** DSAs are divided into two groups: below-the-line DSAs and above-the-line DSAs. The maximum DSA utilization thresholds are not defined for each individual DSA, but rather, for each of the two groups of DSAs.

The following parameter description is for all DSAs:

**HIGH DSA % UTILIZATION:** Enter the maximum utilization threshold of the relevant DSA as a percentage. When DSA utilization exceeds this percentage, Energizer for CICS will cause CICS to delete the oldest inactive programs. If DSA utilization is below this threshold and no SOS condition is present, Energizer for CICS will increase the storage factor to the maximum defined by the Maximum Storage Factor % Parameter.

**Default:** 85 for the below-the-line DSAs

**Range of Values:** 0 - 99

**Restrictions:** None

**HIGH EDSA % UTILIZATION:** Maximum utilization percentage of each individual above-the-line (extended) DSA (CICS, read-only, shared, and use).

**Default:** 95 for the above-the-line DSAs

**Range of Values:** 0 - 99

**Restrictions:** None

**AUTOSTART:** Specify whether to automatically start the Program Compression Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4, "Starting and Stopping Energizer for CICS."

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Program Compression function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Storage Management Parameters Screen

The Storage Management Parameters screen is displayed when you select **Storage Management** from the Parameters Facility screen.

**Figure 3-16 Storage Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             STORAGE MANAGEMENT PARAMETERS  TIME 14:57
                                I18@
OPTION ==>          CICS APPLID = CICS51
                                DEFAULT
AUTOSTART           ==> NO          NO          (YES, NO)
MODE                ==> PROD       PROD       (PROD, SIML)

```

PRESS ENTER TO SAVE CHANGES

```

-----
F1= HELP  F2= SPLIT  F3= END   F4= RETURN  F5=      F6=      F7=
F8=      F9= SWAP   F10=     F11=      F12=

```

The Energizer for CICS Storage Management Parameters screen is used to set the parameters for the Storage Management function. The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations can be prevented before they occur. The function dynamically increases and decreases the CICS internal parameters DSALIMIT and EDSALIMIT, which are the upper limits of the amount of storage which CICS can allocate for the below- and above-the-line DSAs, respectively.

**Note:** Allocated storage, especially below the line, is released immediately when not needed. Energizer for CICS will not decrease the DSALIMIT and EDSALIMIT parameters below their original values. The upper limit of DSALIMIT is set to 300K less than the original amount of free MVS storage below the line. The maximum value of EDSALIMIT that the function will use leaves a spare amount of at least 5M of free MVS storage above the line. The function will automatically terminate itself if this spare amount is not available. It is therefore recommended to run the CICS job with a sufficiently large REGION parameter specified in the JCL.

**AUTOSTART:** Specify whether to automatically start the Storage Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4, “Starting and Stopping Energizer for CICS.”.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Storage Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## VSAM Queue Management Parameters Screen (I19@)

The VSAM Queue Management Parameters screen is displayed when you select **VSAM Queue Management** from the Parameters Facility screen.

Figure 3-17 VSAM Queue Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 98/03/11
REL 3.700             VSAM QUEUE MANAGEMENT PARAMETERS  TIME 14:58
                                                    I19@
OPTION ==>          CICS APPLID = CICS51
                                DEFAULT
NUMBER OF STRINGS TO ADD          ==> 3          3          (0-99)
NUMBER OF TASKS TO WAIT FOR STRINGS ==> 3          3          (0-999)
NUM OF TASKS TO WAIT FOR LSR STR/BUFF ==> 3          3          (0-999)
CANCEL WAITING TASKS ON SDS        ==> YES         YES         (YES, NO)
CANCEL WAITING TASKS ON MXT        ==> YES         YES         (YES, NO)
CANCEL WAITING TASKS ON TCLASS MAXACT ==> YES         YES         (YES, NO)
RESTORE ORIGINAL STRING NUMBER     ==> YES         YES         (YES, NO)
FILE LIST                          ==> EXCLUDE    EXCLUDE    (INCLUDE, EXCLUDE)
TASK LIST                          ==> EXCLUDE    EXCLUDE    (INCLUDE, EXCLUDE)
AUTOSTART                          ==> NO         NO         (YES, NO)
MODE                               ==> PROD        PROD        (PROD, SIML)

NUMFATE                            ==> 100        * INTERNAL *
STLSTLN                            ==> 8          * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=          F6= TSK PURGE EXCL  F7=
F8=          F9= SWAP  F10= TASKS  F11= FILES  F12= FILE SPEC LIST

```

The Energizer for CICS VSAM Queue Management Parameters screen is used to set the parameters for the VSAM Queue Management function. The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets and the number of file requests that can wait for file strings and LSR strings and buffers.

Logical resources used by CICS are predefined at system startup. Until now, they could not be increased, as needed, in real-time. If any of these resources are not immediately available, CICS puts the requesting task in a queue. These queues can keep growing because of an unexpected peak demand for a resource, or because of a slow disk response. Eventually, CICS reaches MAXTASKS or a Short-On-Storage stress condition caused by the waiting tasks. CICS is then locked out. In Multi-Region Operations, these lockouts can spread to connected regions as well. This is called a *sympathetic* outage.

The VSAM Queue Management function eliminates these bottlenecks and lockouts by dynamically adding strings, as needed, to meet unexpected demands, limiting the number of tasks waiting for strings and buffers, and terminating tasks waiting for these resources when CICS is approaching a stress condition or potential lockout. Energizer for CICS allows the user to identify specific tasks and files to be excluded or included in this queue management function and to specify tasks to be excluded from the termination process. The function also allows the user to customize the parameters individually for specific files. There are additional VSAM Queue Management Parameters screens available for these services. They are accessed via the PF keys.

**NUMBER OF STRINGS TO ADD:** Enter the maximum number of file strings that will be allowed to be added to the file string number after the number of active strings reaches the maximum specified for the file in the CICS File Control Table (FCT).

**Default:** 3

**Range of Values:** 0 - 99

**Restrictions:** None

**NUMBER OF TASKS TO WAIT FOR STRINGS:** Enter the maximum number of tasks that will be allowed to wait for a file string after the number of active strings reaches the maximum specified in the CICS File Control Table (FCT) and the maximum number of allowable strings have been added.

**Default:** 3

**Range of Values:** 0 - 999

**Restrictions:** None

**NUMBER OF TASKS TO WAIT FOR LSR STRINGS/BUFFERS:**  
Enter the maximum number of tasks that will be allowed to wait for an LSR string before Energizer for CICS begins terminating tasks that would go into wait. The same number will also be used for LSR buffers.

**Default:** 3

**Range of Values:** 0 - 999

**Restrictions:** None

**CANCEL WAITING TASKS ON SOS:** Specify whether or not to cancel waiting tasks when CICS is Short-On-Storage (SOS), regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is SOS. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**CANCEL WAITING TASKS ON MXT:** Specify whether or not to cancel waiting tasks when CICS is at MAXTASKS, regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is at MAXTASKS. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**CANCEL WAITING TASKS ON TCLASS MAXACT:** Specify whether or not to cancel waiting tasks when CICS is at TCLASS MAXACT for that task class, regardless of the NUMBER OF TASKS TO WAIT settings. A YES setting will terminate a task that will otherwise wait for a file string, LSR string, or an LSR buffer when CICS is at TCLASS MAXACT for that task class. Tasks listed on the Task Purge Exclusion List screens will be excluded from termination.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**Note:** If you do not want Energizer for CICS to purge any waiting tasks, set the NUMBER OF TASKS TO WAIT parameters to **999** and the CANCEL WAITING TASKS parameters to **NO**.

**RESTORE ORIGINAL STRING NUMBER:** Specify whether or not to restore the original string values prior to the function's termination. The default value is YES. If more strings are in use at termination than originally defined, the original string value will not be restored.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**FILE LIST:** Specify whether the files listed on the File Inclusion/Exclusion List screen will be included or excluded from the VSAM Queue Management function. An EXCLUDE setting means that the files listed on the File Exclusion List will not be managed by the function. An INCLUDE setting applies VSAM Queue Management *only* to the files listed on the File Inclusion List.

**Default:** EXCLUDE

**Range of Values:** INCLUDE/EXCLUDE

**Restrictions:** None

**TASK LIST:** Specify whether the tasks listed on the Task Inclusion/Exclusion List screen will be included or excluded from the VSAM Queue Management function. An EXCLUDE setting means that the tasks listed on the Task Exclusion List will not be managed by the function. An INCLUDE setting applies VSAM Queue Management *only* to the tasks listed on the Task Inclusion List.

**Default:** EXCLUDE

**Range of Values:** INCLUDE/EXCLUDE

**Restrictions:** None

**AUTOSTART:** Specify whether to automatically start the VSAM Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the VSAM Queue Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

**INTERNAL PARAMETERS:** These parameters should only be changed based on the recommendation of Product Support personnel.

The additional screens for the VSAM Queue Management function can be accessed with the PF Keys.

Press **Enter** to save the changes.

Press **PF3** to return to the VSAM Queue Management Parameters screen.

**PF10** - Task Exclusion/Inclusion List

**PF11** - File Exclusion/Inclusion List

**PF12** - File Specification List

Press **PF6** to access the Task Purge Exclusion List screen. The tasks listed on the Task Purge Exclusion List will *not* be terminated by the function regardless of any queue lengths or system stress conditions.

## Task Purge Exclusion List Screen (I19P/I19E)

The Task Purge Exclusion List screen, shown in Figure 3-18 on page 3-42, is displayed when you press **PF10** on the VSAM Queue Management Parameters screen. If the TASK LIST parameter setting is EXCLUDE, the Task Exclusion List screen will be displayed. If the TASK LIST parameter setting is INCLUDE, the Task Inclusion List Screen will be displayed.

It is used to specify the tasks excluded from termination by the function for a specific file included on the File Specification List. See “VSAM Queue Management File Specification List Screen” on page 3-45









## FILE ATTRIBUTES SCREEN (I19A/I19B)

The File Attribute parameters are the same as on the VSAM Queue Management Parameters screen (I109/I19@). Modify the parameter settings by typing over the entries.

**Figure 3-22 VSAM Queue Management File Attributes Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             VSAM QUEUE MANAGEMENT PARAMETERS  TIME 15:12
                                                FILE XXXXXXXX ATTRIBUTES  I19A

OPTION ==>
                                CICS APPLID = CICS33
                                DEFAULT
NUMBER OF STRINGS TO ADD          ==> 3 3 (0-99)
NUMBER OF TASKS TO WAIT FOR STRINGS ==> 3 3 (0-999)
NUMBER OF TASKS TO WAIT FOR LSR STRINGS/BUF ==> 3 3 (0-999)
CANCEL WAITING TASKS ON SOS      ==> YES YES (YES, NO)
CANCEL WAITING TASKS ON MXT      ==> YES YES (YES, NO)
CANCEL WAITING TASKS ON CMXT     ==> YES YES (YES, NO)
RESTORE ORIGINAL STRING NUMBER   ==> YES YES (YES, NO)

PRESS ENTER TO SAVE CHANGES
PE364I: ADDITION(S) DONE; PARAMETER FILE UPDATED
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=
F8=       F9= SWAP  F10=    F11=     F12=
F6= TSK PURGE EXCL F7=
    
```

**FILE TASK PURGE EXCLUSION LIST SCREEN (I19E):** This screen is identical to the Task Purge Exclusion List screen (I19P). Specify which tasks are to be excluded from termination by the function for the specific file regardless of any queue lengths or system stress conditions.

Press **Enter** to save the changes.

If you only selected this function, press **PF3** to return to the Parameters Facility screen. If you selected multiple functions, the parameter screen for the next function is displayed.

Press **PF4** to return to the ISPF screen from which Energizer for CICS was invoked.

## Trace Management Parameters Screen (I10A)

Energizer for CICS displays the Trace Management Parameters screen when you select **Trace Management** from the Parameters Facility screen.

**Figure 3-23 Trace Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100              TRACE MANAGEMENT PARAMETERS  TIME 15:16
                                                    I10A

OPTION ==>

CICS APPLID = CICS52
DEFAULT

LOW CPU % UTILIZATION (TRACELOW) ==> 55      55      (0-99)
HIGH CPU % UTILIZATION (TRACHIGH) ==> 65      65      (0-99)
CPU                    ==> SYSTEM          SYSTEM (CICS, SYSTEM)

AUTOSTART              ==> NO              NO      (YES, NO, AUT)
MODE                   ==> PROD           PROD    (PROD, SIML)

-----
PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN  F5=          F6=          F7=
F8=        F9= SWAP   F10=        F11=        F12= OPTIONS

```

The Energizer for CICS Trace Management Parameters screen is used to set the parameters for the Trace Management function. The Trace Management Function dynamically matches the use of the CICS Trace Facility to available CPU resources. Running CICS Trace can increase processing requirements by over 25% in the CICS region. During peak demand periods, this extra overhead significantly impacts both response time and throughput.

To the system programmer, the CICS Trace Facility appears as a single service that can be either turned on or off in its entirety. In reality, the facility consists of multiple subfunctions that provide varied services. As CPU utilization approaches its throughput limit, the Trace Management function automatically begins to turn off CICS Trace services, one at a time, until CPU demands can be met. These subfunctions are turned off in reverse order of relative significance in diagnosing system problems. As soon as CICS no longer needs the extra CPU resources, the deactivated subfunctions are reactivated.

The Trace Management function enables you to explicitly prioritize the CICS Trace subfunctions to determine the order in which the services will be turned off. The Trace Options Tables differ for each CICS release.

For CICS/DB2: Apply IBM APAR PN15555 (DB2 2.3) before allowing Energizer for CICS to disable writing USER entries to the Trace Table. Without the fix, set the USER Trace Option to **0**.

**LOW CPU % UTILIZATION (TRACELOW):** Enter the minimum CPU utilization threshold as a percentage. When the CPU usage falls below this percentage, Energizer for CICS will activate CICS trace subfunctions that it had previously turned off, in reverse order, until all the subfunctions are turned on, or until CPU utilization exceeds this threshold. Which CPU utilization to use is specified in the CPU parameter described below.

**Default:** 55

**Range of Values:** 0 - 99

**Restrictions:** TRACELOW must be less than TRACEHIGH.

**HIGH CPU % UTILIZATION (TRACEHIGH):** Enter the maximum CPU utilization threshold as a percentage. When the CPU usage exceeds this percentage, Energizer for CICS will start to shut down CICS trace subfunctions, beginning with the least important, until all the subfunctions are deactivated or until CPU utilization falls below this CPU threshold. A Trace Options Table, invoked via **PF12**, prioritizes the importance of each trace subfunction. Which CPU utilization to use is specified in the CPU parameter described below.

**Default:** 65

**Range of Values:** 0 - 99

**Restrictions:** TRACEHIGH must be greater than TRACELOW.

**CPU:** Specify which CPU utilization measurement Trace Management should use to base its decisions. For the CICS option, the Trace Management function will use the CPU utilization in the CICS region only. For the SYSTEM option, the function will use the CPU utilization in the entire system.

**Default:** SYSTEM

**Range of Values:** CICS/SYSTEM

**Restrictions:** This parameter determines which measurements are used in the Low and High CPU % Utilization parameters above.

Press **PF12** to access the Trace Options Table screens. The screens differ for each CICS release. The Trace Options Table is used to prioritize the CICS Trace subfunctions to determine the order in which the services will be turned off.

If changes were made to the Trace Parameters screen, press **Enter** to save the changes before accessing the Trace Options Table.

**TRACE OPTIONS TABLE SCREENS (I1AT):** To change the priority of a Trace Option, overtype the priority number. The Trace Options will be turned off in ascending order of their priority number. Those with priority 1 will be deactivated first; those with priority 5 will be deactivated last. They will be reactivated in reverse order. Trace Options with priority 0 will not be deactivated at all.

**Figure 3-24 Trace Options Table Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             TRACE MANAGEMENT PARAMETERS  TIME 15:20
                                     TRACE OPTIONS TABLE          I1AT

OPTION ==>          CICS APPLID = CICS33

PRESS ENTER TO SAVE CHANGES

-----
APPLICATION          1
BASIC MAPPING SUPPORT 1
COMMON PROGRAMMING INTERFACE 1
KERNEL               1
LOCK MANAGER         1
STORAGE CONTROL      1
TASK CONTROL         1
TERMINAL CONTROL     1
USER EXIT INTERFACE  1
CICS GLOBAL CATALOG MANAGER 2
CICS LOCAL CATALOG MANAGER 2
INTERVAL CONTROL     2
JOURNAL CONTROL      2
F1=HELP  F2=SPLIT  F3=END  F4=RETURN  F5=      F6=      F7=UP
F8=DOWN  F9=SWAP   F10=    F11=     F12=

```

Press **Enter** to save the changes.

Press **PF8** to access additional options on the next screens.

Press **PF7** to return to the previous screens.

Press **PF3** to return to the Parameters screen.

**AUTOSTART:** Specify whether to automatically start the Trace Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. A specification of AUT will have Energizer for CICS automatically start the Trace Management function only if CICS Trace is active. If CICS Trace is not active, the function will not be started. It is important to set this parameter to AUT since it is common to incorrectly identify whether CICS Trace is active and what its level of trace is. Set this parameter to AUT even if you think CICS Trace is inactive.

**Default:** NO

**Range of Values:** YES/NO/AUT

**Restrictions:** None

**MODE:** Specify the mode of operation for the Trace Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will appear at the bottom of the screen verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameter screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## VSAM Subtask Management Parameters Screen (I10B)

The VSAM Subtask Management Parameters screen is displayed when you select VSAM Subtask Management from the Parameters Facility screen.

**Figure 3-25 VSAM Subtask Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             VSAM SUBTASK MANAGEMENT PARAMETERS  TIME 15:24
                                                              I10B

OPTION ==>          CICS APPLID = CICS53
                   DEFAULT

CICS CPU % FOR GET SUBTASKING  (VSCPUGET) ==> 80 80 (2-99)
CICS CPU % FOR PUT SUBTASKING  (VSCPUPUT) ==> 40 40 (0-99)

AUTOSTART              ==> NO NO (YES,NO,AUT)
MODE                   ==> PROD PROD (PROD, SIML)

VKSLOPE                ==> 2 * INTERNAL *

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=  F6=  F7=
F8=      F9= SWAP   F10=     F11=    F12=
    
```

The Energizer for CICS VSAM Subtask Management Parameters screen is used to set the parameters for the VSAM Subtask Management function. The VSAM Subtask Management function dynamically controls the use of CICS VSAM subtasking in multiprocessor environments. When a CICS region reaches maximum capacity on one processor and has spare capacity on a second processor, CICS provides an option to off load specific I/O activities for VSAM data sets, temporary storage, and transient data. Additional processor cycles are required to run both the extra subtask and the communication between the processors. CICS VSAM subtasking increases the throughput of the CICS region, but at the expense of total system processing.

The VSAM Subtask Management Function only allows CICS to off load VSAM I/O activity to other processors when the CICS region requires additional resources. When CPU utilization exceeds critical thresholds, the function allows CICS to utilize VSAM sub tasking for PUT and GET operations. It also turns off the appropriate subtask option when it calculates that the CPU usage, without the active subtask function, would fall below the minimum defined.

**CICS CPU % FOR GET SUBTASKING (VSCPUGET):** Enter the minimum CPU utilization threshold for VSAM GET functions as a percentage. When the CPU usage exceeds this percentage during the previous interval, Energizer for CICS will allow CICS to utilize the VSAM subtask for GET operations.

**Default:** 80

**Range of Values:** 2 - 99

**Restrictions:** VSCPUGET must be greater than VSCPUPUT and their difference must be greater than VKSLOPE, displayed on the screen.

**CICS CPU % FOR PUT SUBTASKING (VSCPUPUT):** Enter the minimum CPU utilization threshold for VSAM PUT functions as a percentage. When the CPU usage exceeds this percentage during the previous interval, Energizer for CICS will allow CICS to utilize the VSAM subtask for PUT operations.

**Default:** 40

**Range of Values:** 0 - 99

**Restrictions:** VSCPUPUT must be less than VSCPUGET and their difference must be greater than VKSLOPE, displayed on the screen.

**AUTOSTART:** Specify whether to automatically start the VSAM Subtask Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. A specification of AUT will have Energizer for CICS automatically start the VSAM Subtask Management function only if the VSAM Subtasking option of CICS is enabled. If the VSAM Subtasking option of CICS is not enabled, the function will not be started automatically. It is important to set this parameter to AUT since it is common to incorrectly identify whether VSAM Subtasking is enabled. Set this parameter to AUT even if you think the VSAM Subtasking option of CICS is not enabled.

**Default:** NO

**Range of Values:** YES/NO/AUT

**Restrictions:** None

**MODE:** Specify the mode of operation for the VSAM Subtask Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

**INTERNAL PARAMETERS:** These parameters should only be changed based on the recommendation of Product Support personnel.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

# Maxtasks Management Parameters Screen (I1E\$)

The Maxtasks Management Parameters screen is displayed when you select **Maxtasks Management** from the Parameters Facility screen.

Figure 3-26 Maxtasks Management Parameters Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             MAXTASKS MANAGEMENT PARAMETERS  TIME 15:27
                                                    I10E

OPTION ==>          CICS APPLID = CICS41
                   DEFAULT

CICS DSA % UTILIZATION (MXTDSAU) ==> 90      90      (0-99)
CICS CPU % UTILIZATION (MXTCPUU) ==> 80      80      (0-99)
MAX VALUE OF CICS MAXTASKS (MAXMXT) ==> 0      0      (0, 5-999)
MIN VALUE OF CICS MAXTASKS (MINMXT) ==> 0      0      (0, 5-999)
DECREASE BELOW ORIGINAL MAXTASKS VALUE ==> NO    NO      (YES, NO)
STARTING VALUE OF CICS MAXTASKS (ORGMXT) ==> 0      0      (0, 5-999)

AUTOSTART          ==> NO      NO      (YES, NO)
MODE               ==> PROD    PROD    (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT F3= END   F4= RETURN F5=      F6=      F7=
F8=        F9= SWAP  F10=      F11=      F12=

```

The Energizer for CICS Maxtasks Management Parameters screen is used to set the parameters for the Maxtasks Management function. The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, short-on-storage and MAXTASKS conditions, or if the current number of tasks is approaching MAXTASKS. The maximum CICS DSA % Utilization threshold applies to measurements of all DSAs.

**CICS DSA % UTILIZATION (MXTDSAU):** Enter the CICS DSA utilization threshold as a percentage. When a MAXTASKS condition occurs and there is no SOS condition, if CICS DSA utilization is below this threshold and CICS CPU utilization is below the CPU utilization threshold given below, Energizer for CICS will increase MXT. This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (5% less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 85%.

**Default:** 90

**Range of Values:** 0 - 99

**Restrictions:** None

**CICS CPU % UTILIZATION (MXTCPUU):** Enter the CPU utilization threshold as a percentage. When a MAXTASKS condition occurs and there is no SOS condition, if CICS CPU utilization is below this threshold and CICS DSA utilization is below the DSA threshold given above, Energizer for CICS will increase MXT.

**Default:** 80

**Range of Values:** 0 - 99

**Restrictions:** None

**MAX VALUE OF CICS MAXTASKS (MAXMXT):** Enter the maximum value for MAXTASKS. This is the maximum value that Energizer for CICS will be allowed to assign to MXT. A parameter setting of 0 will set the value to 150% of the original CICS MXT.

**Default:** 0

**Range of Values:** 0 or 5-999

**Restrictions:** None

**MIN VALUE OF CICS MAXTASKS (MINMXT):** Enter the minimum value for MAXTASKS. This is the minimum value that Energizer for CICS will be allowed to assign to MXT. A parameter setting of 0 will set the value to 50% of the original CICS MXT.

**Default:** 0

**Range of Values:** 0 or 5-999

**Restrictions:** None

**DECREASE BELOW ORIGINAL MAXTASKS VALUE:** Specify whether the function can reduce the value of MXT below its value when the function was activated.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**STARTING VALUE OF CICS MAXTASKS (ORGMXT):** Enter the starting value of MXT to be assigned by the function. A parameter setting of 0 will start with the MXT value when the function was activated.

**Default:** 0

**Range of Values:** 0 or 5-999

**AUTOSTART:** Specify whether to automatically start the Maxtasks Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4, “Starting and Stopping Energizer for CICS”.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Maxtasks Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

# Temporary Storage Queue Management Parameters Screen (I10G)

The Temporary Storage Queue Management Parameters screen is displayed when you select Temporary Storage Queue Management from the Parameters Facility screen.

**Figure 3-27 Temporary Storage Queue Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100      TEMPORARY STORAGE QUEUE MANAGEMENT PARAMETERS  TIME 15:28
                                                    I10G

OPTION ==>

CICS APPLID = CICS52
DEFAULT

MAXIMUM NUMBER OF TS STRINGS TO ADD      ==> 3      3      (0 - 99)
MAXIMUM NUMBER OF TS BUFFERS TO ADD     ==> 3      3      (0 - 99)
MAXIMUM TASKS TO WAIT FOR TS STRING/BUFF ==> 5      5      (0 - 999)
PURGE ALL WAITING TASKS DURING STRESS   ==> YES    YES    (YES, NO)

AUTOSTART                                ==> NO     NO     (YES, NO)
MODE                                     ==> PROD  PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=
    
```

**Note:** Some default values are different for CICS 5.1

The Energizer for CICS Temporary Storage Queue Management Parameters screen is used to set the parameters for the Temporary Storage Queue Management function. The Temporary Storage Queue Management function dynamically manages the number of concurrent Temporary Storage (TS) strings and buffers, dynamically limits the number of tasks waiting for TS strings and buffers when these resources cannot be added, and terminates tasks waiting for these resources when CICS is approaching a stress condition or potential lockout.

**MAXIMUM NUMBER OF TS STRINGS TO ADD:** Enter the maximum number of strings that will be allowed to be added after the number of active Temporary Storage strings reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

**Default:** 3

**Range of Values:** 0 - 99

**Restrictions:** None

**MAXIMUM NUMBER OF TS BUFFERS TO ADD:** Enter the maximum number of buffers that will be allowed to be added after the number of used Temporary Storage buffers reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

**Default:** 3

**Range of Values:** 0 - 99

**Restrictions:** None

**MAXIMUM TASKS TO WAIT FOR TS STRINGS/BUFF:** Enter the maximum number of tasks that will be allowed to wait for Temporary Storage strings. The same number will also be used for Temporary Storage buffers.

For CICS Release 5.1: Apply IBM APAR PQ05179 before allowing the function to purge waiting tasks. Otherwise, do not change the default setting of 999.

**Default:** 5- CICS 4.1 and 5.2 and above; 999 - for CICS 5.1.

**Range of Values:** 0 - 999

**Restrictions:** None

**PURGE ALL WAITING TASKS DURING STRESS:** Specify whether all tasks waiting for Temporary Storage strings or buffers can be purged during MXT, AMXT, or SOS stress conditions regardless of the MAXIMUM TASKS TO WAIT parameter setting.

For CICS Release 5.1: Apply IBM PQ05179 before allowing the function to purge waiting tasks. Otherwise, do not change the default setting of NO.

**Default:** YES for CICS 4.1, and 5.2 and above; NO for CICS 5.1

**Range of Values:** YES/NO

**Restrictions:** None

**Note:** If you do not want Energizer for CICS to purge any waiting tasks, set NUMBER OF TASKS TO WAIT to **999** and PURGE ALL WAITING TASKS to **NO**.

**AUTOSTART:** Specify whether to automatically start the Temporary Storage Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4, "Starting and Stopping Energizer for CICS".

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Temporary Storage Queue Management function. **PROD** will report and perform the adjustments to the system as needed. **SIML** will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Transient Data Queue Management Parameters Screen (I1H\$)

Energizer for CICS displays the Transient Data Queue Management Parameters Screen, shown in Figure 3-28 on page 3-59, when you select Transient Data Queue Management from the Parameters Facility screen.

**Figure 3-28 Transient Data Queue Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100          TRANSIENT DATA QUEUE MANAGEMENT PARAMETERS  TIME 15:30
                                                    I10H

OPTION ==>

CICS APPLID = CICS52
DEFAULT

MAXIMUM NUMBER OF TD STRINGS TO ADD    ==> 3      3      (0 - 99)
MAXIMUM NUMBER OF TD BUFFERS TO ADD    ==> 3      3      (0 - 99)
MAXIMUM TASKS TO WAIT FOR TD STRING/BUFF ==> 5      5      (0 - 999)
PURGE ALL WAITING TASKS DURING STRESS  ==> YES    YES    (YES, NO)

AUTOSTART                               ==> NO     NO     (YES, NO)
MODE                                     ==> PROD  PROD   (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=      F6=      F7=
F8=      F9= SWAP   F10=     F11=      F12=
    
```

**Note:** Some default values differ for CICS Release 5.1.

The Energizer for CICS Transient Data Queue Management Parameters screen is used to set the parameters for the Transient Data Queue Management function. The Transient Data Queue Management function dynamically manages the number of concurrent Transient Data (TD) strings and buffers, dynamically limits the number of tasks waiting for TD strings and buffers when these resources cannot be added, and terminates tasks waiting for these resources when CICS is approaching a stress condition or potential lockout.

**MAXIMUM NUMBER OF TD STRINGS TO ADD:** Enter the maximum number of strings that will be allowed to be added after the number of active Transient Data strings reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

**Default:** 3

**Range of Values:** 0 - 99

**Restrictions:** None

**MAXIMUM NUMBER OF TD BUFFERS TO ADD:** Enter the maximum number of buffers that will be allowed to be added after the number of used Transient Data buffers reaches the maximum specified in the System Initialization Table (SIT) or in the CICS startup overrides.

**Default:** 3

**Range of Values:** 0 - 99

**Restrictions:** None

**MAXIMUM TASKS TO WAIT FOR TD STRINGS/BUFF:** Enter the maximum number of tasks that will be allowed to wait for Transient Data strings. The same number will also be used for transient data buffers.

For CICS 5.1: Apply IBM APAR PQ04548 before allowing the function to purge waiting tasks. Do not change the default setting of 999 without this APAR.

**Default:** 5 - for CICS 4.1, and 5.2 and above

999 - for 5.1

**Range of Values:** 0 - 999

**Restrictions:** None

**PURGE ALL WAITING TASKS DURING STRESS:** Specify whether all tasks waiting for Transient Data strings or buffers can be purged during detected MXT, AMXT, or SOS stress conditions, regardless of the MAXIMUM TASKS TO WAIT parameter setting.

For CICS 5.1: Apply IBM APAR PQ04548 before allowing the function to purge waiting tasks. Do not change the default setting of NO without this APAR.

**Default:** YES - for CICS 4.1, and 5.2 and above

NO - CICS 5.1

**Range of Values:** YES/NO

**Restrictions:** None

**Note:** If you do not want Energizer for CICS to purge any waiting tasks, set NUMBER OF TASKS TO WAIT to **999** and PURGE ALL WAITING TASKS to **NO**.

**AUTOSTART:** Specify whether to automatically start the Transient Data Queue Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Transient Data Queue Management function. **PROD** will report and perform the adjustments to the system as needed. **SIML** will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Task Time-Out Management Parameters Screen (I10I)

Energizer for CICS displays the Task Time-Out Management Parameters screen when you select Task Time-Out Management from the Parameters Facility screen.

**Figure 3-29 Task Time-Out Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             TASK TIME-OUT MANAGEMENT PARAMETERS  TIME 15:33
                                                                I10I

OPTION ==>

CICS APPLID = CICS51
DEFAULT

MAXIMUM TASK DURATION (0.1 SECONDS) ==> 600 600 (60 - 36000)
MAXIMUM TASK DURATION ON STRESS ==> 600 600 (60 - 36000)
CANCEL AFTER TIME-OUT ==> NO NO (YES, NO)
CANCEL ONLY ON STRESS ==> NO NO (YES, NO)
DETAILED MESSAGES ==> YES YES (YES, NO)

AUTOSTART ==> NO NO (YES, NO)
MODE ==> PROD PROD (PROD, SIML)

PRESS ENTER TO SAVE CHANGES
-----
F1= HELP F2= SPLIT F3= END F4= RETURN F5= F6= F7=
F8= F9= SWAP F10= F11= F12= AGETABLE

```

The Energizer for CICS Task Time-Out Management Parameters screen is used to set the parameters for the Task Time-Out Management function. The Task Time-Out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. This time-out function now allows CICS to synchronize its transaction processing with the time-out features of external client servers. The Task Time-Out Management Parameters screen globally sets the parameters for all tasks handled by the function. An Energizer for CICS Task Age Table is available for customizing the parameters individually for specific tasks.

**MAXIMUM TASK DURATION (0.1 SECONDS):** Specify the default maximum duration, in increments of 0.1 seconds, for all the tasks handled by the function. If CANCEL AFTER TIME-OUT is YES for a CICS task, Energizer for CICS will purge the active or waiting task when it has exceeded this duration. This default duration can be overwritten for a specific task on the Task Age Table screen.

**Default:** 600

**Range of Values:** 60 - 36000

**Restrictions:** None

**MAXIMUM TASK DURATION ON STRESS:** Specify the default maximum duration, in 0.1 seconds, for all the tasks handled by the function when CICS is under stress. If CANCEL ONLY ON STRESS is YES for a CICS task, Energizer for CICS will purge the active or waiting task when it has exceeded this duration during a period when CICS is at a stress condition. This default duration can be overwritten for a specific task on the Task Age Table screen.

**Default:** 600

**Range of Values:** 60 - 36000

**Restrictions:** None

**CANCEL AFTER TIME-OUT:** Specify whether, by default, to purge or not to purge all active and waiting tasks handled by the function when they have exceeded their duration as specified by their MAXIMUM TASK DURATION. The default parameter setting is NO. The default setting can be overwritten for specific tasks on the Task Age Table screen.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** CANCEL AFTER TIME-OUT and CANCEL ONLY ON STRESS cannot both be YES.

**CANCEL ONLY ON STRESS:** Specify whether, by default, to purge or not to purge all active and waiting tasks handled by the function when they have exceeded their duration as specified by their MAXIMUM TASK DURATION ON STRESS *only* when CICS is at a stress condition. The default parameter setting is NO. The default setting can be overwritten for specific tasks on the Task Age Table screen.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** CANCEL AFTER TIME-OUT and CANCEL ONLY ON STRESS cannot both be YES.

**DETAILED MESSAGES:** Specify whether to create detail activity records on the Report File for each task purged or to only create a summary record with the total number of tasks purged by the function at a specific activation. Do not change the default setting to NO if you want to review the function's activities with the PC Graphic Analysis Facility.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**AUTOSTART:** Specify whether to automatically start the Task Time-Out Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4, "Starting and Stopping Energizer for CICS".

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Task Time-Out Management function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

Press **PF12** to access the Task Age Table screen.

If changes were made to the parameters screen, press **Enter** to save the changes before accessing the Task Age Table.

## Task Age Table Screen (I1IT)

Use this screen to specify which tasks are to be customized individually with separate parameters. Enter the four-character task name for each task. Use the wildcard suffix \* to define generic task names. Enter additional identification for the task, if appropriate, including the terminal ID and system name. Indicate whether the task should be purged whenever it exceeds its maximum duration or only when it exceeds its duration when CICS is under stress. Modify the default MAXIMUM TASK DURATION and MAXIMUM TASK DURATION ON STRESS, if necessary.

**Figure 3-30 Task Age Table Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             TASK TIME-OUT MANAGEMENT PARAMETERS  TIME 15:38
                                     TASK AGE TABLE                                I1IT

OPTION ==>
TASK NAME  TERM ID  SYSTEM NAME  CANCEL AFTER TIME-OUT  CANCEL ONLY ON STRESS  CICS APPLID = CICS51
                                     MAXIMUM DURATION (0.1 SEC)  MAXIMUM DURATION ON STRESS
_ AC22    *__    *__    N          N          600          600
_ AC22    *__    *__    Y          N          600          600

ENTER: D - DELETE ENTRY ; PF12: ADD LINES
-----
F1= HELP   F2= SPLIT  F3= END     F4= RETURN  F5=         F6=         F7=
F8=        F9= SWAP   F10=        F11=        F12= ADDLINES
    
```

**Table 3-1 Task Age Screen Parameters**

Task	Description
<b>TASK NAME</b>	One- to four-character CICS task name in local system. Names ending with * are interpreted as generic names.
<b>TERM ID</b>	One- to four-character terminal identification in local system. Names ending with * are interpreted as generic names.
<b>SYSTEM NAME</b>	One- to four-character system name of system initiating the task. Names ending with * are interpreted as generic names.

Press **PF12** to add additional tasks. Enter the task identification and press **Enter**. Modify the default parameters by typing over the entries. To delete a task from the Task Age Table, type **D** in the field preceding the task name. Press **Enter** to update the Parameter File. Press **PF3** to return to the parameters screen.

Press **Enter** to save the changes. A message will be displayed at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameters screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.

## Transaction Class Management Parameters Screen (I10J)

Energizer for CICS displays the Transaction Class Management Parameters Screens I10J when you select Transaction Class Management from the Parameters Facility screen.

**Figure 3-31 Transaction Class Management Parameters Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME 15:40
                                                                I10J

OPTION ==>
                                CICS APPLID = CICS53
                                DEFAULT
LOW CPU % UTILIZATION          ==> 85          85          (0 - 99)
HIGH CPU % UTILIZATION         ==> 95          95          (0 - 99)
LOW DSA % UTILIZATION          ==> 88          88          (0 - 99)
HIGH DSA % UTILIZATION         ==> 92          92          (0 - 99)
MIN VALUE OF MAXACTIVE         ==> 0          0          (0, 1 - 999)
MAX VALUE OF MAXACTIVE         ==> 0          0          (0, 1 - 999)
MIN VALUE OF PURGETHRESH       ==> 0          0          (0, 1 - 1000000)
MAX VALUE OF PURGETHRESH       ==> 0          0          (0, 1 - 1000000)
TRANSACTION CLASS PRIORITY     ==> 0          0          (0, 1 - 255)
UTILIZATION TO USE             ==> DSA          DSA          (CPU, DSA, BOTH)
MODIFICATION INDICATOR         ==> YES          YES          (YES, NO)
TASK LIST                      ==> EXCLUDE       EXCLUDE       (INCLUDE, EXCLUDE)
AUTOSTART                     ==> NO          NO          (YES, NO)
MODE                           ==> PROD          PROD          (PROD, SIML)

PRESS ENTER TO SAVE CHANGES

-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN  F5=          F6=          F7=
F8=        F9= SWAP   F10= TASKS F11=        F12= TCLTABLE

```

The Energizer for CICS Transaction Class Management Parameters screen is used to set the parameters for the Transaction Class Management function. This function dynamically regulates the maximum number of tasks that CICS can consider for dispatching from a specific transaction class according to CICS resources. When CPU or DSA utilization exceeds maximum thresholds, CICS is in a short-on-storage or MAXTASKS condition, or the current number of tasks in a transaction class approaches MAXACTIVE, Energizer for CICS reduces the MAXACTIVE limit for that class until the resources are again within the specified limits. When resources fall below minimum thresholds and CICS is approaching the MAXACTIVE limit for a transaction class, the function increases the limits for that transaction class.

The Transaction Class Management function also regulates the number of transactions allowed to wait (PURGETHRESH) when the class is at MAXACTIVE, and allows you to define a priority for each transaction class. You can also identify specific tasks to be excluded or included in this management function. For transactions that are not in any class, Energizer for CICS creates a default class, ECTRANCL. The MAXACTIVE limit of this class will be initially set to 999, and its PURGETHRESH limit will be set to 0.

**Note:** The function will not take any actions if the CPU utilization of CICS is below 10%. Also, the function will not handle transaction classes with a MAXACTIVE setting of 0 or 1.

The Transaction Class Management Parameters screen sets the parameters globally for *all* transaction classes. The Transaction Class List and Transaction Class Attributes screens are used to customize the parameters individually for specific transaction classes. The MODIFICATION INDICATOR parameter is used to include/exclude transaction classes from this function. The default setting is YES, indicating that the function will modify the internal parameters for all transaction classes in the CICS system. To exclude a transaction class from modification by the function, enter the class on the Transaction Class List and set its MODIFICATION INDICATOR to **NO** on its Transaction Class Attributes screen.

**LOW CPU % UTILIZATION:** Enter the minimum CPU utilization threshold as a percentage. When the CICS CPU utilization falls below this percentage and the UTILIZATION TO USE parameter is CPU or BOTH, and the DSA utilization is below the DSA threshold given below, Energizer for CICS will gradually increase the MAXACTIVE and/or PURGETHRESH values for the transaction class to the maximum values as specified below.

**Default:** 85

**Range of Values:** 0 - 99

**Restrictions:** Low CPU % must be less than HIGH CPU %

**HIGH CPU % UTILIZATION:** Enter the maximum CPU utilization threshold as a percentage. When the CICS CPU utilization exceeds this percentage and the UTILIZATION TO USE parameter is CPU or BOTH, Energizer for CICS will decrease the MAXACTIVE and/or PURGETHRESH values for the transaction class until the CPU usage falls below this threshold.

**Default:** 95

**Range of Values:** 0 - 99

**Restrictions:** HIGH CPU % must be greater than LOW CPU %

**LOW DSA % UTILIZATION:** Enter the minimum DSA utilization threshold as a percentage. When the CICS DSA utilization falls below this percentage and the UTILIZATION TO USE parameter is DSA or BOTH, and the CPU utilization is below the CPU threshold given above, Energizer for CICS will gradually increase the MAXACTIVE and/or PURGETHRESH values for the transaction class to its maximum value as specified below.

This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (4 percent less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 84%.

**Default:** 88

**Range of Values:** 0 - 99

**Restrictions:** Low DSA % must be less than HIGH DSA %

**HIGH DSA % UTILIZATION:** Enter the maximum DSA utilization threshold as a percentage. When the CICS DSA utilization exceeds this percentage, and the UTILIZATION TO USE parameter is DSA or BOTH, Energizer for CICS will decrease the MAXACTIVE and/or PURGETHRESH values for the transaction class until the DSA usage falls below this threshold.

This percentage applies to utilization measurements of above-the-line DSAs. For below-the-line DSAs, an implicit lower threshold value (4% less) is applied. In any case, the threshold value for below-the-line DSAs will not exceed 88%.

**Default:** 92

**Range of Values:** 0 - 99

**Restrictions:** HIGH DSA % must be greater than LOW DSA %

**MIN VALUE OF MAXACTIVE:** Enter the minimum value for the MAXACTIVE limit of the transaction class. This is the minimum value that Energizer for CICS will be allowed to assign to MAXACTIVE. A parameter setting of 0 will set the value to 50% of the original MAXACTIVE of the class.

**Default:** 0

**Range of Values:** 0 or 1-999

**Restrictions:** If MIN VALUE OF MAXACTIVE is set to 0, MAX VALUE OF MAXACTIVE must also be set to 0, and vice versa.

**MAX VALUE OF MAXACTIVE:** Enter the maximum value for the MAXACTIVE limit of the transaction class. This is the maximum value that Energizer for CICS will be allowed to assign to MAXACTIVE. A parameter setting of 0 will set the value to 150% of the original MAXACTIVE of the class.

**Default:** 0

**Range of Values:** 0 or 1-999

**Restrictions:** If MIN VALUE OF MAXACTIVE is set to 0, MAX VALUE OF MAXACTIVE must also be set to 0, and vice versa

**MIN VALUE OF PURGETHRESH:** Enter the minimum value for the purge threshold limit of the transaction class. This is the minimum value that Energizer for CICS will be allowed to assign to the PURGETHRESH limit of the class.

A parameter setting of 0 will set the value as follows:

- If the original PURGETHRESH for the class is greater than 0, the value will be set to 50% of the original PURGETHRESH.
- If the original PURGETHRESH for the class is 0, the value will be set to 1.

**Default:** 0

**Range of Values:** 0 or 1-1000000

**Restrictions:** If MIN VALUE OF PURGETHRESH is set to 0, MAX VALUE OF PURGETHRESH must also be set to 0, and vice versa

**MAX VALUE OF PURGETHRESH:** Enter the maximum value for the purge threshold limit of the transaction class. This is the maximum value that Energizer for CICS will be allowed to assign to the PURGETHRESH limit of the class.

A parameter setting of 0 will set the value as follows :

- If the original PURGETHRESH for the class is greater than 0, the value will be set to 150% of the original PURGETHRESH.
- If the original PURGETHRESH for the class is 0, the value will be set to 1000000

**Default:** 0

**Range of Values:** 0 or 1-1000000

**Restrictions:** If MIN VALUE OF PURGETHRESH is set to 0, MAX VALUE OF PURGETHRESH must also be set to 0, and vice versa.

**TRANSACTION CLASS PRIORITY:** Enter the priority number for the transaction class relative to other transaction classes in the CICS system. This number determines the order in which Energizer for CICS will process the transaction classes. A parameter setting of 0 will set the value to that of the highest priority task belonging to the transaction class.

