IBM Software Group

CICS Performance Monitor for z/OS

e business software

August 2003 | CICS Tools | IBM UK Laboratories

Preface

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  - DB2
  - DFSMS/MVS
  - IBM
  - MQSeries
  - MVS/ESA
  - OS/390
  - RMF, Resource Measurement Facility
  - S/390, z/OS
  - WebSphere
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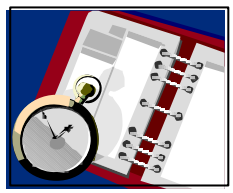
Presentation Overview



- CICS performance management solution
- What is CICS PM?
- CICS PM Architecture and Delivery
- CICS Transaction Server Enhancements
- CICSPlex SM Install/Configuration Simplification
- CICS PM Workstation Client
  - Monitor status
  - Manage thresholds
- Historical Task Data
  - Define history collection
  - Use filtering to query data
- CICS PM Web User Interface (WUI) View sets
  - System and Resource level views
  - Investigate problems online
  - Make changes to key system and resource parameters
- Usage scenario: responding to an alert
- Summary

CICS Performance Management Solution

- CICS Performance Monitor (CICS PM)
  - For online performance monitoring, management and troubleshooting
  - Based on CICS TS CICSPlex System Manager Technology which enables:
    - Access to performance data
    - Resource definition and operations
    - Automation
- CICS Performance Analyzer (CICS PA)
  - For flexible off-line reporting and analysis of all aspects of your CICS systems

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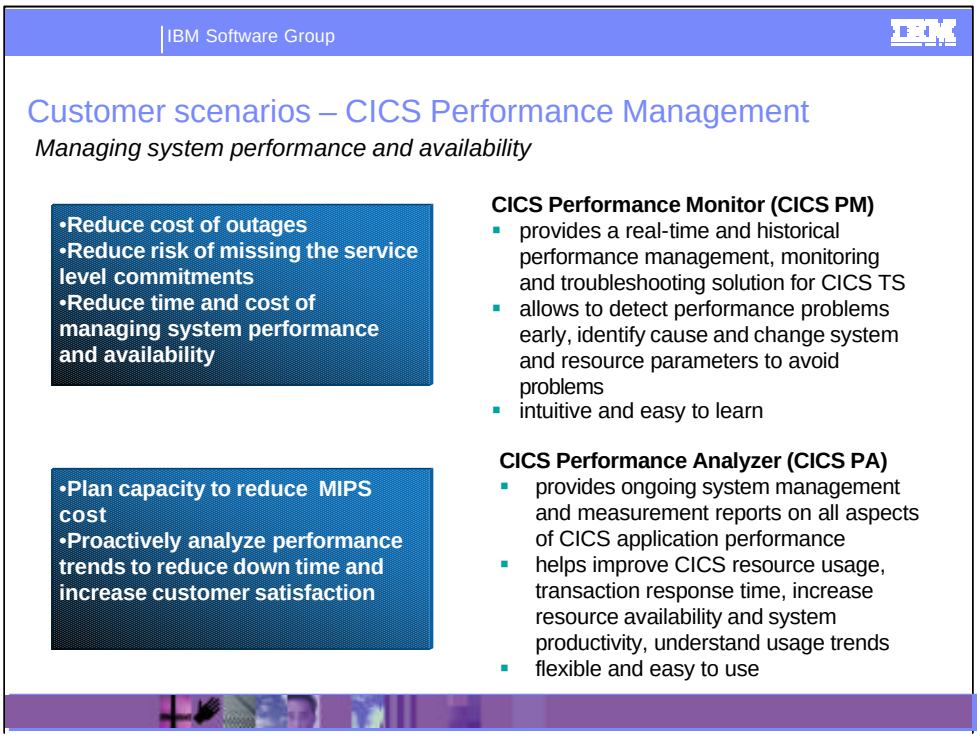


CICS customers are under pressure to avoid outages and reduce downtime. To meet their service level commitments and increase customer satisfaction. As well as to keep systems-management costs down. CICS system programmers and performance specialist need to maintain the optimal performance of your IBM CICS® systems with minimal resources. They need to carefully plan for growth to reduce the total MIPS cost. CICS Performance Monitor and CICS Performance Analyzer, along with the existing systems management functionality in CICS TS, provide you with a flexible and intuitive solution to monitor and improve performance and availability of CICS systems, and to help plan capacity for future requirements. CICS Performance Monitor provides a friendly graphical interface allows the users to manage multiple CICS regions from one view, which helps reduce complexity and increase speed of problem identification and correction. CICS Performance Analyzer provides the level of detail and flexibility which helps easily find new ways to improve CICS system performance, lower maintenance costs and strategically plan IT investments.

What is CICS Performance Monitor for z/OS?

- Real-time and historical performance monitoring, management and troubleshooting tool
  - Friendly Graphical User Interface
    - Exception management
    - Historical task data collection
      - Extensive filtering capabilities
  - Access to detailed performance management data and the ability to change parameters
- Product number - 5655-I46
- CICS PM V1.2 GA – 19 September 2003
- Releases Supported ...
  - CICS Transaction Server for z/OS, Version 2.2
  - CICS Transaction Server for OS/390, Version 1.3
- Complements CICS PA for online analysis
  - CICS PM provides for on-line analysis, CICS PA off-line

IBM CICS(R) Performance Monitor for z/OS(TM) is a real-time performance management, monitoring and troubleshooting tool that supports CICS Transaction Server for OS/390(R) Version 1.3 and CICS Transaction Server for z/OS Version 2.2.