**Default:** 0

**Range of Values:** 0 or 1 - 255

**Restrictions:** None

**UTILIZATION TO USE:** Specify which type of utilization measurement the Transaction Class Management function should use for its decisions; CPU Utilization, DSA Utilization, or BOTH.

**Default:** DSA

**Range of Values:** CPU/DSA/BOTH

**Restrictions:** None

**MODIFICATION INDICATOR:** Specify whether to include all the transaction classes in this function. The default is YES, indicating that the function will modify the internal parameters for *all* transaction classes in the CICS system. To exclude a transaction class from modification by the function, enter the class name on the Transaction Class List and set its MODIFICATION INDICATOR to **NO** on its Attributes screen. To globally exclude all transaction classes from modification, set this parameter to **NO**. Use the Transaction Class List and MODIFICATION INDICATOR on the Attributes screen to specify which transaction classes are to be modified.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

**TASK LIST:** Specify whether the tasks listed on the Task List screen will be included or excluded from the Transaction Class Management function. An EXCLUDE setting means that the tasks listed will not be managed by the function. An INCLUDE setting applies the Transaction Class Management only to the tasks listed.

**Default:** EXCLUDE

**Range of Values:** INCLUDE/EXCLUDE

**Restrictions:** None

**AUTOSTART:** Specify whether to automatically start the Transaction Class Management function when the CICS region is brought up, or manually activate the function using the online Control Facility. See Chapter 4.

**Default:** NO

**Range of Values:** YES/NO

**Restrictions:** None

**MODE:** Specify the mode of operation for the Transaction Class Management Function. PROD will report and perform the adjustments to the system as needed. SIML will only report the actions to the Report File.

**Default:** PROD

**Range of Values:** PROD/SIML

**Restrictions:** None

If changes were made to the parameters, press **Enter** to save them.

Press **PF10** to access the Task Inclusion/Exclusion List screen. If the TASK LIST parameter setting is EXCLUDE, the Task Exclusion List Screen will be displayed. If the TASK LIST parameter setting is INCLUDE, the Task Inclusion List Screen will be displayed.

## Task Inclusion/exclusion List Screen (I1JT)

Use this screen to specify which tasks are to be included/excluded from the Transaction Class Management function. If the TASK LIST parameter setting is EXCLUDE, the tasks listed will not be managed by the function. If the parameter setting is INCLUDE, *only* the tasks listed will be managed by the function.

**Figure 3-32 Transaction Class Management Task Inclusion/Exclusion List Screen**

```

USERID  L99087          ENERGIZER/CICS          DATE  99/08/02
REL   4.100          TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME  15:43
                                     TASK EXCLUSION LIST                                11JT

OPTION  ==>          CICS APPLID = CICS41

-----

ENTER:  D - DELETE
PRESS ENTER TO SAVE CHANGES
-----
F1= HELP   F2= SPLIT  F3= END    F4= RETURN  F5=      F6=      F7=
F8=        F9= SWAP   F10=     F11=       F12=

```

Enter the four-character CICS task name for each task. Use the wildcard suffix \* to define generic task names. The maximum list size is determined by the maximum record size in the Parameter File. Refer to your installation of Energizer for CICS. To delete a task from the Task Inclusion/Exclusion List, enter **D** in the field preceding the task name. Press **Enter** to update the Parameter File. Press **PF3** to return to the parameters screen.

**Default:** None

**Format:** One- to four-character CICS task name. Names ending with \* are interpreted as generic names.

**Restrictions:** None



Figure 3-34 Transaction Class Attributes Screen

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             TRANSACTION CLASS MANAGEMENT PARAMETERS  TIME 15:51
                                TRANSACTION CLASS CLASSB ATTRIBUTES          11JC

OPTION ==>

                                CICS APPLID = CICS51
                                DEFAULT

MIN VALUE OF MAXACTIVE          ==> 0      0      (0, 1 - 999)
MAX VALUE OF MAXACTIVE          ==> 0      0      (0, 1 - 999)
MIN VALUE OF PURGETHRESH        ==> 0      0      (0, 1 - 1000000)
MAX VALUE OF PURGETHRESH        ==> 0      0      (0, 1 - 1000000)
TRANSACTION CLASS PRIORITY      ==> 0      0      (0, 1 - 255)
MODIFICATION INDICATOR          ==> YES    YES    (YES, NO)

PRESS ENTER TO SAVE CHANGES

-----
F1= HELP   F2= SPLIT  F3= END   F4= RETURN F5=       F6=       F7=
F8=        F9= SWAP   F10=        F11=      F12=

```

Modify the values by typing over the entries. To include/exclude a transaction class for/from modification by the function, set the MODIFICATION INDICATOR to YES/NO, respectively. Press **Enter** to save the changes. Press **PF3** to return to the Transaction Class List or customize the next transaction class selected.

At the Transaction Class Management Parameters screen, press **Enter** to save the changes. A message will appear at the bottom of the screen, verifying that the Parameter File has been updated.

If you have selected only this function, press **PF3** to return to the Parameters Facility screen.

If you have selected multiple functions, press **PF3** to display the parameter screen for the next function.

Press **PF4** to return to the ISPF screen from which you activated Energizer for CICS.



---

# Chapter 4 Starting and Stopping Energizer for CICS

Energizer for CICS requires no user intervention to provide maximum CICS performance. It allows you to automatically start each function, or all of the functions, whenever CICS is initiated. Energizer for CICS also allows you to manually activate and deactivate the functions individually, in any mode of operation, and temporarily change their parameter settings as needed. When a function is activated manually in the CICS region by using the online Control Facility, it is active only during the current session of CICS. It can be deactivated manually online or automatically when CICS is shut down. Energizer for CICS also allows you to view the current status of an active function with the Control Facility.

The Energizer for CICS Control Facility also provides a means of testing a function without actually performing the relevant operation. The Simulation Mode option of each function will report on the proposed activities, as they are needed, without actually implementing their operations. You can view the results of these actions using the Energizer for CICS Online and Batch Reporting Facilities. See Chapters 5 and 6, respectively.

## Considerations

- Be sure to follow all of the steps of the Energizer for CICS installation process outlined in Chapter 2 before activating any functions.
- Remember that both the CICS component and the Reporting Address Space of Energizer for CICS require the Energizer for CICS CLOSE TYPE=T SVC to be installed. None of these components will start without the Energizer for CICS SVC routine.

- The Energizer for CICS Reporting Address Space verifies the BMC Software license information. The Reporting Address Space must be started before the CICS component will initialize. Once license information is verified, the Reporting Address Space can be stopped and the CICS component will initialize without errors.
- The CICS component of Energizer for CICS will function correctly without the Energizer for CICS Reporting Address Space. However, no reporting data will be written to the Report File as long as the Reporting Address Space is not active.
- Due to VSAM restrictions BMC Software recommends that you activate the Energizer for CICS Reporting Address Space *before* activating the Energizer for CICS functions in CICS. In addition, it is also recommended to terminate the Reporting Address Space about 60 seconds *after* deactivating the Energizer for CICS functions in CICS.

## Automatic Startup

The Energizer for CICS functions can be automatically started when the CICS region is brought up. The Energizer for CICS Reporting function is activated when the Energizer for CICS Reporting Address Space is started.

## CICS Functions

Activating the automatic startup feature of the CICS functions consists of the following:

**Step 1** In CICS:

- Use member ECSCPLTS from the Energizer for CICS sample library BBSAMP to add the Energizer for CICS startup program to the CICS startup PLT (PLTPI). See Chapter 2, “Installation”.
- Activate the **PEPI** transaction of Energizer for CICS from a sequential terminal.

**Step 2** In the Energizer for CICS TSO/ISPF interface:

- A. To automatically activate all functions, set the AUTOSTART parameter to **YES** on the General Parameters Screen for this CICS region in the Parameters Facility, Option 1 on the Primary Menu. The default for this parameter is NO. A YES setting will override all the individual function settings and automatically activate all functions when CICS is brought up in the region. See Chapter 3, “Customizing Energizer for CICS”.
- B. To automatically activate only specific functions, set the AUTOSTART parameter to **NO** on the General Parameters screen and set the parameter to **YES** on each of the individual function screens that you want automatically activated. See Chapter 3, “Customizing Energizer for CICS”.
- C. Specify the mode of operation for all the activated functions by modifying the global MODE parameter on the General Parameters screen, if necessary. **PROD** sets all the functions to production mode; all activated functions will report and perform the adjustments to the system as needed. **SIML** sets all the functions to simulation mode; the activated functions will only report the proposed actions to the Report File. The actions will not actually be implemented. The default setting for the global parameter is PROD.

The default setting for all the functions is also PROD.

**Note:** In order to restrict a function from making adjustments to the system, change the MODE setting for that function to SIML on the individual function screen. The MODE setting for each function will override the global parameter on the General Parameters screen. See Chapter 3, “Customizing Energizer for CICS”.

- D. If you wish to temporarily change the parameters of an active function or manually start an inactive function, use the Energizer for CICS Control Facility. The parameter changes will take effect immediately and will be in effect until the function is deactivated. See “Control Facility Screen (C21)” on page 4-8.

## Reporting Address Space

The Energizer for CICS Reporting Address Space provides a reporting platform for the rest of the product. It writes to the Report File all Energizer for CICS activities, which can then be continuously reviewed online under CICS and TSO, as well as with the Graphic Analysis Facility and the Batch Reporting Facility.

The Energizer for CICS Reporting Address Space can be automatically started as part of the dynamic installation of the Energizer for CICS CLOSE TYPE=T SVC. Use the sample JCL that is provided in the Energizer for CICS sample library BBSAMP member ECSJSIRP. If the optional PROCNAME keyword is specified in the PARM or SYSIN statements of this JCL, a start command will be issued for the specified procedure, thereby activating the Energizer for CICS Reporting Address Space. See “Dynamic SVC Install and Table Maintenance” on page 2-15.

To ensure the successful automatic activation of the Reporting Address Space (and all other Energizer for CICS components), BMC Software recommends that you add the ECSJSIRP JCL as part of the IPL procedure.

## Automatic Shutdown

The product’s CICS functions can be automatically shutdown at CICS termination or manually deactivated via the Control Facility.

- The Energizer for CICS functions will automatically be deactivated within 30 seconds of a non-immediate CICS shutdown command.
- To deactivate all functions immediately at CICS termination, use member ECSCPLTS from the BBSAMP sample library to add the Energizer for CICS termination program to the CICS shutdown PLT (PLTSD). See Chapter 2, “Installation”.

The Energizer for CICS Reporting Address Space can only be terminated manually using the MODIFY command entered from an MVS operator console. See “User Initiated-Startup and Shutdown of Reporting Address Space” on page 4-15.

**Note:** If you are terminating the active Energizer for CICS functions in both CICS *and* the Reporting Address Space, BMC Software recommends that you issue the termination command for the Reporting Address Space about 60 seconds after Energizer for CICS has been terminated in all the CICS regions.

# User-Initiated Startup and Shutdown CICS Functions

Energizer for CICS allows you to manually activate and deactivate each CICS function separately, using the online Control Facility. When a function is activated manually, it is active only during the current execution of CICS. It can be deactivated manually using the Control Facility or automatically when CICS is brought down.

1. Enter the Energizer for CICS transaction **PERM** on a CICS screen to display the Energizer for CICS Primary Menu (screen C20). See “Online Primary Menu Screen (C20)” on page 4-7.

**Note:** In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

2. Select Option **1** to display the Energizer for CICS Control Facility (Screen C21). See “Control Facility Screen (C21)” on page 4-8.
3. Type **A** in the field preceding each function that you want to activate or type **A** on the line preceding ALL FUNCTIONS to activate all the functions.

**Note:** CPU utilization measurement, DSA utilization measurement, and the Tuning transaction are automatically activated when the first function is activated.

4. To change the activation mode of a function, type over the MODE parameter before activating the function. **PROD** sets the function to production mode; the activated function will report and perform the adjustments to the system as needed. **SIML** sets the function to simulation mode; the activated function will only report the proposed actions to the Report File. The actions will not actually be implemented. The MODE parameter can only be changed during activation of the function. The MODE parameter for each function shown on the screen is either the default setting of PROD or the customized setting entered on the Energizer for CICS TSO/ISPF Interface Parameters Facility screens. See Chapter 3, “Customizing Energizer for CICS”.

**Note:** Changing the MODE parameter on the Control Facility screen will only change the activation mode for the current activation of the function in CICS. The parameter will revert back to the default or customized setting in the Parameter File the next time the function is activated. To permanently change the MODE setting, use the Parameters Facility screens of the Energizer for CICS TSO/ISPF interface.

5. Press **Enter** to process the requests.
6. To temporarily change the parameters of an active function, type **S** on the field preceding the function name and press **Enter** to display the selected function's parameters screen. Type over the parameter settings and press **Enter** to process the changes. The changes will take effect immediately and will be in effect until the function is deactivated. See "Control Facility Screen (C21)" on page 4-8.
7. To view current status data for an active function, type **?** on the line preceding the function and press **Enter**. Energizer for CICS displays the status screen for that function. Press **PF3** to return to the Control Facility screen.
8. To deactivate an active function, type **D** on the field preceding the function or type **D** on the field preceding ALL FUNCTIONS to deactivate all functions.

**Note:** To change the MODE of an active function, deactivate the function and wait until the STAT field is blank indicating that the function is no longer active. Press **Enter** to refresh the status of the functions, repeatedly, if necessary. Type over the MODE parameter and activate the function again.

## Online Primary Menu Screen (C20)

Energizer for CICS displays the online Primary Menu when you enter the transaction **PERM** on a CICS screen.

**Note:** In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

**Figure 4-1 Online Primary Menu**

```

APPLID CICS52          ENERGIZER/CICS          DATE 08/02/99
REL 4.100              PRIMARY MENU           TIME 15:53:26
                                                C20

OPTION ==>

          1 CONTROL FACILITY
          2 REPORTING FACILITY

-----
COPYRIGHT OPTISYSTEMS SOLUTIONS LTD., 1992, ALL RIGHTS RESERVED
ENERGIZER/CICS 4.100 13/01/98 ESA ASSEMBLED 01/14/98 17.13
-----
PFKEYS: 1          2          3 END      4 EXIT    5          6
         7          8          9         10       11         12

```

The Energizer for CICS online Primary Menu lists two options. To select an option, type the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option that you selected.

The options are described below.

- **Control Facility:** Used to manually activate or deactivate the Energizer for CICS functions, temporarily change the parameter settings of a function, view current status data for a function, and change the current PROD/SIML activation mode of a function.
- **Reporting Facility:** Used to display information about the actions that Energizer for CICS executed in order to enhance the performance of CICS.

The Control Facility option is explained in the sections that follow. The Reporting Facility option is explained in Chapter 5 “Online Reporting Facility”.

Press **PF3** or **PF4** to terminate transaction PERM.

## Control Facility Screen (C21)

Energizer for CICS displays the Control Facility Screen C21 when you select Option 1, Control Facility from the online Primary Menu.

**Figure 4-2 Control Facility Screen**

```

APPLID CICS52          ENERGIZER/CICS          DATE 08/02/99
REL 4.100              CONTROL FACILITY        TIME 15:54:10
                                                C21

          FUNCTION          STAT MODE          FUNCTION          STAT MODE
-----
- ALL FUNCTIONS
- DISPATCH MANAGEMENT    ACT PRDD    - TS QUEUE MANAGEMENT    ACT PRDD
- MRQ DISPATCH MANAGEMENT    ACT PRDD    - TD QUEUE MANAGEMENT    ACT PRDD
- MRQ MIRROR TASK MANAGEMENT    PRDD        - TASK TIME-OUT MANAGEMENT    PRDD
- MRQ/ISC QUEUE MANAGEMENT    ACT PRDD    - TRAN CLASS MANAGEMENT    PRDD
- PROG COMPRESSION MANAGEMENT    ACT PRDD    CPU UTIL MEASUREMENT    ACT
- STORAGE MANAGEMENT        PRDD        DSA UTIL MEASUREMENT    ACT
- VSAM QUEUE MANAGEMENT    ACT PRDD    REPORTING                ACT
- TRACE MANAGEMENT          ACT PRDD    TUNING TRANSACTION      ACT
- VSAM SUBTASK MANAGEMENT    ACT PRDD
- MAXTASKS MANAGEMENT      PRDD

ENTER:  A - ACTIVATE; D - DEACTIVATE; S - SELECT; ? - STATUS; MODE = PROD/SIML
-----
PFKEYS: 1      2      3 END      4 EXIT    5      6
         7      8      9      10     11     12

```

The Energizer for CICS Control Facility is used to manually activate and deactivate the Energizer for CICS functions, change their current PROD/SIML activation mode, view current status data for the functions, and temporarily change parameter settings for the current activation of the function.

When you activate a function using the Control Facility, the function will only be active during the current session of CICS. To start a function automatically, use the Parameters Facility on the Energizer for CICS TSO/ISPF interface to set the AUTOSTART parameter of the function to YES. See “Automatic Startup” on page 4-2.

The Energizer for CICS Control Facility also provides a means of testing a function without actually performing the adjustments to the system. The Simulation Mode option will report on the proposed activities as they are needed without actually implementing their operations. By activating a function in Simulation Mode, you can view the results of various parameter settings to determine their optimal usage. The Production Mode performs the adjustments to the system as needed.

When you activate the Energizer for CICS functions, the parameter settings displayed on each of the Parameters screens are either the default settings or the customized settings contained in the Parameter File. You can change these settings for the current activation of the function, but they will revert back to the values in the Parameter File the next time the function is activated. To permanently change the parameter settings, use the Parameters Facility on the Energizer for CICS TSO/ISPF interface which will update the Parameter File. See Chapter 3, “Customizing Energizer for CICS”.

**STAT:** The screen lists all of the Energizer for CICS functions. The status of each function is displayed in the STAT field on the screen. If a function is active, the STAT field will display **ACT**. If the STAT field is blank, the function is not active. Upon activation or deactivation, the STAT field will display **ARQ** or **DRQ**, respectively, until the request is processed. A function must have a status of **ACT** or **ARQ** in order to temporarily change its parameter settings. The **MODE** parameter can only be changed during activation of the function.

**To activate a function:** Type **A** in the field preceding the function and press **Enter**. The STAT field will display **ARQ** (Activation Requested) until the request is processed. It will then display **ACT**.

**To deactivate a function:** Type **D** in the field preceding the function and press **Enter**. The STAT field will display **DRQ** (Deactivation Requested) until the request is processed. It will then be blank.

**MODE:** The activation mode for each function is displayed in the **MODE** field on the screen. To temporarily change the **MODE** setting, type over the value in the **MODE** field before activating the function. To change the **MODE** setting of an active function, deactivate the function, type over the value in the **MODE** field, and activate the function again. To permanently change the **MODE** setting for a function, use the Parameters Facility. See Chapter 4, “Starting and Stopping Energizer for CICS”.

**PROD:** The function is in production mode. It will perform the adjustments to the system as needed and will report all activity to the Report File.

**SIML:** The function is in simulation mode. It will only report to the Report File the proposed activity it would have taken if it were in **PROD** mode.

To view current status data for an active function, type **?** in the field preceding the function name and press **Enter**. Energizer for CICS will display the status screen for that function. Press **PF3** to return to the Control Facility screen.

Figure 4-3 Sample Status Screen for the CICS 5.2 Temporary Storage Queue Management Function

```

APPLID CICS52          ENERGIZER/CICS          DATE 08/02/99
REL 4.100             TEMPORARY STORAGE QUEUE MANAGEMENT STATUS  TIME 16:38:10
                                                                $21G

ORIGINAL NUMBER OF STRINGS      :          3
CURRENT NUMBER OF STRINGS      :          3
ORIGINAL NUMBER OF BUFFERS     :          3
CURRENT NUMBER OF BUFFERS     :          3
NUMBER OF TASKS WAITING FOR STRINGS :          0
NUMBER OF TASKS WAITING FOR BUFFERS :          0

-----
PFKEYS: 1          2          3 END          4 EXIT          5          6
        7          8          9          10         11         12

```

To temporarily change the parameter settings of a function, select the function by typing **S** in the field preceding the function name and press **Enter**. Energizer for CICS will display the Parameters screen for that function. Modify the parameter by typing over the current setting and press **Enter**. A message will appear indicating that the parameter has been changed. Press **PF3** to return to the Control Facility screen.

**Note:** A function must have a status of ACT or ARQ in order to change its parameter settings.

**Note:** When changing parameter settings for a time-dependent function, the modifications and associated operations will take effect only after the next time the Energizer for CICS long-running Tuning Transaction (PET0) is reactivated. (See “General Parameters Screen (I101)” on page 3-15.)

For multiple selections, type **S** in the field preceding each function name and press **Enter**. Energizer for CICS will display the Parameters screen for the first function that you have selected. After typing over the parameter settings, press **Enter** to activate the change. Press **PF3** to return to the Control Facility screen and press **Enter** to display the Parameters screen for the next function that you have selected.

**Note:** Be sure to press **Enter** to save the changes on *each* parameters screen. **PF3** will *not* process the parameter changes.

Energizer for CICS provides an Online Reporting Facility that displays information about the actions that Energizer for CICS executed in order to enhance CICS performance. After activating the functions or modifying their parameter settings, use the Online Reporting Facility (Option 2 on the Primary Menu) to view the information.

The functions and their parameter settings are described below:

**Note:** Some of the Parameter screens differ for the various releases of CICS.

**All Functions:** Activating or deactivating all of the Energizer for CICS functions or globally modifying their PROD/SIML modes. Selecting All Functions for parameter changes will display the General Parameters screen, which includes the standard interval length used by the time-dependent functions, the interval length used for writing summary reporting information, and the Exception Action Message Routing Option.

**Dispatch Management:** The Dispatch Management function dynamically controls when and for how long CICS will issue MVS waits.

Activation of the Dispatch Management function will automatically activate the MRO Dispatch Management function with the same mode of operation, and vice versa.

**MRO Dispatch Management:** The MRO Dispatch Management function dynamically controls when and how often Multi-Region Operation (MRO) requests are processed. MRO Dispatch Management parameter settings include internal parameters that should only be changed based on the recommendation of Product Support personnel.

Activation of the MRO Dispatch Management function will automatically activate the Dispatch Management function with the same mode of operation, and vice versa.

**MRO Mirror Task Management:** The MRO Mirror Task Management function dynamically controls the number and use of long- and short-running mirror tasks in CICS Multi-Region Operations. The MRO Mirror Task Management parameter settings include the number of mirror tasks to keep active as a percentage of MAXTASKS, and the list of files to be included/excluded from the long-running mirror setting.

**MRO/ISC Queue Management:** The MRO/ISC Queue Management function dynamically controls the number of tasks that can wait for an interconnected MRO/ISC session. The MRO Queue Management parameter settings include the maximum number of tasks allowed to wait for a session, and a control parameter to purge waiting tasks during stress conditions.

**Program Compression Management:** The Program Compression function provides dynamic DSA utilization targets for the program management process of CICS. The parameter settings include maximum and minimum storage factors, and DSA utilization thresholds for determining when program compression is necessary.

**Storage Management:** The Storage Management function dynamically regulates the maximum amount of storage that CICS can use for its DSAs so that short-on-storage situations might be prevented before they occur. The function dynamically increases and decreases the CICS internal parameters DSALIMIT and EDSALIMIT, which are the upper limits of the amount of storage that CICS can allocate for the below- and above-the-line DSAs, respectively.

**VSAM Queue Management:** The VSAM Queue Management function dynamically manages the number of concurrent VSAM file strings of CICS data sets, and the number of requests that can wait for file strings and LSR strings and buffers. The VSAM Queue Management parameter settings include the maximum number of file strings that can be added, the maximum number of tasks allowed to wait for file strings and LSR strings and buffers, the parameter settings to cancel tasks that are waiting for these resources when CICS is short on storage, at MXT, or at CMXT/MAXACTIVE for the appropriate task class, the parameter setting for restoring original string values prior to termination of the function, the specific files and tasks to be included/excluded from the function, the specific tasks to be excluded from termination during stress conditions, and a file specification list for customizing the functional parameters for a specific file.

**Trace Management:** The Trace Management function controls the number of CICS trace services that are active whenever the CPU utilization exceeds a user-defined critical threshold. It will automatically begin to turn off CICS trace subfunctions, one by one, until the CPU usage falls below this critical point. When the CPU utilization falls below a second user-defined threshold, the deactivated trace sub-functions are reactivated, in reverse order, as long as the CPU resources are available for the service. Trace Management parameter settings include the maximum and minimum limits of CPU utilization for turning on and off CICS trace subfunctions, identification of which CPU utilization to monitor, and a Trace Options Table for prioritizing the CICS Trace subfunctions.

**Note:** The Trace Options Table screens differ for each release of CICS.

**VSAM Subtask Management:** The VSAM Subtask Management function dynamically controls the use of subtasking for CICS requests to VSAM based on user-defined limits of CPU utilization. When CPU utilization exceeds these thresholds, the VSAM Subtask Management function allows CICS to utilize VSAM subtasking for PUT and GET operations. The function also turns off the appropriate subtask option when it calculates that the CPU usage without the active subtask will fall below the minimum defined. VSAM Subtask Management parameter settings include the separate minimum limits of CPU utilization for VSAM PUT and GET operations before activating VSAM subtasking, and an internal parameter that should only be changed based on the recommendation of Product Support personnel.

**Maxtasks Management:** The Maxtasks Management function dynamically regulates the maximum number of tasks that can be concurrently handled by CICS. It adjusts the CICS Maximum Number of Tasks specification (MAXTASKS) according to a CPU utilization threshold, a DSA utilization threshold, MAXTASKS and short-on-storage conditions, or if the current number of tasks is approaching MAXTASKS. Maxtasks Management parameter settings include the maximum limits of DSA and CPU utilization, maximum and minimum values for CICS MXT, starting value for CICS MXT, and a control parameter to allow reduction of MXT below its original value.

**Temporary Storage Queue Management:** The Temporary Storage Queue Management function dynamically manages the number of CICS Temporary Storage strings and buffers and the number of requests that can wait for these resources. Temporary Storage Queue Management parameter settings include the maximum number of Temporary Storage strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

**Transient Data Queue Management:** The Transient Data Queue Management function dynamically manages the number of CICS Transient Data strings and buffers and the number of requests that can wait for these resources. Transient Data Queue Management parameter settings include the maximum number of Transient Data strings and buffers that can be added, the maximum number of tasks allowed to wait for these resources, and a control parameter to purge waiting tasks during stress conditions.

**Task Time-Out Management:** The Task Time-Out Management function dynamically purges active or waiting CICS transactions that have passed their allowable duration. Task Time-Out Management parameter settings include the default maximum duration and purge condition for all tasks handled by the function, a control parameter to print detailed messages for each purged task, and a Task Age Table for customizing these parameters individually for specific tasks.

**Transaction Class Management:** The Transaction Class Management function matches the workload processed to the resources available by dynamically increasing and decreasing the internal CICS parameters, MAXACTIVE and PURGETHRESH, for each transaction class, based on current storage availability and CPU utilization. When the CPU and/or DSA utilizations exceed user-defined thresholds, Energizer for CICS reduces the MAXACTIVE and/or the PURGETHRESH values for that class until the resources are again available. When the CPU and DSA usage falls below minimum thresholds and CICS is approaching the MAXACTIVE limit, Energizer for CICS increases the limit for that class. Transaction Class Management parameter settings include the minimum and maximum CPU and DSA utilization thresholds, the minimum and maximum MAXACTIVE and PURGETHRESH values allowed, the transaction-class priority, the type of utilization measurement to use, and a list of tasks to be included/excluded from the function.

The following facilities are displayed on the Control Facility screen but can not be directly started and stopped manually.

**CPU Utilization Measurement:** The CPU Utilization Measurement function monitors the CPU utilization in both the CICS region and the whole system. This function is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated.

**DSA Utilization Measurement:** The DSA Utilization Measurement function monitors dynamic storage utilization in the CICS region. This function is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated.

**Reporting:** The Reporting STAT display is used to verify the status of the Energizer for CICS Reporting function. The Reporting function writes the Energizer for CICS message, activity, and summary records to the Report File. It is automatically activated when the Energizer for CICS Reporting Address Space is activated. It is deactivated when the Energizer for CICS Reporting Address Space is deactivated or when the Report File becomes full. When the Report File becomes full, Energizer for CICS displays the word FULL on the Reporting line of the Control Facility Screen. In addition, a warning message is displayed on the bottom of the screen.

**Tuning Transaction:** The Tuning Transaction STAT display is used to verify the status of the Energizer for CICS Tuning Transaction (PET0). It is automatically activated when the first Energizer for CICS function is activated. It is deactivated when either Energizer for CICS is deactivated or when CICS is terminated. It must have a status of ACT if any other function is active.

**Note:** If the Tuning Transaction is not active when any other Energizer for CICS function is active, check the CICS Job Log for Energizer for CICS messages that might indicate the reason. Refer to the *Energizer for CICS Messages and Codes Guide* and handle the situation accordingly.

- Press **Enter** to process the selection.
- Press **PF3** to return to the Energizer for CICS Primary Menu.
- Press **PF4** to terminate the PERM transaction.

## Online Parameters Screens

When you select a function from the Energizer for CICS Control Facility screen, the online Parameters Screen for that function is displayed. The online Parameters screens are nearly identical to the Parameters Facility screens in the Energizer for CICS TSO/ISPF interface facility. The exceptions are the AUTOSTART and MODE parameters and parameters that cannot be changed while Energizer for CICS is active.

## User Initiated-Startup and Shutdown of Reporting Address Space

The Energizer for CICS Reporting Address Space can be activated by using one of the following methods:

- As part of the dynamic installation of the Energizer for CICS CLOSE TYPE=T SVC. Use the sample JCL that is provided in the BBSAMP sample library member ECSJSIRP. If the optional PROCNAME keyword is specified in the PARM or SYSIN statements of this JCL, a Start command will be issued for the specified procedure. See “Dynamic SVC Install and Table Maintenance” on page 2-15.
- As a batch job. Use the sample JCL that is provided in the BBSAMP sample library member ECSJRASM.

- As a started task, by activating a procedure catalogued in the MVS procedure library. Use the sample procedure that is provided in the BBSAMP sample library member ECSPRASM.

Due to VSAM restrictions, BMC Software recommends that you activate the Energizer for CICS Reporting Address Space *before* activating the Energizer for CICS functions in CICS. BMC Software therefore also recommend that you add the ECSJSIRP JCL as part of the IPL procedure. This will ensure the successful automatic activation of the Reporting Address Space and all the other Energizer for CICS components.

The Energizer for CICS Reporting Address Space can be terminated manually by using the MODIFY command entered from an MVS operator console. See “MODIFY Commands” on page 4-19.

The Energizer for CICS Reporting Address Space verifies the BMC Software license information. The Reporting Address Space maintains license information for the CICS component. When the BMC software license facility is used to update license information, the Reporting Address Space will not update the information used by the CICS component until the following day. The MODIFY REFRESH command immediately updates the license information maintained by the Reporting Address Space.

The Energizer for CICS Reporting Address Space periodically writes to the Report File all of the Energizer for CICS activities. These activities can then be reviewed online under CICS and TSO, as well as with the Graphic Analysis Facility and the Batch Reporting Facility.

At least one Report File (DDname REPORT) must be specified in the JCL of the Reporting Address Space. Up to 99 additional files (DDnames REPORT01, REPORT02, ..., REPORT99) can also be specified. When a Report File becomes full, the Reporting Address Space will close and deallocate this file and will attempt to open the file with the next consecutive REPORTnn DDname. If no such DDname exists in the JCL, the Reporting Address Space will automatically switch back to the first file (DDname REPORT). If this file is still full, or if any other error is encountered, the Reporting Address Space will request the console operator to manually enter a DSName of a new Report File. See Figure 4-4 on page 4-18.

In this case, the operator can perform one of the following actions:

- Supply a DSName of a new Report File.

The Reporting Address Space will allocate and open the new file. All the Energizer for CICS activities will now be written to the new file.

In principle, it is possible to supply the DSName of the current Report File after having archived, deleted, and redefined it. Keep in mind, however, that this method requires you to first close and deallocate the file in all the CICS, TSO, and batch regions that might be currently using it.

The actions taken by the Reporting Address Space after the new file (whose DSName was supplied manually) fills up depend on the DSName supplied:

- If the DSName supplied is that of the first file (DDname REPORT), the Reporting Address Space will resume its automatic loop (i.e., it will then attempt to open the second file (DDname REPORT01)).
- If the DSName supplied is not that of the first file, the Reporting Address Space will then attempt to open the first file (DDname REPORT).

or

- Type **STOP**. This will cause the Reporting Address Space to terminate. All of the Energizer for CICS functions that are active in the CICS regions will continue functioning normally.

Figure 4-4 on page 4-18 is a sample Reporting Address Space Job Log. It demonstrates the automatic switch to a 2nd Report File specified in the JCL. When this file also fills up and no additional files are found in the JCL, an automatic switch is made to the first file (DDname REPORT). Since this file is still full, a new DSName is requested. After the operator replies with the DSName, the Reporting Address Space resumes its normal operation, using the new Report File.

**Figure 4-4 Sample Reporting Address Space Job Log**


---

```

PE1252: ENERGIZER/CICS 4.100 REPORTING ADDRESS SPACE STARTED
PE1269: THE ENERGIZER/CICS MVS-CSA AREA IS AT : 03EB07F0. THE RAS AREA IS AT :
03EB0FA0
PE1201: ENERGIZER/CICS REPORTING SUBTASK      STARTED. DDNAME : REPORT  ,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT
PE1202: NO MORE SPACE ON FILE REPORT
PE1209: REPORT FILE REPORT  CLOSED
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT01,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT01
PE1202: NO MORE SPACE ON FILE REPORT01
PE1209: REPORT FILE REPORT01  CLOSED
IECL30I REPORT02 DD STATEMENT MISSING
PE1218: NO DD STATEMENT FOR REPORT FILE REPORT02
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT  ,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT
PE1202: NO MORE SPACE ON FILE REPORT
PE1209: REPORT FILE REPORT  CLOSED
PE1223: "STOP" WILL CAUSE AN IMMEDIATE TERMINATION OF  ENERGIZER/CICS REPORTING
SUBTASK
*53 PE1224: ENTER A DSNAME TO SERVE AS ENERGIZER/CICS REPORT FILE OR STOP
R 53,ENERGIZE.CICS.REPORT2
PE1201: ENERGIZER/CICS REPORTING SUBTASK      RESTARTED. DDNAME : REPORT02,
REPINTV= 00030
PE1226: DSNAME = ENERGIZE.CICS.REPORT2

```

---

After all Report Files specified in the JCL fill up, it is still possible that the Reporting Address Space will loop several times through all the specified files until finally requesting a new DSName from the operator. This behavior is due to the fact that VSAM writes records with different key ranges to different Control Intervals. It is therefore possible that although VSAM has returned a “file full” condition on a PUT request, it will manage to successfully write subsequent records (with different keys).

The reporting data generated by the Energizer for CICS functions is kept in buffers in common MVS storage. This process is not dependent upon the activity of the Reporting Address Space. Therefore, the Energizer for CICS functions active in CICS continue functioning normally even if the Report File is full or if the Reporting Address Space is not active. The contents of the reporting buffers will be written to the Report File when the Reporting Address Space resumes its activity (after being restarted or after a DSName of an alternative Report File has been supplied by the operator). Normally, the size of the reporting buffers allocated by Energizer for CICS in the MVS common storage should suffice to hold the reporting data until it is written to file. However, if the buffers fill up, reporting data might be lost. However, the Energizer for CICS functions will continue working.

To avoid losing data, it is advisable to define the Report File with sufficient space. See the discussion on page 2-19 for an estimation of the space requirements. It is advisable to also define a secondary allocation for the Report File and to define in the Reporting Address Space JCL at least one additional Report File to be used when the first Report File fills up.

## MODIFY Commands

The Energizer for CICS Reporting Address Space can be controlled by using the following MODIFY commands entered from an MVS operator console.

**Table 4-1      MODIFY Commands**

<b>Command</b>	<b>Description</b>
<b><i>/F jobname,STOP -</i></b>	Request a conditional termination of the Reporting Address Space. If Energizer for CICS functions are still active in any CICS region, this request will be rejected.
	The STOP request will also be rejected if Energizer for CICS was terminated in the CICS regions but the reporting data has not yet been fully written to the Report File. BMC Software therefore recommends that you issue the STOP command about 60 seconds after Energizer for CICS has been terminated in all the CICS regions.
<b><i>/F jobname,FSTOP -</i></b>	Request an unconditional termination of the Reporting Address Space even if Energizer for CICS functions are still active in any CICS region.
	The Energizer for CICS functions active in the CICS regions will continue functioning normally. Their reporting data will be kept in buffers in MVS common storage and will be written to the Report File when the Reporting Address Space is restarted.
<b><i>/F jobname,SNAP -</i></b>	Request a SNAP to be printed of some Energizer for CICS control blocks and storage areas. The snap is written to the data set specified by the SNAPMAIN DD statement in the execution JCL of the Reporting Address Space.
<b><i>/F jobname,SNAP,ADDR =start address,LENGTH=len -</i></b>	Request a SNAP to be printed of the storage area starting at the specified address. The specified length (between X'0001' and X'7FFF') limits the size of the snap. The snap is written to the data set specified by the SNAPMAIN DD statement in the execution JCL of the Reporting Address Space.
	The storage area addressed by ADDR must either reside in MVS common storage or in the private storage of the Reporting Address Space.
<b><i>/F jobname,REFRESH</i></b>	Immediately refreshes the BMC Software license information.



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# Chapter 5 Online Reporting Facility

The Energizer for CICS Online Reporting Facility provides information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. It displays the operational and statistical records from the Report File that were accumulated during the activation of the Energizer for CICS functions. The Energizer for CICS Online Reporting Facility can be accessed either from the TSO/ISPF interface or from the Energizer for CICS SICS Primary Menu.

The Reporting Facility reports on the following subjects:

- CPU Utilization Measurement: CPU utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement
- DSA Utilization Measurement: DSA utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement
- Dispatch Management: Information as to how Energizer for CICS is managing CICS dispatches
- MRO Dispatch Management: Information as to how Energizer for CICS is managing the dispatches of Multi-Region Operation (MRO) requests.
- MRO Mirror Task Management: How many times a suspended mirror task had its expiration time changed and how many mirror tasks have been changed from short-running to long-running
- MRO/ISC Queue Management: The number of tasks found waiting for an interconnected MRO/ISC session, and how many tasks were terminated by the function while waiting for a session of distributed transaction processing or function shipping

- 
- Program Compression Management: How much storage was released when deleting the least used programs, how many programs were deleted, the DSA utilizations before and after the release.
  - Storage Management: The previous, current, and maximum values for DSALIMIT and EDSALIMIT and CPU and DSA utilizations
  - VSAM Queue Management: Which files had file strings added, which tasks were terminated by the function, which tasks were not terminated, and whether it was due to the exclusion lists or other reasons
  - Trace Management: Which CICS Trace components were turned on and off, the reasons for the activity, and the CPU utilizations
  - VSAM Subtask Management: CPU utilizations and the activation and deactivation of VSAM subtasking for VSAM GET and PUT operations
  - Maxtasks Management: What values were used for MXT, whether MXT was increased or decreased, the CPU and DSA utilizations, and the reasons for the tuning activity
  - Temporary Storage Queue Management: How many Temporary Storage strings or buffers were added, which tasks were allowed to wait for these resources, and which tasks were terminated by the function and the conditions under which they were terminated
  - Transient Data Queue Management: How many Transient Data strings or buffers were added, which tasks were allowed to wait for these resources, and which tasks were terminated by the function and the conditions under which they were terminated
  - Task Time-Out Management: Which tasks were terminated by the function, their approximate duration, and at which terminal
  - Transaction Class Management: The name of the transaction class whose limits were changed, what values were used for MAXACTIVE and PURGETHRESH, whether they were increased or decreased, the DSA and CPU utilizations, and the numbers of active and queued tasks for the class

To access the Online Reporting Facility from TSO:

1. Activate the Energizer for CICS TSO/ISPF interface to display the Primary Menu (Screen I00).
2. Select **Option 3** to access the online Reporting Facility (Screen RO60).

To access the Online Reporting Facility from CICS:

1. Type transaction **PERM** on a CICS screen to display the Energizer for CICS Primary Menu (Screen C20).

**Note:** In CICS 5.2, apply IBM PTF UQ24583 before activating transaction PERM on a remote CICS system via CRTE.

2. Select **Option 2** to display the Reporting Facility (Screen C22).

## Reporting Facility Screens (C22 and RO60)

Energizer for CICS displays the Reporting Facility screen:

- CICS Screen C22 is displayed when you select Option 2, Reporting Facility, from the Energizer for CICS SICS Primary Menu (C20)
- TSO Screen RO60, shown in Figure 5-2 on page 5-4, is displayed when you select Option 3, Online Reporting Facility, from the Energizer for CICS TSO/ISPF interface Primary Menu (I00)

**Figure 5-1 Online Reporting Facility Screen for CICS**

```

APPLD CICS21          ENERGIZER/CICS          DATE 08/04/99
REL 4.100             REPORTING FACILITY       TIME 19:25:21
                                                C22

DATE 08/04/99 TIME 08.46.24 MSG TYPE ALL SUBJECT ALL ACTION ALL
DORNAME PDRPDRPT APPLID CICS21 COMPONENT ALL SCHEDULED IS

08/04/99 08.38.28 P1191: ENERGIZER/CICS TASK TIME-OUT MANAGEMENT STARTED.
RECS=FREE
08/04/99 08.38.28 P1911C: ENERGIZER/CICS HSD MIRROR TASK MANAGEMENT STARTED.
RECS=FREE
08/04/99 08.38.55 * AC025C: INSTANTS INCREASE
REASON INITIATED : 90 + HCT < CURRENT TASK NUMBER < HCT
08/04/99 08.39.00 * AC025C: INSTANTS INCREASE
REASON INITIATED : 90 + HCT < CURRENT TASK NUMBER < HCT
08/04/99 08.48.24 * AC094C: CPU UTILIZATION MEASUREMENT
08/04/99 08.48.24 * AC095C: DSA UTILIZATION MEASUREMENT
08/04/99 08.48.24 * AC094C: INSTANTS MANAGEMENT REPORT
08/04/99 08.48.24 * AC032C: STORAGE MANAGEMENT REPORT

-----
PRINTS: 1          2          3 END          4 EXIT          5 REFIN          6 ACTION
        ? UP        ? DOWN        ? ONE LINE LO  LL          12 BOTTOM

```

Figure 5-2 Online Reporting Facility Screen for TSO

```

USERID 199007          ENERGIZER/CICS          DATE 09/06/00
REL 4.100              ONLINE REPORTING FACILITY  TIME 15:58
                               SCREEN 0060

OFFLINE ==>

DATE 09/04/99 TIME 09:48:24 MSG TYPE ALL SUBJECT ALL ACTION ALL
LOGNAME PEEBAPT APPLID CICS221 COMPONENT ALL SCREEN 10

09/04/99 09:38:28 PT321C: ENERGIZER/CICS TRANSMIT DATA QUEUE MANAGEMENT
STARTED. MIDE=9900
09/04/99 09:38:28 PT1191: ENERGIZER/CICS TASK TIME-OUT MANAGEMENT STARTED.
MIDE=9900
09/04/99 09:38:28 PT811C: ENERGIZER/CICS HEO MIRROR TASK MANAGEMENT STARTED.
MIDE=9900
09/04/99 09:38:55 * AC022C: MACTASKS INCREASE
REASON INITIATED : 90 % IACT < CURRENT TASK NUMBER < IACT
09/04/99 09:39:03 * AC025C: MACTASKS INCREASE
REASON INITIATED : 90 % IACT < CURRENT TASK NUMBER < IACT
09/04/99 09:48:24 * AC004C: CPU UTILIZATION MEASUREMENT
09/04/99 09:48:24 * AC005C: DSA UTILIZATION MEASUREMENT
09/04/99 09:48:24 * AC004C: MACTASKS MANAGEMENT REPORT
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5= F2IND  F6= ACTION
F7= UP    F8= DOWN  F9= SWAP  F10=         F11=         F12= ONE LINE

```

The Energizer for CICS Reporting Facility screens are used to access the Reporting Facility. The Online Reporting Facility provides you with information about the activities and operations that Energizer for CICS executed in order to enhance CICS performance. The Reporting Facility screens display both Energizer for CICS action messages (ACxxxx) and informational and warning messages (PExxxx/PTxxxx) that are also captured on the CICS Job Log and displayed on the operator console. See the *Energizer for CICS Messages and Codes Guide* for descriptions of each message.

Detailed information about each of the Energizer for CICS action messages (ACxxxx) can also be displayed on the screen if the message number is preceded by an \*. Place the cursor anywhere on the message line and press **Enter**. An activity box containing reasons for the action and statistics before and after the action will be displayed. Press **PF3** to return to the original screen. See “Reporting Activity Box” on page 5-10.

The Energizer for CICS Reporting Facility displays information about a specific CICS region. The selection criteria lines on the top of the screen allow you to select which Report File to use as well as choose which portions of the file to view based on various criteria: date of activity, time, type of message, specific subject (function), specific action, and functional component. To modify the default selection criteria, type over the entry and press **Enter**. Use **PF7/PF8** to display the previous/next screen of data.

**Note:** To display information about other regions in CICS, their Report Files must be defined in the FCT or in the CSD file of the current CICS region as either local or remote files. To display information about a different CICS region from the TSO/ISPF interface, change the DSNNAME of the Report File specified on the Dialog Management screen (Option 4 in the Primary Menu).

On entry to the Reporting Facility screen in CICS, Energizer for CICS will attempt to display a screen of the last available records for the current day. If Energizer for CICS cannot locate the last available record of the day, it will display a screen with the first available records of the day. If there are no available records for the current day, a message will be displayed, asking for the starting date and time.

On entry to the Online Reporting Facility in the TSO/ISPF interface, Energizer for CICS will display a screen with the first available records of the day. If there are no available records for the current day, a message will be displayed, asking for the starting day and time.

The fields on the selection criteria lines are described below:

- **DATE:** Enter the starting date of the information to display.

**Default:** Date of the last record on the screen when browsing forward.  
Date of the first record on the screen when browsing backwards; Date of first activation when no records are displayed.

**Format:** mm/dd/yy

**Restrictions:** None

- **TIME:** Enter the starting time of the information to display.

**Default:** Time of the last record on the screen when browsing forward.  
Time of the first record on the screen when browsing backwards; time of first activation when no records are displayed.

**Format:** hh.mm.ss

**Restrictions:** None

- **MSG TYPE:** Enter the type of messages to display. ACT displays only action messages (ACxxxx), descriptions of the activities that were executed in order to enhance CICS performance. EXC displays action messages for exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources). WTO displays informational and warning messages (PExxxx/PTxxxx) only.

**Default:** ALL

**Range of Values:**

- ALL - All message types
- ACT - Action messages
- EXC - Exception conditions action messages
- WTO - Informational and warning messages

**Restrictions:** None

- **SUBJECT:** Enter the mnemonic code of the Energizer for CICS function to display.

**Default:** ALL**Format:** One- to eight-character mnemonic**Range of Values:****Table 5-1      Function Codes**

<b>Code</b>	<b>Description</b>
ALL	All functions
CPUUTIL	CPU Utilization Measurement
DISPATCH	Dispatch Management
DSAUTIL	DSA Utilization Measurement
MAXTASKS	Maxtasks Management
MRODISPC	MRO Dispatch Management
MROMIRRC	MRO Mirror Task Management
MROQUEUE	MRO/ISC Queue Management
PROGCOMP	Program Compression Management
STORAGE	Storage Management
SUBTASK	VSAM Subtask Management
TASKTIME	Task Time-Out Management
TEMPSTRG	TS Queue Management
TRACE	Trace Management
TRANDATA	TD Queue Management
TRNCLASS	Transaction Class Management
VSAMQ	VSAM Queue Management

**Restrictions:** None

- **ACTION:** Enter the code of the Energizer for CICS action to display.

**Default:** ALL

**Format:** Two- or three-character action code

**Range of Values:**

**Table 5-2 Action Codes (Part 1 of 2)**

<b>Code</b>	<b>Description</b>
ALL	All actions
AD	AMXT Decrease
AI	AMXT Increase
AR	Storage Management Reporting
BA	Temporary Storage Buffer Add
BD	Transient Data Buffer Add
CM	CPU Utilization Measurement
DD	DSALIMIT/EDSALIMIT Decrease
DI	DSALIMIT/EDSALIMIT Increase
DM	DSA Utilization Measurement
DS	Dispatch Parameter Setting
FS	Periodic FCT Scan
LR	Set MRO Mirror Task to Long Running
MD	Transaction Class Limits Decrease
MI	Transaction Class Limits Increase
MR	Local MRO Dispatch
MS	MRO Parm Value Setting
PC	Program Compression
PR	Program Compression Reporting
PS	Program Compression Summary
PU	Parameter Update
SA	VSAM String Add
SD	Transient Data String Add
SP	Temporary Storage String Add
SS	Set MRO Mirror Task Suspend Time
TA	Task Abend (for MRO/ISC, VSAM Queue, Task Time-Out and TS/TD Queue Management)
TC	Trace Level Disable
TO	Trace Level Enable

**Table 5-2 Action Codes (Part 2 of 2)**

<b>Code</b>	<b>Description</b>
TR	Trace Management Report
TS	Task Time-Out Summary
VD	VSAM Subtask Disable
VE	VSAM Subtask Enable
WL	Dispatch Management
WU	Dispatch Management-Local
XD	MAXTASKS Decrease
XI	MAXTASKS Increase
XP	Remote MRO Dispatch
XR	MAXTASKS Management Report

**Restrictions:** None

- **DDNAME:** Enter the DDNAME of the Report File to use. If activated from CICS, the default is PEREPORT. If activated from TSO, the default is the DDNAME specified on the Dialog Management screen. If you want to display information from another CICS region, type over the APPLID in the next field and modify the DDNAME.

**Default:** PEREPORT**Format:** One- to eight-character DDNAME**Restrictions:**

- Screen C22: The file must be defined in the FCT or in the CSD file of the current region.
- Screen RO60: The file must be defined on the Dialog Management screen.
- **APPLID:** Enter the VTAM APPLID of the CICS region. The default is the APPLID of the current CICS region, if activated from CICS, or, if activated from TSO, the default APPLID from the Dialog Management screen. To display information from another CICS region, type over the entry.

**Default:**

- Screen C22: APPLID of the current CICS region
- Screen RO60: Default APPLID from Dialog Management Screen

**Format:** 1 - 8 character VTAM Application ID

**Restrictions:** None

- **COMPONENT:** Enter the Energizer for CICS functional component to display. The Tuning component will select records associated with tuning activities; the General component will select the other activities.

**Default:** ALL

**Range of Values:**

- ALL - All components
- GEN - General
- TUN - Tuning

**Restrictions:** None

- **SRCHLIM:** Enter the maximum number of records of the Report File to search before displaying an output screen. This option will limit the number of records read when specifying detailed search criteria. If this limit is reached before a whole screen of data can be displayed, the number of records read is displayed on the bottom of the screen. **PF5/PF7/PF8** will continue the search and update the counter. If the search is successful, the counter initializes back to zero.

**Default:** 10

**Range of Values:** 1 - 99

**Restrictions:** None

The Energizer for CICS Reporting Facility allows you to view the information in either a multi-line format or in a one-line format. The multi-line format displays all the information at one time. The One Line Format displays only that part of the message that can fit on the horizontal limitation of the screen. It allows multiple messages to be displayed on the screen at one time. Use **PF10** and **PF11** to scroll left and right to view the entire message. The **PF12** key (or **PF9** key in CICS) toggles between the two formats.

The Reporting Facility uses the following **PF** key commands:

**Table 5-3 Reporting Facility PF Keys**

<b>PF Key</b>	<b>Description</b>
<b>PF3</b>	Return to the Energizer for CICS Primary Menu
<b>PF4</b>	Return to the screen from where you invoked the Energizer for CICS interface
<b>PF5</b>	Repeat the search criteria for applicable records
<b>PF6</b>	Display the activity box for the action message displayed on the line where the cursor is positioned
<b>PF7</b>	Display the previous screen of records
<b>PF8</b>	Display the next screen of records
<b>PF9</b>	In TSO, this key will perform a swap screen action to access other ISPF applications. In CICS, this PF key will toggle between a One-Line and a Multi-Line format of display.
<b>PF10</b>	Scroll left to display the beginning of the line when using the One-Line format.
<b>PF11</b>	Scroll right to display the rest of the line when using the One-Line format.
<b>PF12</b>	In TSO, this PF key will toggle between One-Line and Multi-Line format. In CICS, this PF key will display the last records on the Report File. In CICS, this option is only available when Energizer for CICS is currently active or has been active during the current session of CICS.

All PF keys, with the exception of **PF3/PF4**, will be ignored if the selection criteria have been changed.

## Reporting Activity Box

The Energizer for CICS Reporting Facility also provides detailed descriptions of the actions that were executed in order to enhance CICS performance. Energizer for CICS action messages (ACxxxx) are displayed on the Reporting Facility screen. Reasons for the action and the statistics before and after the action was taken are displayed in an overlay Activity Box associated with each action message that is preceded with an \*. A description of each of the data fields in the box is included in “Activity Box Field Descriptions” on page 5-11.

To access the Activity Box for an action, place the cursor anywhere on the action message and press **Enter** or **PF6**. The Activity Box will be displayed, overlaying part of the Reporting Facility screen. Press **PF3** to return to the original screen.

**Note:** Numeric data in the activity box is displayed in hexadecimal format, unless preceded by ....., indicating decimal format.

**Figure 5-3 Sample Reporting Activity Box**

```

APPLID CICS21          ENERGIZER/CICS          DATE 08/02/99
REL 4.100             REPORTING FACILITY       TIME 16:10:08
                                                C22

DATE 08/02/99 TIME 12.25.55 MSG TYPE ALL SUBJECT ALL ACTION ALL
DDNAME PEREPORT APPLID CICS21 COMPONENT ALL SRCHLIM 10

----- C22A -----
03/ AC004C: CPU UTILIZATION MEASUREMENT
03/ CCPU_U : .....0 SCPU_U : ....15 CCPU_UA : .....0      TERMINATED
03/ SCPU_UA : ....13 CCPU_UX : .....4 SCPU_UX : ....49      TASK
03/ NUM_SAMP : ....22 TOT_TASK : 00000006 NUM_MIRR : 00000000
03/ TASK/SEC : .....0 CCPU_UAP : 00000002 N_STRESS : .....0    RTED.
03/ FAILCODE : 00 FLAGBYTE : 20
03/
03/
03/
03/
03/
-----
PFKEYS: 1      2      3 END      4 EXIT      5      6
        7 UP      8 DOWN     9      10      11      12

```

## Activity Box Field Descriptions

**Table 5-4 Activity Box Fields (Part 1 of 9)**

Field	Description
#CH_LIMA:	the difference between the number of times EDSALIMIT was increased and the number of times it was decreased
#CH_LIMB:	the difference between the number of times DSALIMIT was increased and the number of times it was decreased
ACT_SYS:	internal data
ACTION:	action message displayed on the reporting facility screen
ACTIVE:	number of times the functional process was activated during the interval
AV_PRATE:	average page-in rate during last interval
AVG#_TSK:	average number of dispatchable tasks during last interval
BASE:	internal data
BASE_ADJ:	internal data
BUF_WAIT:	number of tasks waiting for temporary storage/transient data buffers

**Table 5-4 Activity Box Fields (Part 2 of 9)**

<b>Field</b>	<b>Description</b>
BUFF_NUM	number of temporary storage/transient data buffers defined
CCPU_U	current CICS CPU utilization
CCPU_UA	average CICS CPU utilization recorded over the last interval
CCPU_UAP	precise average CICS CPU utilization over the last interval. Displayed in hexadecimal form : Utilization*1024/100. This field is present if bit X'20' in FLAGBYTE is on.
CCPU_UG	CICS CPU utilization threshold for GET subtasking
CCPU_UH	maximum CICS CPU utilization threshold
CCPU_UL	minimum CICS CPU utilization threshold
CCPU_UP	CICS CPU utilization threshold for PUT subtasking
CCPU_UX	maximum CICS CPU utilization recorded in the last interval
CDSA_BC	number of bytes freed in the CDSA
CDP_GT1	internal data
CDSA_U	current CDSA utilization
CDSA_UA	average CDSA utilization during last interval
CDSA_UH	maximum CDSA utilization threshold
CDSA_UL	minimum CDSA utilization threshold
CNT_MODE	internal data
CPU	type of CPU measurement used
CPU_UH	minimum CPU utilization for deactivating trace options
CPU_UL	maximum CPU utilization for reactivating trace options
CSAKCMI	current value of the CICS MAXTASKS flag
CSASOSI	current value of the CICS short-on-storage flag
CUR_#MXT	current value of the CICS MXT condition counter
CUR_#SOS	current value of the CICS SOS condition counter
CUR_CMXT	current maximum CICS CMAXTASKS value among all existing task classes.
CUR_LIMA	current EDSALIMIT value
CUR_LIMB	current DSALIMIT value
CUR_MAXA	current MAXACTIVE value for the transaction class
CUR_MXT	current CICS MAXTASKS value
CUR_NUMQ	number of tasks belonging to the transaction class currently queued for execution
CUR_PURG	current PURGETHRESH value for the transaction class
CUR_SFAC	value of the storage factor upon exiting the Program Compression Management function

**Table 5-4 Activity Box Fields (Part 3 of 9)**

<b>Field</b>	<b>Description</b>
CUR_TOTQ	total number of tasks belonging to the transaction class that had to be queued
DDNAME	DDNAME of file for which action was taken
DFLTMOT	default Maximum Task duration
DISP_ACT	the maximum number of CICS regions that were using the MRO Dispatch Management function during the interval
DISPATCH	internal data
DTP_CNCL	number of Distributed Transaction Processing tasks that were terminated by the MRO/ISC Queue Management function
DTP_WAIT	number of Distributed Transaction Processing tasks that were waiting for an MRO/ISC session
DURATION	approximate task duration (0.1 seconds). A value of 999999999 indicates a duration exceeding one hour
ECDSA_BC	number of bytes freed in the ECDSA
ECDSA_U	current ECDSA utilization
ECDSA_UA	average ECDSA utilization during last interval
ECDSA_UH	maximum ECDSA utilization threshold
ECDSA_UL	minimum ECDSA utilization threshold
ELIG_21	internal data
ELIG_3X	internal data
ELIG_41	internal data
ELIGIB_1 - ELIGIB_2	internal data
ELIGIBLE	internal data
ERDSA_BC	number of bytes freed in the ERDSA
ERDSA_RT	average residence time of not-in-use programs in the ERDSA
ERDSA_U	current ERDSA utilization
ERDSA_UA	average ERDSA utilization during last interval
ERDSA_UH	maximum ERDSA utilization threshold
ERDSA_UL	minimum ERDSA utilization threshold
ERROR_2 - ERROR_4	internal data
ESDSA_BC	number of bytes freed in the ESDSA
ESDSA_U	current ESDSA utilization
ESDSA_UA	average ESDSA utilization during last interval
EUDSA_BC	number of bytes freed in the EUDSA
EUDSA_U	current EUDSA utilization

**Table 5-4 Activity Box Fields (Part 4 of 9)**

<b>Field</b>	<b>Description</b>
EUDSA_UA	average EUDSA utilization during last interval
EUDSA_UH	maximum EUDSA utilization threshold
EUDSA_UL	minimum EUDSA utilization threshold
FAILCODE	internal failure reason code
FIRST_DD	first FCT entry found
FLAG	internal data
FLAGBYTE	hexadecimal code pertaining to the status of Dispatch Management and current CPU utilization:  X'80' = Dispatch Management is active  X'40' = Dispatch Management is active in simulation mode  X'20' = Precise average CICS CPU utilization is available
FLAG1	internal data
FLAG2	internal data
FLAG3	hexadecimal code indicating the reason for terminating the task:  X '04' = CICS MXT Condition  X '08' = CICS SOS Condition  X '10' = Buffer shortage  X '20' = String shortage
FLAG4	internal data
FLAG5	internal data
FLAG6	internal data
FLAG7	internal data
FLAG	hexadecimal code pertaining to actions taken by the Maxtasks management function:  X '01' = Set to decrease after stress situation is resolved  X '02' = Decrease was two intervals earlier  X '04' = Previous action was decrease  X '08' = Previous action was increase  X '10' = Reduction of MXT is permitted  X '20' = Simulation Mode
FLAG9	same as FLAG8
FREEA_U	unallocated plus empty storage extents above the line as a percentage of EDSALIMIT
FREEA_UA	average unallocated plus empty storage extents above the line during last interval as a percentage of EDSALIMIT
FREEB_U	unallocated plus empty storage extents below the line as a percentage of DSALIMIT

**Table 5-4 Activity Box Fields (Part 5 of 9)**

<b>Field</b>	<b>Description</b>
FREEB_UA	average unallocated plus empty storage extents below the line during last interval as a percentage of DSALIMIT
FSR_CNCL	number of function shipping tasks that were terminated by the MRO/ISC Queue Management Function
FSR_WAIT	number of function shipping tasks that waited for MRO/ISC sessions
HTSKRATE	peak number of active tasks when CICS issued an MVS Wait
INT_CNT1	number of times the functional process was not activated during the interval because of internal conditions
INTERVAL	interval length in hundredths of a second
LAST_DD	last FCT entry found
LIMIT1 - LIMIT5	internal data
LIMITS	internal data
LSR_POOL	LSR pool of the file
MAX_ABS	internal data
MAX_ADD	maximum number of temporary storage/transient data strings/buffers allowed to be added
MAX_ADJ	internal data
MAX_LIMA	maximum allowed value of EDSALIMIT
MAX_LIMB	maximum allowed value of DSALIMIT
MAX_MAXA	maximum MAXACTIVE value allowed for the transaction class
MAX_MXT	maximum allowed value of CICS MAXTASKS
MAX_PCT	internal data
MAX_PURG	maximum PURGETHRESH value allowed for the transaction class
MAX_TRAN	transaction ID of the highest priority transaction belonging to the class
MAX_WAIT	value of the MAXIMUM TASKS TO WAIT FOR A SESSION parameter, which specifies the maximum number of tasks allowed to wait for an MRO/ISC session.
MAX2ADD	maximum number of strings that can be added to this file
MAX2WAIT	maximum number of tasks allowed to wait for file strings, LSR strings or buffers, of TS/TD strings or buffers
MIN_ADJ	internal data
MIN_MAXA	minimum MAXACTIVE value allowed for the transaction class
MIN_MXT	minimum allowed value of CICS MAXTASKS
MIN_PURG	minimum PURGETHRESH value allowed for the transaction class

**Table 5-4 Activity Box Fields (Part 6 of 9)**

<b>Field</b>	<b>Description</b>
MIN_XCOM	internal data
MULT_ACT	internal data
N_STRESS	internal data
NET_NAME	network name
NEWVALUE	parameter value after action was taken
NUM_ACT	number of tasks belonging to the transaction class that are currently active
NUM_ACTV	number of active CICS files
NUM_ADD	number of TS/TD strings/buffers added
NUM_AOR	internal data
NUM_BC_0	internal data
NUM_BUFF	current number of TS/TD buffers
NUM_CPUS	number of CPUs in the complex
NUM_MIRR	number of mirror tasks originated by CICS during the last interval
NUM_SAMP	number of samples
NUM_STUB	internal data
NUM_TASK	current number of active tasks in the system
NUM_TRAN	number of transactions belonging to the transaction class
OLDVALUE	parameter value before action was taken
OPERATOR	identification of user who modified the parameter
ORG_MAXA	original MAXACTIVE value for the transaction class
ORG_MXT	original CICS MAXTASKS value
ORG_PURG	original PURGETHRESH value for the transaction class
OVRL_MIN	internal data
PAGERATE	current page-in rate
PARMNAME	name of parameter updated
PCFLAGS	internal data

**Table 5-4 Activity Box Fields (Part 7 of 9)**

<b>Field</b>	<b>Description</b>
PCBITS	Hexadecimal bits indicating actions taken by the Program Compression Management Function: X '01' = Storage factor increased X '02' = Storage factor decreased X '04' = Compression initiated for ERDSA X '08' = Compression initiated for ERDSA X '10' = Compression initiated for EUDSA X '20' = Compression initiated for UDSA X '40' = Compression initiated for EDSA X '80' = Compression initiated for DSA
POST_EEC	internal data
POSTXACT	internal data
POSTBP_0	internal data
POSTBP_1	internal data
POSTBP_2	internal data
PROG_CMP	number of programs deleted since the previous activation of the Program Compression Management function. This number includes deletions in this activation and deletions between the previous and current activations.
PROG_DEL	number of programs deleted by the Program Compression Management function
PROG_LD	number of program loads from the RPL library by the CICS Loader Domain
PROG_NIU	number of programs in the not-in-use chain upon entry into the Program Compression Management Function
PROGNAME	name of program deleted from DSA
PROGSIIZE	size of program deleted from DSA
PRV_#MXT	value of the CICS MXT condition counter at the previous activation of the Maxtasks Management function
PRV_#SOS	value of the CICS SOS condition counter at the previous activation of the function
PRV_LIMA	previous EDSALIMIT value
PRV_LIMB	previous DSALIMIT value
PRV_MAXA	previous MAXACTIVE value for the transaction class
PRV_MXT	previous CICS MAXTASKS value
PRV_PURG	previous PURGETHRESH value for the transaction class
PRV_SFAC	value of the storage factor upon entry into the Program Compression Management function

**Table 5-4 Activity Box Fields (Part 8 of 9)**

<b>Field</b>	<b>Description</b>
PRV_TOTQ	total number of tasks belonging to the transaction class that had to be queued, as recorded on the previous activation of the function
Q_NAME	name of TS/TD Queue requested by terminated task
Q1_CNCLD	number of times the Task Time-Out Management function purged active tasks
Q1_FOUND	number of times the Task Time-Out Management function wanted to purge active tasks
R_POSTSE	internal data
R_POSTSW	internal data
RDSA_BC	number of bytes freed in the RDSA
RDSA_U	current RDSA utilization
RDSA_UA	average RDSA utilization during last interval
REASON	the reason the activity was initiated or not taken
REDUCED	internal data
REQ_TYPE	type of CICS file request
RSCODE	internal data
SCPU_U	current system CPU utilization  Sometimes this field will display a values that is lower than actual CICS CPU Utilization. This discrepancy is a result of different methods of measurement used by the MVS system.
SCPU_UA	average system CPU utilization recorded over the last interval
SCPU_UX	maximum system CPU utilization recorded in the last interval
SDSA_BC	number of bytes freed in the SDSA
SDSA_U	current SDSA utilization
SDSA_UA	average SDSA utilization during last interval
SELCT_21	internal data
SELCT_3X	internal data
SELCT_41	internal data
SELECT_1 - SELECT_2	internal data
SELECTED	internal data
SET_TO_1 - SET_TO_7	internal data
SFAC_H	maximum allowed value for the storage factor in the Program Compression Management function
SFAC_L	minimum allowed value for the storage factor in the Program Compression Management function

**Table 5-4 Activity Box Fields (Part 9 of 9)**

<b>Field</b>	<b>Description</b>
SIGNEDON	the maximum number of CICS regions in which Energizer for CICS functions were active during the interval
SIMLMODE	number of times the functional process was activated in simulation mode during the interval
SLOPE	internal data
STR_NUM	current number of TS/TD strings
STR_TYPE	type of file string added
STR_WAIT	number of tasks waiting for TS/TD strings
SYS_NAME	system name for which action was taken
T_STRESS	internal data
TASK/SEC	the average number of tasks per second originated by CICS during the last interval
TASK_NUM	CICS task number for which action was taken
TASKNAME	CICS task ID for which action was taken
TCL_NAME	transaction Class Name
TCL_PRTY	transaction Class Priority
TERMINAL	terminal where action was taken
TOT_TASK	number of tasks originated by CICS during the last interval.
TOT_TSKS	current number of tasks in system (active and suspended)
TRACELVL	level of trace option deactivated/reactivated
TWO_SCAN	internal data
UDSA_BC	number of bytes freed in the UDSA
UDSA_U	current UDSA utilization
UDSA_UA	average UDSA utilization during last interval
UDSA_UH	maximum UDSA utilization threshold
UDSA_UL	minimum UDSA utilization threshold
USECOUNT	number of times that the program was activated
WAITS	internal data
WAIT/SEC	average number of MVS waits per second issued by CICS during the interval
WAKEUP_W	internal data
WLL_HIGH	internal data



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## Chapter 6 Batch Reporting Facility

The Energizer for CICS Batch Reporting Facility provides hardcopy information about the activities and operations that Energizer for CICS executes in order to enhance CICS performance. It generates reports and graphical data from the operational and statistical records on the Report File that were accumulated during the activation of the Energizer for CICS functions. The Batch Reporting Facility includes the following features:

- **Batch Report:** Hardcopy report containing the same information that is displayed online in the Energizer for CICS Online Reporting Facility (see Chapter 5, “Online Reporting Facility”). Use this report for a detailed analysis of specific Energizer for CICS activities and their effect on CICS performance and availability.
- **Accumulative Statistics Report:** Accumulative statistical information about the data from the Report File. Use this report to obtain summary data for the activities of Energizer for CICS, grouped by function and type of activity.
- **Index Report:** A list of the CICS APPLIDs included in the Report File. For each APPLID, a detailed list shows the dates, times, and activation modes for each day that Energizer for CICS was active. Use this report for a summary of the data grouped by APPLID, dates of activity, and modes of operation.
- **CICS Performance Comparison Worksheet:** Statistical information about the performance of the CICS system during user-defined peak workload periods with and without the execution of Energizer for CICS. Use this report for an evaluation of the improvement in CICS performance that is achieved with Energizer for CICS.

- 
- **CICS Automated Performance Comparison Worksheet:** Statistical information about the performance of CICS during peak workload periods, automatically identified by Energizer for CICS, with and without the execution of Energizer for CICS. Use this function to obtain pairs of peak workload periods with similar workloads that can be used to evaluate the performance improvement that is achieved with Energizer for CICS.
  - **CICS Performance Availability Statistics Report:** Summary information about long-term performance availability of the CICS system with Energizer for CICS. Use this report to obtain a summary of Energizer for CICS activities to improve system availability.
  - **Batch/TSO Comparison Report:** Statistical information about the performance of the Batch and TSO systems with and without the execution of Energizer for CICS. Use this report for an evaluation of the improvement achieved in batch and TSO performance as a result of the Energizer for CICS activities in the CICS regions.
  - **SMF Analysis Report:** A comparison worksheet similar to the CICS Performance Comparison Worksheet, but based solely on data extracted from the system SMF files.
  - **PC Graphic Analysis:** PC Graph File Generator program that extracts data from the Energizer for CICS Report File for use with the Energizer for CICS PC Graphic Analysis Facility. Use this program to create summary statistical data of the Energizer for CICS activities for graphical presentation by the PC Graphic Analysis Facility.

The Energizer for CICS Batch Reporting Facility provides information about the following subjects:

- **CPU Utilization Measurement:** CPU utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement.
- **DSA Utilization Measurement:** DSA utilization at the end of every reporting interval and when Energizer for CICS takes action based on the monitored measurement.
- **Dispatch Management:** Information about how Energizer for CICS is managing CICS dispatches.
- **MRO Dispatch Management:** Information about how Energizer for CICS is managing the dispatches of Multi-Region Operation (MRO) requests.

- 
- **MRO Mirror Task Management:** How many times a suspended mirror Task had its expiration time changed and how many mirror tasks have been changed from short running to long running.
  - **MRO/ISC Queue Management:** The number of tasks found waiting for an interconnected MRO/ISC session, and how many tasks were terminated by the function while waiting for a session of distributed transaction processing or function shipping.
  - **Program Compression:** How much storage was released when deleting the least used programs, how many programs were deleted, and the DSA utilizations before and after the release.
  - **Storage Management:** The previous, current, and maximum values for DSALIMIT and EDSALIMIT and CPU and DSA utilizations.
  - **VSAM Queue Management:** Which files had file strings added, which tasks were abnormally terminated by a function, which tasks were not abnormally terminated, and whether it was due to the exclusion list or other reasons.
  - **Trace Management:** Which CICS Trace components were turned on and off, the reasons for the activity, and the CPU utilizations.
  - **VSAM Subtask Management:** CPU utilizations and the activation and deactivation of VSAM subtasking for VSAM GET and PUT operations.
  - **Maxtasks Management:** What values were used for MXT, whether MXT was increased or decreased, the CPU and DSA utilizations, and the reasons for the tuning activity.
  - **Temporary Storage Queue Management:** How many temporary storage strings or buffers were added, which tasks were allowed to wait for these resources, which tasks were terminated by the function, and the conditions under which they were terminated.
  - **Transient Data Queue Management:** How many transient data strings or buffers were added, which tasks were allowed to wait for these resources, which tasks were terminated by the function, and the conditions under which they were terminated.
  - **Task Time-Out Management:** Which tasks were abnormally terminated by the function, the approximate duration, and at which terminal.

- **Transaction Class Management:** The name of the transaction class whose limits were changed, what values were used for MAXACTIVE and PURGETHRESH, whether they were increased or decreased, the DSA and CPU utilizations, and the number of active and queuing tasks for the class.

The Energizer for CICS Batch Reporting Facility options can be accessed from either the Energizer for CICS TSO/ISPF interface or directly with batch jobs. See the corresponding sections in this chapter for details about generating the reports using a batch job.

To access the Energizer for CICS Batch Reporting Facility via the TSO/ISPF interface:

1. Activate the Energizer for CICS TSO/ISPF Interface to display the Energizer for CICS Primary Menu.
2. Select Option 2, Batch Reporting Facility.

**Figure 6-1 TSO/ISPF Primary Menu**

```

USERID  BCGWJ3                ENERGIZER/CICS                DATE  01/02/20
REL    4.200                  PRIMARY MENU                    TIME  11:22
                                                I00

OPTION  ===>

ENTER ONE OF THE FOLLOWING OPTIONS :

      1  PARAMETERS FACILITY      APPLID =          (FULL/GENERIC/BLANK)
      2  BATCH REPORTING FACILITY
      3  ONLINE REPORTING FACILITY
      4  DIALOG MANAGEMENT
      5  PRODUCT AUTHORIZATION
      X  EXIT

COPYRIGHT BMC SOFTWARE INC.  1992 - 2001  ALL RIGHTS RESERVED
ENERGIZER/CICS 4.200  03/01/01  ESA ASSEMBLED 01/26/01 13.56
-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN  F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12=

```

# Batch Reporting Facility Screen

Energizer for CICS displays the Batch Reporting Facility screen when you select Option 2, Batch Reporting Facility, from the Energizer for CICS Primary Menu.

**Figure 6-2 Batch Reporting Facility Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             BATCH REPORTING FACILITY  TIME 16:46
                                     120
OPTION ==>

ENTER ONE OF THE FOLLOWING OPTIONS:

      1 BATCH REPORT/ACCUMULATIVE STATISTICS REPORT/INDEX REPORT
      2 CICS PERFORMANCE COMPARISON WORKSHEET
      3 CICS AUTOMATED PERFORMANCE COMPARISON WORKSHEET
      4 CICS PERFORMANCE AVAILABILITY STATISTICS
      5 BATCH/TSD COMPARISON REPORT
      6 SMF ANALYSIS REPORT
      7 PC GRAPHIC ANALYSIS

-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP   F10=     F11=     F12=

```

The Energizer for CICS Batch Reporting Facility screen lists seven options. To select an option, enter the option number in the **OPTION** field and press **Enter**. Energizer for CICS displays the screen for the option you selected.

The options are described below.

1. **Batch Report/Accumulative Statistics Report/Index Report:**  
Hardcopy report containing the same information that is displayed online in the Energizer for CICS Reporting Facility (see Chapter 5), statistical information about the data selected for the report, and a list of the CICS APPLIDs in the Report File with the activation modes for Energizer for CICS on each day it was active.
2. **CICS Performance Comparison Worksheet:** Statistical information on the performance of the CICS system during user-defined peak workload periods with and without the execution of Energizer for CICS.
3. **CICS Automated Performance Comparison Worksheet:** Statistical information about the performance of the CICS system during peak workload periods, automatically identified by Energizer for CICS, with and without the execution of Energizer for CICS.
4. **CICS Performance Availability Statistics:** Summary information about long-term performance availability of the CICS system with Energizer for CICS.

5. **Batch/TSO Comparison Report:** Statistical information about the performance of the Batch and TSO systems with and without the execution of Energizer for CICS.
6. **SMF Analysis Report:** A comparison worksheet similar to the CICS Performance Comparison Worksheet, but based solely on data extracted from the system SMF files.
7. **PC Graphic Analysis:** PC Graph File Generator program that extracts data from the Energizer for CICS Report File for the PC Graphic Analysis Facility.

Options 1 through 6 are explained in the sections that follow. Option 7 is explained in Chapter 8, “PC Graphic Analysis Facility”.

- Press **Enter** to process the selection.
- Press **PF3** to return to the Energizer for CICS Primary Menu.
- Press **PF4** to return to the TSO/ISPF screen from which you activated Energizer for CICS.

## Batch Report/Accumulative Statistics Report/Index Report

The Batch Report (Figure 6-3 on page 6-7) prints the operational and statistical records on the Report File that were accumulated during the activation of the Energizer for CICS functions. It contains the same information that is displayed online in the Energizer for CICS Online Reporting Facility. It includes both action messages (ACxxxx) and informational and warning messages (PExxxx/PTxxxx) that are also captured on the CICS Job Log and displayed on the operator console. See the *Energizer for CICS Messages and Codes Guide* for detailed descriptions of each message. Use this report for a detailed analysis of specific Energizer for CICS activities and their effect on CICS performance and availability.

The Accumulative Statistics Report (Figure 6-5 on page 6-15), printed at the end of the Batch Report, contains statistical information about the data that was selected for the Batch Report. The information is displayed in the statistical messages (STxxx) that are described in detail in the *Energizer for CICS Messages and Codes Guide*. Use this report to obtain summary data for the activities of Energizer for CICS, grouped by function and type of activity.

The Index Report (Figure 6-6 on page 6-16) prints a list of the CICS APPLIDs included in the Report File. For each APPLID, a detailed list shows the dates, times and activation modes for each day that Energizer for CICS was active. In addition, the report displays the length (in reporting intervals) of each period of activity and the average number of transactions originated by CICS per interval. Use this report for a quick review of the data in the Report File, grouped by APPLID, dates of activity, and modes of operation.

The Batch Report, the Accumulative Statistics Report, and the Index Report can be generated from either the Batch Report/Accumulative Statistics Report/Index Report screen (Figure 6-3 on page 6-7) or directly using a batch job. Sample JCL for the batch job is contained in member ECSJRASI in the BBSAMP sample library. You can choose which period's data to report, and you can specify an inclusive time frame. Additionally, you can limit the type of data reported by specifying the message type, component, function, type of action, and whether or not to include detail, information about each action message. These details are contained in the Activity Box of the online Reporting Facility.

To display the Batch Report/Accumulative Statistics Report/Index Report Screen, select Option 1 - Batch Report/Accumulative Statistics Report/Index Report from the Batch Reporting Facility Screen.

Modify the default settings on the Batch Report/Accumulative Statistics Report/Index Report screen by typing over the entries. Fill in the JOB STATEMENT INFORMATION at the bottom of the screen and press **Enter** to submit the job that generates the report. In the list that follows, the entry names on the screen are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRASI).

**Figure 6-3 Batch Report/Accumulative Statistics Report/Index Report Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                    BATCH REPORTING FACILITY        TIME 16:49
                                BATCH REPORT/ACCUMULATIVE STATISTICS REPORT/INDEX REPORT I21
OPTION ==>

FUNCTION   : PRINT          (PRINT, PRINTSTAT, INDEX)
DSNAME    : energize.cics report file
APPLID    :                 (BLANK FOR ALL APPLID'S)
FROM DATE : 08/02/99 (MM/DD/YY) FROM TIME : 00.00.00 (HH.MM.SS)
TO DATE   : 08/02/99 (MM/DD/YY) TO TIME   : 23.59.59 (HH.MM.SS)
MESSAGE TYPE : ALL (ALL, EXC, ACT, WTO)
COMPONENT  : ALL (ALL, GEN, TUN)
SUBJECT    : ALL
ACTION     : ALL
DETAILS    : YES (YES, NO) LINENUM : 55 (20 - 100)
SYSOUT CLASS : * ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==>
==>
==>
-----
F1= HELP F2= SPLIT F3= END F4= RETURN F5= F6= F7=
F8= F9= SWAP F10= F11= F12=

```

- **FUNCTION:** Enter the appropriate reporting function. PRINT creates a Batch Report of the action and system informational messages that were captured during the activation of Energizer for CICS. Included in the report is a summary of accumulative statistics based on the selection criteria. PRINTSTAT will produce only the Accumulative Statistics Report. The INDEX function prints a list of the CICS APPLIDs included in the requested Report File with the modes of activation of Energizer for CICS on each day that it was active.

**Default:** PRINT

**Range of values:**

- PRINT - Print the Batch Report
- PRINTSTAT - Print the Accumulative Statistics Report
- INDEX - Print the Index Report

**Restrictions:** None

- **DSNAME:** Enter the data set name of the (first) Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMEs setting is greater than zero) this field is used to specify the first file used. The same DSNAME prefix will be assumed for the additional Report Files.

**Default:** Current DSNAME on the Dialog Management screen

**Format:** 1- to 44-character data set name

**Restrictions:** If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM APPLID for which you want the CICS region to provide a report. Leave this field blank to report on all the CICS regions included on the Report File.

**Default:** Blank

**Format:** 1- to 8-character VTAM application ID

**Restrictions:** None

- **FROM DATE (FROMDATE):** Enter the starting date of activity that you want to be reported.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** The FROM DATE is required if FROM TIME is entered.

- **FROM TIME (FROMTIME):** Enter the starting time of activity that you want to be reported.

**Default:** 00.00.00

**Format:** hh.mm.ss

**Restrictions:** The FROM DATE is required if FROM TIME is entered.

- **TO DATE (TODATE):** Enter the ending date of activity that you want to be reported.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** The TO DATE is required if the TO TIME is entered.

- **TO TIME (TOTIME):** Enter the ending time of activity that you want to be reported.

**Default:** 23.59.59

**Format:** hh.mm.ss

**Restrictions:** The TO DATE is required if TO TIME is entered.

- **MESSAGE TYPE (MSGTYPE):** Enter the type of messages that you want to be reported. ACT reports only action messages (ACxxxx), which are descriptions of the activities that were executed in order to enhance CICS performance. EXC reports action messages for exception conditions only (i.e. when Energizer for CICS changed a CICS parameter dynamically, canceled a task, or added resources). WTO reports informational and warning messages (PExxxx/PTxxxx) only.

**Default:** ALL

**Range of Values:**

- ALL - All message types
- EXC - Exception condition action messages
- ACT - Action messages
- WTO - Informational and warning messages

**Restrictions:** None

- **COMPONENT (COMPONENT):** Enter the Energizer for CICS functional component that you want to be reported. The Tuning component will select records associated with tuning activities; the General component will select the other activities.

**Default:** ALL

**Range of Values:**

- ALL - All components
- GEN - General
- TUN - Tuning

**Restrictions:** None

- **SUBJECT (SUBJECT):** Enter the mnemonic code of the Energizer for CICS function that you want to be reported.

**Default:** ALL

**Format:** 1- to 8-character mnemonic

**Range of Values:** ALL - All functions

**Table 6-1 Subject Codes**

<b>Code</b>	<b>Description</b>
CPUUTIL	CPU Utilization Measurement
DISPATCH	Dispatch Management
DSAUTIL	DSA Utilization Measurement
MAXTASKS	Maxtasks Management
MRODISPC	MRO Dispatch Management
MROMIRRC	MRO Mirror Task Management
MROQUEUE	MRO/ISC Queue Management
PROGCOMP	Program Compression Management
STORAGE	Storage Management
SUBTASK	VSAM Subtask Management
TASKTIME	Task Time-Out Management
TEMPSTRG	TS Queue Management
TRACE	Trace Management
TRANDATA	TD Queue Management
TRNCLASS	Transaction Class Management
VSAMQ	VSAM Queue Management

**Restrictions:** None

- **ACTION (ACTION):** Enter the code of the Energizer for CICS action that you want to be reported.

**Default:** ALL

**Format:** 2- or 3-character code

**Range of Values:** ALL - All actions

**Table 6-2 Action Codes (Part 1 of 2)**

<b>Code</b>	<b>Description</b>
AD	AMXT Decrease
AI	AMXT Increase
AR	Storage Management Report
BA	Temporary Storage Buffer Add
BD	Transient Data Buffer Add
CM	CPU Utilization Measurement
DD	DSALIMIT/EDSALIMIT Decrease
DI	DSALIMIT/EDSALIMIT Increase
DM	DSA Utilization Measurement
DS	Dispatch Parameter Setting
FS	Periodic FCT Scan
LR	Set MRO Mirror Task to Long Running
MD	Transaction Class Limits Decrease
MI	Transaction Class Limits Increase
MR	Local MRO Dispatch
MS	MRO Parm Value Setting
PC	Program Compression
PR	Program Compression Report
PS	Program Compression Summary
PU	Parameter Update
SA	VSAM String Add
SD	Transient Data String Add
SP	Temporary Storage String Add
SS	Set MRO Mirror Task Suspend Time
TA	Task Abend (For MRO/ISC, VSAM Queue, Task Time-Out, and TS/TD Queue Management)

**Table 6-2 Action Codes (Part 2 of 2)**

<b>Code</b>	<b>Description</b>
TC	Trace Level Disable
TO	Trace Level Enable
TR	Trace Management Report
TS	Task Time-Out Summary
VD	VSAM Subtask Disable
VE	VSAM Subtask Enable
WL	Dispatch Management
WU	Dispatch Management-Local
XD	MAXTASKS Decrease
XI	MAXTASKS Increase
XP	Remote MRO Dispatch
XR	MAXTASKS Management Report

**Restrictions:** None

- **DETAILS (DETAILS):** Specify whether to include detailed information about each of the action messages. These are the details contained in the Activity Box on the Online Reporting Facility.

**Default:** YES

**Range of Values:** YES/NO

**Restrictions:** None

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Values:** 20 - 100

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Values:** Output class codes valid for your installation

**Restrictions:** None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

**Note:** Each Report File will be processed according to the input parameters (independently of the other Report Files). A separate report (or set of reports) will be produced for each Report File.

**Default:** 0

**Range of Values:** 0 - 99

**Restrictions:** If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the DSNames of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To print the Batch Report/Accumulative Statistics Report/Index Report using a batch job:

1. Copy the member ECSJRASI from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Type the data set name of the CICS release load library in the DSN parameter of the STEPLIB DD statement.
4. Type the data set name of the first Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT *n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

**Note:** Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the batch reports by typing over the parameters that follow the SYSIN statement.
6. To print only the Accumulative Statistics Report, use the PRINTSTAT function instead of PRINT.

7. To print the Index Report, use the INDEX function.
8. Submit the job.

**Figure 6-4 Sample Batch Reporting JCL (Member ECSJRASI)**

```
***** Top of Data *****
/**
/** Member: ECSJRASI
/**
/** Accumulative Statistics Report / Index Report
/**
/** Edit the date and time ranges on the SYSIN statements.
/**
/** Edit the following variables:
/** -----
/** energize.cics.BBLINK
/**      The DSN of the BMC Software load library.
/**
/** your.energize.cics.REPORT
/**      The input DSN of the report file.
/**
/**-----*
//HISTRPT EXEC PGM=PL00BTCH,REGION=1M
/**      PARM='PRINT FROMDATE=mm/dd/yy,TODATE=mm/dd/yy'
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
PRINT APPLID=applid,
      FROMDATE=mm/dd/yy, FROMTIME=hh.mm.ss,
      TODATE=mm/dd/yy, TOTIME=hh.mm.ss,
      MSGTYPE=ALL, <== Enter EXC for exception data only
      COMPONENT=ALL,
      SUBJECT=ALL,
      ACTION=ALL,
      DETAILS=YES,
      LINENUM=55
//
***** Bottom of Data *****
```

---

**Figure 6-5 Sample Accumulative Statistics Report**


---

```

OPTISYSTEMS SOLUTIONS LTD.          ENERGIZER/CICSDATE:08/05/99
REPORT P100BTCH REL 4.100          TIME:11:39:42
APPLID : CICS41      4.1  BATCH REPORTING FACILITY PROGRAM
                        ACCUMULATIVE  STATISTICS PAGE:      9

ST021 : STARTED   : DATE   06/20/99 TIME  13.29.07
ST022 : ENDED    : DATE   07/12/99 TIME  17.10.53

ST066 : STORAGE  : MAXIMUM  DSALIMIT VALUE..5888K <07/08/99 17.08.19>
ST067 : STORAGE  : MINIMUM  DSALIMIT VALUE..5120K <                >
ST068 : STORAGE  : # TIMES  DSALIMIT CHANG..00006
ST066 : STORAGE  : MAXIMUM  EDSALIMIT VALUE...27M <07/08/99 17.10.18>
ST067 : STORAGE  : MINIMUM  EDSALIMIT VALUE...20M <                >
ST068 : STORAGE  : # TIMES  EDSALIMIT CHANG..00007