CICS Performance Monitor (CICS PM) enables you to:

-Analyze CICS system performance and efficiency.

-Monitor an individual application or transaction.

-Obtain detailed task performance data, including use of resources.

-Collect historical task data to identify symptoms leading to an event.

-Evaluate an application's impact on other applications and the system.

-Determine tuning requirements for CICS resources to avoid problems.

To provide this functionality, CICS PM delivers online monitoring and alerting capabilities, as well as support for historical data for problem determination.

It provides IBM customers with an intuitive modern tool to help maintain a high level of performance and availability of their CICS Transaction Server systems, and can also help you reduce customers' system management costs.

CICS PM V1.2 at a glance

- Comprehensive user-friendly interface to enable users to :
  - Define and modify thresholds for exception management
  - Monitor events status
  - Display alerts and their recent histories
  - Define historical task data collection criteria
  - Query historical task data using extensive filtering capabilities
  - Investigate problems online
  - Make changes to key system and resource parameters
  - 'KILL' function for looping tasks and system stalls **Coming Soon!**

CICS PM contains the CICS PM workstation client, which provides a graphical user interface at a Windows(+) workstation, and operates with a supporting CICS PM application that runs in CICS Transaction Server. This offers facilities for monitoring active thresholds and events on any CICS resources or attributes, for displaying a recent history of active events, for setting threshold definitions and for managing historical task data collection and access. When events are triggered, the CICS PM workstation client can launch the CICS PM view sets to display detailed real-time performance information on the monitored CICS systems. The view sets are displayed by a Web browser at the workstation, and are supported by the Web User Interface server running in CICS Transaction Server.

CICS PM V1.2 at a glance

- Comprehensive access to CICS Monitoring and statistics data, including …
  - All current data …
    - CICS Region, Resources, Task, Storage, CPU, Wait time
  - New facilities allowing resource usage monitoring by task
    - TASKFILE, TASKTSQ, TASKRMI
  - New CICS task storage detail information
    - A breakdown of CICS task storage usage into DSA and storage elements
  - Information on MVS TCB CPU time and storage usage
    - CPU time used so far, for each TCB (CICS and non-CICS) in the address space
    - A link from each MVS TCB into a display of the MVS storage elements

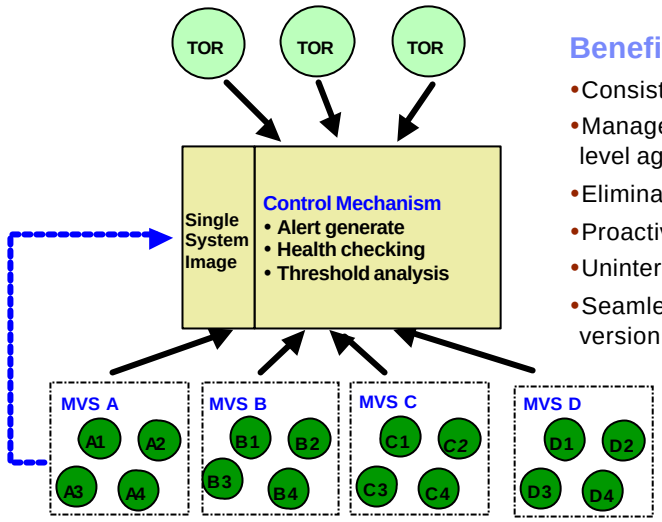
CICS PM provides easy access the resources defined to your CICS systems, including:

- *Transactions and transaction classes*
- *Programs*
- *Files, with data tables, data set names and local shared resources (LSR) pools*
- *Connections*
- *Journals and logstreams*
- *Temporary storage and transient data queues*
- *Terminals*
- *DB2® entries*
- *System and transaction dumps*
- *Enterprise Java resources*

You can easily make operational changes to key system and resource parameters. For example, you can change or set maximum-task and DSA limits, purge tasks, close files, discard outdated CICS resource definitions or delete temporary storage queues.

CICS Performance Monitor is built on the strength of systems management capabilities of CICS TS and CICSPlex System Manager (CICSPlex SM). The next few charts explain how the underlying CICSPlex SM technology makes CICS PM such an attractive performance management solution.

CICSPlex SM Real Time Analysis



Benefits

- Consistent response times
- Manage to response time Service level agreements
- Eliminate capacity mismatches
- Proactive problem avoidance
- Uninterrupted service
- Seamless cut in or retreat for new version of an application

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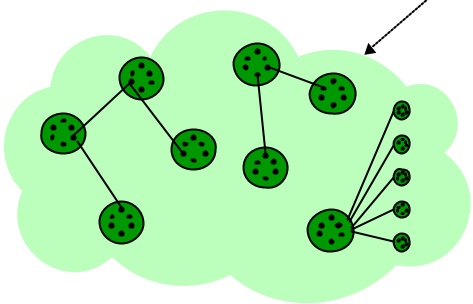
System management would be much easier if we had a tool which could manage the entire CICSplex. This includes looking at and issuing commands to a specific region, and determining what is happening on the interactions between regions.

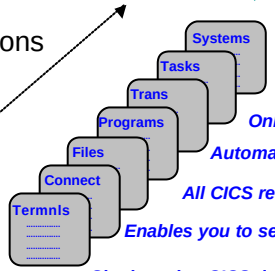
CICS TS provides a leading edge technology called CICSPlex SM.... This system management function can be used to manage a few regions on a single system to hundreds of regions enterprise-wide. And these regions do not have to be in one location, but can be dispersed around the world,. and yet they can be managed from a single display.

Key features are the ability to view and issue CEMT commands to all regions as if they were a single region. This means understanding, monitoring and modifying the interactions between CICS regions. So your operations personnel can know about a potential problem, even before your end uses know about it.

Single System Image & Single Point of Control

- Reduced dependence on critical skills
- Improved co-ordination, reduced risk
- Flexible: centralized or decentralized operations
- Lets you organize & control your CICSplex
- Contain support costs





Online Resource Map
Automatic update
All CICS resources, attributes
Enables you to see interactions
Single action CICSplex wide commands
Consistent application definition
Multiple control points & system groups

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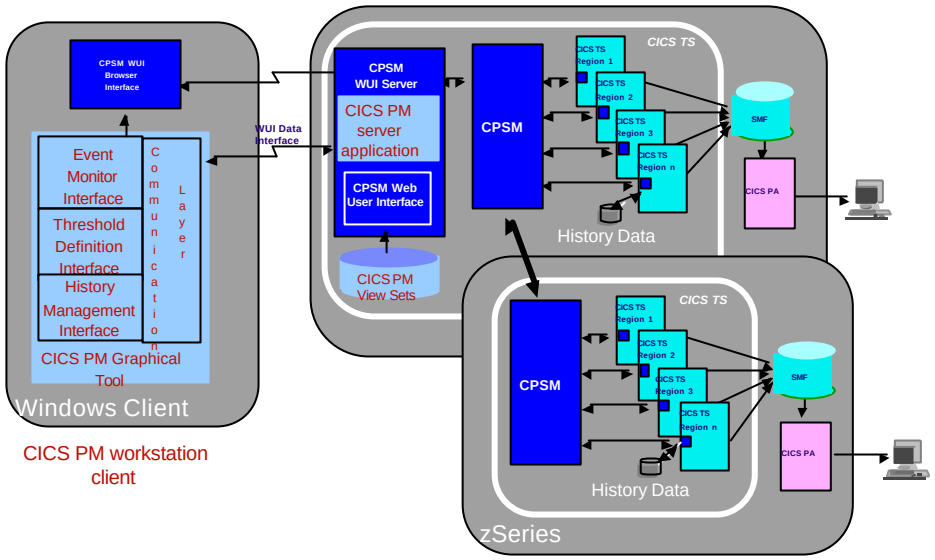
CICS PM builds on the systems management capabilities of CICSPlex System Manager. Basic CICSPlex SM components like WUI, enable CICS systems management access to all your CICS systems and all the aspects of CICS systems management, including resource definition, threshold analysis, etc.

CICS Performance Monitor can display the critical information for all the CICS regions managed by CICSPlex System Manager in a single view, for faster problem determination.

CICSPlex SM provides a Single System Image of CICS regions within enterprise, with the ability to manage those regions from a single point of control as though they were a single CICS region.

CICS PM uses these capabilities of CICSPlex SM to display all the critical information for all the CICS regions managed by CICSPlex SM in a single view, for faster problem determination.

CICS PM Architecture



CICS PM collects measurements for all CICS Systems, resource and task information. This data from multiple CICS regions is made available at a single point of access - the CICS PM workstation client. This client provides you with a user-friendly graphical interface to

- *Define and modify thresholds in multiple CICS regions.*
- *Monitor threshold status.*
- *Display alerts and their recent histories.*
- *Define historical task data collection criteria.*
- *Query historical task data using extensive filtering capabilities.*

This data, displayed by CICS PM workstation client, is enabled by CICS PM server, a supporting application installed in CICS TS. The CICS PM server allows you to create and modify the event threshold definitions and history collection definitions in CICSPlex System Manager (CICSPlex SM), a component of CICS Transaction Server. CICS PM workstation client then retrieves the alert information from CICSPlex SM.

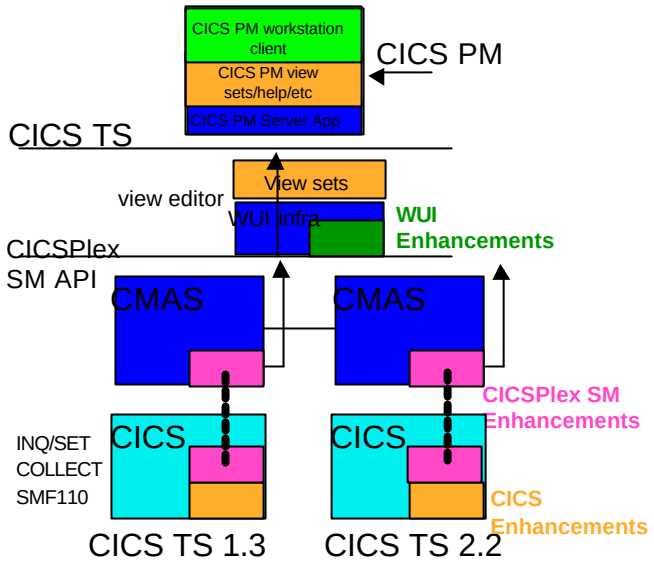
The CICSPlex SM Web User Interface can also be launched from the CICS PM workstation client to enable you to

perform real-time and historical problem determination

make changes to key system and resource parameters.