ST071 : TASKTIME : NUMBER OF TASKS PURGED.0000034

ST072 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE INCREASE.....00000
ST073 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE DECREASE.....00002
ST074 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH INCREASE.....00000
ST075 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH DECREASE.....00000

ST058 : VSAMQ    : FILE  PEPARMS : STR ADD...0000  TASK ABENDS..0001
ST058 : VSAMQ    : FILE  CNSL0001: STR ADD...0003  TASK ABENDS..0014

ST043 : SUBTASK  : TRANSITIONS TO "NO SUBT"..0013
ST044 : SUBTASK  : TRANSITIONS TO "PUT" LVL..0000
ST045 : SUBTASK  : TRANSITIONS TO "GET" LVL..0000
ST048 : SUBTASK  : TOTAL TRANSITIONS.....00013
ST047 : SUBTASK  : MAXIMUM LEVEL SET.....2 <06/22/99 13.29.07>

ST049 : DISPATCH : AVG NUM MVS WAITS/SEC....00002
ST050 : DISPATCH : MAX NUM MVS WAITS/SEC....00003 <06/29/99 12.41.29>
ST051 : DISPATCH : MIN NUM MVS WAITS/SEC....00002 <06/28/99 16.33.43>

ST001 : PROGCOMP : MAX STORAGE FACTOR PERCENT..85 <07/08/99 17.10.34>
ST002 : PROGCOMP : MIN STORAGE FACTOR PERCENT..50 <                >
ST003 : PROGCOMP : NUM TIMES FACTOR CHANGED.00080
ST004 : PROGCOMP : TOTAL NUM PROGRAMS COMP.000048
ST005 : PROGCOMP : CDSA : AVG BYTES COMP...00005 (KBYTES)
ST005 : PROGCOMP : ECDSA : AVG BYTES COMP...00002 (KBYTES)
ST005 : PROGCOMP : SDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ESDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : RDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ERDSA : AVG BYTES COMP...00002 (KBYTES)

PE580 : NUMBER OF RECORDS READ          5824
PE581 : NUMBER OF SLOTS SELECTED       33431
PE582 : NUMBER OF APPLIDS SELECTED     1
PE562 : FUNCTION SUCCESSFULLY COMPLETED

```

---

**Figure 6-6 Sample Index Report**


---

```

OPTISYSTEMS SOLUTIONS LTD.          ENERGIZER/CICSDATE:07/12/99
REPORT P100BTCH REL 4.100          TIME:15:02:35
APPLID : CICSPROD 4.1             BATCH REPORTING FACILITY PROGRAM
                                INDEX  STATISTICS PAGE:          2

```

DATE	DAY OF WEEK	FROMTIME	TOTIME	MODE	INTERVALS	TRANSACTIONS PER INTERVAL
PE584 : APPLID : CICSPROD						
05/12/99	WEDNESDAY	06.41.22	18.01.38	SIML	69	4331
05/14/99	FRIDAY	06.39.59	18.00.20	SIML	69	2910
05/17/99	MONDAY	06.42.49	17.52.57	SIML	68	4492
05/18/99	TUESDAY	06.43.26	17.53.34	SIML	68	4618
05/19/99	WEDNESDAY	06.40.59	18.01.11	SIML	69	4490
05/20/99	THURSDAY	06.43.01	17.53.10	SIML	68	4501
05/21/99	FRIDAY	06.42.47	17.53.02	SIML	68	3533
05/25/99	TUESDAY	06.41.32	18.01.48	SIML	69	4481
05/26/99	WEDNESDAY	06.40.48	18.01.00	SIML	69	4378
05/27/99	THURSDAY	06.41.39	18.01.51	SIML	69	4450
05/28/99	FRIDAY	06.39.58	18.00.15	SIML	69	3620
05/31/99	MONDAY	06.41.59	07.01.59	SIML	3	1309
05/31/99	MONDAY	07.12.49	17.52.58	PROD	65	5085
06/01/99	TUESDAY	06.41.17	18.01.22	PROD	69	4559
06/02/99	WEDNESDAY	06.41.51	18.01.57	PROD	69	4679
06/03/99	THURSDAY	06.41.20	18.01.30	PROD	69	4745
06/04/99	FRIDAY	06.40.28	18.00.34	PROD	69	4083
06/07/99	MONDAY	06.42.59	17.53.05	PROD	68	4970
06/08/99	TUESDAY	06.52.58	17.53.07	PROD	67	5026
06/09/99	WEDNESDAY	06.41.58	18.02.10	PROD	69	4450
PE580 : NUMBER OF RECORDS READ				11996		
PE581 : NUMBER OF SLOTS SELECTED				27310		
PE582 : NUMBER OF APPLIDS SELECTED				1		
PE562 : FUNCTION SUCCESSFULLY COMPLETED						

---

## CICS Performance Comparison Worksheet

The CICS Performance Comparison Worksheet provides hardcopy statistical information about the performance of the CICS system during user-specified peak workload periods with and without the execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

**Note:** All functions activated must be in the same mode as the Dispatch Management function.

Use this report for an evaluation of the improvement in CICS performance achieved with Energizer for CICS.

The CICS Performance Comparison Worksheet (Figure 6-10 on page 6-30, Figure 6-11 on page 6-34, and Figure 6-12 on page 6-35) can be generated from either the CICS Performance Comparison Worksheet screen (Figure 6-7 on page 6-22) or directly using a batch job. Sample JCL (Figure 6-14 on page 6-42) for the batch job is contained in member ECSJRPCS in the BBSAMP sample library. You specify a time frame (up to a few hours) of peak workload during a period of one or more days when Energizer for CICS functions were activated in Production Mode and also a time frame of a similar workload during a period of one or more days when Energizer for CICS functions were activated in Simulation Mode.

**Note:** Be careful to compare periods with similar workloads and transaction mixes. Specify time frames that represent the real peak workloads. When comparing longer periods, be sure to omit weekends, holidays, and days with low activity. Make sure that the Reporting Interval (set on the General Parameters screen in the Parameters Facility) is the same for both the Production and Simulation periods. See “General Parameters Screen (I101)” on page 3-15.

An Index Report (Figure 6-6 on page 6-16) listing the exact time frames used for the worksheet and an abbreviated Accumulative Statistics Report (Figure 6-5 on page 6-15) are printed along with the CICS Performance Comparison Worksheet.

If multiple APPLIDs are handled by the Performance Comparison Worksheet job, this set of reports is produced for each APPLID that is handled. A Worksheet Summary Report (Figure 6-9 on page 6-28) is also produced, summarizing the combined performance improvement for all the CICS regions.

The CICS Performance Comparison Worksheet provides the following data for both the Production and Simulation periods:

## Peak-Period CICS Performance Analysis

- **AVERAGE CICS CPU:** The average CICS CPU utilization for the period. This is the sum of the average CICS CPU utilizations reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM CICS CPU:** The maximum CICS CPU utilization reported during the period.

- **AVERAGE MAXIMUM CICS CPU:** The average maximum CICS CPU utilization for the period. This is the sum of the maximum CICS CPU utilizations reported divided by the number of reporting intervals contained in the period.
- **AVERAGE SYSTEM CPU:** The average CPU utilization of the whole MVS site for the period. This is the sum of the average system CPU utilizations reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM SYSTEM CPU:** The maximum system CPU utilization reported for the period.
- **AVERAGE MAXIMUM SYSTEM CPU:** The average maximum CPU utilization of the whole MVS for the period. This is the sum of the maximum system CPU utilizations reported divided by the number of reporting intervals contained in the period.

**Note:** CICS CPU utilization is based on the utilization of one processor in the complex and may exceed 100%. System CPU is the CPU utilization of the entire complex. A system CPU utilization value of over 100% indicates 100% CPU utilization plus the number of users waiting for the CPU.

- **TOTAL TRANSACTIONS PROCESSED:** The total number of transactions processed during the period including both mirror (CSMI) transactions and nonmirror transactions.
- **TOTAL TRANSACTIONS NORMALIZED:** The total number of transactions processed during the period, normalized to the smaller number of intervals reported, including both mirror (CSMI) transactions and nonmirror transactions.
- **CSMI (MIRROR) TRANSACTIONS:** The total number of mirror (CSMI) transactions processed during the period.
- **NET TRANSACTIONS (TOTAL LESS CSMI):** The total number of nonCSMI transactions processed during the period.

**Note:** Energizer for CICS significantly reduces the number of mirror tasks. Therefore, the two net transaction figures represent a more accurate comparison between the two periods.

- **TOTAL TRANSACTIONS PER INTERVAL:** The average number of transactions processed during the period including both mirror (CSMI) transactions and nonmirror transactions. This is the total number of transactions reported divided by the number of reporting intervals contained in the period.

- **CSMI TRANSACTIONS PER INTERVAL:** The average number of CSMI transactions processed during the period. This is the total number of CSMI transactions reported divided by the number of reporting intervals contained in the period.
- **NET TRANSACTIONS PER INTERVAL:** The average number of nonCSMI transactions processed during the period. This is the total number of nonCSMI transactions reported divided by the number of reporting intervals contained in the period.
- **TRANSACTIONS PER CICS CPU MINUTE:** The number of transactions processed per CICS CPU minute for the period. This calculation divides the net number of transactions per interval by the average number of CICS CPU minutes per interval.
- **improvement:** This is the most significant measure of performance improvement achieved with Energizer for CICS. It shows (in percents) how many more transactions were processed per CICS CPU minute during the period when Energizer for CICS was running in Production Mode. This field is displayed between the PROD and SIML figures for TRANSACTIONS PER CICS CPU MINUTE.
- **AVG CICS CPU PER TRANSACTION:** The average CICS CPU utilization per processed transaction for the period. This calculation divides the sum of the average CICS CPU utilizations for the period by the net number of transactions for the period.

**Note:** This figure may be significantly higher than the CPU per task figure reported by an installed performance monitor. Energizer for CICS takes into account all components of CPU: application, monitor, database, VSAM subtasking, and CICS overhead. This figure is a true measure of the CPU that CICS uses.
- **AVERAGE WAITS PER SECOND:** The average number of MVS waits per second issued by CICS for the period. This is the sum of the waits reported divided by the number of reporting intervals contained in the period.
- **MAXIMUM WAITS PER SECOND:** The maximum number of reported MVS waits per second issued by CICS for the period.
- **MINIMUM WAITS PER SECOND:** The minimum number of MVS reported waits per second issued by CICS for the period.
- **# TIMES VSAM SUBTASKING ACTIVATED:** The total number of times VSAM Ssubtasking was activated during the period.

## Peak-Period CICS Availability Analysis

- **NUMBER OF SOS CONDITIONS:** The total number of Short-On-Storage conditions encountered during the period.
- **NUMBER OF MXT CONDITIONS:** The total number of MAXTASKS conditions encountered during the period.  
  
**Note:** This figure is not provided by Energizer for CICS; it can be obtained from THE MONITOR FOR CICS (TMON) or from OMEGAMON.
- **PROGRAMS LOADED PER INTERVAL:** The average number of programs loaded by CICS during the period. This is the sum of the program loads reported divided by the number of reporting intervals contained in the period.
- **PROGRAMS COMPRESSED PER INTERVAL:** The average number of programs compressed by CICS during the period. This is the sum of the all program compressions reported divided by the number of reporting intervals contained in the period. The total number reported for the period includes program compressions forced by Energizer for CICS plus those programs that are compressed normally by CICS between activations of the Program Compression Management function.
- **PROGRAMS DELETED PER INTERVAL:** The average number of programs compressed by CICS because of Energizer for CICS during the period. This is the sum of the program deletions reported divided by the number of reporting intervals contained in the period. The total number of program deletions reported for the period includes only program compressions forced by Energizer for CICS.
- **MAX NOT-IN-USE COUNT (NIU):** The maximum number of programs in the not-in-use chain (NIU) reported during the period.
- **AVG NOT-IN-USE COUNT (NIU):** The average number of programs in the not-in-use chain (NIU) during the period. This is the sum of the NIU programs reported divided by the number of reporting intervals contained in the period.

## Worksheet Summary Report

The Worksheet Summary Report (Figure 6-9 on page 6-28) is produced when multiple APPLIDs are handled by the Performance Comparison Worksheet job. This report summarizes the combined performance improvement for all the CICS regions reported by the job. The data items shown for each CICS region are taken from the matching data items in the Performance Comparison Worksheet belonging to that region and which is printed earlier in the job. The Worksheet, together with the Index Report preceding it, also show the exact time frame used in the calculations.

The following data is provided for each CICS region listed:

- **CICS NAME:** The VTAM APPLID of the reported CICS region.
- **CICS RELEASE:** The version and release of the reported CICS region.
- **ENERGIZER RELEASE:** The release of Energizer for CICS used by the reported CICS region.
- **AVG CICS CPU - PROD:** The average CICS CPU utilization for the period that Energizer for CICS was active in Production Mode.
- **NUMBER OF SOS CONDITIONS - PROD:** The total number of Short-On-Storage conditions encountered by CICS during the period that Energizer for CICS was active in Production Mode.
- **NUMBER OF SOS CONDITIONS - SIML:** The total number of Short-On-Storage conditions encountered by CICS during the period that Energizer for CICS was active in Simulation Mode.
- **NUMBER OF MXT CONDITIONS - PROD:** The total number of MAXTASKS conditions encountered by CICS during the period Energizer for CICS was active in Production Mode.
- **NUMBER OF MXT CONDITIONS - SIML:** The total number of MAXTASKS conditions encountered by CICS during the period Energizer for CICS was active in Simulation Mode.
- **TRANSACTIONS PER CICS CPU MINUTE - PROD:** The number of transactions processed per CICS CPU minute for the period during which Energizer for CICS was active in Production Mode.
- **TRANSACTIONS PER CICS CPU MINUTE - SIML:** The number of transactions processed per CICS CPU minute for the period during which Energizer for CICS was active in Simulation Mode.

- **IMPROVEMENT IN CPU PER TRANSACTION:** The percentage of decrease in the average CICS CPU utilization per processed transaction during the period Energizer for CICS was active in Production Mode compared to the period that Energizer for CICS was active in Simulation Mode.

In addition, the report lists the total number of CICS regions reported and the total improvement in the CICS CPU utilization per processed transaction. This is the average of improvement in CPU per transaction for the reported CICS regions, weighted by the average CPU utilization of each region.

**Note:** This calculation assumes that all CICS regions are running on CPUs of equal processing power.

1. To access the CICS Performance Comparison Worksheet screen, select Option 2, from the Batch Reporting Facility Screen.

**Figure 6-7 CICS Performance Comparison Worksheet Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                   BATCH REPORTING FACILITY        TIME 16:53
                                CICS PERFORMANCE COMPARISON WORKSHEET  I22
OPTION ===>

FUNCTION      : WORKSHEET
DSNAME       : energize.cics report file
APPLID      : (BLANK FOR ALL APPLID'S)
PROD DATE   : 08/02/99 (MM/DD/YY)   PROD TO DATE: 08/02/99 (MM/DD/YY)
PROD FROM TIME : 00.00.00 (HH.MM.SS)
PROD TO TIME  : 23.59.59 (HH.MM.SS)
SIML DATE   : 08/02/99 (MM/DD/YY)   SIML TO DATE: 08/02/99 (MM/DD/YY)
SIML FROM TIME : 00.00.00 (HH.MM.SS)
SIML TO TIME  : 23.59.59 (HH.MM.SS)
LINENUM     : 55 (20 - 100)
SYSOUT CLASS : *                   ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==>
==>
==>
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

2. Modify the default settings on the CICS Performance Comparison Worksheet screen by typing over the entries.
3. Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to generate the report. In the following list, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRPCS).
  - **FUNCTION:** **WORKSHEET** is the function parameter.
  - **DSNAME:** Enter the data set name of the first Report File to use. If multiple Report Files are used (the **ADDITIONAL DSNAME**s setting is greater than zero) this is the first file used. The same **DSNAME** prefix will be assumed for the additional Report Files.

**Default:** Current **DSNAME** on the Dialog Management screen

**Format:** 1- to 44-character data set name

**Restrictions:** If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM APPLID for the CICS region that you want to be reported. Leave this field *blank* to report on all of the CICS regions included on the Report File.

**Default:** Blank

**Format:** 1- to 8-character VTAM Application ID

**Restrictions:** None

- **PROD DATE (PRODDATE):** Enter the date of the first (or only) peak period when Energizer for CICS was activated in Production Mode.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** PROD DATE must be less than or equal to PROD TO DATE.

- **PROD TO DATE (PRODTDATE):** Enter the date of the last (or only) peak period when Energizer for CICS was activated in Production Mode.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** PROD TO DATE must be greater than or equal to PROD DATE.

- **PROD FROM TIME (PRODFROMT):** Enter the starting time of the peak period when Energizer for CICS was activated in Production Mode.

**Note:** Do not include the first interval that Energizer for CICS was active because many of its CPU-saving services are not yet functional.

**Default:** Current date

**Format:** hh.mm.ss

**Restrictions:** PROD FROM TIME must be less than PROD TO TIME.

- **PROD TO TIME (PRODTOT):** Enter the ending time of the peak period when Energizer for CICS was activated in Production Mode.  
**Default:** 23.59.59  
**Format:** hh.mm.ss  
**Restrictions:** PROD TO TIME must be greater than PROD FROM TIME.
- **SIML DATE (SIMLDATE):** Enter the date of the first (or only) peak period when Energizer for CICS was activated in Simulation Mode.  
**Default:** Current date  
**Format:** mm/dd/yy  
**Restrictions:** SIML DATE must be less than or equal to SIML TO DATE.
- **SIML TO DATE (SIMLTDATE):** Enter the date of the last (or only) peak period when Energizer for CICS was activated in Simulation Mode.  
**Default:** Current date  
**Format:** mm/dd/yy  
**Restrictions:** SIML TO DATE must be greater than or equal to SIML DATE.
- **SIML FROM TIME (SIMLFROMT):** Enter the starting time of the peak period when Energizer for CICS was activated in Simulation Mode.  
**Default:** 00.00.00  
**Format:** hh.mm.ss  
**Restrictions:** SIML FROM TIME must be less than SIML TO TIME.
- **SIML TO TIME (SIMLTOT):** Enter the ending time of the peak period when Energizer for CICS was activated in Simulation Mode.  
**Default:** 23.59.59  
**Format:** hh.mm.ss  
**Restrictions:** SIML TO TIME must be greater than SIML FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Value:** 20 - 100

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Value:** Output class codes valid for your installation

**Restrictions:** None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNAME.

**Note:** Each Report File will be processed according to the input parameters (independently of the other Report Files). A separate report (or set of reports) will be produced for each Report File.

**Default:** 0

**Range of Values:** 0 - 99

**Restrictions:** If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of 2 additional Report Files with the DSNAMES of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

**Warning!** Be careful to specify dates and times with comparable workloads and transaction mixes and when all active functions were in the same mode as the Dispatch Management function. When comparing longer periods, be sure to omit weekends, holidays and days with low activity.

**Warning!** If the range of dates specified by PROD DATE and PROD TO DATE or by SIML DATE and SIML TO DATE are too large, counter overflow might occur. In such a case, specify shorter periods for comparison.

To print the CICS Performance Comparison Worksheet using a batch job:

1. Copy the member ECSJRPCS from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Type the data set name of the CICS release load library in the DSN parameter of the STEPLIB DD statement.
4. Type the data set name of the (first) Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS report files by inserting REPORT *n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

**Note:** Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the Performance Comparison Worksheet by typing over the parameters that follow the SYSIN statement.
6. Submit the job.

**Figure 6-8 Sample CICS Performance Comparison Worksheet JCL  
(Member ECSJRPCS)**

```
***** Top of Data *****
/**
/** Member: ECSJRPCS
/**
/** Performance Comparison Worksheet Report
/**
/** Edit the date and time ranges on the SYSIN statements.
/**
/** Edit the following variables:
/** -----
/** energize.cics.BBLINK
/**         The DSN of the BMC Software load library.
/**
/** your.energize.cics.REPORT
/**         The input DSN of the report file.
/**
/** cics-applid
/**         The CICS Application Id to be selected.
/** -----*
/**PERFRPT EXEC PGM=P100BTCH,REGION=1M
/**STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
/**REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
/**SYSPRINT DD SYSOUT=*
/**SYSUDUMP DD SYSOUT=*
/**SNAPDD DD SYSOUT=*
/**SYSIN DD *
        WORKSHEET APPLID=cics-applid,LINENUM=55,
        PRODDATE=mm/dd/yy,PRODTDATE=mm/dd/yy,
        PRODFROMT=hh.mm.ss,PRODTOT=hh.mm.ss,
        SIMLDATE=mm/dd/yy,SIMLTDATE=mm/dd/yy,
        SIMLFROMT=hh.mm.ss,SIMLTOT=hh.mm.ss
/**
***** Bottom of Data *****
```

**Figure 6-9 Sample Worksheet Summary Report**

```
(CICS 4.1 and above)

OPTISYSTEMS SOLUTIONS LTD.      ENERGIZER/CICSDATE:07/26/99
REPORT P100BTCH REL 4.100      TIME:13:41:41
                                BATCH REPORTING FACILITY PROGRAM
                                WORKSHEET SUMMARY PAGE: 14

                                ANALYSIS OF PERFORMANCE IMPROVEMENT
                                FOR SPECIFIED CICS(S)

CICS |CICS |ENERGIZER| AVG CICS | NUMBER SOS | NUMBER MXT | TRAN PER CICS
|IMPROV.
|NAME |RELEASE| RELEASE | CPU      | CONDITIONS | ONDITIONS  | CPU MINUTE
|IN CPU
|
|-----|-----+-----+-----+-----+-----|
PER   |
|
| PROD  | PROD | SIML | PROD | SIML | PROD | SIML |
TRAN
=====
=====
CICSA  3.3  4.100    6.7%   0    0    1    21   1577   1539
2.4%
CICSN  3.3  4.100   12.8%  0    0    0    7    1176    960
22.4%
CICSP  3.3  4.100   14.8%  0   23    0    0   2112   1782
18.5%
CICST  3.3  4.100   10.1%  0    0   14   478   6286   5668
10.9%

NUMBER OF CICS(S) PROCESSED.....
4

TOTAL IMPROVEMENT (WEIGHTED BY CPU UTILIZATION).....
15.2%

ST081 : WORKSHEET SUMMARY REPORT SUCCESSFULLY COMPLETED
```

## CICS Automated Performance Comparison Worksheet

The CICS Automated Performance Comparison Worksheet provides hardcopy statistical information about the performance of the CICS system during *automatically identified* peak-workload periods with and without the execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

**Note:** All functions activated must be in the same mode as the Dispatch Management function.

Use this function to obtain pairs of peak-workload periods with similar workloads that can be used to evaluate the performance improvement achieved with Energizer for CICS.

The CICS Automated Performance Comparison Worksheet can be generated from either the CICS Automated Performance Comparison Worksheet screen (Figure 6-10 on page 6-30) or directly using a batch job. Sample JCL (Figure 6-11 on page 6-34) for the batch job is contained in member ECSJRAPC in the BBSAMP sample library.

You specify the starting and ending dates and times of Energizer for CICS activity that is to be analyzed. Energizer for CICS automatically identifies the peak-workload periods with comparable workloads and generates the Sample List of Comparable Peak Workload Periods (Figure 6-12 on page 6-35), which includes sample pairs of Production and Simulation periods along with the performance improvement achieved by Energizer for CICS for each pair of periods. A CICS Performance Comparison Worksheet, along with an Index Report (Figure 6-6 on page 6-16), are then produced for the best pair. At the end of the report, there is an abbreviated Accumulative Statistics Report (Figure 6-5 on page 6-15), containing the statistical records that were selected for the worksheet.

**Note:** The CICS Automated Performance Comparison Worksheet will only take into account days in which the functions were active in the same mode between 8.00 A.M. and 8.00 P.M.

If data for multiple APPLIDs is found in the input Report File, the Index Report, the CICS Performance Comparison Worksheet, and the Accumulative Statistics Report are produced for each APPLID, using the same best pair of Production/Simulation periods. A Worksheet Summary Report is also produced, summarizing the combined performance improvement for all the CICS regions during those periods.

**Note:** Make sure that the Reporting Interval (set on the General Parameters screen in the Parameters Facility) is the same for both the Production and Simulation periods. See “General Parameters Screen (I101)” on page 3-15.

The Sample List of Comparable Periods (Figure 6-12 on page 6-35) provides the following data for each pair of peak-workload Production/Simulation periods:

- **PRODDATE:** The starting date of the peak-workload period when Energizer for CICS was activated in Production Mode.
- **PRODDATE:** The ending date of the peak-workload period when Energizer for CICS was activated in Production Mode.
- **SIMLDATE:** The starting date of the peak-workload period when Energizer for CICS was activated in Simulation Mode.

- **SIMLDATE:** The ending date of the peak-workload period when Energizer for CICS was activated in Simulation Mode.
- **FROMTIME:** The starting time of both the Production Mode and Simulation Mode peak-workload periods.
- **TOTIME:** The ending time of both the Production Mode and Simulation Mode peak-workload periods.
- **IMPROVEMENT:** The percentage of improvement in the TRANSACTIONS PER CICS CPU MINUTE figure from the peak-workload period when Energizer for CICS was activated in Simulation Mode to the peak-workload period when Energizer for CICS was activated in Production Mode.
- **TRANSACTIONS PER INTERVAL (PROD):** The average number of transactions processed per interval during the peak-workload period when Energizer for CICS was activated in Production Mode.

**Note:** This is the net transactions per interval figure.

- **TRANSACTIONS PER INTERVAL (SIML):** The average number of transactions processed per interval during the peak-workload period when Energizer for CICS was activated in Simulation Mode.

**Note:** This is the net transactions per interval figure.

1. To access the CICS Automated Performance Comparison Worksheet screen, select Option **3**, from the Batch Reporting Facility screen.

**Figure 6-10 CICS Automated Performance Comparison Worksheet Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                    BATCH REPORTING FACILITY        TIME 16:56
                                CICS AUTOMATED PERFORMANCE COMPARISON WORKSHEET 123

OPTION ==>

FUNCTION      : AUTOWORK
DSNAME       : energize.cics report file
MODEL APPLID : (BLANK FOR 1ST APPLID ON FILE)
FROM DATE    : 08/02/99 (MM/DD/YY)
FROM TIME    : 00.00.00 (HH.MM.SS)
TO DATE      : 08/02/99 (MM/DD/YY)
TO TIME      : 23.59.59 (HH.MM.SS)
LINENUM      : 55 (20 - 100)
SYSOUT CLASS : *
ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
====>
====>
====>
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=      F6=      F7=
F8=      F9= SWAP   F10=     F11=     F12=

```

2. Modify the default settings on the CICS Automated Performance Comparison Worksheet screen by typing over the entries.

3. Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to generate the report. In the list that follows, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRAPC).

- **FUNCTION:** AUTOWORK is the function parameter.
- **DSNAME:** Enter the data set name of the first Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMES setting is greater than zero), this is the first file used. The same DSNAME prefix is assumed for the additional Report Files.

**Default:** Current DSNAME on the Dialog Management screen

**Format:** 1- to 44-character data set name

**Restrictions:** If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **MODEL APPLID (APPLID):** Enter the VTAM APPLID of the CICS region with the most significant activity in the system, or whose activity and time of peak workload best represent the other CICS regions included on the Report Files. Leave this field blank to use the first (or only) CICS region included on the Report File.

**Note:** The data records of the MODEL APPLID are used to determine the pair of comparable peak-workload Production/Simulation periods with the largest CPU savings identified by Energizer for CICS. This pair of periods is then used to produce a CICS Performance Comparison Worksheet for each of the APPLIDs in the Report Files.

**Default:** Blank

**Format:** One- to eight-character VTAM Application ID

**Restrictions:** None

- **FROM DATE (FROMDATE):** Enter the starting date of activity to analyze.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **FROM TIME (FROMTIME):** Enter the starting time of activity to analyze.

**Default:** 00.00.00

**Format:** hh.mm.ss

**Restrictions:** If FROM DATE is equal to TO DATE, FROM TIME must be less than TO TIME.

- **TO DATE (TODATE):** Enter the ending date of activity to analyze.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **TO TIME (TOTIME):** Enter the ending time of activity to analyze.

**Default:** 23.59.59

**Format:** hh.mm.ss

**Restrictions:** If FROM DATE is equal to TO DATE, TO TIME must be greater than FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Values:** 20 - 100

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Values:** Output class codes valid for your installation

**Restrictions:** None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

**Note:** Each Report File is processed independently of the other Report Files. A separate CICS Performance Comparison Worksheet is produced for each APPLID found on the Report Files based on the same Production/Simulation periods.

**Default:** 0

**Range of Values:** 0 - 99

**Restrictions:** If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and MULTIPLE DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the data set names of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To generate the CICS Automated Performance Comparison Worksheet using a batch job:

1. Copy the member ECSJRAPC from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Enter the data set name of the CICS release load library in the DSN parameter of the STEPLIB DD statement.
4. Enter the data set name of the first Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT*n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

**Note:** Each Report File is processed independently of the other Report Files. A separate CICS Performance Comparison Worksheet is produced for each APPLID found on the Report Files, based on the same production/simulation periods.

5. Enter the selection criteria for the CICS Automated Performance Comparison Worksheet by typing over the parameters that follow the SYSIN statement.

**Note:** If no APPLID parameter is specified, Energizer for CICS uses the first APPLID on the input Report Files as the MODEL APPLID.

6. Submit the job.

**Figure 6-11 Sample CICS Automated Performance Comparison Worksheet JCL (Member ECSJRAPC)**

```
***** Top of Data *****
/**
/** Member: ECSJRAPC
/**
/** Automated CICS Performance Comparison Worksheet
/**
/** Edit the date and time ranges on the SYSIN statements.
/**
/** Edit the following variables:
/** -----
/** energize.cics.BBLINK
/**           The DSN of the BMC Software load library.
/**
/** your.energize.cics.REPORT
/**           The input DSN of the report file.
/**
/** cics-applid
/**           The CICS Application Id to be selected.
/**
/**-----*
//APRFRPT EXEC PGM=PL00BTCH,REGION=5M
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
AUTOWORK APPLID=cics-applid,LINENUM=55,
FROMDATE=mm/dd/yy,FROMTIME=hh.mm.ss,
TODATE=mm/dd/yy,TOTIME=hh.mm.ss
//
***** Bottom of Data *****
```

**Figure 6-12 Sample List of Comparable Peak Workload Periods**

OPTISYSTEMS SOLUTIONS LTD. ENERGIZER/CICSDATE:05/12/99  
 REPORT P100BTCH REL 4.100 TIME:12:35:03  
 APPLID : CICSPROD BATCH REPORTING FACILITY PROGRAM  
 SAMPLE LIST OF COMPARABLE PEAK WORKLOAD PERIODS FOR CICSROD PAGE: 1

PRODDATE TRAN/INT	PRODDATE TRAN/INT	SIMLDATE	SIMLDATE	FROMTIME	TOTIME	IMPROV.
(PROD)	(SIML)					
02/18/99	02/18/99	02/08/99	02/08/99	14.30.00	16.30.00	5.6
73374	76525					
02/18/99	02/18/99	02/08/99	02/08/99	14.30.00	17.00.00	5.2
72706	75928					
02/18/99	02/18/99	02/08/99	02/08/99	15.00.00	17.00.00	5.0
71507	75646					
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	11.30.00	5.9
78959	88113					
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	12.30.00	6.5
79557	85387					
02/18/99	02/18/99	02/09/99	02/09/99	09.30.00	12.00.00	6.3
80356	87861					
02/18/99	02/18/99	02/09/99	02/09/99	10.00.00	12.00.00	7.1
80869	87691					
02/18/99	02/18/99	02/09/99	02/09/99	10.00.00	12.30.00	7.2
79808	84757					
02/18/99	02/18/99	02/09/99	02/09/99	10.30.00	12.30.00	7.2
80539	83846					
02/18/99	02/18/99	02/10/99	02/10/99	09.30.00	11.30.00	9.2
78959	82243					
02/18/99	02/18/99	02/10/99	02/10/99	09.30.00	12.00.00	9.1
80356	82565					
02/18/99	02/18/99	02/10/99	02/10/99	10.00.00	12.00.00	10.2
80869	81719					
02/18/99	02/18/99	02/10/99	02/10/99	14.30.00	16.30.00	8.7
73374	73601					
02/18/99	02/18/99	02/10/99	02/10/99	14.30.00	17.00.00	9.7
72706	73407					
02/18/99	02/18/99	02/10/99	02/10/99	15.00.00	17.00.00	9.9
71507	72882					
02/18/99	02/18/99	02/11/99	02/11/99	14.30.00	16.30.00	11.9
73374	73563					
02/18/99	02/18/99	02/11/99	02/11/99	14.30.00	17.00.00	10.9
72706	73084					
02/18/99	02/18/99	02/11/99	02/11/99	15.00.00	17.00.00	10.3
71507	72982					
02/18/99	02/18/99	02/12/99	02/12/99	09.30.00	11.30.00	9.6
78959	74747					
02/18/99	02/18/99	02/12/99	02/12/99	09.30.00	12.00.00	9.9
80356	75197					
02/18/99	02/18/99	02/12/99	02/12/99	10.00.00	12.00.00	10.9
80869	75063					
02/18/99	02/18/99	02/12/99	02/12/99	14.30.00	16.30.00	10.8
73374	69866					
02/19/99	02/19/99	02/09/99	02/09/99	09.30.00	12.00.00	5.5
77204	87861					
02/19/99	02/19/99	02/09/99	02/09/99	10.00.00	12.00.00	6.5
77687	87691					
02/19/99	02/19/99	02/10/99	02/10/99	09.30.00	11.30.00	8.1
77088	82243					
02/19/99	02/19/99	02/10/99	02/10/99	09.30.00	12.00.00	8.3
77204	82565					
02/19/99	02/19/99	02/10/99	02/10/99	10.00.00	12.00.00	9.5
77687	81719					
02/19/99	02/19/99	02/12/99	02/12/99	09.30.00	11.30.00	8.6
77088	74747					
02/19/99	02/19/99	02/12/99	02/12/99	09.30.00	12.00.00	9.1
77204	75197					
02/19/99	02/19/99	02/12/99	02/12/99	10.00.00	12.00.00	10.2
77687	75063					

PE1175 : THE BEST FOUND PROD/SIML PAIR SENT FOR WORKSHEET EXECUTION

## CICS Performance Availability Statistics Report

The CICS Performance Availability Statistics Report provides hardcopy information about user-specified long term performance availability of the CICS system during execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both Production and Simulation modes.

Use this report to obtain a summary of the Energizer for CICS activities to improve the CICS system availability.

The CICS Performance Availability Statistics Report can be generated from either the CICS Performance Availability Statistics screen (Figure 6-13 on page 6-38) or directly using a batch job. Sample JCL (Figure 6-14 on page 6-42) for the batch job is contained in member ECSJRCPA in the BBSAMP sample library. Specify the starting and ending dates and times of Energizer for CICS activity that is to be summarized.

The CICS Performance Availability Statistics Report provides the following performance-availability statistics:

### Long-Term Availability

- **NUMBER OF SOS CONDITIONS:** The total number of Short-On-Storage (SOS) conditions reported during the period.
- **NUMBER OF MXT CONDITIONS:** The total number of MAXTASKS conditions reported during the period.

### Maxtasks Management

- **MAXIMUM MXT VALUE:** The maximum value of CICS MXT found in the selected action records for the period.
- **MINIMUM MXT VALUE:** The minimum value of CICS MXT found in the selected action records for the period.
- **MIN TIMES MXT CONDITION AVOIDED:** The total number of times the CICS MXT value was changed by the function during the period.

## Storage Management

- **MAXIMUM DSALIMIT VALUE:** The maximum value of CICS DSALIMIT found in the selected records for the period.
- **MINIMUM DSALIMIT VALUE:** The minimum value of CICS DSALIMIT found in the selected records for the period.
- **MAXIMUM EDSALIMIT VALUE:** The maximum value of CICS EDSALIMIT found in the selected records for the period.
- **MINIMUM EDSALIMIT VALUE:** The minimum value of CICS EDSALIMIT found in the selected records for the period.

## Task Time-Out Management

**NUMBER OF TASKS PURGED:** The total number of tasks that were canceled by the function during the period because their maximum allowed duration was exceeded.

## Transaction Class Management

- **NUMBER OF TIMES MAXACTIVE INCREASED:** The total number of times the function has increased the MAXACTIVE limit of a transaction class during the period.
- **NUMBER OF TIMES MAXACTIVE DECREASED:** The total number of times the function has decreased the MAXACTIVE limit of a transaction class during the period.
- **NUMBER OF TIMES PURGETHRESH INCREASED:** The total number of times the function has increased the PURGETHRESH limit of a transaction class during the period.
- **NUMBER OF TIMES PURGETHRESH DECREASED:** The total number of times the function has decreased the PURGETHRESH limit of a transaction class during the period.
- **NUMBER OF TRANSACTION CLASSES HANDLED:** The total number of transaction classes whose MAXACTIVE and/or PURGETHRESH limits were changed by the function during the period.

## Temporary Storage/Transient Data Queue Management

- **NUMBER OF STRINGS/BUFFERS ADDED:** The total number of temporary storage and transient data strings and buffers added by the functions during the period.
- **NUMBER OF TASKS ABENDED:** The total number of tasks that were canceled during the period by the functions because the maximum number of tasks allowed to wait for temporary storage/transient data resources was exceeded.

## VSAM Queue Management

- **NUMBER OF VSAM FILE STRINGS ADDED:** The total number of VSAM file strings added by the function during the period.
- **NUMBER OF TASKS ABENDED:** The total number of tasks which were terminated by the function during the period because the maximum number permitted to wait for file strings was exceeded.

## MRO/ISC Queue Management

**NUMBER OF MRO QUEUE ABENDS:** The total number of tasks that were terminated by the function during the period because the maximum number permitted to wait for sessions to remote CICS systems was exceeded.

1. To access the CICS Performance Availability Statistics screen, select Option 4, from the Batch Reporting Facility screen.

**Figure 6-13 CICS Performance Availability Statistics Screen**

```

USERID L99087          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             BATCH REPORTING FACILITY  TIME 17:12
                   CICS PERFORMANCE AVAILABILITY STATISTICS  I24
OPTION ==>

FUNCTION           : AVALSTAT
DSNAME             : energize.cics report file
APPLID            : (BLANK FOR ALL APPLID'S)
FROM DATE         : 08/02/99 (MM/DD/YY)
FROM TIME        : 00.00.00 (HH.MM.SS)
TO DATE          : 08/02/99 (MM/DD/YY)
TO TIME         : 23.59.59 (HH.MM.SS)
LINENUM         : 55 (20 - 100)
SYSOUT CLASS    : *
ADDITIONAL DSNAME : 0 (0 - 99)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
====>
====>
====>
-----
F1= HELP  F2= SPLIT F3= END  F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=     F11=     F12=

```

2. Modify the default settings on the CICS Performance Availability Statistics screen by typing over the entries.
3. Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to generate the report. In the list that follows, the entry names on the screen are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRCPA).

- **FUNCTION:** AVALSTAT is the function parameter.
- **DSNAME:** Enter the data set name of the Report File to use. If multiple Report Files are used (the ADDITIONAL DSNAMES setting is greater than zero), this is the first file used. The same DSNAME prefix will be assumed for the additional Report Files.

**Default:** Current DSNAME on the Dialog Management screen

**Format:** 1- to 44-character data set name

**Restrictions:** If multiple Report Files are used, DSNAME cannot exceed 42 characters and the last qualifier cannot exceed 6 characters.

- **APPLID (APPLID):** Enter the VTAM APPLID for the CICS region that you want be reported. Leave this field blank to report on all the CICS regions included on the Report File.

**Default:** Blank

**Format:** One- to eight-character VTAM application ID

**Restrictions:** None

- **FROM DATE (FROMDATE):** Enter the starting date of activity to report.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **FROM TIME (FROMTIME):** Enter the starting time of activity to report.

**Default:** 00.00.00

**Format:** hh.mm.ss

**Restrictions:** If FROM DATE is equal to TO DATE, FROM TIME must be less than TO TIME.

- **TO DATE (TODATE):** Enter the ending date of activity to report.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **TO TIME (TOTIME):** Enter the ending time of activity to report.

**Default:** 23.59.59

**Format:** hh.mm.ss

**Restrictions:** If FROM DATE is equal to TO DATE, TO TIME must be greater than FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Values:** 20 - 100

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Values:** Output class codes valid for your installation

**Restrictions:** None

- **ADDITIONAL DSNAMES:** Enter the number of Report Files to use in addition to the Report File specified by DSNNAME. If zero is specified, no additional Report Files will be used. Otherwise, processing will start with the file specified by DSNNAME.

**Note:** Each Report File will be processed according to the input parameters, independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

**Default:** 0

**Range of Values:** 0 - 99

**Restrictions:** If a nonzero value *nn* is specified, Energizer for CICS will assume the existence of *nn* Report Files with the data set name prefix specified by DSNNAME and with a numerical suffix ranging from 01 to *nn* appended to the last qualifier of DSNNAME. For example, if DSNNAME is ENERGIZE.CICS.REPORT and ADDITIONAL DSNAMES is 2, Energizer for CICS will assume the existence of two additional Report Files with the DSNames of ENERGIZE.CICS.REPORT01 and ENERGIZE.CICS.REPORT02.

To print the CICS Performance Availability Statistics Report using a batch job:

1. Copy the member ECSJRCPA from the BBSAMP sample library.
2. Modify the JCL according to your installation standards.
3. Enter the data set name of the CICS release load library in the DSN parameter of the STEPLIB DD statement.
4. Enter the data set name of the Energizer for CICS Report File in the DSN parameter of the REPORT DD statement.

Specify additional Energizer for CICS Report Files by inserting REPORT*n* DD statements, where *n* must start with 1 and be incremented continuously. Up to 99 additional Report Files (REPORT1 to REPORT99) can be used.

**Note:** Each Report File will be processed according to the input parameters independently of the other Report Files. A separate report (or set of reports) will be produced for each Report File.

5. Enter the selection criteria for the Performance Availability report by typing over the parameters that follow the SYSIN statement.
6. Submit the job.

**Figure 6-14 Sample CICS Performance Availability Statistics JCL (Member ECSJRCPA)**

```
***** Top of Data *****
/*
/* Member: ECSJRCPA
/*
/* CICS Performance Availability Statistics Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*           The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*           The input DSN of the report file.
/*
/* cics-applid
/*           The CICS Application Id to be selected.
/* -----*
//AVALRPT EXEC PGM=PL00BTCH,REGION=1M
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SNAPDD DD SYSOUT=*
//SYSIN DD *
        AVALSTAT APPLID=cics-applid,LINENUM=55,
        FROMDATE=mm/dd/yy,FROMTIME=hh.mm.ss,
        TODATE=mm/dd/yy,TOTIME=hh.mm.ss
//
***** Bottom of Data *****
```



## Batch/TSO Comparison Report

The Batch/TSO Comparison Report provides statistical information about the performance of the Batch and TSO systems during peak-workload periods with and without the execution of Energizer for CICS. It extracts data from the installation's System Management Facility (SMF).

Use this report for an evaluation of the improvement achieved in batch and TSO performance as a result of the Energizer for CICS activities in the CICS regions.

The Batch/TSO Comparison Report can be generated from either the CICS Batch/TSO Comparison Report screen (Figure 6-18 on page 6-53) or directly using a batch job. The data is first extracted from the appropriate SMF data set for the day when the Energizer for CICS functions were executing in Production Mode (PROD), and then again for the comparison day when the Energizer for CICS functions were executing in Simulation Mode (SIML). The data is merged for the report. Sample JCL for the batch job is contained in member ECSJR5B5 in the BBSAMP sample library. See "Sample Member ECSJR5B5" on page 6-51. Specify the starting and ending dates and times of Batch/TSO activity that is to be compared. The time interval for the report is the same for both days.

The Batch/TSO Comparison Report provides the following activity statistics:

### JOB Activity Comparison Report

- **NUMBER OF BATCH JOBS:** The total number of batch jobs executed in the MVS system during the interval.

**Note:** Although in most installations the number of batch jobs may vary from day to day it is consistently higher when Energizer for CICS is running in Production Mode in all of the CICS regions.

- **AVERAGE CPU TIME / JOB:** The average CPU time per job processed in the interval. This calculation divides the total CPU time of all batch jobs in the interval by the number of jobs executed.
- **TOTAL CPU TIME:** The total CPU time of all batch jobs during the interval.

- **JOB QUEUE TIME:** The total amount of time that all batch jobs waited to be executed during the interval. Note that jobs on hold can cause significant deviations in queue time.

**Note:** Although in most installations the average queue time may vary from day to day it is consistently shorter when Energizer for CICS is running in Production Mode in all of the CICS regions.

- **AVG WAIT TIME BEFORE RUN:** The average time a job waited to be executed in the interval. This calculation divides the total queue time of all batch jobs in the interval by the number of jobs executed.