This functionality is enabled via CICS PM view sets. View sets are sets of views related to a single object class. CICS PM provides a comprehensive series of view sets specifically tailored for performance analysis and problem determination.

CICS PM Delivery



- SMPE installable product
  - performance tailored view sets
  - workstation client GUI
  - server application
- CICS TS 1.3 and 2..2 supported
- PTFS (enhancements)
  - CICS
  - CICSPlex SM
  - WUI server infrastructure
- Simplified CICSPlex SM Install
- One book tailored to performance management

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This chart shows more detail on how CICS PM is delivered.

CICS PM is installed using SMPE. Then CICS PM workstation client is downloaded from the mainframe and is installed on the client using Microsoft(+) Software Installer. The workstation client will execute on Windows NT(+) V4, Windows 2000, or Windows XP. CICS PM server and CICS PM view sets are 390 components of the product.

CICS PM requires the CICSPlex SM component of CICS Transaction Server to be running. CICS PM retrieves and displays information about performance at predefined sampling intervals, using the facilities and interfaces provided by CICSPlex SM to access information. CICS monitoring and statistics domains generate this information in a CICS region and this is gathered by CICSPlex SM to perform real-time analysis of events in your CICS regions.

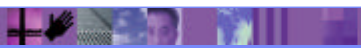
CICSPlex SM, CICSPlex SM Web User Interface sever and CICS TS 1.3 and CICS TS 2.2 were enhanced to extend these standard facilities and enable CICS PM display this information. To obtain the extended monitoring and statistics support for CICS PM in these releases of CICS TS, you need the prerequisite CICS PTFs.

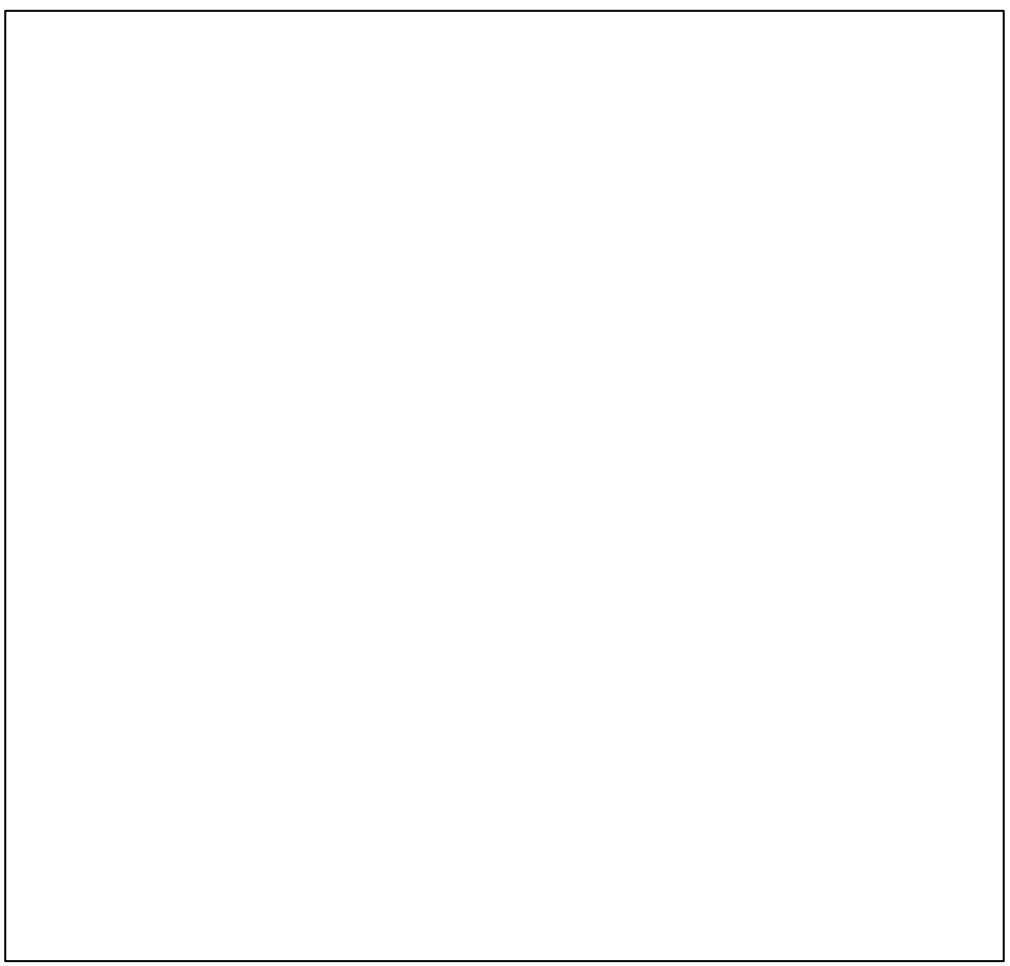
The areas to which these enhancements are delivered via the PTFs are shown in the diagram.

Tools are provided to enable easy set up and configuration of CICS PM and CICSPlex SM, and the CICS PM documentation includes all required CICSPlex SM information.

CICS Enhancements

- EXEC CICS SPI Enhancements ...
  - EXEC CICS INQUIRE SUBPOOL() DSANAME()
    - provides the ability to browse the Storage Manager Domain subpools
  - EXEC CICS COLLECT STATISTICS
    - SUBPOOL and TASKSUBPOOL
  - CURRENTPROG added to EXEC CICS INQUIRE TASK()
- CICS Monitoring Enhancements ...
  - Application Naming support
  - New CMF Resource Class
  - New statistics, EXEC CICS INQ/SET MONITOR, CEMT support
  - New Global Statistics data for the MVS Workload Manager
- CICS PA Release 2 PTF UQ68731
  - Resource Class Reports and Application Naming Support





Application Naming Support

- Allows more granular identification of a "transaction ID"
  - or "relate" individual transactions into a "single" application name
- Two "special" character fields provided ...
  - Transaction ID (4 bytes) and/or Program ID (8 bytes)
    - But can be used for any "application" naming or identification data
- Uses standard User Event Monitoring Points (EMPs) ..

  EXEC CICS MONITOR ENTRYNAME() POINT() DATA1() DATA2()
  - But, unlike other user data added via EMPs, the application naming data is preserved across performance record output(s)
  - Two "special" EMPs defined ...
    - can be used by user or ISV applications in any combination

More detail on Application Naming support enhancement.

CICSPlex SM Enhancements

- Collection and incorporation of new data into base tables
  - Available via CICSPlex SM API and WUI
- Functional support for event monitor GUI
  - Documented interface utilizing URL encoding for
    - Single signon
      - via RACF passticket
    - GET data
    - GETDEF data
  - Asynch GET support
- Matrix layout support for WUI
- Various WUI usability improvements

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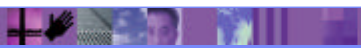

These CICSPlex SM enhancements are delivered via

- CICS Transaction Server for OS/390 V1.3

  - PTFs for APARs PQ58762 and PQ59865

- CICS Transaction Server for z/OS V2.2

  - PTFs for APARs PQ58660, PQ62212, PQ59827, and PQ62937.

CICSPlex SM Install/Configuration Simplification

- For non-CPSM users
  - CICS PM install hides the CPSM installation and configuration aspects as much as possible
- CICS PM installation documentation includes
  - Section on base CPSM installation for CICS PM usage
- CMZBATCH
  - Populates CPLEXDEF, CSYSDEF, CSYSGROUP, etc
- CICSPlex SM WUI AUTOIMPORT
  - Populates the CICSPlex SM WUI repository at server startup
  - Alternatively, the CICSPlex SM Web User Interface server controller transaction (COVC) can be used to import the CICS PM view set and menu definitions from the Web User Interface repository
  - RedBook available

If you are not currently using the supplied CICSPlex System Manager technology in CICS Transaction Server, CICS Performance Monitor delivers a simplified CICSPlex System Manager installation function and self-contained documentation, to easily set up the minimum configuration required to run CICS Performance Monitor.

CICS PM workstation client

- Java swing application
  - Relates Scopes-MAS-Resourceclasses-Events
  - Definition/modification of thresholds and historical data collection
  - Can launch CICSPlex SM WUI to
    - Detail view for event
    - Users Home menu with current context
    - ResourceClass
    - ResourceClass and instance
    - Historical task data
- Supports single signon
- Topology refresh under user control
- Context-sensitive help
- Initial resource type loading for improved performance
- SSL support
- Requires Java Runtime Environment (JRE)
- Installable on Windows using the Microsoft Software Installer (MSI)

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The CICS PM workstation client provides:
-the ability to create, discard, modify, and apply customer threshold definitions on the monitored CICS systems. Groups of threshold definitions can be installed into multiple CICS regions using an "Install" button.
-a set of pre-defined thresholds
-functionality for managing historical task data collection criteria
-the ability to choose from a set of predefined filters or create your own filters for working with historical task data

CICS PM workstation client allows you to :
•monitor active thresholds and currently active events
•display a recent history of active events
•start and stop collection of historical task data
•observe historical task data, utilizing the extensive filtering capabilities

CICS PM provides Single System Image of CICS regions in an enterprise, with the ability to access these regions from a single point of control - as though they were a single CICS region. CICS PM workstation client displays the events status for multiple CICS regions in one simple summary view for fast problem identification. This view can be controlled at the level of system group, region, resource type, or resource instance.

The Web User Interface can be launched from the CICS PM workstation client and display the CICS PM view sets for 'drilldown' to the details of a problem, real-time or using historical task data . No separate sign-on to the Web User Interface is required. The CICS PM server handles requests from the Sign on to CICS PM dialog.

CICS PM server handles all communications between the threshold definitions and installed definitions windows.