## TSO Activity Comparison Report

- **NUMBER OF TSO TRANS:** The total number of TSO transactions that were executed during the interval.
- **AVERAGE RESPONSE TIME:** The average response time for each TSO transaction during the interval. This calculation divides the total activity time of all TSO transactions in the interval by the number of transactions executed.

1. To access the Batch/TSO Comparison Report screen, select Option 5, from the Batch Reporting Facility screen.

**Figure 6-16 Batch/TSO Comparison Report Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                    BATCH REPORTING FACILITY        TIME 17:14
                                BATCH/TSO COMPARISON REPORT        I25

OPTION ==>

FUNCTION      : SMF
SMF DATA SET : SYS1.MAN1
SYST IDENTIFIER:
SIML START DATE:          (MM/DD/YY)  PROD START DATE:          (MM/DD/YY)
SIML END   DATE:          (MM/DD/YY)  PROD END   DATE:          (MM/DD/YY)
SIML START TIME: 0800      (HHMM)     PROD START TIME: 0800      (HHMM)
SIML END   TIME: 1800      (HHMM)     PROD END   TIME: 1800      (HHMM)
SIML DATE   : 08/01/99    (MM/DD/YY)  PROD DATE   : 08/02/99    (MM/DD/YY)
FROM TIME   : 08.00.00    (HH.MM.SS)  TO   TIME   : 18.00.00    (HH.MM.SS)
LINENUM     : 55          (20 - 100)  TSOPGN     : 2            (0 - 999)
SYSOUT CLASS : *          JRECTYPE     : 5            (5, 30)

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
====>
====>
====>
-----
F1= HELP  F2= SPLIT  F3= END    F4= RETURN F5=          F6=          F7=
F8=          F9= SWAP  F10=         F11=         F12=

```

2. Modify the default settings on the Batch/TSO Comparison Report screen by typing over the entries.

3. Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to generate the report. In the list that follows, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRSB5).

- **FUNCTION:** SMF is the function parameter.
- **SMF DATA SET:** Enter the data set name of the SMF file containing the data for the SIML and PROD days. The default file name is SYS1.MANx, where x is the file identifier, or the file to which that data was dumped.

**Default:** SYS1.MAN1

**Format:** 1- to 44-character data set name

**Restrictions:** None

- **SYST IDENTIFIER (SID):** Enter your SMFID. See your MVS system technician.

**Default:** Four-digit processor model number, e.g. 3090

**Format:** One- to four-character system identifier

**Restrictions:** None

- **SIML/PROD START DATE (DATE):** Enter the starting date of activity to be extracted from the SMF file for the SIML/PROD reporting day. To restart all dates on the file, leave this field blank.

**Default:** All dates on file.

**Format:** mm/dd/yy

**Restrictions:** None

- **SIML/PROD END DATE (DATE):** Enter the ending date of activity to be extracted from the SMF file for the SIML/PROD reporting day. To restart all dates on the file, leave this field blank.

**Default:** All dates on file

**Format:** mm/dd/yy

**Restrictions:** None

- **SIML/PROD START TIME (START):** Enter the starting time of activity to be extracted from the SMF file for the SIML/PROD reporting day.

**Default:** 0800

**Format:** hhmm

**Restrictions:** If START DATE is equal to END DATE, START TIME must be less than END TIME.

- **SIML/PROD END TIME (END):** Enter the ending time of activity to be extracted from the SMF file for the SIML/PROD reporting day.

**Default:** 1800

**Format:** hhmm

**Restrictions:** If START DATE is equal to END DATE, END TIME must be greater than START TIME.

- **SIML DATE (SIMLDATE):** Enter the date when Energizer for CICS was not activated in Production Mode.

**Default:** PROD DATE - 1

**Format:** mm/dd/yy

**Restrictions:** None

- **PROD DATE (PRODDATE):** Enter the date when Energizer for CICS was activated in Production Mode.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **FROM TIME (FROMTIME):** Enter the starting time of the comparison period for both the SIML and PROD days.

**Default:** 08.00.00

**Format:** hh.mm.ss

**Restrictions:** FROM TIME must be less than TO TIME.

- **TO TIME (TOTIME):** Enter the ending time of the comparison period for both the SIML and PROD days.

**Default:** 18.00.00

**Format:** hh.mm.ss

**Restrictions:** TO TIME must be greater than FROM TIME.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Values:** 20 - 100

**Restrictions:** None

- **TSOPGN (TSOPGN):** Enter your TSO performance group.

**Default:** 2

**Range of Values:** 0 - 999

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Values:** Output class codes valid for your installation

**Restrictions:** None

- **JRECTYPE (JRECTYPE):** Enter the SMF record type to extract. The possible values are 5 (for SMF record type 5, the default) for older releases of MVS/ESA and 30 (for SMF record type 30, subtype 5) for the new releases of MVS/ESA.

**Default:** 5

**Range of Values:** 5 and 30

**Restrictions:** 30 should be specified when running with the most recent releases of MVS/ESA.

**Warning!** Be careful to specify dates and times with comparable workloads and comparable job and transaction mixes.

Complete the **JOB STATEMENT INFORMATION** required at your installation for a batch job. Press **Enter** to submit the job.

- Press **PF3** to return to the Batch Reporting Facility screen.
- Press **PF4** to return to the TSO/ISPF Screen from which you activated Energizer for CICS.

To print the Batch/TSO Comparison Report using a batch job:

**Step 1** If your version of MVS/ESA supports SMF records of type 5, copy member ECSJRSB5 from the BBSAMP sample library and modify the JCL according to your installation standards.

If you are running a newer version of MVS/ESA that uses SMF records of type 30 subtype 5 instead of the older type 5 records, then copy member ECSJRST from the BBSAMP sample library.

**Step 2** Step SMFPROD:

- 2.A** Ensure that the IN statement specifies either the SMF file containing the data for the Production (PROD) day, SYS1.MANx, where x is the file identifier, or the file to which that data was dumped.
- 2.B** Specify the range of dates to be extracted from the SMF file for the PROD day in the DATE parameter. Enter the dates in Julian format (YYDDD). For all dates on the file, delete this parameter.
- 2.C** Specify the range of times for the data in the START and END parameters. The format is (HHMM). For all times on the file, delete this parameter.
- 2.D** Enter your SMFID. See your MVS system technician.

**Step 3** Step SMFSIML:

Repeat steps 2.A through 2.C above for the Simulation (SIML) day, the day without Energizer for CICS functions executing in PROD mode.

**Step 4** Step SMFEXRCT:

- 4.A** Enter the data set name of your CICS release load library in the DSN parameter of the STEPLIB DD statement.
- 4.B** Change the parameters that follows the SYSIN statement to reflect your comparison requirements.

**Step 5** Submit the job.



**Figure 6-17 Sample Member ECSJRSB5**

```

***** Top of Data *****
/*
/* Member: ECSJRSB5
/*
/* Produce the Batch/TSO Comparison Report
/* This job selects SMF Type-5 records as input.
/*
/* Edit the data and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*           The DSN of the BMC Software load library.
/*
/* your-smfid
/*           The SMF Id for the selected OS/390 system.
/*
/*-----*
/*
/* Build the production SMF dump data set.
/*
/*SMFPROD EXEC PGM=IFASMFDP
/*SYSPRINT DD SYSOUT=*
/*
/* The "IN" DD statement must reference an SMF file for a day when
/* Energizer for CICS was active and ran in production mode.
/* Specify file with SMF data for PROD day or file with SMF dump.
/*
/*IN      DD DISP=SHR,DSN=SYS1.MAN1
/***IN   DD DISP=SHR,DSN=SYS1.MAN2
/***IN   DD DISP=SHR,DSN=SYS1.MAN3
/*
/*OUT     DD DISP=(,PASS),
/*           DSN=&&PRODDUMP,
/*           DCB=BLKSIZE=4096,
/*           UNIT=SYSDA,SPACE=(CYL,(5,5))
/*
/* Specify the range of dates that you want data for in the "DATE"
/* parm below, or remove the parm to select all dates.
/* The date format is YYDDD, time format is HHMM (24 Hour clock).
/* Specify the range of times for data using the "START" and
/* "END" parms, or remove them to select all times.
/* Do not change the other parameters.
/*
/*SYSIN   DD *
/*           DATE(yyddd,yyddd)
/*           START(hhmm)
/*           END(hhmm)
/*           INDD(IN,OPTIONS(DUMP))
/*           OUTDD(OUT,TYPE(05,72))
/*           SID(your-smfid)
/*
/* Build the simulation SMF dump data set.
/*
/*SMFSIML EXEC PGM=IFASMFDP
/*SYSPRINT DD SYSOUT=*
/*
/* The "IN" DD statement must reference an SMF file for a day when
/* Energizer for CICS was not active or it ran in simulation mode.
/* Specify a file with SMF data for SIML day or file with SMF dump.
/*
/*IN      DD DISP=SHR,DSN=SYS1.MAN1
/***IN   DD DISP=SHR,DSN=SYS1.MAN2
/***IN   DD DISP=SHR,DSN=SYS1.MAN3
/*
/*OUT     DD DISP=(,PASS),
/*           DSN=&&SIMLDUMP,
/*           DCB=BLKSIZE=4096,
/*           UNIT=SYSDA,SPACE=(CYL,(5,5))
/*
/* See previous steps for explanations of the parameters.
/*
/*SYSIN   DD *
/*           DATE(yyddd,yyddd)
/*           START(hhmm)
/*           END(hhmm)

```

```
INDD(IN,OPTIONS(DUMP))
OUTDD(OUT,TYPE(05,72))
SID(your-smfid)
/*
/** Sort and merge PROD and SIML SMF dump datasets.
/**
//SMFMERGE EXEC PGM=SORT,REGION=2M,COND=(5,LT)
//SYSPRINT DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTIN DD DISP=(OLD,PASS),DSN=*.SMFSIML.OUT
// DD DISP=(OLD,PASS),DSN=*.SMFPROD.OUT
//SORTOUT DD DISP=(,PASS),
// DSN=&&SMFMERGE,
// DCB=(*.SMFMERGE.SORTIN),
// UNIT=SYSDA,SPACE=(CYL,(5,10))
//SYSIN DD *
SORT FIELDS=(6,1,A,11,4,A,7,4,A),FORMAT=BI,SIZE=E10000
/*
/** Read the SMF merged files and produce reports.
/**
//SMFEXRCT EXEC PGM=P100SMFX,REGION=2M,COND=(5,LT)
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT DD SYSOUT=*
//SMFDUMP DD DISP=(OLD,PASS),DSN=*.SMFMERGE.SORTOUT
//REPORT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN DD *
LINENUM=55
SIMLDATE=mm/dd/yy
PRODDATE=mm/dd/yy
FROMTIME=hh.mm.ss
TOTIME=hh.mm.ss
TSOPGN=2
JRECTYPE=5
/*
/** Delete the created files.
/**
//SMFDEL EXEC PGM=IEFBR14,COND=(5,LT)
//D1 DD DISP=(OLD,DELETE),DSN=*.SMFPROD.OUT
//D2 DD DISP=(OLD,DELETE),DSN=*.SMFSIML.OUT
//D3 DD DISP=(OLD,DELETE),DSN=*.SMFMERGE.SORTOUT
//
***** Bottom of Data *****
```

**Figure 6-18 Sample Batch/TSO Comparison Report**


---

```

OPTISYSTEMS SOLUTIONS LTD.    ENERGIZER/CICS    DATE : 06/28/99
REPORT P100SMFX REL 4.100    TIME : 17:03:02
                                SMF DUMP EXTRACTION PROGRAM
                                PAGE :          3

JOB ACTIVITY COMPARISON REPORT

I N T E R V A L                WITHOUT ENERGIZER/CICS    WITH ENERGIZER/CICS
-----
10:00 -> 17:00                DATE 06/15/99            DATE 06/16/99

NUMBER OF BATCH JOBS          460                          562
AVERAGE CPU TIME / JOB      0:00:05                      0:00:01
TOTAL CPU TIME               0:38:09                      0:13:08
JOB QUEUE TIME               0:33:20                      0:31:11
AVG WAIT TIME BEFORE RUN    0:00:04                      0:00:03

PE1152: ENERGIZER/CICS INCREASED TOTAL BATCH THROUGHPUT
-----

TOTAL SYSTEM SUPPORT, LTD.    ENERGIZER/CICS    DATE : 06/28/99
REPORT P100SMFX REL 4.100    TIME : 17:03:02
                                SMF DUMP EXTRACTION PROGRAM
                                PAGE :          4

TSO ACTIVITY COMPARISON REPORT

I N T E R V A L                WITHOUT ENERGIZER/CICS    WITH ENERGIZER/CICS
-----
10:00 -> 17:00                DATE 06/15/99            DATE 06/16/99

NUM. OF TSO TRANSACTIONS     23,420                      30,607
AVERAGE RESPONSE TIME       0.95                        0.64

PE1154: ENERGIZER/CICS MAXIMIZED TSO THROUGHPUT
PE1155: ENERGIZER/CICS MINIMIZED TSO RESPONSE TIME

```

---

## SMF Analysis Report

The SMF Analysis Report provides statistical information about the performance of a CICS region during peak workload periods with and without Energizer for CICS. It extracts data from the installation's System Management Facility (SMF).

Use this report for evaluation of the improvement achieved in a CICS region as a result of the Energizer for CICS activities in the region.

The SMF Analysis Report is based mainly on the interval statistics records, (i.e., SMF records of type 30, subtype 2). BMC Software recommends that you use an interval of 10 minutes in order to get accurate results and to get a common base for comparison with the reports, which are based on data gathered by Energizer for CICS every 10 minutes.

The SMF Analysis Report can optionally use SMF records of type 110, subtype 1 that include the number of transactions processed by CICS. If your CICS is not set up for writing these records, you can parameters to manually supply the number of transactions to the Energizer for CICS SMF Analysis program.

The SMF Analysis Report can be generated from either the SMF Analysis Report screen (Figure 6-19 on page 6-56), or directly using a batch job. The data is first extracted from the appropriate SMF data set for the day when the Energizer for CICS functions were executing in Production Mode (PROD), and then again for the comparison day when the Energizer for CICS functions were executing in Simulation Mode (SIML). The data is merged for the report. Specify the starting and ending dates and times of CICS activity that is to be compared. The time interval for the report is the same for both days.

The SMF Analysis Report provides the following activity statistics:

## CICS CPU Utilization

- **AVERAGE CICS CPU OF RECORD TYPE 30:** The average CICS CPU utilization (percents) per SMF interval. This calculation divides the total CICS CPU time by the total length of the SMF intervals in the peak period.
- **MAXIMUM CICS CPU, PEAK RECORD TYPE 30:** The maximum CICS CPU utilization in the SMF intervals. This calculation retrieves the maximum value from the values calculated for each SMF interval by dividing the total CICS CPU time for the SMF intervals by the SMF interval length.

## CICS CPU (in 1/100 Seconds)

- **AVERAGE STEP CPU TIME - TCB:** The average step CPU time (TCB) per SMF interval. This calculation divides the total step CPU time (TCB) by the number of SMF intervals.
- **AVERAGE STEP CPU TIME - SRB:** The average step CPU time (SRB) per SMF interval. This calculation divides the total step CPU time (SRB) by the number of SMF intervals.
- **AVERAGE CPU TIME USED FOR I/O:** The average CPU time used for I/O per SMF interval. This calculation divides the total CPU time used for I/O by the number of SMF intervals.

- **AVERAGE CPU TIME USED BY THE RCT:** The average CPU time used by the Region Control Task (RCT) per SMF interval. This calculation divides the total CPU time used by the RCT by the number of SMF intervals.
- **AVERAGE DATA TRANSFER CPU TIME:** The average data transfer CPU time per SMF interval. This calculation divides the total data transfer CPU time by the number of SMF intervals.
- **AVERAGE ADDITIONAL CPU:** The average additional CPU time per SMF interval. This calculation divides the total additional CPU time by the number of SMF intervals.
- **AVERAGE CPU PER INTERVAL:** The average CPU time per SMF interval. This calculation divides the total CPU time by the number of SMF intervals.
- **TOTAL TRANSACTIONS PROCESSED:** The total number of CICS transactions processed during the period. If SMF records of type 110, subtype 1 are available, this number is derived from the SMF records. Otherwise, this is the number supplied in the SIMLTRAN and PRODTRAN input parameters.
- **TOTAL TRANSACTIONS NORMALIZED:** The total number of CICS transactions processed during the period, normalized to the smaller number.
- **TOTAL TRANSACTIONS PER INTERVAL:** The average number of transactions per SMF interval. This calculation divides the total number of transactions processed during the period by the number of SMF intervals.
- **TRANSACTIONS PER CICS CPU MINUTE:** The number of transactions processed per CICS CPU minute for the period. This calculation divides the total number of transactions per interval by the average number of CICS CPU minutes per interval.
- **AVERAGE CPU PER TRANSACTION:** The average CICS CPU utilization per processed transaction for the period. This calculation divides the sum of the average CICS CPU utilizations for the period by the total number of transactions for the period.

- To access the SMF Analysis Report screen, shown in Figure 6-19, select Option 6, SMF Analysis Report from the Batch Reporting Facility screen.

**Figure 6-19 SMF Analysis Report Screen**

```

USERID L99084          ENERGIZER/CICS          DATE 99/08/02
REL 4.100             BATCH REPORTING FACILITY      TIME 10:13
                                     SMF ANALYSIS REPORT    SCREEN I25A
OPTION ==>

FUNCTION      : SMF SMF DATA SET: SYS1.MAN1
SYST IDENTIFIER:
SIML START DATE:      (MM/DD/YY)  PROD START DATE:      (MM/DD/YY)
SIML END DATE:       (MM/DD/YY)  PROD END DATE:       (MM/DD/YY)
SIML START TIME: 0800 (HHMM)     PROD START TIME: 0800 (HHMM)
SIML END TIME: 1800 (HHMM)     PROD END TIME: 1800 (HHMM)
SIML DATE:          : 08/01/99 (MM/DD/YY)  PROD DATE:          : 08/02/99 (MM/DD/YY)
FROM TIME:         : 08.00.00 (HH.MM.SS)  TO TIME:           : 18.00.00 (HH.MM.SS)
CICS APPLID:       :
SIML TRAN NUM:    :
LINENUM:          : 55 (20 - 100)  SYSOUT CLASS:      : *

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
==> //L99082BT JOB , 'ALEX',NOTIFY=L99082,MSGLEVEL=(1,1) TYPRUN=HOLD
==>
==>
-----
F1= HELP  F2= SPLIT F3= END   F4= RETURN F5=      F6=      F7=
F8=      F9= SWAP  F10=      F11=      F12=

```

- Modify the default settings on the SMF Analysis Report screen by typing over the entries.
- Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to generate the report. In the following list, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJRSCA).

- FUNCTION:** SMF is the function parameter.
- SMF DATA SET:** Enter the data set name of the SMF file containing the data for the SIML and PROD days. The default file name is SYS1.MAN $x$ , where  $x$  is the file identifier, or the file to which that data was dumped.

**Default:** SYS1.MAN1

**Format:** 1- to 44-character data set name

**Restrictions:** None

- SYST IDENTIFIER (SID):** Enter your SMFID. See your MVS system programmer for assistance.

**Default:** Four-digit processor model number, e.g. 3090

**Format:** One- to four-character system identifier

**Restrictions:** None

- **SIML/PROD START DATE (DATE):** Enter the starting date of activity to be extracted from the SMF file for the SIML/PROD reporting period. To extract all dates from the file, leave this field blank.

**Default:** All dates on the SMF file

**Format:** mm/dd/yy

**Restrictions:** None

- **SIML/PROD END DATE (DATE):** Enter the ending date of activity to be extracted from the SMF file for the SIML/PROD reporting period. To extract all dates from the file, leave this field blank.

**Default:** All dates on the SMF file

**Format:** mm/dd/yy

**Restrictions:** None

- **SIML/PROD START TIME (START):** Enter the starting time of activity to be extracted from the SMF file for the SIML/PROD reporting period.

**Default:** 0800

**Format:** hhmm

**Restrictions:** If START DATE is equal to END DATE, START TIME must be less than END TIME.

**Note:** If you are using SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify a time that is one hour earlier than the value specified in FROM TIME.

- **SIML/PROD END TIME (END):** Enter the ending time of activity to be extracted from the SMF file for the SIML/PROD reporting period.

**Default:** 1800

**Format:** hhmm

**Restrictions:** If START DATE is equal to END DATE, END TIME must be greater than START TIME.

**Note:** If you are using SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify a time which is one hour later than the value specified in TO TIME.

- **SIML DATE (SIMLDATE):** Enter the date when Energizer for CICS was not activated in Production Mode.

**Default:** PROD DATE - 1

**Format:** mm/dd/yy

**Restrictions:** None

- **PROD DATE (PRODDATE):** Enter the date when Energizer for CICS was activated in Production Mode.

**Default:** Current date

**Format:** mm/dd/yy

**Restrictions:** None

- **FROM TIME (FROMTIME):** Enter the starting time of the comparison period for both the SIML and PROD days.

**Default:** 08.00.00

**Format:** hh.mm.ss

**Restrictions:** FROM TIME must be less than TO TIME.

- **TO TIME (TOTIME):** Enter the ending time of the comparison period for both the SIML and PROD days.

**Default:** 18.00.00

**Format:** hh.mm.ss

**Restrictions:** TO TIME must be greater than FROM TIME

- **CICS Applid (APPLID):** Enter the VTAM application ID for the CICS region.

**Default:** Blank

**Range of Values:** One- to eight-character VTAM application ID

**Restrictions:** None

- **CICS Job Name (JOBNAME):** Enter the CICS job name.

**Default:** Blank

**Range of Values:** One- to eight-character CICS job name

**Restrictions:** None

- **SIML TRAN Num (SIMLTRAN):** Enter the number of CICS transactions that were processed during the period of time specified by the FROM TIME and TO TIME parameters when Energizer for CICS was not activated in Production Mode. This parameter is optional and must be specified in case the SMF records of type 110, subtype 1 are not available.

**Default:** 0

**Range of Values:** 0 - 99999999

**Restrictions:** This value must be specified if SMF records of type 110, subtype 1 are not available. If specified, the SMF records of type 110 are ignored.

- **PROD TRAN Num (PRODTRAN):** Enter the number of CICS transactions processed during the period of time specified by the FROM TIME and TO TIME parameters when Energizer for CICS was activated in Production Mode. This parameter is optional and must be specified in case when the SMF records of type 110, subtype 1 are not available.

**Default:** 0

**Range of Values:** 0 - 99999999

**Restrictions:** This value must be specified if no SMF records of type 110, subtype 1 are available. If specified, the SMF records of type 110 are ignored.

- **LINENUM (LINENUM):** Enter the number of lines to print on the report page.

**Default:** 55

**Range of Values:** 20 - 100

**Restrictions:** None

- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Default:** \*

**Range of Values:** Output class codes valid for your installation

**Restrictions:** None

To print the SMF Analysis Report using a batch job:

**Step 1** Copy sample JCL.

**Step 2** Copy member **ECSJRSCA** from the BBSAMP sample library and modify the JCL according to your installation standards.

Step SMFPROD:

**2.A** Ensure that IN statement specifies either the SMF file containing the data for the Production (PROD) day, SYS1.MANx, where x is the file identifier, or the file to which the data was dumped.

**2.B** Specify the range of dates to be extracted from the SMF file for the PROD day in the DATE parameter. Enter the dates in Julian format (YYDDD). For all dates on the file, delete this parameter.

**2.C** Specify the range of times for the data in the START and END parameters. The format is (HHMM). For all times on the file, delete this parameter.

**Note:** If you use SMF records of type 110 to get the number of processed CICS transactions, and if the SMF interval length for recording SMF records of type 30, subtype 2 is larger than 10 minutes, BMC Software recommends that you specify starting and ending times that are one hour earlier than FROMTIME and one hour later than TOTIME, respectively.

**2.D** Enter the SMFID. See your MVS system programmer.

**Step 3** Step SMFSIML:

Repeat steps 2.A through 2.D above for the Simulation (SIML) day, the day without Energizer for CICS functions executing in PROD mode.

**Step 4** Step SMFEXRCT:

- 4.A** Enter the data set name of the Energizer for CICS release load library in the DSN parameter of the STEPLIB DD statement.
- 4.B** Change the parameters that follow the SYSIN statement to reflect your comparison requirements.

**Step 5** Submit the job.

**Figure 6-20 Member ECSJRSCA**

```

***** Top of Data *****
/*
/* Member: ECSJRSCA
/*
/* Produce the Batch/TSO Comparison Report
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*       The DSN of the BMC Software load library.
/*
/* your-smfid
/*       The SMF Id for the selected OS/390 system.
/*
/* cics-job-name
/*       The CICS Job Name to be selected.
/*
/* cics-applid
/*       The CICS Application Id to be selected.
/* -----*
/*
/* Extract PROD Data
/*
//SMFPROD EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
/* Specify file with SMF data for PROD day or file with SMF dump.
//IN      DD DISP=SHR,DSN=SYS1.MAN1
/*IN      DD DISP=SHR,DSN=SYS1.MAN2
/*IN      DD DISP=SHR,DSN=SYS1.MAN3
/*
//OUT     DD DISP=(,PASS),
//         DSN=&&PRODDUMP,
//         DCB=BLKSIZE=4096,
//         UNIT=SYSDA,SPACE=(CYL,(5,5))
//SYSIN   DD *
DATE(yyddd,yyddd)
START(hhmm)
END(hhmm)
INDD(IN,OPTIONS(DUMP))
OUTDD(OUT,TYPE(30(2),110(1)))
SID(your-smfid)
/*
/* Extract SIML Data
/*
//SMFSIML EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
/* Specify file with SMF data for SIML day or file with SMF dump.
//IN      DD DISP=SHR,DSN=SYS1.MAN1
/*IN      DD DISP=SHR,DSN=SYS1.MAN2
/*IN      DD DISP=SHR,DSN=SYS1.MAN3
/*
//OUT     DD DISP=(,PASS),
//         DSN=&&SIMLDUMP,
//         DCB=BLKSIZE=4096,
//         UNIT=SYSDA,SPACE=(CYL,(5,5))
/*
//SYSIN   DD *
DATE(yyddd,yyddd)
START(hhmm)
END(hhmm)
INDD(IN,OPTIONS(DUMP))
OUTDD(OUT,TYPE(30(2),110(1)))
SID(your-smfid)
/*
/* Merge PROD and SIML Data
/*
//SMFMERGE EXEC PGM=SORT,REGION=2M,COND=(5,LT)
//SYSPRINT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SORTWK01 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK02 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTWK03 DD UNIT=SYSDA,SPACE=(CYL,(5,5))
//SORTIN   DD DISP=(OLD,PASS),DSN=*.SMFSIML.OUT

```

```
//          DD  DISP=(OLD,PASS),DSN=*.SMFPROD.OUT
//SORTOUT  DD  DISP=(,PASS),
//          DSN=&&SMFMERGE,
//          DCB=(*.SMFMERGE.SORTIN),
//          UNIT=SYSDA,SPACE=(CYL,(5,10))
//SYSIN    DD  *
          SORT  FIELDS=(6,1,A,11,4,A,7,4,A),FORMAT=BI,SIZE=E10000
/*
/*  Print the Report
/*
//SMFEXRCT EXEC PGM=P100SMFN,REGION=2M,COND=(5,LT)
//STEPLIB  DD  DISP=SHR,DSN=energize.cics.BBLINK
//SYSPRINT DD  SYSOUT=*
//SMFDUMP  DD  DISP=(OLD,PASS),DSN=*.SMFMERGE.SORTOUT
//REPORT   DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//SYSIN    DD  *
          LINENUM=55
          SIMLDATE=mm/dd/yy
          PRODDATE=mm/dd/yy
          FROMTIME=hh.mm.ss
          TOTIME=hh.mm.ss
          JOBNAME=cics-job-name
          APPLID=cics-applid
          PRODTRAN=number of transactions in production mode
          SIMLTRAN=number of transactions in simulation mode
/*
/*  Delete the Files
/*
//SMFDEL   EXEC PGM=IEFBR14,COND=(5,LT)
//D1       DD  DISP=(OLD,DELETE),DSN=*.SMFPROD.OUT
//D2       DD  DISP=(OLD,DELETE),DSN=*.SMFSIML.OUT
//D3       DD  DISP=(OLD,DELETE),DSN=*.SMFMERGE.SORTOUT
//
***** Bottom of Data *****
```

**Figure 6-21 Sample SMF Analysis Report**

---

```
OPTISYSTEMS SOLUTIONS LTD.ENERGIZER/CICSDATE : 08/02/99
REPORT P100SMFN REL 4.100TIME : 10:43:09
SMF ANALYSIS PROGRAM
PAGE :1

PERFORMANCE COMPARISON WORKSHEET
WITH/WITHOUT ENERGIZER
CICS JOBNAME: CICST          CICS APPLID: CICST
PEAK PERIOD INFORMATIONPROD DAYSIML DAY
WITH E/CW/O E/C
DATE07/27/9907/26/99
DAY OF WEEKTEUSDAYMONDAY
START TIME08.02.5908.01.00
END TIME21.56.4222.50.00
SMF INTERVAL00.10.0000.10.00
NUMBER OF SMF 30 RECORDS READ.....76.....78
NUMBER OF SMF 110 RECORDS READ.....0.....0

NUMBER OF REPORTING DAYS.....1.....1

PEAK PERIOD CICS PERFORMANCE ANALYSIS

CICS CPU UTILIZATION

AVERAGE CICS CPU OF RECORD TYPE 301.321.36
MAXIMUM CICS CPU, PEAK RECORD TYPE 307.007.00

CICS CPU (IN 1/100 SECONDS) SMF FIELD NAME
AVERAGE STEP CPU TIME - TCB 837.22 890.00SMF30CPT
AVERAGE STEP CPU TIME - SRB 41.17 51.00SMF30CPS
AVERAGE CPU TIME USED FOR I/O 6.67 7.00SMF30IIP
AVERAGE CPU TIME USED BY THE RCT 0.00 0.00SMF30RCT
AVERAGE DATA TRANSFER CPU TIME 0.00 0.00SMF30HPT
AVERAGE ADDITIONAL CPU 0.00 0.00SMF30ASR
AVERAGE CPU PER INTERVAL 885.06 948.00

TOTAL TRANSACTIONS PROCESSED          ....199000    ....185000
TOTAL TRANSACTIONS NORMALIZED         ....199000    ....185000
TOTAL TRANSACTIONS PER SMF INTERVAL   .....2618     .....2434
TOTAL TRANSACTIONS PER 10 MINUTES     .....2618     .....2434
IMPROVEMENT
TRANSACTIONS PER CICS CPU MINUTE       .....197    10.6% ...178
AVERAGE CPU PER TRANSACTION          0.0005072    0.0005612

NOTE: AVERAGE ADDITIONAL CPU (SMF30ASR) IS NOT USED IN THE COMPUTATION OF TOTAL
CPU, BECAUSE THIS VALUE IS INCLUDED IN THE AVERAGE STEP CPU TIME - TCB
(SMF30CPT).

PE1133: NUMBER OF RECORDS READ13912

PE1134: NUMBER OF RECORD TYPE 30 READ:13910

PE1134: NUMBER OF RECORD TYPE 110 READ: 0

PE1584: FUNCTION SUCCESSFULLY COMPLETED
```

---

---

---

# Chapter 7 Guidelines

Energizer for CICS functions provide reductions in resource usage and increased availability and throughput. The guidelines presented below describe what to expect from the Energizer for CICS functions within a particular CICS workload and environment, explain how to customize Energizer for CICS according to what is most appropriate for your installation, and provide suggestions for improving CICS response times based on your version of CICS. Note that Energizer for CICS works best when it is active in at least three CICS systems with moderate or high CPU utilization.

Additionally, these guidelines should prove helpful in analyzing Energizer for CICS benefits and savings. It is important to remember that the Energizer for CICS functions will provide significantly better results when they are started at nonpeak or low-utilization periods. It is also important to give Energizer for CICS one full interval to collect statistics and allow all functions to become fully activated.

**Note:** In order to realize the maximum CPU savings by Energizer for CICS, BMC Software recommends that users of non-IBM data base management systems run the CICS regions at a higher MVS dispatching priority than the DBMS regions.

## How Energizer for CICS Functions Work

### Dispatch Management Function

The Dispatch Management Function will not attempt to manage any CICS system using less than 10% CPU utilization within the interval surrounding an MVS Wait. Note also that Energizer for CICS will not manage MVS Waits during the first interval that it is active.

The CPU savings realized for CICS systems using between 20% and 65% utilization can be easily measured. As the resources used by a single CICS region exceed 65%, the number of operating system waits decline and the benefits of managing those waits also begins to decline. This is also the threshold at which the other components of Energizer for CICS start to provide spare CPU resources for peak demands.

## **MRO Dispatch Management Function**

As with the Dispatch Management function, the MRO Dispatch Management Function will provide the greatest benefit to connected CICS systems that are each using between 20% to 65% CPU utilization. For the best results, the MRO Dispatch Management function should be activated in all MRO connected systems. This function will automatically be activated when Dispatch Management is activated and vice versa.

## **VSAM Subtask Management Function**

The VSAM Subtask Management function saves the overhead of VSAM subtasking when this off-loading process is not necessary. However, as the CPU utilization used by a single CICS exceeds a maximum threshold of 45% to 80%, the Energizer for CICS VSAM Subtask Management function will begin to off load VSAM processing to another CPU in the complex with more resources available. Do not attempt to run the Energizer for CICS VSAM Subtask Management function or the CICS VSAM subtasking option unless your installation has a multi-processor installed.

## **Trace Management Function**

The Energizer for CICS Trace Management function starts to deactivate the least important functions of the CICS Trace Facility as CICS or total System CPU utilization rises to critical levels and system response time begins to deteriorate. It reactivates the functions again when CPU utilization drops below critical levels.

## **MRO/ISC Queue, VSAM Queue, Temporary Storage Queue, and Transient Data Queue Management Functions**

The Energizer for CICS Queue Management functions are primarily meant to improve system availability by avoiding bottlenecks, lockouts, and sympathetic outages caused by unexpected requests for strings, buffers, and MRO/ISC sessions. The benefits of these services are as critical as the savings produced by the other functions. These benefits can not be measured on a continuous basis. Rather, they must be evaluated on an event-by-event basis.

When there was an unexpected peak demand for access to file XYZ, was there an increase in response time and/or a Short-on-Storage Condition because of tasks waiting for strings; or did Energizer for CICS prevent this problem from deteriorating further so as not to affect other transactions and users?

Similarly, when there was an Application Owning Region that abended, did Energizer for CICS prevent any of the connected regions from also abending? Did Energizer for CICS permit users of other regions to continue processing?

## **Storage, Transaction Class, and Maxtasks Management Functions**

The Storage Management, Transaction Class Management, and Maxtasks Management functions affect total throughput by matching the workload to the real and virtual storage and CPU resources available. Again, the benefits of these services are usually not of a continuous nature. Rather, these functions produce very significant effects as CICS approaches MXT, AMXT, or MAXACTIVE for a transaction class, the maximum amount of real or virtual storage, or the maximum CPU available. Energizer for CICS ensures that users will no longer be locked out of CICS because of arbitrary MAXTASKS, AMAXTASKS, and MAXACTIVE values. Likewise, Energizer for CICS will help to avoid short-on-storage conditions and keep the workload flowing continuously through the CICS system.

## **MRO Mirror Task Management Function**

The Energizer for CICS MRO Mirror Task Management function dynamically controls the use of long- and short-running mirror tasks by allowing you to explicitly define which files should utilize long-running or short-running mirror tasks. CPU overhead is saved and better response times may be achieved when correctly defining the type of mirror to be used by each file.

## **Program Compression Management Function**

The Program Compression Management function enhances the new CICS program management process by providing CICS with dynamic targets for each CICS DSA rather than the constant free storage target that CICS uses. Because CICS DSAs can differ in size, the fixed target can have completely different effects on each DSA. The Program Compression Management function will increase the number of programs resident and increase program residency times for DSAs that are large enough to accommodate additional programs. For relatively small DSAs, the function will cause CICS to release more not-in-use programs, making extra DSA available for user task needs.

## **Task Time-Out Management Function**

The Energizer for CICS Task Time-Out Management function dynamically purges both active and waiting CICS transactions that have passed their allowable duration either under normal processing conditions or only when CICS is under stress.

## **Parameter Settings**

The Energizer for CICS functional parameters should be customized according to what is most appropriate for your installation. For most installations, the default parameters need not be changed.

## **Dispatch Management Function and MRO Dispatch Management Function Settings**

Leave the default parameters unchanged, unless otherwise instructed by Product Support. The Dispatch Management function and MRO Dispatch Management function are integrated and execute together whether there is MRO or not. The parameter settings affect both functions.

## Program Compression Management Function

The DSA utilization parameters for this function specify how high DSA utilization should be before the Program Compression Management function instructs CICS to compress programs. If the current CICS statistics show a program residency time measured in minutes, the DSA utilization default settings are good for your installation. If the program residency times are low, set the below-the-line DSA parameters at 80% and the above-the-line DSA parameters at 85%. If there are currently storage constraints in a particular DSA, lower the utilization parameter for that DSA to 60%.

## Storage Management Function

The Storage Management function has no user parameters. Energizer for CICS dynamically calculates the range of values that may be assigned to the DSALIMIT and EDSALIMIT parameters of CICS. Energizer for CICS will not decrease DSALIMIT and EDSALIMIT below their original values. The upper limit of DSALIMIT is set to 300 K less than the original amount of free MVS storage below the line. The upper limit of EDSALIMIT is set to the larger of the two values: 100 M or the original EDSALIMIT + 25%. A spare amount of at least 1 M of free MVS storage is left above the line. Allocated storage, especially below the line, is released immediately when not needed.

## Trace Management Function

The default CPU utilization at which trace functions are disabled is 75% of system CPU. The CPU utilization where trace functions are restored should be set 8% -10% below where they are disabled. You may want to customize the order in which the trace options are disabled via the Trace Options Table screens. The default settings are compatible with leading CICS performance monitors.

## VSAM Subtask Management Function

If the system experiences a very large number of CI and CA splits, you may want to lower the CPU utilization parameter for subtasking VSAM PUT operations to 30%.

## MRO Mirror Task Management Function

The MRO Mirror Task Management function could have a negative effect on response time if not utilized correctly. This function provides the ability, on a file-by-file basis, to decide whether a mirror task that is accessing a file should be a long-running or short-running mirror. See the *CICS Performance Guide* for a detailed explanation of long-running and short-running mirror tasks.

CICS provides the global MROLRM parameter of the SIT which defines all mirror tasks as either long running or short running. When mirrored tasks are defined as short running, CICS will make all mirrors that do BROWSE, READ UPDATE, or ADD processing, long-running regardless of the original parameter definition.

Benchmarks with Energizer for CICS have shown that defining long-running mirrors for tasks that do not require long-running mirrors (i.e., tasks that process only a few reads) causes significant response-time degradation for those tasks. These benchmarks show that the benefit derived from defining MROLRM = YES for tasks that perform a few reads, followed by a READ UPDATE, a BROWSE, or an ADD, is more than outweighed by the response time degradation cause by those tasks that should run using short running mirrors.

Energizer for CICS provides a real benefit to those installations running with MROLRM = YES because they will be able to configure which files should be handled by long-running mirrors. On the other hand, the user who is running MROLRM = NO might make a bad decision as to which files should have long-running mirrors and could cause significant response-time degradation for those tasks.

To obtain ideal performance from the Energizer for CICS MRO Mirror Task Management function, you should use the default settings to define MROLRM = NO and use the File Inclusion List to include those files that meet the following criteria:

- Access is by READ direct, followed by BROWSE, READ UPDATE, ADD, or DELETE
- Access is by three or more READ directs and the task does not access any other MRO regions

**Tip:** When in doubt, define short-running mirrors.

## Response-Time Hints

Dispatch Management and MRO Dispatch Management functions are the two functions that have the most direct impact on system response time when there are no actual problems or peak situations.

For these nonpeak, non problem periods, the difference between the response time with Energizer for CICS activated and without the functions activated should be between plus 0.1 seconds and minus 0.2 seconds. The actual results depend on the particular CICS configuration, including how many MRO regions are running and their associated workloads. Energizer for CICS will always provide significantly better throughput during peak and problem periods.

If you are not realizing comparable response times of your system, check that your parameter settings correspond to those suggested in the Parameter Settings section of this chapter.



---

# Chapter 8 PC Graphic Analysis Facility

The PC Graphic Analysis Facility is a PC application that provides graphic analysis and statistical data about the CICS system and the activities and operations that Energizer for CICS executed in order to enhance CICS performance. It is based on data extracted from the operational and statistical records in the Report File that were accumulated during the activation of the Energizer for CICS functions.

The Graphic Analysis Facility is a Microsoft Access runtime application that does *not* require the user to have Microsoft Access installed. It runs on an IBM-compatible personal computer with a 486 or higher processor, 4 megabytes of RAM (6 or 8 megabytes are preferable), an EGA, VGA, or compatible display, MS-DOS version 3.1 or later, and Microsoft Windows, version 3.1 or later.

## PC Graphic Analysis Facility Graphs

### Performance Comparison Graphs

- **Wait Data:** The Wait Data Graph compares the CICS MVS wait rate and CICS CPU utilization that occurs with Energizer for CICS against the MVS wait rate and CICS CPU utilization without Energizer for CICS. Energizer for CICS manages the waits issued by CICS, and the average CICS CPU over time is lower for comparable workloads.

- **CICS CPU:** The CICS CPU graph compares peak CICS CPU and average CICS CPU utilization that occurs with Energizer for CICS against the peak and average CPU utilization without Energizer for CICS. Peak CPU is lower with Energizer for CICS, and average CPU over time is also lower for comparable workloads.
- **Total CPU:** The Total CPU graph compares peak MVS CPU and average MVS CPU utilization while processing with Energizer for CICS against the peak and average CPU utilization without Energizer for CICS. Energizer for CICS affects total CPU utilization by reducing peaks and allowing more work to be processed in CICS, Batch and TSO.
- **Task Data:** The Task Data graph compares the number of tasks and CICS CPU utilization while processing with Energizer for CICS against processing without Energizer for CICS. With Energizer for CICS, more tasks are processed using less CPU.
- **CPU/Task:** The CPU/Task graph compares the average CPU seconds used per task while processing with Energizer for CICS against processing without Energizer for CICS. With Energizer for CICS, less CPU is utilized per task.

## Resource Management Graphs

- **Storage Management:** The Storage Management graphs display the number of tasks, the amount of allocated dynamic storage, and the DSA limit values over time for the below- and above-the-line DSAs. Energizer for CICS matches the values of the DSALIMIT and EDSALIMIT parameters of CICS to the amount of dynamic storage in use and to the amount of free MVS storage, thereby improving throughput and availability.
- **Maxtasks Management:** The Maxtasks Management graph displays the number of active tasks, CICS MXT values, average CPU utilization, and average DSA utilization. Energizer for CICS matches the workload to available CPU and storage resources.
- **Trace Management:** The Trace Management graph displays the level of CICS Trace subfunctions that Energizer for CICS turned off and the average CICS CPU utilization. Energizer for CICS provides spare CPU for peak demands by managing the CICS Trace functions.
- **Program Compression:** The Program Compression displays the average CPU utilization, average DSA utilization, and total number of bytes released for each DSA. Storage is released during peak demand periods while DSA program usage is maximized during nonpeak periods.

- **VSAM Subtask Management:** The VSAM Subtask Management graph displays the average CPU utilization and types of VSAM subtasking activated. Energizer for CICS provides spare CPU for peak periods while saving VSAM subtasking overhead.
- **System Utilization:** The System Utilization graph displays the average and peak MVS and CICS CPU utilizations. This graph is informational only.
- **MRO Dispatch Management:** The MRO Dispatch Management graph displays the percentage and number of times Energizer for CICS dispatched a remote CICS region to service MRO requests. These are the times that Energizer for CICS dispatched CICS when MVS would not have.
- **MRO Mirror Task Management:** The MRO Mirror Task Management graph displays the number of times that a mirror task was changed from short running to long running, the number of times a suspended mirror task had its expiration time changed, and the average CICS CPU utilization. Energizer for CICS manages the life cycle of mirror tasks.
- **Transaction Class Management:** For each transaction class whose limits were changed by Energizer for CICS, the Transaction Class Management graphs display the number of tasks belonging to the class that were active and queued at the time of change and the values of MAXACTIVE and PURGETHRESH that were set. Energizer for CICS matches the type and number of active transactions to available CPU and storage resources.

## Availability Management Graphs

- **Task Time-Out Management:** The Task Time-Out Management graphs display the number of tasks that were abended because their expected duration was exceeded. The graphs are by time of day or cumulative. The cumulative task abends may be grouped by task name, terminal ID, or system name. Energizer for CICS provides increased availability and throughput by eliminating tasks that have exceeded their expected duration.
- **Temporary Storage Queue Management:** The Temporary Storage Queue Management graphs display the number of TS strings and buffers that were added and the number of tasks abended per queue.
- **Transient Data Queue Management:** The Transient Data Queue Management graphs display the number of TD strings and buffers that were added and the number of tasks abended per queue.

- **MRO/ISC Queue Management:** The MRO/ISC Queue Management graphs display the number of connections that had tasks abended while waiting for MRO sessions. The graphs are by time of day or cumulative.
- **VSAM Queue Management:** The VSAM Queue Management graphs display the number of files that had VSAM strings added or tasks abended because of waiting on file strings, LSR strings, and LSR buffers. Energizer for CICS provides increased availability by avoiding resource constraints and lockout.

## Installing PC Graphic Analysis Facility

Because the Energizer for CICS PC Graphic Analysis Facility is a Microsoft Access runtime application, it uses the standard Microsoft Access set up procedure, customized for the application's specific files, directories, and icons.

The Energizer for CICS PC Graphic Analysis Facility is delivered on the CD-ROM that is part of the Energizer for CICS distribution set. Before starting the installation, refer to the **README.TXT** file in the **Graphical\_Package** directory on the CD-ROM for any special installation instructions.

**Note:** If Microsoft Access is installed on your PC, it must be version 2.0 or later for the installation to work correctly. Otherwise, install the Energizer for CICS application on a PC on which Microsoft Access is not installed.

The installation steps are as follows:

- Step 1** Start Microsoft Windows.
- Step 2** If the Energizer for CICS PC Graphic Analysis Facility is not already installed on your machine, perform the following steps:
- If you do not have Microsoft Access installed on your machine, proceed to Step 5.
  - If you have Microsoft Access version 2.0 installed on your machine, proceed to Step 4.

Otherwise, proceed to Step 3.

- Step 3** If you would like to keep the existing database, rename the folder of the current version of the Graphic Analysis Facility. The new name must not start with Energize.
- Step 4** In the **\WINDOWS\SYSTEM** directory, delete (or rename) the following files:
- MSABC200.DLL
  - MSAEXP20.DLL
  - MSAJT200.DLL
- Step 5** Close any active applications.
- Step 6** Insert the Energizer for CICS CD-ROM into your CD-ROM drive.
- Step 7** From the **Start** menu, select **Run**. The Run dialog box is displayed.
- Step 8** Click **Browse** on the Run dialog box. Locate and select file **SETUP.EXE** in the **\Graphical\_Package\Disk1** folder on the CD-ROM.
- Step 9** Click **Open** and then **OK**.
- Step 10** Follow the setup instructions on the screen.

The setup procedure :

1. Asks you where you want the product installed; The default directory is **C:\ENERGIZE**;
2. Asks you under which Windows Program Group you want the product placed; The default program group is Energizer for CICS; You can change the program group during the set-up procedure; The Energizer for CICS icon is used to represent the product;
3. Installs its own **MSACCEC.INI** file under **C:\WINDOWS** so as not to interfere with other initialization (.INI) files;
4. Installs various dynamic-link library (.DLL) files under **C:\WINDOWS\SYSTEM** and installs OLE version 2.01, if this (or a later) version has not already been installed by another Microsoft application;
5. Installs run-time Microsoft Graph5 under **C:\WINDOWS\MSAPPS**;
6. May issue a message at the end of the install procedure stating that **SYSTEM.MDA** on the **ENERGIZE** directory cannot be created and Windows needs to be restarted; Click the **OK** button.

## Using the Graphics Analysis Facility

- Step 1** Run the mainframe Energizer for CICS Graph File Generator program (P100GRP2) to generate the data file for the Graphic Analysis application. To do that either use Option 7, PC Graphic Analysis of the Batch Reporting Facility on the TSO/ISPF Interface (Figure 8-1 on page 8-7) or use the sample JCL found in member ECSJEGPH (Figure 8-2 on page 8-10) of the BBSAMP sample library. See “Graph File Generator Program” on page 8-7.
- Step 2** Download the Graph File (created in the previous step) to your PC. You can use any mainframe-to-PC file transfer program that translates EBCDIC text data to ASCII and includes a carriage return and line feed (CRLF) between records. Refer to member ECSPEGRV (Figure 8-3 on page 8-12) in the BBSAMP sample library for a sample file transfer procedure. Make sure the PC file is a text (.TXT) file.
- Step 3** Start the Energizer for CICS PC Graphic Analysis Facility by double-clicking the Energizer for CICS icon in the Energizer for CICS Program Group window.
- The introductory screen shown in Figure 8-4 on page 8-13 is displayed.
- Step 4** Select the **Build Data Base** button on the introductory screen (Figure 8-4 on page 8-13) to display the Build Data Base screen (Figure 8-5 on page 8-14). Use this screen to specify the name of the downloaded file and build a new database or append the new data to the existing database. Data will remain in the database until deleted by a subsequent build or delete request.
- Step 5** After the database has been created or updated, click **Exit** to return to the introductory screen. Click **Create Graphs** on the introductory screen to access the Energizer for CICS Graphic Analysis Facility menu (Figure 8-6 on page 8-15).
- Step 6** Click Date/Time Selection on the Graphic Analysis menu to display the Date/Time Selection screen (Figure 8-7 on page 8-16). Use this screen to specify the APPLID, dates, and times for which to produce graphs. See “The PC Screens” on page 8-13. Click **Exit** to return to the Graphic Analysis menu.
- Step 7** On the Graphic Analysis menu, select each graph using either a mouse or the **Tab** and **Enter** keys.
- Step 8** For some graph selections that you choose, an intermediary screen is displayed asking for a more specific selection (e.g., type of DSA). Make the selection and click **Continue** to display the graph.

See Figure 8-8 on page 8-17 for a sample graph. See Chapter 9, “How to Evaluate Energizer for CICS” for a more detailed discussion of the graphs.

**Step 9** On the specific graph screen click **Print** to print the screen, and then click **Return** to return to the Graphic Analysis Menu.

**Note:** For better response, close all unnecessary applications, sessions, and windows while running the Energizer for CICS PC Graphic Analysis Facility.

## Graph File Generator Program

The Energizer for CICS Graph File Generator program (P100GRP2) reads the Energizer for CICS Report File and extracts the appropriate data to be used by the PC Graphic Analysis application. The data is written to a sequential file, which can then be downloaded to the PC via a mainframe to PC file transfer program. The Graph File Generator program can be executed from either the Batch Reporting Facility on the Energizer for CICS TSO/ISPF interface or directly using a batch job. Sample JCL (Figure 8-2 on page 8-10) for the batch job is contained in member ECSJEGPH of the BBSAMP sample library.

To execute the Graph File Generator program from the Energizer for CICS TSO/ISPF interface, select Option 2, Batch Reporting Facility and then select Option 7, PC Graphic Analysis from the Batch Reporting Facility screen.

**Figure 8-1 PC Graphic Analysis Screen**