CICS PM workstation client

Event monitor window - Resources Summary

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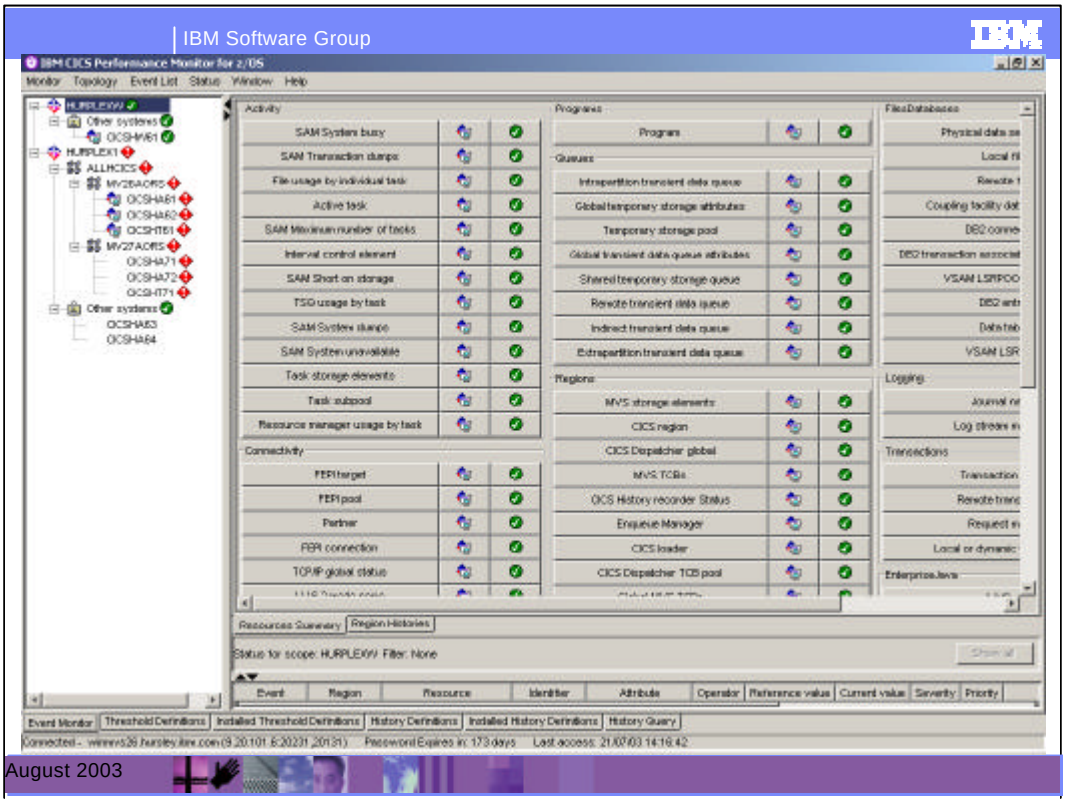
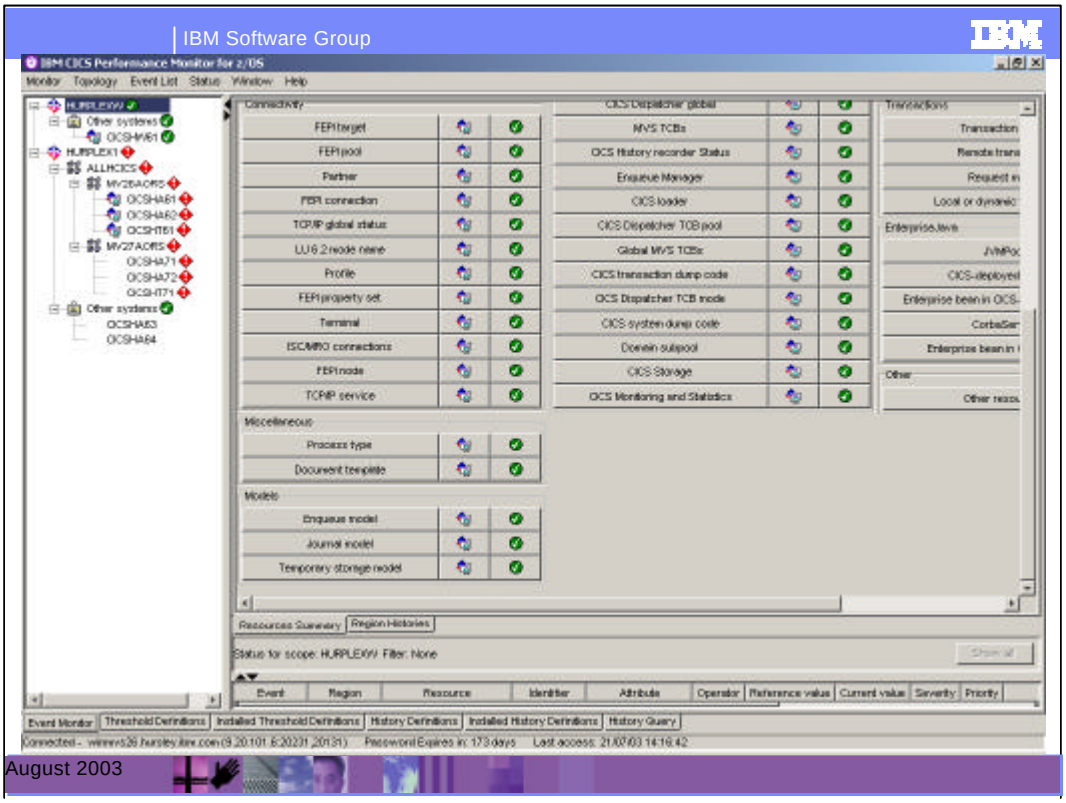


This screen is the Resource Summary view of the monitor window of the CICS Performance Monitor workstation client. The monitor window provides functions to detect and identify events in the monitored regions. This is the primary window, which is opened automatically when you successfully start and connect CICS PM to the monitored CICSPlex. This graphical status view displays the summary of the system and CICS resources for multiple CICS regions in an easy to read summary format.

CICS Performance Monitor provides Single System Image view of CICS regions in an enterprise, with the ability to access these regions from a single point of control - as though they were a single CICS region.

This screen displays the top half of the Resources Summary pane. The left hand pane shows the topology of the CICSPlex, i.e., all the CICS regions



This screen displays the bottom half of the Resources Summary pane.

CICS PM workstation client

Event monitor - Region Histories

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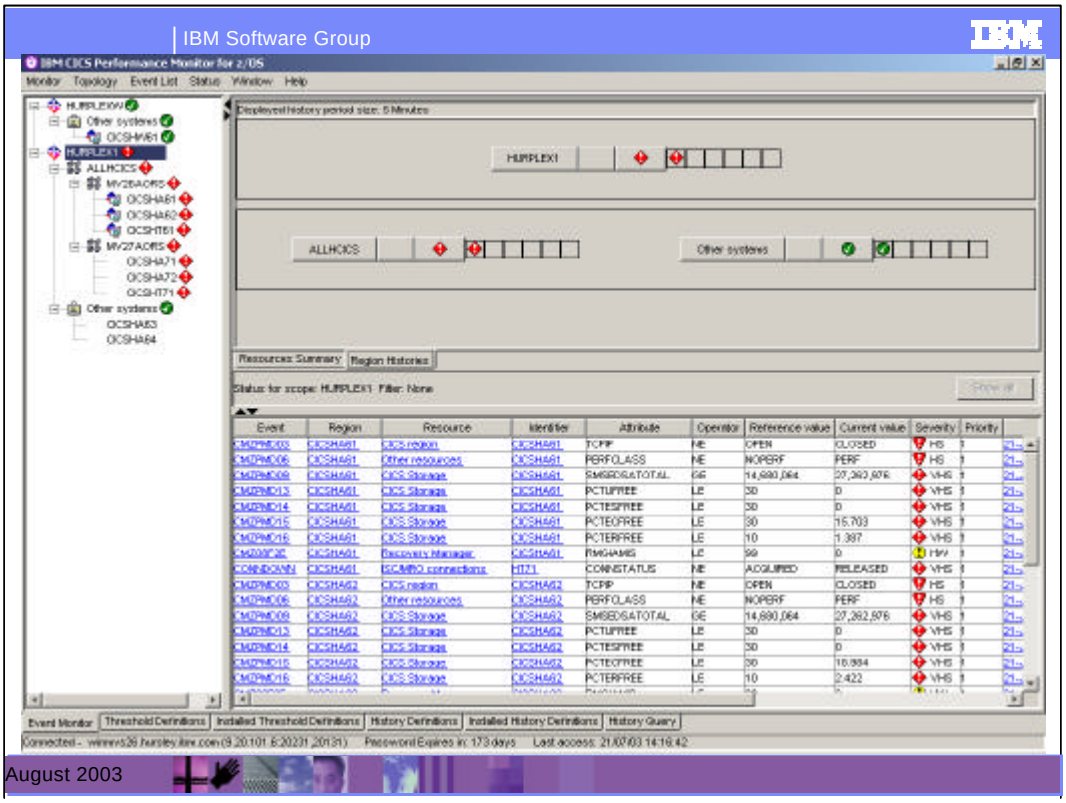

This is a graphical view of all the regions together with status icons indicating a 25 minute history of events if any, over five five-minute periods. Each icon represents the status of the CICSPlex, group or CICS region over a five minute interval.

CICS PM workstation client

Threshold Definitions

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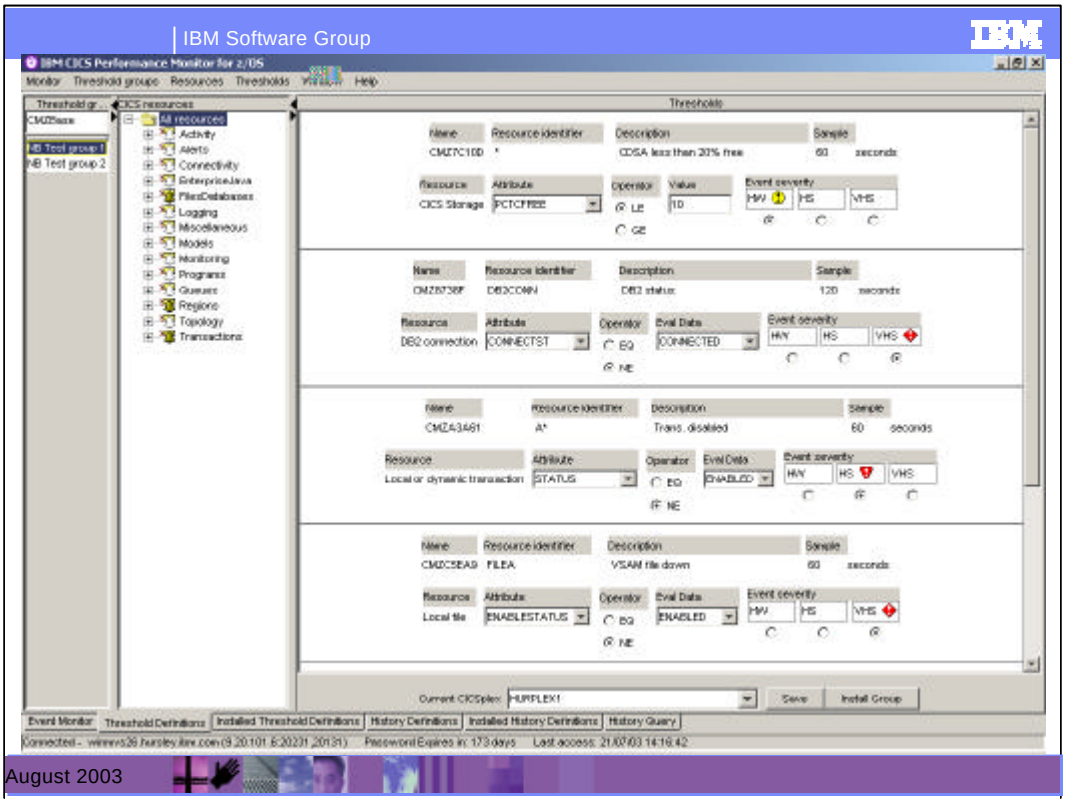