```

USERID L99087                ENERGIZER/CICS                DATE 99/08/02
REL 4.100                    BATCH REPORTING FACILITY        TIME 17:22
                                PC GRAPHIC ANALYSIS          I26
OPTION ==>

FUNCTION      : GRAPH
DSNAME       : energize.cics report file
GRAPH FILE   :
APPLID      : (BLANK FOR FIRST APPLID)
FROM DATE   : 08/02/99 (MM/DD/YY)
FROM TIME   : 08.00.00 (HH.MM.SS)
TO DATE     : 08/02/99 (MM/DD/YY)
TO TIME     : 18.00.00 (HH.MM.SS)
LINENUM     : 55 (20 - 100)
SYSOUT CLASS : *

ENTER JOB STATEMENT INFORMATION BELOW AND PRESS ENTER TO SUBMIT JOB
====>
====>
====>
-----
F1= HELP  F2= SPLIT  F3= END  F4= RETURN  F5=      F6=      F7=
F8=      F9= SWAP   F10=     F11=     F12=

```

Modify the default settings on the PC Graphic Analysis screen by typing over the entries. Fill in the **JOB STATEMENT INFORMATION** at the bottom of the screen and press **Enter** to submit the job. In the list that follows, the screen names are followed, where applicable, by the matching parameter names to be specified in the batch job JCL (member ECSJEGPH).

- **FUNCTION:** GRAPH is the function name.
- **DSNAME:** Enter the data set name of the Report File to use. The default is the current DSNAME on the Dialog Management screen.
- **GRAPH FILE:** Enter the data set name of the output Graph File. This file is a sequential file that will be downloaded to the PC via a mainframe-to-PC file transfer program.
- **APPLID (APPLID):** Specify the VTAM APPLID for the CICS region to process. If omitted, the first APPLID encountered on the Report File will be used. If necessary, use the INDEX function of the Batch Reporting Facility to get a list of APPLIDs on the Report File.
- **FROM DATE (FROMDATE):** Specify the starting date of activity that you want to extract. The default value is the TO DATE. The format is MM/DD/YY.
- **FROM TIME (FROMTIME):** Specify the starting time of activity that you want to extract. The default value is 08:00:00. The format is HH:MM:SS.
- **TO DATE (TODATE):** Specify the ending date of activity that you want to extract. The default value is the current date. The format is MM/DD/YY.
- **TO TIME (TOTIME):** Specify the ending time of activity that you want to extract. The default value is 18:00:00. The format is HH:MM:SS.
- **LINENUM (LINENUM):** Enter the number of lines to print on the output report. The default is 55.
- **SYSOUT CLASS:** Enter the SYSOUT CLASS for the batch job.

**Warning!** Be careful to specify a date range with Energizer for CICS executing in both PROD and SIML modes during comparable workloads and transaction mixes for the Performance Comparison Graphs.

To execute the Graph File Generator program using a batch job:

- Step 1** Copy member ECSJEGPH from the BBSAMP sample library and modify the JCL according to your installation standards.
- Step 2** Enter the data set name of the output Graph File in the ECGRAPH DD statement in step DEL1. This JCL assumes a constant data set name for the output file.
- Step 3** Use COND=ONLY in step DEL1 if the file does not already exist.
- Step 4** Enter the data set name of the CICS release load library in the STEPLIB DD statement in step GRAPHGEN.
- Step 5** Enter the data set name of the Energizer for CICS Report File in the REPORT DD statement in step GRAPHGEN.
- Step 6** Enter the selection criteria for the graphs by typing over the parameters that follow the SYSIN statement in step GRAPHGEN.
- Step 7** Submit the job.

**Figure 8-2 Sample Graph File generation JCL (Member ECSJEGPH)**

```

***** Top of Data *****
/*
/* Member: ECSJEGPH
/*
/* This JCL creates the graph file for download to your PC.
/*
/* Edit the date and time ranges on the SYSIN statements.
/*
/* Edit the following variables:
/* -----
/* energize.cics.BBLINK
/*     The DSN of the BMC Software load library.
/*
/* your.energize.cics.REPORT
/*     The input DSN of the report file.
/*
/* your.output.graph.file
/*     The output DSN of the graph file.
/*
/* cics-applid
/*     The CICS Application Id to be selected.
/*
/*-----*
/* Deletes the graph file created by a previous run.
/*-----*
//DEL1 EXEC PGM=IEFBR14
//ECGRAPH DD DISP=(MOD,DELETE,DELETE),
//          DSN=your.output.graph.file,
//          SPACE=(TRK,(1,1)),
//          UNIT=SYSDA
/*-----*
/* Generate the graph file.
/*-----*
//GRAPHGEN EXEC PGM=PL00GRP2,
//          REGION=1M,
//          COND=EVEN
/*          PARM=('GRAPH,LINENUM=55',
/*          'APPLID=cics-applid,TODATE=hh/mm/yy,FROMDATE=mm/dd/yy')
//STEPLIB DD DISP=SHR,DSN=energize.cics.BBLINK
//REPORT DD DISP=SHR,DSN=your.energize.cics.REPORT
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//ECGRAPH DD DISP=(,CATLG),
//          DSN=*.DEL1.ECGRAPH,
//          SPACE=(TRK,(15,10)),
//          UNIT=SYSDA
/*
//SYSIN DD *
GRAPH LINENUM=55, Lines per page (SYSPRINT)
*
* If APPLID is omitted, it defaults to first on file.
APPLID=cics-applid, CICS ID (Up to 8 characters)
*
* If TODATE is omitted, it defaults to current date.
TODATE=mm/dd/yy, End of date range (MM/DD/YY)
*
* If FROMDATE is omitted, it defaults to "TODATE".
FROMDATE=mm/dd/yy, Start of date range (MM/DD/YY)
*
* If TOTIME is omitted, it defaults to 18.00.00 (6pm).
TOTIME=hh.mm.ss, End Time (HH.MM.SS)
*
* If FROMTIME is omitted, it defaults to 8.00.00 (8am).
FROMTIME=hh.mm.ss Start Time (HH.MM.SS)
//
***** Bottom of Data *****

```

---

# Graph File Transfer Procedure

The mainframe Graph File generated by the Graph File Generator program (P100GRP2) must be downloaded to the PC for use in the PC Graphic Analysis Facility. Use any mainframe-to-PC file transfer program that translates mainframe EBCDIC text data to ASCII and includes a carriage return and line feed (CRLF) between records. *Be sure that the file extension on the downloaded PC file is TXT.*

**Note:** A sample file transfer procedure is included in member ECSPEGRV in the BBSAMP sample library. See Figure 8-3 on page 8-12.

**Step 1** Specify the data set name of the mainframe Graph File. Refer to the JCL of program P100GRP2, which generates this file from the Energizer for CICS Report File.

**Note:** The mainframe Graph File is defined as DSORG=PS, RECFM=VB, LRECL=500, BLKSIZE=2000.

**Step 2** Specify the name of the PC file and directory where you want this file to be located. *Make sure that the file extension is TXT.* If you use the sample, change only **C:\ENERGIZE**.

**Note:** Be sure to enter the full file name on the Build Data Base screen (Figure 8-5 on page 8-14) in the PC Graphic Analysis Facility. The default file name is **C:\ENERGIZE\ECGRAPH.TXT**.

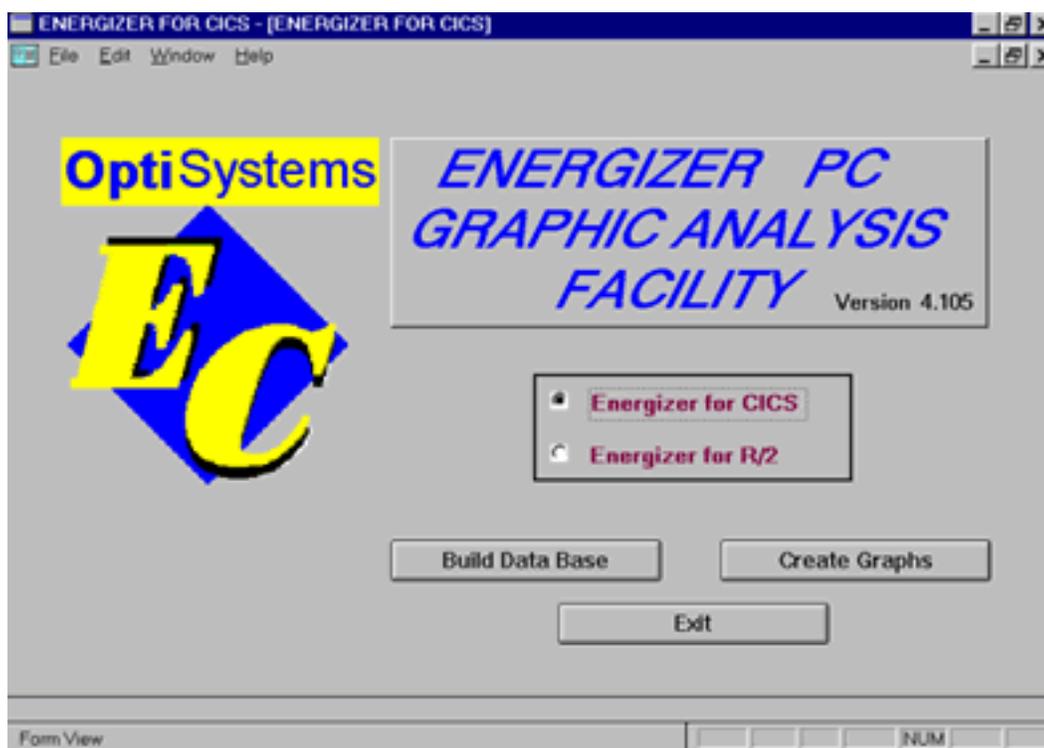
**Step 3** Execute the file transfer program.

**Figure 8-3 Sample Graph File Transfer Procedure (Member ECSPEGRV)**

```
***** Top of Data *****
ECHO OFF
REM * * * * *
REM * MEMBER: ECSPEGRV *
REM * * * * *
REM *          ENERGIZER FOR CICS *
REM *          PC GRAPHIC ANALYSIS FACILITY *
REM *          BATCH PROGRAM TO DOWNLOAD MAINFRAME FILES TO PC *
REM * * * * *
REM * NOTE: THIS ECGRAPH BATCH PROGRAM EXECUTES THE IRMALINK *
REM *          MAINFRAME TO PC FILE TRANSFER PROGRAM. USE ANY *
REM *          MAINFRAME TO PC FILE TRANSFER PROGRAM THAT TRANSLATES *
REM *          EBCDIC TEXT DATA TO ASCII AND INCLUDES A CARRIAGE *
REM *          RETURN AND LINE FEED (CRLF) BETWEEN RECORDS. *
REM * * * * *
REM * INSTRUCTIONS FOR THIS BATCH PROGRAM ARE GIVEN BELOW *
REM * * * * *
ECHO ON
ECHO YOUR DATA FILE WILL BE TRANSFERED TO YOUR PC FOR GRAPHIC ANALYSIS
PAUSE
RECEIVE C:\ENERGIZE\ECGRAPH.TXT A:'DSN of Graph File' ASCII CRLF
ECHO OFF
REM * * * * *
REM * *
REM * INSTRUCTIONS: *
REM * *
REM * 1. SPECIFY THE DATA SET NAME OF THE MAINFRAME GRAPH FILE. *
REM *    REFER TO YOUR P100GRP2 JCL WHICH GENERATES THIS FILE FROM *
REM *    THE ENERGIZER FOR CICS REPORT FILE (E.G., MEMBER *
REM *    $GRP2GEN IN THE ENERGIZER FOR CICS INSTALL JCL LIBRARY). *
REM *    NOTE: THE GRAPH FILE IS DEFINED AS DSORG=PS, RECFM=VB, *
REM *    LRECL=500, BLKSIZE=2000 *
REM * *
REM * 2. SPECIFY THE PC FILE NAME INCLUDING THE DIRECTORY PATH. *
REM *    MAKE SURE THAT THE FILE EXTENSION IS TXT *
REM *    I.E., CHANGE ONLY C:\ENERGIZE *
REM * *
REM *    NOTE: BE SURE TO SPECIFY THE PC FILE NAME AND BUILD THE *
REM *    DATA BASE IN YOUR GRAPHIC ANALYSIS APPLICATION *
REM * *
REM * 3. SAVE THIS ECGRAPH.BAT FILE *
REM * 4. START A 3270 EMULATOR SUCH AS IRMALAN FOR NETWARE *
REM * 5. USE YOUR HOT KEY TO ACCESS THE MAINFRAME *
REM * 6. LOGON TO TSO AND SET IT TO READY MODE *
REM * 7. USE YOUR HOT KEY TO RETURN TO DOS *
REM * 8. TYPE ECGRAPH AND PRESS ENTER *
REM * *
REM * * * * *
***** Bottom of Data *****
```

## The PC Screens

Figure 8-4 PC Graphic Analysis Facility Introductory Screen



**Introductory screen:** Click **Build Data Base** to build a new database, append new data to an existing database, or delete an existing database.

Click **Create Graphs** to select, create, display, and print requested graphs.

Figure 8-5 PC Graphic Analysis Facility Build Data Base Screen

**Build Data Base**

**Exit** Retain the current data base

**Build** Build the data base with the new file specified below. The current data base will be deleted.

**NOTE: Building the data base may take a few minutes depending upon the size of the new file and deleting the current data.**

**Append** Append the current data base with the new file specified below.

**Delete** Delete the current data base

Enter the name of the new downloaded graph file including the directory and .TXT extension.  
Example: C:\ENERGIZE\ECGRAPH.TXT

c:\energize\ecgr.txt

**Build Data Base Screen:** Specify the full path and file name of the .TXT file that was downloaded from the mainframe Graph File. Click **Build** to create a new database (deleting an existing database), **Append** to add new data to the existing database, or **Delete** to delete the existing database.

Figure 8-6 PC Graphic Analysis Facility Menu

**ENERGIZER FOR CICS GRAPHIC ANALYSIS FACILITY**

Performance Comparison Without/With ENERGIZER for CICS

Wait Data  CICS CPU  Total CPU  Task Data  CPU/Task

**Resource Management**

Storage Management  VSAM Subtask Management

Maxtasks Management  System Utilization

Trace Management  MRO Dispatch Management

Program Compression  MRO Mirror Task Management

Transaction Class Management

**Availability Management**

Temporary Storage Queue Management VSAM Queue Management

String/Buffer Additions  String Additions

Task Abends  Task Abends

Transient Data Queue Management Task Time-Out Management

String/Buffer Additions  Cumulative Task Abends

Task Abends  Task Abends

MRO/ISC Queue Management

Task Abends  Cumulative Task Abends

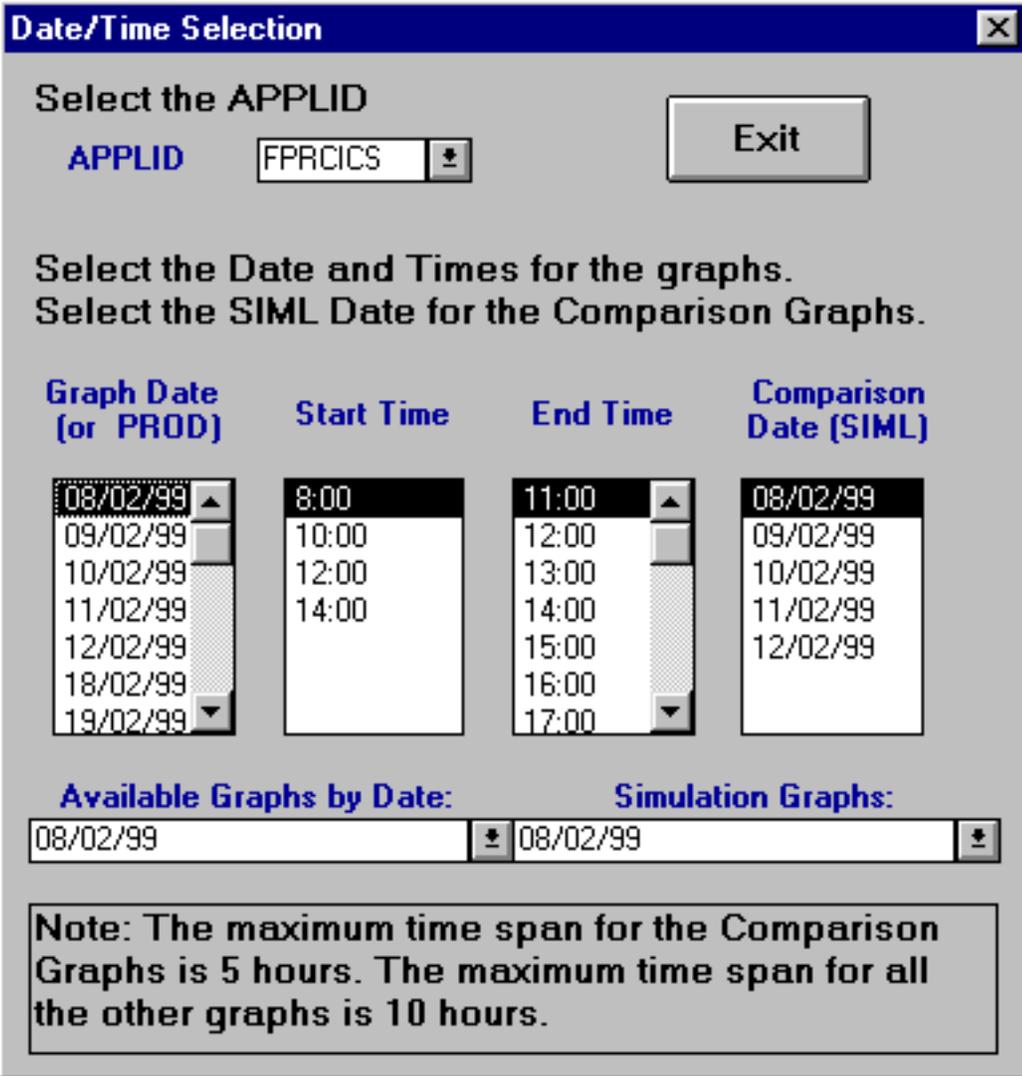
Date/Time Selection

Exit

Form View FLTR NUM

**Graphic Analysis Menu:** First, click **Date/Time Selection** to specify the APPLID, dates, and times for which to produce graphs. Then, select each graph using either a mouse or the **Tab** and **Enter** keys.

Figure 8-7 Date/Time Selection Screen



**Date/Time Selection**

Select the APPLID

APPLID: FPRCICS [v] [Exit]

Select the Date and Times for the graphs.  
Select the SIML Date for the Comparison Graphs.

Graph Date (or PROD)	Start Time	End Time	Comparison Date (SIML)
08/02/99	8:00	11:00	08/02/99
09/02/99	10:00	12:00	09/02/99
10/02/99	12:00	13:00	10/02/99
11/02/99	14:00	14:00	11/02/99
12/02/99		15:00	12/02/99
18/02/99		16:00	
19/02/99		17:00	

Available Graphs by Date: 08/02/99 [v] Simulation Graphs: 08/02/99 [v]

**Note:** The maximum time span for the Comparison Graphs is 5 hours. The maximum time span for all the other graphs is 10 hours.

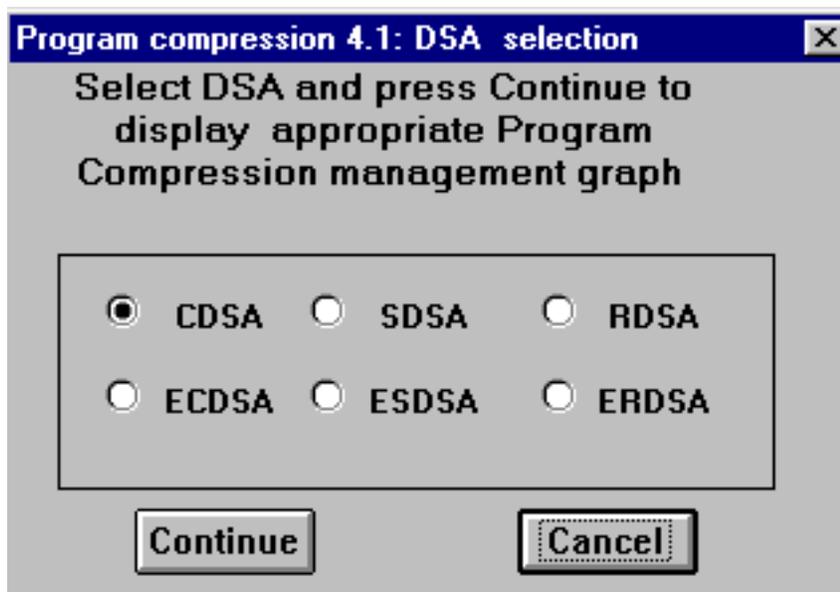
**Date/Time Selection Screen:** First, select the required APPLID from the **APPLID** drop-down list. The dates that are available in the database are displayed. Dates when Energizer for CICS was active in Production Mode are displayed in the Graph Date box. Dates when Energizer for CICS was active in Simulation Mode, and which may be used for the Comparison Graphs, are displayed in the Comparison Date box.

If you select a date from the Graph Date list and Start and End times, the available Resource and Availability Management graphs available for that date, will be displayed in the Available Graphs by Date drop-down list. Similarly, if you select a date from the Comparison Date list, the available Comparison graphs available for that date will be displayed in the Comparison Graphs drop-down list . The available graphs listed in the drop-down lists are identified by a Graph Identifier mnemonic. See “PC Graph Identifiers” on page 8-19 for a complete list of the available graphs and their identifying mnemonics.

If you select an entry in one of the drop-down lists a message box containing the graph’s full name will be displayed .

**Note:** Selecting an entry in a drop-down list is for informational purposes only and will NOT select a graph for display. A graph is selected for actual display on the Graphic Analysis Menu (“PC Graphic Analysis Facility Menu” on page 8-15).

Figure 8-8 Sample PC Graphic Analysis Facility DSA Selection Screen



**Intermediary Screens:** Used for making more specific selections for graphs requested on the Graphic Analysis Menu. Make the required selections and click **Continue** to display the graph, or click **Cancel** to return to the Graphic Analysis Menu.

Figure 8-9 Sample PC Graphic Analysis Facility Maxtasks Management Graph

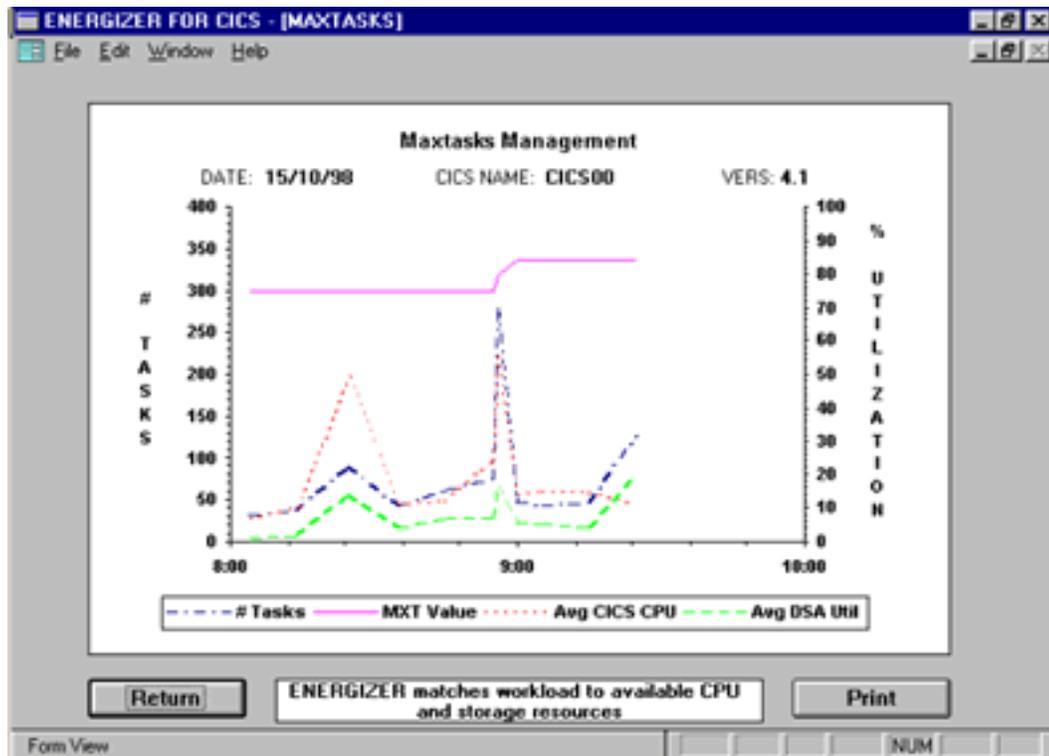
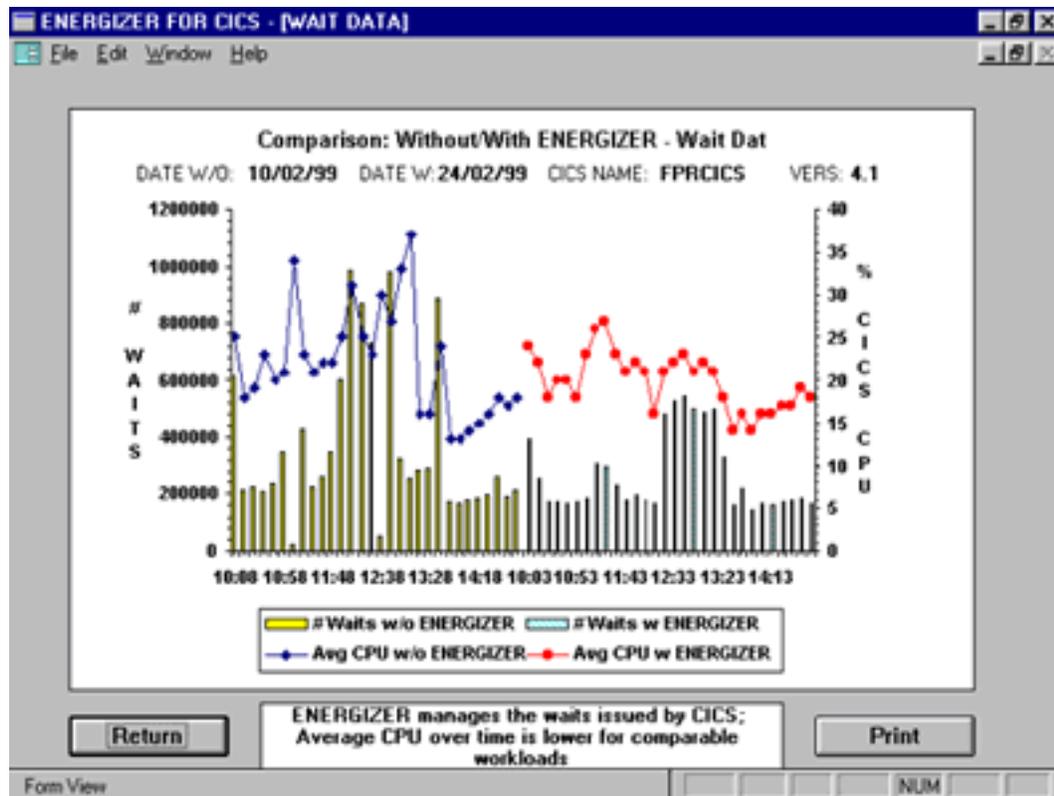


Figure 8-10 Sample PC Graphic Analysis Facility Wait Data Graph



## PC Graph Identifiers

The following PC graph identifiers are the internal names of the PC Graphic Analysis Facility data records. The records appear as the graph identifiers on the list of Available Graphs on the Date/Time Selection screen (Figure 8-7 on page 8-16) of the PC Graphic Analysis Facility.

Table 8-1 Performance Comparison Graphs

Graph Name	Graph Identifier
CICS CPU	ECCICS
Total CPU	ECMVS
Task Data	ECTASK
CPU/Task	ECTASK
Wait Data	ECWAIT

**Table 8-2 Resource Management Graphs**

<b>Graph Name</b>	<b>Graph Identifier</b>
MRO Dispatch Management	ECMDM
MRO Mirror Tasks Management	ECMMT
Maxtasks Management	ECMT
Program Compression—Bytes Compressed	ECPCSR
Storage Management	ECSTM
System Utilization	ECSU
Transaction Class Management (4.1 and above)	ECTCL
Trace Management	ECTM
VSAM Subtask Management	ECVS

**Table 8-3 Availability Management Graphs**

<b>Graph Name</b>	<b>Graph Identifier</b>
MRO/ISC Queue Management - Cumulative Task Abends	ECMQCA
MRO/ISC Queue Management - Task Abends	ECMQTA
Transient Data Queue Management - String/Buffer Additions	ECTDSA
Transient Data Queue Management - Task Abends	ECTDTA
Temporary Storage Queue Management - String/Buffer Additions	ECTSSA
Temporary Storage Queue Management - Task Abends	ECTSTA
Task Time-Out Management - Task Abends	ECTTA
Task Time-Out Management - Cumulative Task Abends	ECTTACM
VSAM Queue Management - String Additions	ECVQSA
VSAM Queue Management - Task Abends	ECVQTA

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# Chapter 9      How to Evaluate Energizer for CICS

Energizer for CICS provides two types of measurable benefits, resource savings, and increased availability and throughput. In addition, Energizer for CICS contributes to increased system staff productivity: less system programming resources are required for tuning, problem determination, and problem resolution. The varied services of Energizer for CICS provide different resource savings under different workloads and within different environments. It is important to consider the particular CICS workload and environment before measuring these benefits. Other Energizer for CICS functions provide increased availability and throughput. These benefits have to be analyzed differently because many of the functions are event driven.

Evaluation of Energizer for CICS is straightforward. The entire process of installation, testing, migration to production, and evaluation can be concluded in a matter of days. Multiple tools and aids are available to assist with the process and present results. See “Evaluation Tools and Reports” on page 9-2.

Proceed with the following activities. Details for each day are presented in the sections of this chapter.

**Table 9-1      Evaluation Steps (Part 1 of 2)**

<b>Day</b>	<b>Action</b>
1	Install Energizer for CICS in a test region. Activate first in Simulation Mode and then in Production Mode.
2	Copy into two production regions. Activate in Simulation Mode. This action will not actually affect any work in progress.
3	Copy into all CICS regions. Activate in Simulation Mode.

**Table 9-1 Evaluation Steps (Part 2 of 2)**

Day	Action
4	<p>Start Energizer for CICS in Production Mode in all regions. Produce all the performance reports for Day 3 and Day 4 in order to document Energizer for CICS improvements.</p> <p>NOTE: Two sequential days may not be similar in workloads. Make sure to select Days 3 and 4 with equivalent workloads and transaction mixes.</p>
5 through 10	Evaluate the stability of CICS with all workload mixes. Document Energizer for CICS performance and stability improvements using all the available reports.

## Evaluation Tools and Reports

Multiple Energizer for CICS tools and aids are available to assist with the evaluation process and present results. Additionally, the CICS statistics, the performance monitor reports, and the Resource Management Facility (RMF) reports can be used to assist in analyzing Energizer for CICS.

- **Online and Batch Reporting Facility:** Detailed information about the activities and operations that Energizer for CICS executed in order to enhance the CICS performance (see Chapter 5 “Online Reporting Facility,” and Chapter 6 “Batch Reporting Facility”)
- **Accumulative Statistics Report:** Statistical information about the data from the Report File (see Chapter 6 “Batch Reporting Facility”)
- **Index Report:** A list of the CICS APPLIDs included in the Report File. For each APPLID, a detailed list shows the dates, times, and activation modes for each day that Energizer for CICS was active (see Chapter 6 “Batch Reporting Facility”)
- **CICS Performance Comparison Worksheets:** Statistical information about the performance of the CICS and MVS systems during user-defined or automatically identified peak workload periods with and without the execution of Energizer for CICS. The combined performance improvement for multiple CICS regions is shown by the Worksheet Summary Report (see Chapter 6 “Batch Reporting Facility”);
- **CICS Performance Availability Statistics:** Summary information about long-term performance availability of the CICS system with Energizer for CICS (see Chapter 6 “Batch Reporting Facility”);

- **Batch/TSO Comparison Report:** Statistical information about the performance of the Batch and TSO systems during peak workload periods with and without the execution of Energizer for CICS (see Chapter 6 “Batch Reporting Facility”)
- **SMF Analysis Report:** A comparison worksheet similar to the CICS Performance Comparison Worksheet, but based solely on data extracted from the system SMF files (see Chapter 6 “Batch Reporting Facility”);
- **PC Graphic Analysis Facility:** A PC application that displays graphic analysis and statistical data about the CICS system and Energizer for CICS activities (see Chapter 8 “PC Graphic Analysis”).

## Day 1: Install the Application in a Test Region

1. Install Energizer for CICS in a *test* region. Using the Control Facility (Transaction PERM), activate the functions in Simulation Mode (SIML). The supplied default mode is Production Mode (PROD). You will need to change the mode of all functions to SIML.
2. Unless recommended otherwise, install Energizer for CICS with all other supplied default settings.
3. During the installation, set a trial password. Your product representative will supply a 30-day password. This is more than enough time to evaluate the benefits of Energizer for CICS.
4. Energizer for CICS will run in SIML mode. Use the Reporting Facility to watch Energizer for CICS evaluate the system and make performance recommendations. This lets you see what another expert would analyze and recommend for your system.

**Note:** The primary purpose of Day 1 is to assure you that Energizer for CICS has been installed correctly and does not produce any unexpected side effects in the system. Because Energizer for CICS is running in SIML mode, no changes are made to the processing of transactions in the CICS region. Also note that in a lightly loaded test region, CPU savings by Energizer for CICS will be insignificant. However, availability improvements will still be realized by this region.

5. Using the Control Facility, change the mode of the functions in the test region from SIML to PROD. Let Energizer for CICS continue to process. Assure yourself that there are no adverse side effects in the region. Use the Energizer for CICS TSO/ISPF Interface Parameters Facility (Option 1) to make any parameter changes permanent for the region.
6. Modify the CICS PLT entries so that Energizer for CICS will start up automatically in PROD mode in the test region for future CICS initializations.
7. Copy Energizer for CICS into at least two moderately loaded (15-25%) production regions. Do not start these regions at this time. They will be activated on Day 2.

**Note:** Energizer for CICS frees up CPU cycles from the region in which it is installed. This region cannot benefit directly from these freed cycles (although it can indirectly). Therefore, to see accurate results, Energizer for CICS should be installed in at least two regions. Additionally, whenever a region is operating at less than 10% CPU utilization, it is effectively inactive, and therefore, there can be little CPU savings.

8. At the end of the day, print the Energizer for CICS Batch Report using the Batch Reporting Facility. Save it for reference. Instructions for interpreting the Accumulative Statistics section of the report are included in this chapter.

## Day 2: Test Energizer for CICS in Two Production Regions

1. Energizer for CICS is started automatically in PROD Mode in the test region from the CICS PLT. Verify the correct PLT installation.
2. Using the Control Facility in the production regions, modify and activate all the functions in Simulation Mode (SIML). This process will once again confirm that Energizer for CICS has been installed correctly and has no unexpected side effects.
3. Copy Energizer for CICS into the other active regions. Do not activate at this time.

4. Modify the CICS PLT for all of the regions to include Energizer for CICS startup for Day 3. Automatic startup produces better results than manually activating the functions when the workload is increasing. Use the Energizer for CICS TSO/ISPF Interface Parameters Facility to set all functions to SIML mode in all the regions and set their AUTOSTART parameter to **YES**.
5. Print the Energizer for CICS Accumulative Statistics Report (function PRINTSTAT) for each region. Save the reports for reference.

## Day 3: Gather Data with Energizer for CICS Installed and Active in Simulation Mode

In order to determine the benefits that Energizer for CICS delivers during peak workload periods, select two days, Day 3 and Day 4, that have similar workloads. If the days vary in business activity, you might want to select the same day in two different weeks, etc. In reality, the two days don't need to be identical.

Energizer for CICS will start automatically in SIML Mode in all regions from the CICS PLTs set up on Day 2.

1. After the peak period has passed, use the TSO/ISPF Parameters Facility to set all functions to PROD mode for all of the regions.
2. Print the Energizer for CICS Batch Reports for the day. Save the reports for reference.

## Day 4: Gather Live Data in All Regions

Energizer for CICS will start automatically in PROD mode in all regions as a result of modifying the MODE parameters on Day 3.

1. Leave Energizer for CICS running in PROD Mode in *all* regions. Any improvements in system availability will be logged in the Energizer for CICS Report File.
2. Print the Energizer for CICS Batch Reports. Save the reports for reference.

3. Print the Performance Comparison Worksheet Report (function WORKSHEET) for four-hour peak periods using the Energizer for CICS Batch Reporting Facility. Refer to Chapter 6, “Batch Reporting Facility” for instructions. The SIMLDATE, SIMLFROMT, and SIMLTOT parameters should be the date and times of the peak period in Day 3 and the PRODDATE, PRODFROMT, and PRODTOT parameters should be the date and times of the peak period in Day 4.

Alternatively, use function AUTOWORK of the Energizer for CICS Batch Reporting Facility to automatically identify and list a sample of comparable peak workload periods on Day 3 and Day 4 and the improvement gained by Energizer for CICS for each pair of periods. Refer to Chapter 6, “Batch Reporting Facility” for instructions. The FROMDATE parameter should be the date of Day 3 and the TODATE parameter should be the date of Day 4. The function will produce the Performance Comparison Worksheet Report for the pair of peak workload periods with the most significant CPU savings.

4. Print the Performance Availability Statistics Report (function AVALSTAT) for Day 4 using the Energizer for CICS Batch Reporting Facility. Refer to Chapter 6, “Batch Reporting Facility” for instructions. The FROMTIME and TOTIME should be the starting and ending times that Energizer for CICS was active in Day 4 (FROMDATE, TODATE).
5. Print the Batch/TSO Comparison Report for the peak periods using the Energizer for CICS Batch Reporting Facility. Refer to Chapter 6, “Batch Reporting Facility” for instructions. The FROMTIME and TOTIME should be the starting and ending times of the peak period in Day 3 (SIMLDATE) and Day 4 (PRODDATE).
6. Compare the results of Day 3, without Energizer for CICS (SIML Mode), and Day 4, with Energizer for CICS (PROD Mode). Use the procedures described in the Interpretation sections of this chapter.
7. For a detailed graphic analysis of the CICS system and Energizer for CICS activities during this test period, use the PC Graphic Analysis Facility application that is distributed as part of Energizer for CICS. The start time and end time should be the starting and ending times of the peak period in Day 3 (SIML Date) and Day 4 (Graph Date). See Chapter 8, “PC Graphic Analysis Facility” for details about using the PC Graphic Analysis. Refer to the subsequent Measuring sections in this chapter for suggestions on analyzing the graphic data.

## Days 5 - 10: Perform a Stability Test

1. Run Energizer for CICS against all workload mixes in all regions.
2. Print the Performance Availability Statistics Report (function AVALSTAT) for the test period to evaluate the availability and stability improvements gained by Energizer for CICS. Refer to Chapter 6 for instructions. The FROMDATE, FROMTIME, TODATE, and TOTIME should be the dates and times of the long-term Energizer for CICS test period, starting with Day 4. Analyze the data using the suggestions contained in the section “Interpreting the CICS Performance Availability Statistics Report” on page 9-16.
3. Evaluate the performance improvements gained by Energizer for CICS by using functions AUTOWORK and WORKSHEET of the Energizer for CICS Batch Reporting Facility to obtain performance comparison reports for the test period.

Use function AUTOWORK to obtain a sample list of pairs of comparable peak workload periods with and without the execution of Energizer for CICS and information about the improvement gained by Energizer for CICS for each pair of periods.

Use function WORKSHEET for an overall comparison of the CICS performance during predefined peak workload hours with and without the execution of Energizer for CICS. “Interpreting the CICS Performance Comparison Worksheet” on page 9-10 lists the various types of comparison periods that can be used and explains how to analyze the results.

4. For comprehensive statistics about this test period, print the Accumulative Statistics Report (function PRINTSTAT) for each of the test days, using all the default values. Refer to Batch Reporting Facility in Chapter 6.
5. If you want more information about what happened and when, print a complete Batch Report (function PRINT) for the particular subjects desired, or review the reports online using the Online Reporting Facility.

## Common Mistakes to Avoid

1. Do not start up Energizer for CICS in PROD Mode before SIML Mode.
2. Do not put Energizer for CICS into a lightly loaded test region and expect to find CPU savings.
3. Focus analyses on *peak periods*. Disregard weekends, holidays, and days of low activity.
4. Do not prepare incomplete analyses. Do not compare only one variable, such as CPU, without looking at the number of transactions processed.
5. Do not include the first interval that Energizer for CICS was active in your measurements because many of the CPU saving services are not yet fully functional.
6. Be sure to exclude Energizer for CICS transactions (PET0 and PERP) from any analysis of average-response-time figures.
7. Do not forget to look at the impact on both the batch activity and TSO performance when Energizer for CICS is managing the CICS system. Use the Batch/TSO Comparison Report.
8. If you are using a CICS monitor to look at CPU time, be sure to take into account that the largest CPU savings do not occur in application CPU usage, but in system time, KCP, TCP, MRO management, and other TCBS, such as VSAM subtasking, DB2, etc. RMF is probably a better choice to measure total savings. The application CPU time may in fact increase with Energizer for CICS if the VSAM Subtask Management function is active and has disabled VSAM subtasking. When VSAM subtasking is disabled, the VSAM CPU is charged to the CICS task, rather than to the VSAM subtask. The actual application CPU is more accurate, but may be larger. However, the total CICS CPU will have decreased.
9. Do not forget to remove CSMI transactions from both response-time and task-number counts.

10. Do not misinterpret response-time statistics. When reviewing response-time numbers, you may see a slight increase with Energizer for CICS. In most cases, if not all, there is *no true* increase, but rather, a more accurate measure of response time. This occurs for the following reasons:
  - A. No monitor can measure the time that tasks wait to get into CICS when CICS is at MAXTASKS or Short-On-Storage. Therefore, if Energizer for CICS reduces MAXTASKS, Short-On-Storage, or sympathetic outages, you have eliminated the previously unmeasured part of response time that was quite substantial (that is, the time from when the user pressed the **Enter** key to the time CICS accepted the transaction). The response time with Energizer for CICS is much more exact and lower than the true response time without Energizer for CICS.
  - B. previously, if the task rate increased significantly (i.e. over 7%), there was considerable work that went unprocessed in the system because CICS could not handle the workload. Prior to Energizer for CICS, the system was not able to process these transactions. In a real sense, these extra transactions had a very long response time. The response time recorded without Energizer for CICS only included the time for work processed and not the time for the work that could not be processed. Again, with Energizer for CICS, the response time is more accurate for your workload.
11. Always look at response time, task rate, and CPU usage for peak periods.
12. Be sure to install and run Energizer for CICS in *all regions*, even if you only want to analyze and report on two regions. True measurement requires all regions to be *energized*. A region can only receive recovered cycles from other regions. Even a lightly used test region could induce problems at critical times for heavily used production regions. Energizer for CICS can trap these occurrences and in many cases prevent serious problems.
13. If you are using a non-IBM data base management system, be sure to run the CICS regions at a higher dispatching priority than the DBMS regions in order to realize the maximum CPU savings.

# Interpreting the CICS Performance Comparison Worksheet

The CICS Performance Comparison Worksheet Report (Figures 9-2, 9-3 and 9-4) provides statistical data on user-defined peak workload periods with and without the execution of Energizer for CICS functions. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both production and simulation modes. It is generated via the Worksheet function of the Batch Reporting Facility. See Chapter 6, “Batch Reporting Facility” for details.

Using the PRODDATE, PRODTDATE, PRODFROMT, PRODTOT, SIMLDATE, SIMLTDATE, SIMLFROMT and SIMLTOT parameters of the function, various types of comparison periods can be defined. For instance:

- A few peak hours of a simulation run can be compared to a few peak hours of a production run from the same day or from another day.
- A period of a few consecutive days (e.g. a week) in one mode can be compared to a period of a few consecutive days in the other mode. Using the time parameters, specific peak times in each period may be defined.
- All the simulation data is compared to all the production data within the same period or partly overlapping period.

**Note:** Be careful to compare periods with similar workloads and transaction mixes. Specify times that represent the real peak workloads. When comparing longer periods, be sure to omit weekends, holidays, and days with low activity.

The Automated CICS Performance Comparison Worksheet generated via the AUTOWORK function of the Batch Reporting Facility automatically identifies and lists sample comparable peak workload periods in which the Energizer for CICS functions were active in both production and simulation modes and generates a Performance Comparison Worksheet for the pair of peak workload periods with the most significant CPU savings.

**Note:** The AUTOWORK function will only take into account days in which the functions were active in the same mode between 8.00 A.M. and 8.00 P.M.

An Index Report (Figure 9-1 on page 9-14) is automatically produced before the Performance Comparison Worksheet. This report lists the exact periods and modes of activity of Energizer for CICS used for the worksheet. The Index Report may be produced independently of the Performance Comparison Worksheet by using function INDEX of the Batch Reporting Facility (See Chapter 6). This report is useful in identifying comparable periods of Energizer for CICS activity to be used as input for the WORKSHEET function.

An abbreviated Accumulative Statistics Report (figures 9-9 and 9-10) containing statistical data from the records that were selected for the worksheet is printed at the end of the report. Refer to “Using the Accumulative Statistics Report to Evaluate Energizer for CICS” on page 9-21.

If multiple regions of CICS are reported by a single execution of the AUTOWORK and WORKSHEET functions of the Batch Reporting Facility, then a Worksheet Summary Report (Figure 9-3 on page 9-16) is also produced, summarizing the combined performance improvement for all the CICS regions reported. The following information should be kept in mind when using these functions to report on multiple regions of CICS:

- Function AUTOWORK uses the data for the MODEL APPLID to identify a pair of comparable peak workload production/simulation periods with the largest CPU savings. This pair of periods is then used to produce the Performance Comparison Worksheet for each of the CICS regions in the input Report Files. It is therefore important to specify as MODEL APPLID the CICS region with the most significant activity in the system, or whose activity and time of peak workload best represent the other CICS regions included on the Report Files.
- The time frame specified as input to function WORKSHEET is used by the function for all of the CICS regions encountered in the input Report Files. This time frame should be the time of peak workload in the heaviest loaded CICS region, or should best represent the other CICS regions included on the Report Files.
- The Worksheet Summary Report uses the data from the Performance Comparison Worksheet produced for each CICS region. It shows therefore the combined performance improvement gained by Energizer for CICS during the time frame used.

The following information will help you interpret the CICS Performance Comparison Worksheet and identify resource savings, increased availability, and improvements in performance with Energizer for CICS actively managing the CICS system.

## Peak-Period CICS Performance Analysis

**CICS CPU:** The AVERAGE CICS CPU and AVERAGE MAXIMUM CICS CPU for the peak period should be lower with Energizer for CICS for comparable workloads. If your CPU has been heavily loaded, you may observe more transactions being processed with the same or less CPU. If your workload is the same or lower, on the PROD day, you will see significantly reduced CPU with the same number of transactions.

**SYSTEM CPU:** Energizer for CICS initially lowers MVS CPU utilization by reducing MAXIMUM SYSTEM CPU and allowing more work to be processed in CICS, Batch, and TSO. However, MVS CPU often increases as more Batch and TSO work is processed. The reason for this increase is based on the reduction in MVS dispatching of both Batch and CICS. This effect can be analyzed using the Batch/TSO Comparison Report.

**Note:** CICS CPU is based on the utilization of one processor in the complex and may exceed 100%. System CPU is CPU utilization of the entire complex. System CPU utilization of over 100% indicates 100% CPU utilization plus the number of users waiting for CPU.

**TRANSACTIONS:** With Energizer for CICS active, more transactions are processed using less CPU. The Mirror Task Management function usually reduces the number of mirror (CSMI) transactions. Therefore, it may appear that less work is being processed relative to the CPU utilized. The NET TRANSACTIONS and NET TRANSACTIONS PER INTERVAL represent a truer comparison between the two periods. The improvement in the number of transactions processed per CICS CPU minute is indicated by the percentage displayed between the PROD and SIML figures.

**AVERAGE CICS CPU PER TRANSACTION:** With Energizer for CICS active, less CPU is utilized for each transaction. This figure may be significantly higher than the CPU-per-task figure reported by your performance monitor. Energizer for CICS counts all CPU, application, monitor, database, VSAM subtasking, and CICS overhead. This figure is a true measure of CPU that CICS uses.

**WAITS PER SECOND:** CICS issues significantly less waits with Energizer for CICS than without it. This difference affects an increase in transaction throughput and reduction in CPU utilization.

**Note:** Users of non-IBM data base management systems that have changed the priority of the DBMS regions to be below that of CICS and users of DB2 might notice an increase in this figure with Energizer for CICS in production mode. This is not a real increase. With the DBMS in a higher dispatching priority than CICS, a significant part of the WAITs issued by CICS is preempted and therefore not counted. The actual WAITS PER SECOND figure with Energizer for CICS in simulation mode is much higher than that reported. With Energizer for CICS in production mode, all waits issued by CICS are handled.

**VSAM SUBTASKING ACTIVATION:** This figure indicates how many times VSAM subtasking was activated during the two periods. Energizer for CICS saves overhead by only allowing the system to off load VSAM I/O activities when needed. This is usually for only a short period during the day.

## Peak-Period CICS Availability Analysis

**SOS/MXT CONDITIONS:** Users with heavily loaded systems who experience SOS and MXT conditions regularly will see a significant reduction in the number of these conditions with Energizer for CICS. In some installations, these conditions may be completely eliminated. The main causes of these conditions (waiting on resource queues and MRO session waits) have been eliminated. As the frequency of these conditions decreases, CPU utilization will also decrease and availability will improve.

**PROGRAM COMPRESSION:** Higher residency times with Energizer for CICS means unused programs are kept in storage longer for possible reuse. As a result, fewer programs are reloaded and unnecessary response-time delays are avoided. The number of not-in-use (NIU) programs increases and the number of program compressions decreases as CICS manages DSA more efficiently. The PROGRAMS DELETED PER INTERVAL figure indicates that Energizer for CICS had to change the CICS storage factor dynamically in order to provide DSA for task requests.



Figure 9-2 Sample CICS Performance Comparison Worksheet

```

OPTISYSTEMS SOLUTIONS LTD.      ENERGIZER/CICSDATE:07/26/99
REPORT P100BTCH REL 4.100      TIME:09:31:19
APPLID : CICS41  4.1 BATCH REPORTING FACILITY PROGRAM
                                WORKSHEET STATISTICSPAGE:    1

                                PERFORMANCE COMPARISON WORKSHEET
                                WITH/WITHOUT Energizer for CICS

CICS NAME:  CICS41 - CICS RELEASE: 4.1 - ENERGIZER RELEASE: 4.100

PEAK PERIOD INFORMATION          PROD DAY          SIML DAY
                                WITH E/C          W/O  E/C

DATE                            07/14/99          07/12/99
DAY OF WEEK                     WEDNESDAY         TUESDAY
START TIME                      10.06.37          10.08.30
END   TIME                      11.56.38          11.58.31
NUMBER OF REPORTING INTERVALS   .....12          .....12
NUMBER OF REPORTING DAYS       .....4            .....4

PEAK PERIOD CICS PERFORMANCE ANALYSIS  PROD PEAK          SIML PEAK

CICS CPU
AVERAGE CICS CPU                45.3                50.5
MAXIMUM CICS CPU                 .....57             .....60
AVERAGE MAXIMUM CICS CPU        55.0                56.4

SYSTEM CPU
AVERAGE SYSTEM CPU              93.1                104.5
MAXIMUM SYSTEM CPU               .....116            .....115
AVERAGE MAXIMUM SYSTEM CPU      110.9               112.6
TOTAL TRANSACTIONS PROCESSED     ...36626            ...33589
CSMI (MIRROR) TRANSACTIONS      .....204            ...2560
NET TRANSACTIONS (TOTAL LESS CSMI) ...36422            ...31029

TOTAL TRANSACTIONS PER INTERVAL  ...3052             ...2799
CSMI TRANSACTIONS PER INTERVAL  .....17             ...213
NET TRANSACTIONS PER INTERVAL    ...3035             ...2586

                                IMPROVEMENT
TRANSACTIONS PER CICS CPU MINUTE  ....674  21.6%  ....553
AVG CICS CPU PER TRANSACTION      0.0148339         0.0180512

AVERAGE WAITS PER SECOND         .....55             .....87
MAXIMUM WAITS PER SECOND          .....60             .....104
MINIMUM WAITS PER SECOND          .....51             .....61

# TIMES VSAM SUBTASKING ACTIVATED .....0                .....0

PEAK PERIOD CICS AVAILABILITY ANALYSIS  PROD PEAK          SIML PEAK

NUMBER OF SOS CONDITIONS          .....0              .....11
NUMBER OF MXT CONDITIONS          .....0              .....32

PROGRAMS LOADED PER INTERVAL      .....5              .....131
PROGRAMS COMPRESSED PER INTERVAL  .....6              .....150
PROGRAMS DELETED PER INTERVAL     .....2              .....0
MAX NOT-IN-USE COUNT (NIU)        .....124            .....113
AVG NOT-IN-USE COUNT (NIU)        .... .110           .....104

ST061 : WORKSHEET REPORT SUCCESSFULLY COMPLETED

```

**Figure 9-3 Sample Worksheet Summary Report**

---

```

OPTISYSTEMS SOLUTIONS LTD.      ENERGIZER/CICSDATE:07/26/99
REPORT P100BTCH REL 4.100      TIME:13:41:41
                                BATCH REPORTING FACILITY PROGRAM
                                WORKSHEET SUMMARY   PAGE:    14

                                ANALYSIS OF PERFORMANCE IMPROVEMENT
                                FOR SPECIFIED CICS(S)

CICS |CICS |ENERGIZER|AVG CICS | NUMBER SOS | NUMBER MXT | TRAN PER CICS
|IMPROV.
|NAME |RELEASE| RELEASE | CPU      | CONDITIONS | ONDITIONS  | CPU MINUTE
|IN CPU
|-----|-----+-----+-----+-----+-----|
PER      |          | PROD   | PROD | SIML | PROD | SIML | PROD | SIML |
TRAN
=====
=====
CICSA  3.3  4.100    6.7%   0    0    1    21   1577  1539
2.4%
CICSN  3.3  4.100   12.8%  0    0    0    7   1176   960
22.4%
CICSP  3.3  4.100   14.8%  0   23    0    0   2112  1782
18.5%
CICST  3.3  4.100   10.1%  0    0   14   478  6286  5668
10.9%

NUMBER OF CICS(S) PROCESSED.....
4

TOTAL IMPROVEMENT (WEIGHTED BY CPU UTILIZATION).....
15.2%

ST081 : WORKSHEET SUMMARY REPORT SUCCESSFULLY COMPLETED
    
```

---

## Interpreting the CICS Performance Availability Statistics Report

The CICS Performance Availability Statistics Report (figures 9-6 and 9-7) summarizes long-term performance availability of the CICS system during execution of Energizer for CICS. It extracts data from the operational and statistical records in the Energizer for CICS Report File that were accumulated during the activation of the Energizer for CICS functions in both production and simulation modes. It is generated via the AVALSTAT function of the Batch Reporting Facility. See Chapter 6 for details.

The following information will help you interpret the CICS Performance Availability Statistics Report to evaluate the long-term savings and benefits achieved by having Energizer for CICS actively managing the CICS system.

## Long Term Availability

**SOS/MXT CONDITIONS:** Users with heavily loaded systems who experienced regular short-on-storage (SOS) and Maxtasks (MXT) conditions in the past, will see a significant reduction in the number of these conditions. In some installations, these conditions may be completely eliminated. Most of the problems causing SOS and MXT have been eliminated. As the frequency of these conditions decrease, CPU utilization also decreases. Response time and system availability may significantly improve.

## Maxtasks Management

**MXT VALUE:** By raising the MXT value above the original number, as needed, Energizer for CICS can save the system from potential MXT lockouts. By lowering the MXT conditions, Energizer for CICS matched the workload to available storage and CPU. The MIN TIMES MXT CONDITION AVOIDED is a minimum number. There is no way for Energizer for CICS to know how many more times MXT would have occurred if the MXT value was not changed.

## Storage Management

**DSALIMIT/EDSALIMIT VALUE:** By adjusting the minimum and maximum DSALIMIT and EDSALIMIT values, as needed, Energizer for CICS reduces the number of SOS and MXT conditions significantly, increases transaction throughput, and improves system availability and response time.

## Task Time-Out Management

**NUMBER OF (ACTIVE/SUSPENDED) TASKS PURGED:** Energizer for CICS cancels tasks that exceeded their maximum allowable duration. As a result system resources are released, and unnecessary transaction processing and potential MXT conditions are prevented.

## Transaction Class Management

**TIMES MAXACTIVE/PURGETHRESH INCREASED:** By increasing the MAXACTIVE and/or PURGETHRESH limits of a transaction class, as needed, Energizer for CICS increases transaction throughput and improves response time.

**TIMES MAXACTIVE/PURGETHRESH DECREASED:** By decreasing the MAXACTIVE and/or PURGETHRESH limits of a transaction class, as needed, Energizer for CICS prevents the over commitment of CPU and/or dynamic storage and, reduces the number of SOS and MXT conditions significantly.

## **Temporary Storage/Transient Data Queue Management**

**STRINGS/BUFFERS ADDED:** Energizer for CICS adds strings and buffers, as needed, to prevent performance degradation, SOS and MXT conditions. Both transaction throughput and system availability are thereby increased.

**TASKS ABENDED:** Energizer for CICS cancels tasks that exceed the maximum number allowed to wait for temporary storage/ transient data resources. This saves the system from a severe MXT or SOS condition that may not have been recoverable.

## **VSAM Queue Management**

**STRINGS ADDED:** Energizer for CICS adds file strings to overcome a CICS resource shortage and improve transaction throughput.

**TASKS ABENDED:** Energizer for CICS cancels tasks that exceeds the maximum number allowed to wait for file strings and LSR strings and buffers. This saves the system from a CICS deadlock condition.

## **MRO/ISC Queue Management**

**MRO QUEUE ABENDS:** Energizer for CICS terminates tasks that exceed the maximum number allowed to wait for remote sessions. MXT or SOS conditions are thereby avoided. Energizer for CICS probably prevented a sympathetic outage.

**Figure 9-4 Sample CICS Performance Availability Statistics Report**


---

```

OPTISYSTEMS SOLUTIONS LTD.      ENERGIZER/CICSDATE:08/11/99
REPORT P100BTCH REL 4.100      TIME:14:53:19
APPLID : CICS41 4.1  BATCH REPORTING FACILITY PROGRAM
AVAILABILITY STATISTICSPAGE:    1

          CICS AVAILABILITY STATISTICS. APPLID: CICS41 4.1

LONG TERM TEST INFORMATION                DATE          TIME
TEST START DATE AND TIME                06/07/99      10.14.22
TEST END DATE AND TIME                  06/11/99      15.42.31

STRESS STATISTICS                        PROD          SIML
NUMBER OF SOS CONDITIONS                .....0      .....0
NUMBER OF MXT CONDITIONS                .....0      .....2

LONG TERM AVAILABILITY ANALYSIS          PROD

MAXTASKS MANAGEMENT

MAXIMUM MXT VALUE                      .....122
MINIMUM MXT VALUE                      .....173
MIN TIMES MXT CONDITION AVOIDED        .....11

STORAGE MANAGEMENT

MAXIMUM DSALIMIT VALUE                  ...5888K
MINIMUM DSALIMIT VALUE                  ...5120K
MAXIMUM EDSALIMIT VALUE                 ....27M
MINIMUM EDSALIMIT VALUE                 ....20M

TASK TIME-OUT MANAGEMENT

NUMBER OF TASKS PURGED                  .....11

TRANSACTION CLASS MANAGEMENT

NUMBER OF TIMES MAXACTIVE INCREASED    .....0
NUMBER OF TIMES MAXACTIVE DECREASED    .....2
NUMBER OF TIMES PURGETHRESH INCREASED  .....0
NUMBER OF TIMES PURGETHRESH DECREASED  .....0
NUMBER OF TRANSACTION CLASSES HANDLED  .....1

TEMPORARY STORAGE/TRANSIENT DATA

NUMBER OF STRINGS/BUFFERS ADDED         .....0
NUMBER OF TASKS ABENDED                 .....0

VSAM QUEUE MANAGEMENT

NUMBER OF VSAM FILE STRINGS ADDED      .....3
NUMBER OF TASKS ABENDED                 .....2

MRO/ISC QUEUE MANAGEMENT

NUMBER OF MRO QUEUE ABENDS             .....2

PE580 : NUMBER OF RECORDS READ          42
PE581 : NUMBER OF SLOTS SELECTED        253
PE582 : NUMBER OF APPLIDS SELECTED      1
PE562 : FUNCTION SUCCESSFULLY COMPLETED

```

---

# Interpreting the Batch/TSO Comparison Report

The Energizer for CICS Batch/TSO Comparison Report (Figure 9-5 on page 9-21) provides statistical information about the performance of the Batch and TSO systems during peak workload periods with and without the execution of Energizer for CICS. It extracts data for both periods from the SMF Dump and performs the comparison via the Energizer for CICS SMF Reporting Program, P100SMFX.

The following information will help you interpret the Batch/TSO Comparison Report to evaluate the benefits to the MVS system while Energizer for CICS is actively managing the CICS system.

## JOB Activity Comparison Report

**NUMBER OF BATCH JOBS:** The total number of batch jobs during a peak workload period will be increased with Energizer for CICS actively managing the CICS system and reducing CPU utilization.

**CPU TIME:** The CPU time per batch job is variable and depends on the job mix. With identical job mixes, the CPU per job will be lower because of the decrease in dispatching.

**JOB QUEUE TIME:** Both the total and average amount of time that batch jobs wait in the queue to be executed will be reduced during the interval. Note that jobs on hold can cause significant deviations in queue time. In general, these numbers should be significantly reduced with Energizer for CICS.

## TSO Activity Comparison Report

**TSO TRANSACTIONS/RESPONSE TIME:** The total number of TSO transactions during a peak workload period will be increased, while the average response time for each transaction may decrease. However, the variability of workload could influence results. Try to match comparable days.

**Figure 9-5 Sample Batch/TSO Comparison Report**


---

```

OPTISYSTEMS SOLUTIONS LTD.    ENERGIZER/CICS    DATE : 06/28/99
REPORT P100SMFX REL 4.100    TIME : 17:03:02
                                SMF DUMP EXTRACTION PROGRAM
                                PAGE :          3

JOB ACTIVITY COMPARISON REPORT

I N T E R V A L                WITHOUT ENERGIZER/CICS    WITH ENERGIZER/CICS
-----
10:00 -> 17:00                DATE 06/15/99            DATE 06/16/99

NUMBER OF BATCH JOBS                460                    562
AVERAGE CPU TIME / JOB            0:00:05                0:00:01
TOTAL CPU TIME                    0:38:09                0:13:08
JOB QUEUE TIME                    0:33:20                0:31:11
AVG WAIT TIME BEFORE RUN          0:00:04                0:00:03

PE1152: ENERGIZER/CICS INCREASED TOTAL BATCH THROUGHPUT
-----

TOTAL SYSTEM SUPPORT, LTD.    ENERGIZER/CICS    DATE : 06/28/99
REPORT P100SMFX REL 4.100    TIME : 17:03:02
                                SMF DUMP EXTRACTION PROGRAM
                                PAGE :          4

TSO ACTIVITY COMPARISON REPORT

I N T E R V A L                WITHOUT ENERGIZER/CICS    WITH ENERGIZER/CICS
-----
10:00 -> 17:00                DATE 06/15/99            DATE 06/16/99

NUM. OF TSO TRANSACTIONS          23,420                30,607
AVERAGE RESPONSE TIME            0.95                  0.64

PE1154: ENERGIZER/CICS MAXIMIZED TSO THROUGHPUT
PE1155: ENERGIZER/CICS MINIMIZED TSO RESPONSE TIME

```

---

## Using the Accumulative Statistics Report to Evaluate Energizer for CICS

The Energizer for CICS Batch Reporting Facility provides hardcopy information about the activities and operations that Energizer for CICS executed in order to enhance the CICS performance. The PRINTSTAT function of the facility generates the Accumulative Statistics Report (figures 9-9 and 9-10) for the relevant CICS region and evaluation period. See Chapter 6, “Batch Reporting Facility” for details.

The following information will help you interpret the Accumulative Statistics Report and identify any improvements in CICS stability, avoid lockouts and outages, and improve transaction throughput.

Refer to the *Energizer for CICS Messages and Codes Guide* for a complete list and description of the statistical messages (STxxx) found in the Accumulative Statistics Report.

## **Program Compression Management (Messages ST001 - ST008)**

Message ST003 indicates how many times Energizer for CICS replaced the static CICS storage usage target to dynamically match availability for maximum throughput.

## **Maxtasks Management (Messages ST023 - ST025)**

If Energizer for CICS raised the MXT value (ST023) and made it larger than the original number, Energizer for CICS has saved the system from a MAXTASKS condition.

If Energizer for CICS lowered the MXT value (ST024) to a number less than the original number, Energizer for CICS detected that the original MXT number was too high in relation to storage or CPU availability.

If the system has suffered from an occasional or recurring MAXTASKS problem, use your CICS or performance monitor statistics to compare the number of occurrences of MAXTASKS in a week, with and without Energizer for CICS.

## **Temporary Storage & Transient Data Queue Management (Messages ST029 - ST034)**

If Energizer for CICS added strings or buffers (ST029, ST030, ST032 & ST033), then Energizer for CICS improved the transaction throughput. If these messages appeared more than twice, Energizer for CICS probably saved the system from severe degradation, MAXTASKS, or Short-On-Storage.

If Energizer for CICS abended tasks (ST031 & ST034), then Energizer for CICS saved the system from a severe MAXTASKS or Short-On-Storage condition which may not have been recoverable. If this has occurred, you should carefully examine all the CICS parameter definitions to understand why it happened.

## **Trace Management (Messages ST035 - ST042)**

Messages ST035-ST042 indicate how many times Energizer for CICS turned off part of the CICS Trace Facility Options in order to give the system extra CPU for a temporary peak demand in CPU.

## **VSAM Subtask Management (Messages ST043 - ST048)**

Messages ST043 - ST048 indicate how often the system needed to off load VSAM I/O activities to the VSAM Subtask. You may note that the system needed VSAM subtasking only for a short time during the day. Energizer for CICS lets CICS save the overhead by only activating the subtask when it is needed.

## **Dispatch Management (Messages ST049 - ST051)**

Use messages ST049, ST050, and ST051 to compare the MVS Wait Rate with Energizer for CICS in PROD mode versus SIML mode. You will note much lower wait rates in PROD mode. This is how Energizer for CICS provides CPU savings. If the report covers an extended period, the average may include inactive times. It is best to print these statistics for a peak period (e.g. 4 hours) with Energizer for CICS in SIML mode on one day and in PROD mode during the same peak period on another day. Use the PRINTSTAT parameters FROMDATE, FROMTIME, TODATE, TOTIME.

## **MRO Mirror Task Management (Messages ST052–ST057)**

Messages ST055, ST056, and ST057 indicate the average, maximum and minimum number, respectively, of mirror tasks changed by Energizer for CICS from short to long running. This service reduces CPU overhead and improves transaction throughput and response times.

## **VSAM Queue Management (Message ST058)**

Message ST058 indicates how many times Energizer for CICS added file strings (and buffers for NSR files) or abended tasks to overcome a VSAM resource shortage. Throughput was improved. If more than two files had such messages, or if more than two tasks were abended, Energizer for CICS probably saved the CICS from a deadlock condition.

## **MRO/ISC Queue Management (Message ST059)**

If messages ST059 appears on the report, Energizer for CICS may have avoided a MAXTASKS or Short-On-Storage condition. If the number of tasks abended is more than two, Energizer for CICS probably prevented a sympathetic outage: a loss of one CICS system caused by a problem in a connected CICS system.

## **Storage Management (Messages ST066 - ST068)**

These messages indicate how Energizer for CICS has adjusted the DSALIMIT and EDSALIMIT values of CICS to match the size of the available dynamic storage to the transaction workload, thereby preventing Short-On-Storage and MAXTASKS conditions and improving transaction throughput and response times.

## **Task Time-Out Management (Message ST071)**

Messages ST071 indicates how many tasks that have exceeded their allowable duration were canceled by Energizer for CICS, thereby releasing system resources and preventing unnecessary transaction processing and potential MXT conditions.

## **Transaction Class Management (Messages ST072 - ST075)**

These messages indicate how Energizer for CICS has adjusted the MAXACTIVE and PURGETHRESH limits of the listed transaction classes to match the transaction workload to available CPU and dynamic storage. Short-On-Storage and MAXTASKS conditions were prevented and transaction throughput and response times were improved.

**Figure 9-6 Sample Accumulative Statistics Report**


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```

OPTISYSTEMS SOLUTIONS LTD.          ENERGIZER/CICSDATE:07/28/99
REPORT P100BTCH REL 4.100          TIME:11:39:42
APPLID : CICS41      4.1  BATCH REPORTING FACILITY PROGRAM
                        ACCUMULATIVE  STATISTICS PAGE:      9

ST021 : STARTED   : DATE   07/07/99 TIME  13.29.07
ST022 : ENDED    : DATE   07/26/99 TIME  17.10.53

ST066 : STORAGE  : MAXIMUM  DSALIMIT VALUE..5888K <07/22/99 17.08.19>
ST067 : STORAGE  : MINIMUM  DSALIMIT VALUE..5120K <                >
ST068 : STORAGE  : # TIMES  DSALIMIT CHANG..00006
ST066 : STORAGE  : MAXIMUM  EDSALIMIT VALUE...27M <07/22/99 17.10.18>
ST067 : STORAGE  : MINIMUM  EDSALIMIT VALUE...20M <                >
ST068 : STORAGE  : # TIMES  EDSALIMIT CHANG..00007

ST071 : TASKTIME : NUMBER OF TASKS PURGED.0000034

ST072 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE INCREASE.....00000
ST073 : TRNCLASS : CLASS DFHTCL01: MAXACTIVE DECREASE.....00002
ST074 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH INCREASE.....00000
ST075 : TRNCLASS : CLASS DFHTCL01: PURGETHRESH DECREASE.....00000

ST058 : VSAMQ    : FILE  PEPARMS : STR ADD...0000  TASK ABENDS..0001
ST058 : VSAMQ    : FILE  CNSL0001: STR ADD...0003  TASK ABENDS..0014

ST043 : SUBTASK  : TRANSITIONS TO "NO SUBT"..0013
ST044 : SUBTASK  : TRANSITIONS TO "PUT" LVL..0000
ST045 : SUBTASK  : TRANSITIONS TO "GET" LVL..0000
ST048 : SUBTASK  : TOTAL TRANSITIONS.....00013
ST047 : SUBTASK  : MAXIMUM LEVEL SET.....2 <07/07/99 13.29.07>

ST049 : DISPATCH : AVG NUM MVS WAITS/SEC....00002
ST050 : DISPATCH : MAX NUM MVS WAITS/SEC....00003 <07/14/99 12.41.29>
ST051 : DISPATCH : MIN NUM MVS WAITS/SEC....00002 <07/13/99 16.33.43>

ST001 : PROGCOMP : MAX STORAGE FACTOR PERCENT..85 <07/21/99 17.10.34>
ST002 : PROGCOMP : MIN STORAGE FACTOR PERCENT..50 <                >
ST003 : PROGCOMP : NUM TIMES FACTOR CHANGED.00080
ST004 : PROGCOMP : TOTAL NUM PROGRAMS COMP.000048
ST005 : PROGCOMP : CDSA : AVG BYTES COMP...00005 (KBYTES)
ST005 : PROGCOMP : ECDSA : AVG BYTES COMP...00002 (KBYTES)
ST005 : PROGCOMP : SDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ESDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : RDSA : AVG BYTES COMP...00000 (KBYTES)
ST005 : PROGCOMP : ERDSA : AVG BYTES COMP...00002 (KBYTES)

PE580 : NUMBER OF RECORDS READ          5824
PE581 : NUMBER OF SLOTS SELECTED       33431
PE582 : NUMBER OF APPLIDS SELECTED     1
PE562 : FUNCTION SUCCESSFULLY COMPLETED

```

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## Measuring CPU Savings

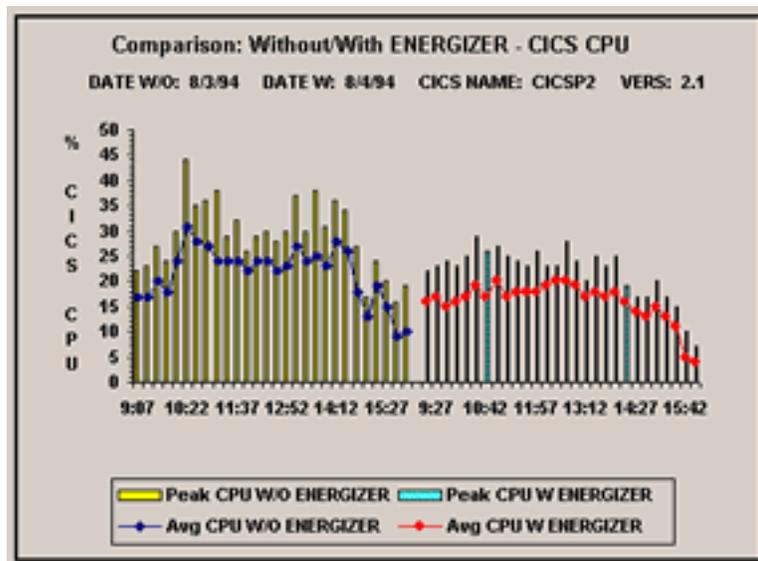
It is easy to measure CPU savings produced by Energizer for CICS. The CICS Performance Comparison Worksheet, Batch/TSO Comparison Report, PC Graphic Analysis Facility, and the SAS/GRAPH and SAS batch reports supplied with Energizer for CICS provide means for analyzing these savings. Additionally, any CICS performance monitor can be used.

Any active CICS system in its peak four-hour period is a prime candidate for measuring the savings results of Energizer for CICS. Use data for two comparable days with the Dispatch Management, MRO Dispatch Management, and MRO Mirror Task Management functions activated in PROD mode and in SIML mode. Do not attempt to measure test systems or systems with low utilization. The Dispatch Management and MRO Dispatch Management functions only manage CICS systems when CPU utilization is above 10%.

**Note:** It is important to remember that up to one full reporting interval is needed for all functions to become fully activated. Do not measure Energizer for CICS during this time frame.

The CICS CPU Performance Comparison graph produced by the PC Graphic Analysis Facility compares CICS performance on two similar workload days (the first day with only the Dispatch Management function reporting data while running in Simulation Mode and the next day with all the Energizer for CICS functions running in Production Mode). As represented on the graph, the CPU utilized by CICS with Energizer for CICS was reduced by 10% to 30%, for an average 18% savings. It is important to note that the greatest savings came at peak times.

**Figure 9-7 CICS CPU Performance Comparison Graph**

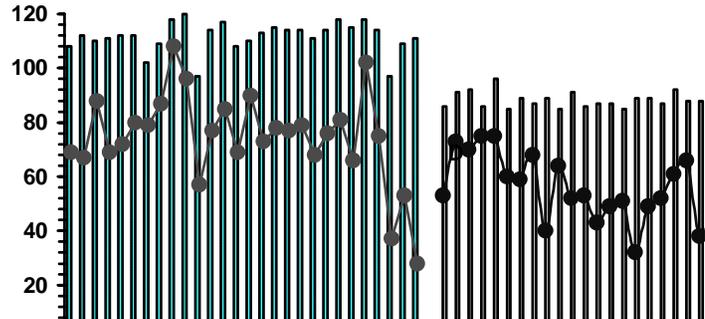


The CICS Performance Comparison Worksheet measures CICS and MVS CPU savings by comparing the average and maximum CPU utilization for similar peak workload periods. Energizer for CICS affects total CPU utilization (Figure 9-8 on page 9-27) by reducing CPU peaks and allowing more work to be processed in CICS, TSO, and Batch. Review the Batch/TSO Comparison Report for the same period.

Figure 9-8 Total CPU Performance Comparison Graph

Comparison: Without/With ENERGIZER - MVS CPU

DATE W/O: 8/3/94 DATE W: 8/4/94 CICS NAME: CICSP2



An additional way to measure the CPU savings produced by the Dispatch Management and MRO Dispatch Management functions is to look at the savings in CICS CPU per task. This is shown by AVG CICS CPU PER TRANSACTION on the Performance Comparison Worksheet and by the number of CPU milliseconds per task on the CPU/Task Comparison graph. Compare the results with and without Energizer for CICS.

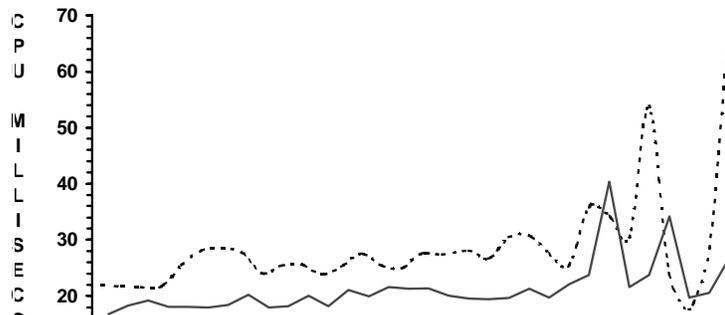
**Note:** Remember that variations in transaction activity can easily affect the comparison.

Figure 9-9 CPU/Task Performance Comparison Graph

Comparison: Without/With ENERGIZER - CPU Seconds/Task

DATE W/O: 8/8/94 DATE W: 8/9/94 CICS NAME: CICSP2 VERS: 2

Avg CPU - W/O: 32.6214 W: 26.3592



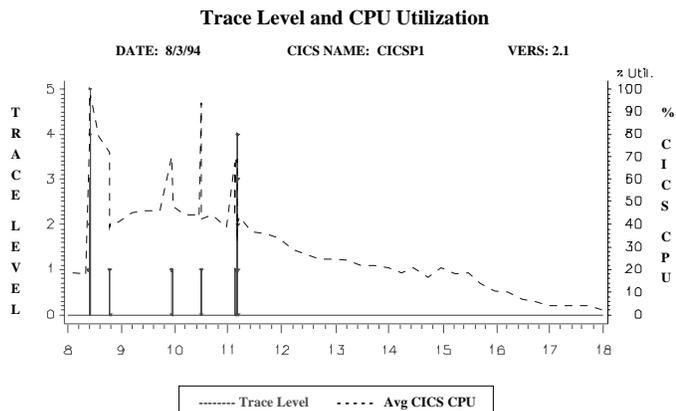
Additional savings can be measured in MRO systems with the MRO Mirror Task Management function activated. A typical CICS 2.1 application owning region will see approximately a 35% reduction in the number of mirror tasks. For CICS 3.X, the reduction will be smaller. Because each mirror task will be doing more work, the CPU time of each mirror is not comparable. However, the total CPU utilization used by CICS will be reduced by the cost of starting and terminating 35% of the original mirror tasks.

**Note:** The aim of the MRO Mirror Task Management function is to greatly reduce the number of mirror tasks. When measuring system overhead in an application owning region with the MRO Mirror Task Management function active, it may appear that less work is being processed relative to the CPU used.

For systems that suffer from numerous MAXTASKS, AMAXTASKS (CICS 2.1 and 3.X), MAXACTIVE (CICS 4.1 and above), Short-On-Storage conditions, or program compressions, additional CPU savings can be realized with the use of the appropriate Energizer for CICS functions.

The Energizer for CICS Trace Management graph represents the level of CICS Trace subfunctions that were disabled during a peak demand period and the associated CPU utilization. Energizer for CICS turns off CICS Trace options to reduce peak CPU demands, avoid MAXTASKS lockouts, and reduce response-time problems. Note the almost immediate impact on CPU utilization that occurs when Energizer for CICS manages the trace levels.

**Figure 9-10** Trace Management Graph



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## Analyzing Storage Management

The Program Compression Management graphs and the CICS Performance Comparison Worksheet figures will show how much virtual storage was reclaimed by Energizer for CICS during a peak demand period and the resulting DSA utilization. The DSA savings were achieved without any unnecessary response-time delays or Short-On-Storage conditions.

## Measuring the Effects on Bottlenecks for MRO Users

Today, MRO users running multiple regions of interconnected CICS regions suffer greatly from sympathetic outages—problems in one CICS region that spread to other CICS regions. All MRO users have probably experienced a temporary problem in one application owning region that caused an interconnected terminal owning region to reach MAXTASKS or a short-on-storage condition. With Energizer for CICS installed, problems in one interconnected CICS are isolated. The attached CICS regions will, in most instances, if not all, continue to function unaffected.

The actions taken by Energizer for CICS to ensure that problems do not spread between CICS systems are best illustrated by the data recorded in the Energizer for CICS Report File. Elimination of bottlenecks is best illustrated in an exception report, produced by selecting only exception action messages (MSG TYPE = EXC) in the Online Reporting Facility and the Batch Reporting Facility.

Energizer for CICS continually monitors the number of tasks waiting in queues for resources. When it detects that a queue has exceeded the user-defined maximum, it begins to cancel the excessive waiting tasks. However, this process is often not sufficient to enable CICS to continue operating efficiently. Usually, new tasks arrive faster than they can be canceled. If this situation occurs, Energizer for CICS also begins to raise both the MAXTASKS and AMAXTASKS (CICS 2.1 and 3.X) or Transaction Class MAXACTIVE (CICS 4.1 and above) values to allow other unrelated tasks to be processed normally while the appropriate waiting tasks are canceled. Energizer for CICS always continues to ensure that real storage and virtual storage are not over committed.

Finally, when the attached CICS region begins to process normally, it will experience heavy demand because all the users will resubmit transactions that had previously been rejected. Again, Energizer for CICS assists this CICS region by constantly adjusting MAXTASKS, AMAXTASKS (CICS 2.1 and 3.X), and Transaction Class MAXACTIVE (CICS 4.1 and later) values to allow maximum throughput that is consistent with DSA, CPU, and real storage availability.

In most cases, this backlog of transactions results in a peak demand for CPU resources. Energizer for CICS tries to meet this demand by adjusting CICS Trace and VSAM subtasking accordingly. As the peak period passes, the relevant CICS system parameters are restored to normal values.

It is both informative and educational to review the batch reports of all CICS regions to watch how all of the components of Energizer for CICS interact to provide maximum availability, minimum disruption, and maximum throughput at these critical times. Both the Accumulative Statistics Report (PRINTSTAT) and the CICS Performance Availability Statistics Report (AVALSTAT) summarize the actions taken by Energizer for CICS to avoid bottlenecks. Additionally, the graphs for the Maxtasks Management function, the Storage Management function, and the MRO/ISC Queue Management function, represent graphically the overall picture of what happened.

**Figure 9-11 Maxtasks Management Graph**

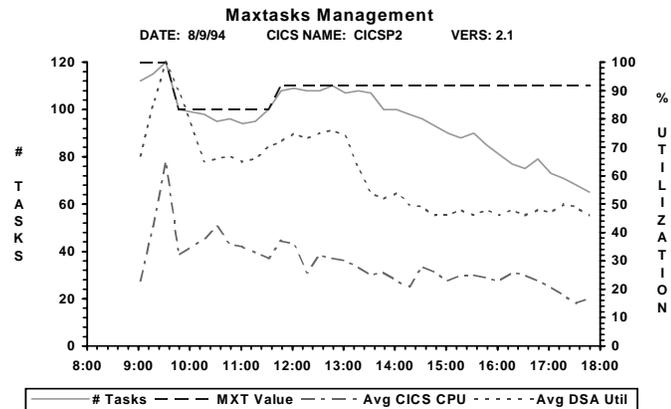
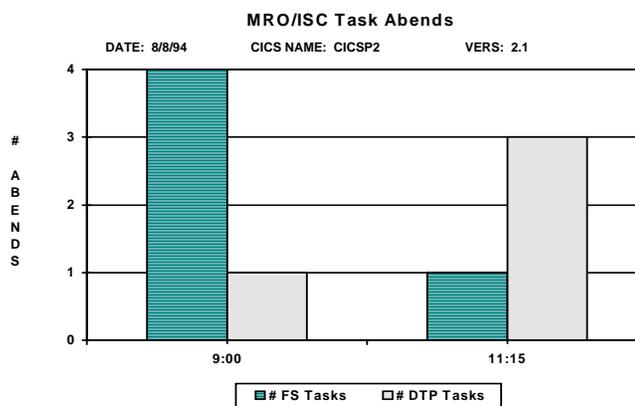


Figure 9-12 MRO/ISC Queue Management Graph



## Measuring the Effects on MXT, AMXT, MAXACT, and SOS

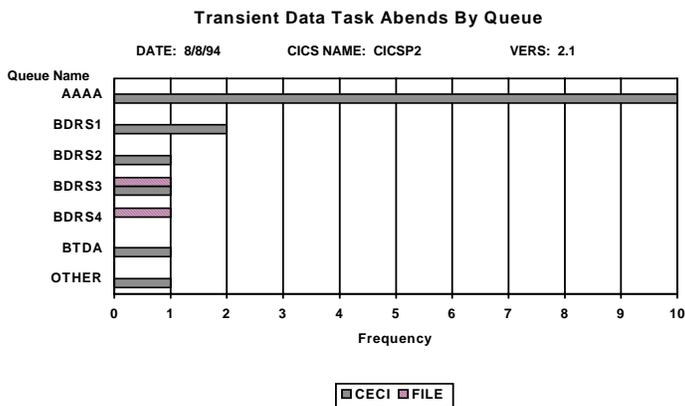
Users who have heavily loaded systems and reach Active Maximum Tasks (AMXT, in CICS 2.1 and 3.X), Maximum Active Tasks (MAXACTIVE) in a transaction class (CICS 4.1 and later), Maximum Tasks (MXT), and short-on-storage (SOS) conditions with some degree of regularity will experience a significant reduction in the frequency and severity of these conditions. In some installations, these conditions will be completely eliminated. Those users who experience these conditions will find that most of the causes of the problem, such as waiting on several resource queues and MRO session waits, have been eliminated. Energizer for CICS will ensure that these conditions occur only when there are truly no more resources to handle additional tasks.

The user who experiences an unexpected peak, such as during a system restart, will now be protected from the devastating effect that short-on-storage, MXT, AMXT or MAXACTIVE conditions can cause. The net result for all users will be significantly improved availability and CPU usage.

These performance improvements are easily measurable with the Performance Availability Statistics Report or any performance monitor. As the frequency of these events decreases, the associated CPU utilization will also decrease and response time may be significantly better. Availability will also improve as systems need not be restarted.

Additionally, the Energizer for CICS graphs will confirm these results. The VSAM Queue Management graph, Temporary Storage Queue Management graph, Transient Data Queue Management graph, and Transaction Class Management graph (CICS 4.1 and later) can be reviewed for how Energizer for CICS handled these problems.

**Figure 9-13 Transient Data Queue Management Graph**



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# Appendix A Sample Member Names

This appendix contains the names of the members in the sample library.

**Table A-1 Sample Member Names**

<b>Name</b>	<b>Description</b>
ECSCJCLS	Copy book containing the CICS JCL statements
ECSCPLTI	Copy book containing the CICS PLTPI entry
ECSCPLTS	Copy book containing the CICS PLTSD entry
ECSJEGPH	JCL to create an extracted graph file
ECSJGDFN	JCL to define the ENERCICS group in the CICS CSD
ECSJRAPC	JCL to produce the Automated Performance Comparison Worksheet report
ECSJRASI	JCL to produce the Accumulative Statistics / Index report
ECSJRASM	JCL to start the Reporting Address Space
ECSJRCPA	JCL to produce the CICS Performance Availability report
ECSJRPCI	JCL to produce multiple Performance Comparison Worksheet reports for two-hour intervals throughout the day
ECSJRPCS	JCL to produce the Performance Comparison Worksheet report
ECSJRSBT	JCL to produce the SMF Batch / TSO Comparison report for SMF type 30 records.
ECSJRSCA	JCL to produce the SMF CICS Analysis report
ECSJSIRP	JCL to invoke the P100SIRP utility
ECSJVBKP	JCL to create a backup copy of VSAM report file
ECSJVDFN	JCL to define a VSAM report file
ECSJVFTP	JCL to place a VSAM report file on the FTP server
ECSJVMRG	JCL to merge multiple VSAM report files
ECSPGRV	Procedure to receive an extracted graph file at your workstation
ECSPISPF	Procedure to invoke the ISPF user interface
ECSPRASM	Procedure to start the Reporting Address Space

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# Appendix B Summary of Installation Steps

This appendix contains checklists that summarize the steps required to install the product.

- If you are installing the product into a new SMP/E environment, review Table B-1.
- If you are installing the product into an existing SMP/E environment creating new target and distribution zones, review Table B-2 on page B-3.
- If you are installing the product into an existing SMP/E environment using new target and distribution zones, Table B-3 on page B-3.

**Table B-1 Steps When Installing into a New SMP/E Environment (Part 1 of 2)**

Status	Element	Description
	Create JCL	Unload the BBAAA20.F1 file from the install tape This builds the JCL library containing the other elements.
	\$\$A00INF	Read the recent information about the BMC Software products.
	\$\$A10GBL	Create the new global zone CSI data set.
	\$\$A20CSI	Create the new target and distribution zones.
	\$\$A30SMP	Allocate the non-VSAM SMP/E data sets.
	#@PROCE'	Edit the SMP/E JCL procedure BBSMPE and place it into your procedure library.
	\$\$A40REL	Relate the target and distribution zones to the global zone.
	#\$A10RCP	Execute the RECEIVE command to unload the product components.
	#\$A20RCS	Execute the RECEIVE command to unload the cumulative maintenance.
	#\$AALLOC	Allocate the Energizer for CICS product data sets. Remove BBPROF, BBCMOD, ABBPROF, and ABBCMOD.

---

**Table B-1 Steps When Installing into a New SMP/E Environment (Part 2 of 2)**

	#A50DEF	Define the Energizer for CICS product data sets to SMP/E. Copy '#@ADDDEF' to the SMPCTL input. Remove BBPROF, BBCMOD, ABBPROF, and ABBCMOD.
	#@EFSET'	Define the Energizer for CICS FMIDSET entry.
	#A60APL	Execute the APPLY command to build the target libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the APPLY CHECK option. Remove the CHECK option and run again to build the libraries.
	#A70ACT	Execute the ACCEPT command to build the distribution libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the ACCEPT CHECK option. Remove the CHECK option and run again to build the libraries.

**Table B-2 Installing into an Existing SMP/E Environment Using Existing Target and Distribution Zones**

Status	Element	Description
	Create JCL	Unload the BBAAA20.F1 file the install tape. This builds the JCL library containing the other elements.
	\$\$A00INF	Read the recent information about the BMC Software products.
	N/A	Verify the DSSPACE parameter in the global zone.
	#\$A10RCP	Execute the RECEIVE command to unload the product components.
	#\$A12LST	List functions that were previously applied.
	#A14REJ	Reject functions that were received and are duplicates.
	#\$A20RCS	Execute the RECEIVE command to unload the cumulative maintenance.
	'#@EFSET'	Define the Energizer for CICS FMIDSET entry.
	#\$A60APL	Execute the APPLY command to build the target libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the APPLY CHECK option. Remove the CHECK option and run again to build the libraries.
	#\$A70ACT	Execute the ACCEPT command to build the distribution libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the ACCEPT CHECK option. Remove the CHECK option and run again to build the libraries.

**Table B-3 Installing into an Existing SMP/E Environment Using New Target and Distribution Zones (Part 1 of 2)**

Status	Element	Description
	Create JCL	Unload the BBAAA20.F1 file from the install tape This builds the JCL library containing the other elements.
	\$\$A00INF	Read the recent information about the BMC Software products.
	N/A	Verify the DSSPACE parameter in the global zone.
	\$\$A20CSI	Create the new target and distribution zones.
	\$\$A40REL	Relate the target and distribution zones to the global zone.
	#\$A10RCP	Execute the RECEIVE command to unload the product components.
	#\$A20RCS	Execute the RECEIVE command to unload the cumulative maintenance.

---

**Table B-3      Installing into an Existing SMP/E Environment Using New Target and Distribution Zones  
(Part 2 of 2)**

	#\$AALLOC	Allocate the Energizer for CICS product data sets. Remove BBPROF, BBCMOD, ABBPROF, and ABBCMOD.
	#\$A50DEF	Define the Energizer for CICS product data sets to SMP/E. Copy '#@ADDDEF' to the SMPCTL input. Remove BBPROF, BBCMOD, ABBPROF, and ABBCMOD.
	'#@EFSET'	Define the Energizer for CICS FMIDSET entry.
	#\$A60APL	Execute the APPLY command to build the target libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the APPLY CHECK option. Remove the CHECK option and run again to build the libraries.
	#\$A70ACT	Execute the ACCEPT command to build the distribution libraries. Edit to specify the Energizer for CICS FMIDSET name ECS420. Run the job with the ACCEPT CHECK option. Remove the CHECK option and run again to build the libraries.

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# Appendix C Customization Checklists

This appendix contains checklists that summarize the steps required to customize the product.

- If you are setting up the product for the first time, review Table C-1.
- If you are migrating from Energizer for CICS release 4.1, review Table C-2 on page C-2.
- If you are migrating from a release prior to 4.1, review Table C-3 on page C-3.

**Table C-1 Customizing a New Installation (Part 1 of 2)**

Status	Element	Description
	ECSJVDFN	Allocate the VSAM Parameter data set and the Report data sets.
	ECSJGDFN	Update the CICS CSD with the group ENERCICS.
	ECSCJCLS	Edit the CICS startup JCL for each CICS region. Alter the JCL to reference the Energizer for CICS product data sets.
	N/A	Modify the CICS system initialization parameters. NEWSIT=YES
	N/A	Customize the CLIST for the TSO/E ISPF user interface to invoke the BMC Software license component.
	N/A	Define the Energizer for CICS password to the license component.
	ECSPISPF	Customize the CLIST for the TSO/E ISPF user interface to invoke the Energizer for CICS product.
	N/A	Define the CICS regions to the parameter file.
	N/A	Establish APF Authorization for the BMC Software load library.
	ECSJSIRP	Edit the Dynamic SVC Install JCL that invoke P100SIRP.

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**Table C-1 Customizing a New Installation (Part 2 of 2)**

	ECSPRASM	Customize the Reporting Address Space JCL.
	N/A	Install the SVC and start the reporting address space.
	N/A	Activate the Energizer for CICS functions in each CICS region.

**Table C-2 Migrating from release 4.1**

Status	Element	Description
	N/A	Deactivate the Energizer for CICS functions in each CICS region.
	N/A	Terminate the Reporting Address Space.
	ECSJSIRP	Execute P100SIRP to remove the SVC.
	N/A	Customize the CLIST for the TSO/E ISPF user interface to invoke the BMC Software license component.
	N/A	Define the Energizer for CICS password to the license component.
	ECSPISPF	Customize the CLIST for the TSO/E ISPF user interface to invoke the Energizer for CICS product referencing the newest product libraries.
	N/A	Establish APF Authorization for the BMC Software load library.
	ECSPRASM	Customize the Reporting Address Space JCL to reference the newest product libraries.
	ECSJSIRP	Update the JCL that invokes P100SIRP to reference the newest product libraries.
	N/A	Install the new SVC and start the reporting address space.
	N/A	Activate the Energizer for CICS functions in each CICS region.

**Table C-3 Migrating from Releases Prior to 4.1**

Status	Element	Description
	N/A	Deactivate the Energizer for CICS functions in each CICS region.
	ECSJSIRP	Execute P100SIRP to remove the SVC.
	ECSJGDFN	Delete the current Energizer for CICS group from the CSD. Prior to release 3.7.00 the name is ENERGIZE, otherwise ENERCICS.
	ECSJGDFN	Update the CICS CSD with the group ENERCICS.
	ECSJVDFN	Allocate the new VSAM Report data sets.
	ECSJVMRG	Merge the contents of the existing report files into the new single report file.
	ECSCJCLS	Update the JCL for each CICS region to reference the report file defined to the Reporting Address Space. Update the JCL for each CICS region to reference the new load library.
	N/A	Customize the CLIST for the TSO/E ISPF user interface to invoke the BMC Software license component.
	N/A	Define the Energizer for CICS password to the license component.
	ECSPISPF	Customize the CLIST for the TSO/E ISPF user interface to invoke the Energizer for CICS product referencing the newest product libraries.
	N/A	Establish APF Authorization for the BMC Software load library.
	ECSPRASM	Customize the Reporting Address Space JCL to reference the new libraries.
	ECSJSIRP	Update the JCL that invokes P100SIRP to reference the load library.
	N/A	Install the new SVC and start the reporting address space.
	N/A	Activate the Energizer for CICS functions in each CICS region.

**Note:** The main difference between migrating from release 4.1 and migrating from releases prior to 4.1 is the Reporting Address Space. Prior to release 4.1 there was no Reporting Address Space. Each CICS region had a separate report file allocated to it. When migrating to release 4.2 or above from a release prior to 4.1 you must allocate a new report data set. Optionally, you may merge the previously existing report data sets into the new one.

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# Glossary

This glossary defines BMC Software terminology. Other dictionaries and glossaries may be used in conjunction with this glossary.

Since this glossary pertains to BMC Software-related products, some of the terms defined may not appear in this book.

To help you find the information you need, this glossary uses the following cross-references:

*Contrast with* indicates a term that has a contrary or contradictory meaning.

*See* indicates an entry that is a synonym or contains expanded information.

*See also* indicates an entry that contains related information.

<b>action</b>	Defined operation, such as modifying a MAINVIEW window, that is performed in response to a command. <i>See</i> object.
<b>active window</b>	Any MAINVIEW window in which data can be refreshed. <i>See</i> alternate window, current window, window.
<b>administrative view</b>	Display from which a product's management tasks are performed, such as the DSLIST view for managing historical data sets. <i>See</i> view.
<b>ALT WIN field</b>	Input field that allows you to specify the window identifier for an alternate window where the results of a hyperlink are displayed. <i>See</i> alternate window.
<b>Alternate Access</b>	<i>See</i> MAINVIEW Alternate Access.
<b>alternate form</b>	View requested through the FORM command that changes the format of a previously displayed view to show related information. <i>See also</i> form, query.

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<b>alternate window</b>	(1) Window that is specifically selected to display the results of a hyperlink. (2) Window whose identifier is defined to the ALT WIN field. <i>Contrast with</i> current window. <i>See</i> active window, window, ALT WIN field.
<b>analyzer</b>	(1) Online display that presents a snapshot of status and activity data and indicates problem areas. (2) Component of CMF MONITOR. <i>See</i> CMF MONITOR Analyzer.
<b>application</b>	(1) Program that performs a specific set of tasks within a MAINVIEW product. (2) In MAINVIEW VistaPoint, combination of workloads to enable display of their transaction performance data in a single view.
<b>application trace</b>	<i>See</i> trace.
<b>ASCH workload</b>	Workload comprising Advanced Program-to-Program Communication (APPC) address spaces.
<b>AutoCustomization</b>	Online facility for customizing the installation of products. AutoCustomization provides an ISPF panel interface that both presents customization steps in sequence and provides current status information about the progress of the installation.
<b>automatic screen update</b>	Usage mode wherein the currently displayed screen is refreshed automatically with new data at an interval you specify. Invoked by the ASU command.
<b>batch workload</b>	Workload consisting of address spaces running batch jobs.
<b>BBI</b>	Basic architecture that distributes work between workstations and multiple OS/390 targets for BMC Software MAINVIEW products.
<b>BBI-SS PAS</b>	<i>See</i> BBI subsystem product address space.
<b>BBI subsystem product address space (BBI-SS PAS)</b>	OS/390 subsystem address space that manages communication between local and remote systems and that contains one or more of the following products: <ul style="list-style-type: none"> <li>• MAINVIEW AutoOPERATOR</li> <li>• MAINVIEW for CICS</li> <li>• MAINVIEW for DB2</li> <li>• MAINVIEW for DBCTL</li> <li>• MAINVIEW for IMS Online</li> <li>• MAINVIEW for MQSeries (formerly Command MQ for S/390)</li> <li>• MAINVIEW for VTAM</li> <li>• MAINVIEW VistaPoint (for CICS, DB2, DBCTL, and IMS workloads)</li> </ul>
<b>BBPARM</b>	<i>See</i> parameter library.

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<b>BBPROC</b>	<i>See</i> procedure library.
<b>BBPROF</b>	<i>See</i> profile library.
<b>BBSAMP</b>	<i>See</i> sample library.
<b>BBV</b>	<i>See</i> MAINVIEW Alternate Access.
<b>BBXS</b>	BMC Software Subsystem Services. Common set of service routines loaded into common storage and used by several BMC Software MAINVIEW products.
<b>border</b>	Visual indication of the boundaries of a window.
<b>bottleneck analysis</b>	Process of determining which resources have insufficient capacity to provide acceptable service levels and that therefore can cause performance problems.
<b>CA-Disk</b>	Data management system by Computer Associates that replaced the DMS product.
<b>CAS</b>	Coordinating address space. One of the address spaces used by the MAINVIEW windows environment architecture. The CAS supplies common services and enables communication between linked systems. Each OS/390 image requires a separate CAS. Cross-system communication is established through the CAS using VTAM and XCF communication links.
<b>CFMON</b>	<i>See</i> coupling facility monitoring.
<b>chart</b>	Display format for graphical data. <i>See also</i> graph.
<b>CICSplex</b>	User-defined set of one or more CICS systems that are controlled and managed as a single functional entity.
<b>CMF MONITOR</b>	Comprehensive Management Facility MONITOR. Product that measures and reports on all critical system resources, such as CPU, channel, and device usage; memory, paging, and swapping activity; and workload performance.
<b>CMF MONITOR Analyzer</b>	Batch component of CMF MONITOR that reads the SMF user and 70 series records created by the CMF MONITOR Extractor and/or the RMF Extractor and formats them into printed system performance reports.
<b>CMF MONITOR Extractor</b>	Component of CMF that collects performance statistics for CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390, and RMF postprocessor. <i>See</i> CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390.

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**CMF MONITOR Online**

Component of CMF that uses the MAINVIEW window interface to present data on all address spaces, their use of various system resources, and the delays that each address space incurs while waiting for access to these resources. *See* CMF MONITOR, MAINVIEW for OS/390.

**CMF Type 79 API**

Application programming interface, provided by CMF, that provides access to MAINVIEW SMF-type 79 records.

**CMFMON**

Component of CMF MONITOR that simplifies online retrieval of information about system hardware and application performance and creates MAINVIEW SMF-type 79 records.

The CMFMON *online facility* can be used to view data in one or more formatted screens.

The CMFMON *write facility* can be used to write collected data as MAINVIEW SMF-type 79 records to an SMF or sequential data set.

**CMRDETL**

MAINVIEW for CICS data set that stores detail transaction records (type 6E) and abend records (type 6D). Detail records are logged for each successful transaction. Abend records are written when an abend occurs. Both records have the same format when stored on CMRDETL.

**CMRSTAT**

MAINVIEW for CICS data set that stores both CICS operational statistic records, at 5-minute intervals, and other records, at intervals defined by parameters specified during customization (using CMRSOPT).

**column**

Vertical component of a view or display, typically containing fields of the same type of information, that varies by the objects associated in each row.

**collection interval**

Length of time data is collected. *See also* delta mode, total mode.

**command delimiter**

Special character, usually a ; (semicolon), used to stack commands typed concurrently on the COMMAND line for sequential execution.

**COMMAND line**

Line in the control area of the display screen where primary commands can be typed. *Contrast with* line command column.

**Command MQ Automation D/S**

Command MQ agents, which provide local proactive monitoring for both MQSeries and MSMQ (Microsoft message queue manager). The Command MQ agents operate at the local node level where they continue to perform functions regardless of the availability of the MQM (message queue manager) network. Functionality includes automatic monitoring and restarts of channels, queue managers, queues and command servers. In cases where automated recovery is not possible, the agents transport critical alert information to a central console.

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### **Command MQ Automation S/390**

Command MQ component, which monitors the MQM (message queue manager) networks and intercedes to perform corrective actions when problems arise. Solutions include:

- Dead-Letter Queue management
- System Queue Archival
- Service Interval Performance solutions
- Channel Availability

These solutions help ensure immediate relief to some of the most pressing MQM operations and performance problems.

### **Command MQ for D/S**

Command MQ for D/S utilizes a true client/server architecture and employs resident agents to provide configuration, administration, performance monitoring and operations management for the MQM (message queue manager) network.

### **Command MQ for S/390**

*See* MAINVIEW for MQSeries.

### **COMMON STORAGE MONITOR**

Component of MAINVIEW for OS/390 that monitors usage and reconfigures OS/390 common storage blocks.

**composite workload** Workload made up of a WLM workload or other workloads, which are called *constituent workloads*.

### **constituent workload**

Member of a composite workload. Constituent workloads in a composite usually belong to a single workload class, but sometimes are mixed.

### **contention**

Occurs when there are more requests for service than there are servers available.

### **context**

In a Plex Manager view, field that contains the name of a target or group of targets specified with the CONTEXT command. *See* scope, service point, SSI context, target context.

**CONTEXT command** Specifies either a MAINVIEW product and a specific target for that product (*see* target context) or a MAINVIEW product and a name representing one or more targets (*see* SSI context) for that product.

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**control statement** (1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.

**coupling facility monitoring (CFMON)**

Coupling facility views that monitor the activity of your system's coupling facilities.

**CPO**

Customized Product Offering. Delivery and installation technique that allows any combination of BMC Software SMP/E-maintainable products to be distributed on a product tape to a customer and installed quickly. The CPO product tape contains libraries required for product customization and execution, plus SMP distribution libraries and data sets needed for application of SMP maintenance.

**current data**

Data that reflects the system in its current state. The two types of current data are realtime data and interval data. *Contrast with* historical data. *See also* interval data, realtime data.

**current window**

In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. *Contrast with* alternate window. *See* active window, window.

**DASD**

Direct Access Storage Device. (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program.

**DASD ADVISOR**

An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices.

**data collector**

Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 services, OS/390 control blocks, CMF MONITOR Extractor control blocks, and other sources. *Contrast with* extractor.

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<b>delta mode</b>	(1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. <i>See also</i> statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. <i>See also</i> collection interval, sample cycle, total mode.
<b>DFSMS</b>	(Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 mainframes.
<b>DMR</b>	<i>See</i> MAINVIEW for DB2.
<b>DMS</b>	(Data Management System) <i>See</i> CA-Disk.
<b>DMS2HSM</b>	Component of MAINVIEW SRM that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM.
<b>DSO</b>	Data Set Optimizer. CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices.
<b>EasyHSM</b>	Component of MAINVIEW SRM that provides online monitoring and reporting to help storage managers use DFHSM efficiently.
<b>EasyPOOL</b>	Component of MAINVIEW SRM that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes.
<b>EasySMS</b>	Component of MAINVIEW SRM that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility.
<b>element</b>	(1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions.
<b>element help</b>	Online help for a field in a view. The preferred term is <i>field help</i> .
<b>Enterprise Storage Automation</b>	Component of MAINVIEW SRM that integrates powerful event management technology and storage monitoring technology to provide significant storage automation capabilities and solutions. Storage occurrences are defined to generate events in the form of messages that provide an early warning system for storage problems and are routed to MAINVIEW AutoOPERATOR to be viewed.

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<b>Event Collector</b>	Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X'FA') and program records (X'F9') on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant.
<b>expand</b>	Predefined link from one display to a related display. <i>See also</i> hyperlink.
<b>extractor</b>	Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. <i>Contrast with</i> data collector.
<b>extractor interval</b>	<i>See</i> collection interval.
<b>fast path</b>	Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press Enter. The resulting screen displays more detailed information about the selected value. <i>See also</i> hyperlink.
<b>field</b>	Group of character positions within a screen or report used to type or display specific information.
<b>field help</b>	Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press PF1 (HELP). In some products, field help is accessible from the screen help that is displayed when you press PF1.
<b>filter</b>	Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARM/QPARM commands, or through the Where/QWhere commands. Filters are established against elements of data.
<b>fixed field</b>	Field that remains stationary at the left margin of a screen that is scrolled either right or left.
<b>FOCAL POINT</b>	MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal.
<b>form</b>	One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. <i>See also</i> query, view.
<b>full-screen mode</b>	Display of a MAINVIEW product application or service on the entire screen. There is no window information line. <i>Contrast with</i> windows mode.

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<b>global command</b>	Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display.
<b>graph</b>	Graphical display of data that you select from a MAINVIEW window environment view. <i>See also</i> chart.
<b>hilevel</b>	For MAINVIEW products, high-level data set qualifier required by a site's naming conventions.
<b>historical data</b>	(1) Data that reflects the system as it existed at the end of a past recording interval or the duration of several intervals. (2) Any data stored in the historical database and retrieved using the TIME command. <i>Contrast with</i> current data, interval data and realtime data.
<b>historical database</b>	Collection of performance data written at the end of each installation-defined recording interval and containing up to 100 VSAM clusters. Data is extracted from the historical database with the TIME command. <i>See</i> historical data.
<b>historical data set</b>	In MAINVIEW products that display historical data, VSAM cluster file in which data is recorded at regular intervals.
<b>HSM</b>	(Hierarchical Storage Management) Automatic movement of files from hard disk to slower, less-expensive storage media. The typical hierarchy is from magnetic disk to optical disk to tape.
<b>hyperlink</b>	<p>(1) Preset field in a view or an EXPAND line on a display that permits you to</p> <ul style="list-style-type: none"> <li>• Access cursor-sensitive help</li> <li>• Issue commands</li> <li>• Link to another view or display</li> </ul> <p>The transfer can be either within a single product or to a related display/view in a different MAINVIEW product. Generally, hyperlinked fields are highlighted. (2) Cursor-activated short path from a topic or term in online help to related information. <i>See also</i> fast path.</p>
<b>Image log</b>	<p>Collection of screen-display records. Image logs may be created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Image log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Image log stops when both data sets are filled and the first data set is not processed by the archive program.</p> <p>The TS Image log is a single data set that wraps around when full.</p>

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## IMSPlex System Manager (IPSM)

MVIMS Online and MVDBC service that provides Single System Image views of resources and bottlenecks for applications across one or more IMS regions and systems.

### interval data

Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. *Contrast with* historical data.

**Note:** If change is made to the workloads, a new interval will be started.

*See also* current data and realtime data.

### InTune

Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays.

### IRUF

IMS Resource Utilization File (IRUF). IRUFs can be either detailed (one event, one record) or summarized (more than one event, one record). A detailed IRUF is created by processing the IMS system log through a program called IMFLEEDIT. A summarized IRUF is created by processing one or more detailed IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.

### job activity view

Report about address space consumption of resources. *See* view.

### journal

Special-purpose data set that stores the chronological records of operator and system actions.

### Journal log

Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS).

The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program.

The TS Journal log is a single data set that wraps around when full.

### line command

Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row.

### line command column

Command input column on the left side of a view or display. *Contrast with* COMMAND line.

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- Log Edit** In the MAINVIEW for IMS Offline program named IMFLEDIT, function that extracts transaction (X'FA') and program (X'F9') records from the IMS system log. IMFLEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF).
- MAINVIEW** BMC Software integrated systems management architecture.
- MAINVIEW Alarm Manager (MV ALARM)**  
In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire SYSPLEX. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 enterprise.
- MAINVIEW Alternate Access**  
Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.
- MAINVIEW AutoOPERATOR**  
Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.
- MAINVIEW control area**  
In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.
- MAINVIEW Desktop** Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.
- MAINVIEW display area**  
*See* MAINVIEW window area.
- MAINVIEW Explorer** Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.
- MAINVIEW for CICS** Product (formerly MV MANAGER for CICS) that provides realtime application performance analysis and monitoring for CICS system management.

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**MAINVIEW for DB2** Product (formerly MV MANAGER for DB2) that provides realtime and historical application performance analysis and monitoring for DB2 subsystem management.

**MAINVIEW for DBCTL (MVDBC)**

Product that provides realtime application performance analysis and monitoring for DBCTL management.

**MAINVIEW for IMS (MVIMS) Offline**

Product with a Performance Reporter component that organizes data and prints reports used to analyze IMS performance and a Transaction Accountant component that produces cost accounting and user charge-back records and reports.

**MAINVIEW for IMS (MVIMS) Online**

Product that provides realtime application performance analysis and monitoring for IMS management.

**MAINVIEW for IP**

Product that monitors OS/390 mission-critical application performance as it relates to IP stack usage. Collected data includes: connections, response time statistics, application availability, application throughput, and IP configuration.

**MAINVIEW for MQSeries (formerly known as Command MQ for S/390)**

Delivers comprehensive capabilities for configuration, administration, performance monitoring and operations management for an entire MQM (message queue manager) network.

**MAINVIEW for OS/390**

System management application (formerly MAINVIEW for MVS (prior to version 2.5)). Built upon the MAINVIEW window environment architecture, it uses the window interface to provide access to system performance data and other functions necessary in the overall management of an enterprise.

**MAINVIEW for UNIX System Services**

System management application that allows you to monitor the performance of the Unix System Services from a MAINVIEW window interface.

**MAINVIEW for VTAM**

Product that displays application performance data by application, transaction ID, and LU name. This collected data includes connections, response time statistics, application availability, and application throughput.

**MAINVIEW Selection Menu**

ISPF selection panel that provides access to all MAINVIEW windows-mode and full-screen mode products.

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**MAINVIEW Storage Resource Monitor (SRM)**

Suite of products that assist in all phases of OS/390 storage management. MAINVIEW SRM consists of components that perform automation, reporting, trend analysis, and error correction for storage management in OS/390.

**MAINVIEW SYSPROG Services**

*See* SYSPROG services.

**MAINVIEW VistaPoint**

Product that provides enterprise-wide views of performance. Application and workload views are available for CICS, DB2, DBCTL, IMS, and OS/390. Data is summarized at the level of detail needed; e.g., reports may be for a single target, an OS/390 image, or an entire enterprise.

**MAINVIEW window area**

Portion of the information display that is not the control area and in which views are displayed and windows opened. It includes all but the first three lines of the information display. *Contrast with* MAINVIEW control area.

**monitor**

Online service that measures resources or workloads at user-defined intervals and issues warnings when user-defined thresholds are exceeded.

**MV MANAGER for CICS**

*See* MAINVIEW for CICS.

**MV MANAGER for DB2**

*See* MAINVIEW for DB2.

**MV MANAGER for MVS**

*See* MAINVIEW for OS/390.

**MVALARM**

*See* MAINVIEW Alarm Manager.

**MVCICS**

*See* MAINVIEW for CICS.

**MVDB2**

*See* MAINVIEW for DB2.

**MVDBC**

*See* MAINVIEW for DBCTL.

**MVIMS**

*See* MAINVIEW for IMS.

**MVMQ**

*See* MAINVIEW for MQSeries.

**MVMVS**

*See* MAINVIEW for OS/390.

**MVSRM**

*See* MAINVIEW Storage Resource Manager (SRM).

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<b>MVSRMHSM</b>	<i>See</i> EasyHSM.
<b>MVSRMSGC</b>	<i>See</i> SG-Control.
<b>MVSRMSGD</b>	<i>See</i> StorageGUARD.
<b>MVSRMSGP</b>	<i>See</i> StorageGUARD.
<b>MVUSS</b>	<i>See</i> MAINVIEW for UNIX System Services.
<b>MVScope</b>	MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level.
<b>MVVP</b>	<i>See</i> MAINVIEW VistaPoint.
<b>MVVTAM</b>	<i>See</i> MAINVIEW for VTAM.
<b>MVWEB</b>	<i>See</i> MAINVIEW for WebSphere.
<b>nested help</b>	Multiple layers of help pop-up windows. Each successive layer is accessed by hyperlinking from the previous layer.
<b>object</b>	<p>Anything you can manipulate as a single unit. MAINVIEW objects can be any of the following: product, secondary window, view, row, column, or field.</p> <p>You can issue an action against an object by issuing a line command in the line command column to the left of the object. <i>See</i> action.</p>
<b>OMVS workload</b>	Workload consisting of OS/390 OpenEdition address spaces.
<b>online help</b>	Help information that is accessible online.
<b>OS/390 and z/OS Installer</b>	BMC Software common installation system for mainframe products.
<b>OS/390 product address space (PAS)</b>	Address space containing OS/390 data collectors, including the CMF MONITOR Extractor. Used by MAINVIEW for OS/390, MAINVIEW for USS, and CMF MONITOR products. <i>See</i> PAS.
<b>parameter library</b>	<p>Data set comprised of members containing parameters for specific MAINVIEW products or a support component. There can be several versions:</p> <ul style="list-style-type: none"> <li>• The distributed parameter library, called BBPARM</li> <li>• A site-specific parameter library or libraries</li> </ul>

---

These can be

- A library created by AutoCustomization, called UBBPARM
- A library created manually, with a unique name

**PAS** Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. *See* OS/390 product address space (PAS), BBI subsystem product address space (BBI-SS PAS).

**performance group workload**

MVS/SP-defined collection of address spaces. *See* service class workload, workload definition.

**PERFORMANCE MANAGER**

MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions.

**Performance Reporter (MVIMS)**

MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.

**Performance Reporter**

Product component that generates offline batch reports. The following products can generate these reports:

- MAINVIEW for DB2
- MAINVIEW for CICS

**Plex Manager**

Product through which cross-system communication, MAINVIEW security, and an SSI context are established and controlled. Plex Manager is shipped with MAINVIEW window environment products as part of the coordinating address space (CAS) and is accessible as a menu option from the MAINVIEW Selection Menu.

**pop-up window**

Window containing help information that, when active, overlays part of the window area. A pop-up panel is displayed when you issue the HELP command.

**PRGP workload**

In MVS/SP 5.0 or earlier, or in compatibility mode in MVS/SP 5.1 or later, composite of service classes. MAINVIEW for OS/390 creates a performance group workload for each performance group defined in the current IEAIPSxx member.

**procedure library**

Data set comprised of members containing executable procedures used by MAINVIEW AutoOPERATOR. These procedures are execute command lists (EXECs) that automate site functions. There can be several versions:

- The distributed parameter library, called BBPROC

- 
- A site-specific parameter library or libraries

These can be

-A library created by AutoCustomization, called UBBPROC

-A library created manually, with a unique name

The site-created EXECs can be either user-written or customized MAINVIEW AutoOPERATOR-supplied EXECs from BBPROC.

### **product address space**

*See PAS.*

### **profile library**

Data set comprised of members containing profile information and cycle refresh definitions for a terminal session connected to a BBI-SS PAS. Other members are dynamically created by MAINVIEW applications. There can be several versions:

- The distributed profile library, called BBPROF
- A site-specific profile library or libraries

These can be

-A library created by AutoCustomization, called SBBPROF

-A library created manually, with a unique name

The site library is a common profile shared by all site users. The terminal session CLIST creates a user profile automatically if one does not exist; it is called `userid.BBPROF`, where `userid` is your logon ID. User profile libraries allow each user to specify unique PF keys, CYCLE commands, target system defaults, a Primary Option Menu, and a unique set of application profiles.

### **query**

One of two constituent parts of a view; the other is form. A query defines the data for a view; a form defines the display format. *See also* form, view.

### **realtime data**

Performance data as it exists at the moment of inquiry. Realtime data is recorded during the smallest unit of time for data collection. *Contrast with* historical data. *See also* current data and interval data.

### **Resource Analyzer**

Online realtime displays used to analyze IMS resources and determine which are affected by specific workload problems.

### **Resource Monitor**

Online data collection services used to monitor IMS resources and issue warnings when defined utilization thresholds are exceeded.

---

<b>row</b>	(1) Horizontal component of a view or display comprising all the fields pertaining to a single device, address space, user, etc. (2) Horizontal component of a DB2 table consisting of a sequence of values, one for each column of the table.
<b>RxD2</b>	Product that provides access to DB2 from REXX. It provides tools to query the DB2 catalog, issue dynamic SQL, test DB2 applications, analyze EXPLAIN data, generate DDL or DB2 utility JCL, edit DB2 table spaces, perform security administration, and much more.
<b>sample cycle</b>	<p>Time between data samples.</p> <p>For the CMF MONITOR Extractor, this is the time specified in the extractor control statements (usually 1 to 5 seconds).</p> <p>For realtime data, the cycle is not fixed. Data is sampled each time you press Enter.</p>
<b>sample library</b>	<p>Data set comprised of members each of which contains one of the following:</p> <ul style="list-style-type: none"> <li>• Sample JCL that can be edited to perform specific functions</li> <li>• A macro that is referenced in the assembly of user-written services</li> <li>• A sample user exit routine</li> </ul> <p>There can be several versions:</p> <ul style="list-style-type: none"> <li>• The distributed sample library, called BBSAMP</li> <li>• A site-specific sample library or libraries</li> </ul> <p>These can be</p> <ul style="list-style-type: none"> <li>-A library created by AutoCustomization, called UBBSAMP</li> <li>-A library created manually, with a unique name</li> </ul>
<b>sampler</b>	Program that monitors a specific aspect of system performance. Includes utilization thresholds used by the Exception Monitor. The CMF MONITOR Extractor contains samplers.
<b>SBBPROF</b>	<i>See</i> profile library.
<b>scope</b>	Subset of an SSI context. The scope could be all the data for the context or a subset of data within the context. It is user- or site-defined. <i>See</i> SSI context, target.
<b>screen definition</b>	Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.

---

<b>selection view</b>	In MAINVIEW products, view displaying a list of available views.
<b>service class workload</b>	<p>OS/390- or MAINVIEW for OS/390-defined collection of address spaces.</p> <p>If you are running MVS Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs.</p> <p>If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. <i>See</i> performance group workload.</p>
<b>service objective</b>	Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. There are no OS/390-related measures of service for started task workloads.
<b>service point</b>	<p>Specification, to MAINVIEW, of the services required to enable a specific product. Services may be actions, selectors, or views. Each target (e.g., CICS, DB2, or IMS) has its own service point.</p> <p>The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.</p>
<b>service request block (SRB)</b>	Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. <i>See also</i> task control block.
<b>service select code</b>	Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service.
<b>session</b>	Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS.
<b>SG-Auto</b>	Component of MAINVIEW SRM that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem.
<b>SG-Control</b>	Component of MAINVIEW SRM that provides real-time monitoring, budgeting, and control of DASD space utilization.

---

**single system image (SSI)**

Feature of the MAINVIEW window environment architecture that allows you to view and perform actions on multiple OS/390 systems as though they were a single system. The rows of a single tabular view can contain rows from different OS/390 images.

**SRB** *See* service request block.

**SSI** *See* single system image.

**SSI context** Name created to represent one or more targets for a given product. *See* context, target.

**started task workload**

Address spaces running jobs that were initiated programmatically.

**statistics interval** For MAINVIEW for DB2, cumulative count within a predefined interval (30-minute default set by the DB2STATS parameter in the distributed BBPARM member BBIISP00) for an analyzer service DELTA or RATE display. Specifying the DELTA parameter displays the current value as the difference between the value sampled by the current analyzer request and the value sampled at the start of the current interval. Specifying the RATE parameter displays the current value by minute (DELTA divided by the number of elapsed minutes).

**StopX37/II** Component of MAINVIEW SRM that provides enhancements to OS/390 space management, reducing the incidence of space-related processing problems. The StopX37/II functions operate at the system level to intercept abend conditions or standards violations, thus providing services without any JCL changes.

**StorageGUARD** Component of MAINVIEW SRM that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

**summary view** View created from a tabular view using the Summarize option in view customization. A summary view compresses several rows of data into a single row based on the summarize criteria.

**SYSPROG services** Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this is also available as a stand-alone product MAINVIEW SYSPROG Services.

**system resource** *See* object.

---

<b>target</b>	Entity monitored by one or more MAINVIEW products, such as an OS/390 image, IMS or DB2 subsystem, CICS region, or related workloads across systems. <i>See</i> context, scope, SSI context.
<b>target context</b>	Single target/product combination. <i>See</i> context.
<b>TASCOSTR</b>	MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.
<b>task control block (TCB)</b>	Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. <i>See also</i> service request block.
<b>TCB</b>	<i>See</i> task control block.
<b>terminal session (TS)</b>	Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a standalone address space for EXCP/VTAM access).
<b>TDIR</b>	<i>See</i> trace log directory.
<b>threshold</b>	Specified value used to determine whether the data in a field meets specific criteria.
<b>TLDS</b>	<i>See</i> trace log data set.
<b>total mode</b>	Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. <i>See also</i> collection interval, delta mode.
<b>trace</b>	(1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS.
<b>trace log data set (TLDS)</b>	Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s).
<b>trace log directory (TDIR)</b>	VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information.

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<b>transaction</b>	Specific set of input data that initiates a predefined process or job.
<b>Transaction Accountant</b>	MVIMS Offline component that produces cost accounting and user charge-back records and reports.
<b>TS</b>	<i>See</i> terminal session.
<b>TSO workload</b>	Workload that consists of address spaces running TSO sessions.
<b>UAS</b>	<i>See</i> user address space.
<b>UBBPARM</b>	<i>See</i> parameter library.
<b>UBBPROC</b>	<i>See</i> procedure library.
<b>UBBSAMP</b>	<i>See</i> sample library.
<b>user address space</b>	Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode.
<b>User BBPROF</b>	<i>See</i> profile library.
<b>view</b>	Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. <i>See also</i> form, job activity view, query.
<b>view definition</b>	Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions.
<b>view command</b>	Name of a view that you type on the COMMAND line to display that view.
<b>view command stack</b>	Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and timeframe that accompany the view.
<b>view help</b>	Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press PF1 (HELP).
<b>window</b>	Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. <i>See</i> active window, alternate window, current window, MAINVIEW window area.

---

**window information line**

Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the timeframe for which the data in the window is relevant. *See also* window status field.

**window number**

Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. *See also* window status field.

**window status**

One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. *See also* window information line, window status field.

**window status field**

Field on the window information line that shows the current status and assigned number of the window. *See also* window number, window status.

**windows mode**

Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. *Contrast with* full-screen mode.

**WLM workload**

In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy.

**workflow**

Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload.

**workload**

(1) Systematic grouping of units of work (e.g., address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390, group of service classes within a service definition.

**workload activity view**

Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives.

**Workload Analyzer**

Online data collection and display services used to analyze IMS workloads and determine problem causes.

**workload definition**

Workload created through the WKLIST view. Contains a unique name, a description, an initial status, a current status, and selection criteria by which address spaces are selected for inclusion in the workload. *See* Workload Definition Facility.

---

**Workload Definition Facility**

In MAINVIEW for OS/390, WKLIST view and its associated dialogs through which workloads are defined and service objectives set.

**workload delay view** Tracks workload performance as the workload accesses system resources. A workload delay view measures any delay a workload experiences as it contends for those resources.

**Workload Monitor** Online data collection services used to monitor IMS workloads and issue warnings when defined thresholds are exceeded.

**workload objectives** Performance goals for a workload, defined in WKLIST. Objectives may include measures of performance such as response times and batch turnaround times.

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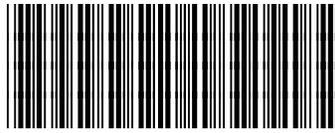
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