This is the Threshold Definitions window of the CICS PM workstation client.

CICS PM provides the ability to create, discard, modify, and apply customer threshold definitions on the monitored CICS systems. Groups of threshold definitions can be installed into multiple CICS regions using an "Install" button.

In addition, CICS Performance Monitor comes with a set of predefined thresholds, which you can also apply to multiple systems at one time. The predefined set can be

easily modified for customized use with all your systems

This pane shows the threshold definitions that are currently held on the repository. Each definition relates to a resource within the CICS system

CICS PM workstation client -

Installed Threshold Definitions

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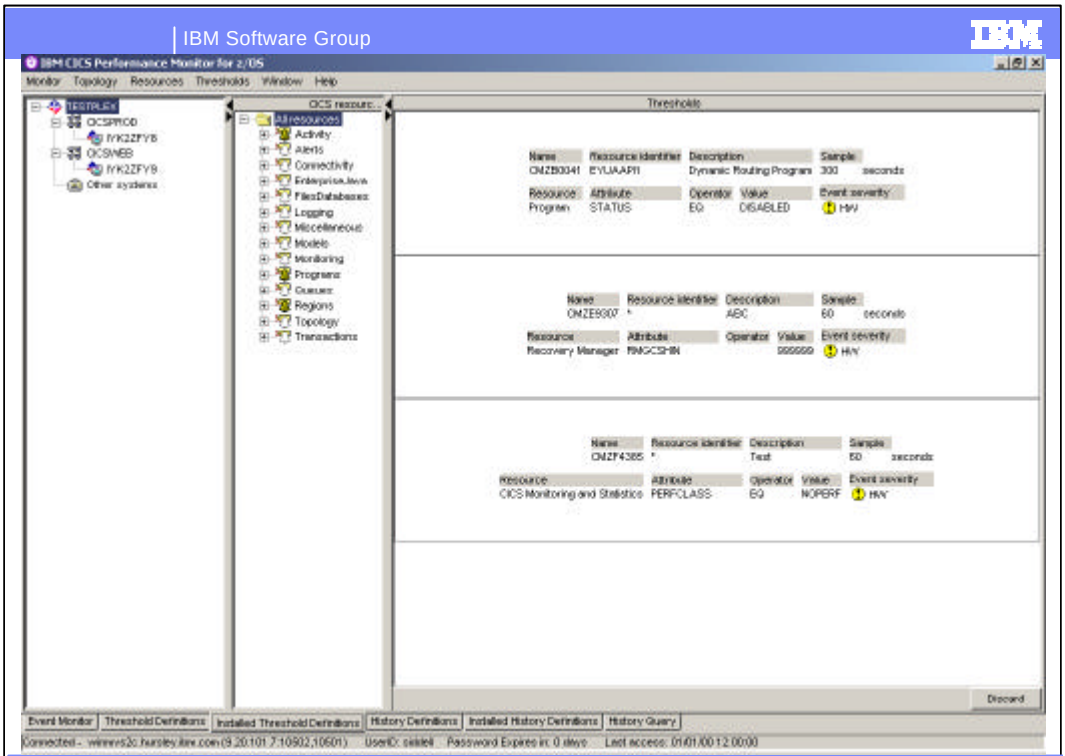
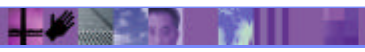


The installed definitions window of CICS PM client workstation provides functions that enable you to view and modify installed threshold values that are currently being used to monitor the CICSPlex. (These functions are analogous to CEMT inquire and set operations, except that they operate on installed CICSPlex SM threshold definitions.)

This pane shows the threshold definitions that are actually installed in the system. Installed means that they are active and if the condition is met for a threshold then an event will be raised.

Historical task data

- Recent history for problem determination
  - CICS PM
- Capacity planning and performance tuning
  - CICS PA
- Use CICS PM history to
  - Correlate current problems with the recent behaviour
  - Diagnose problems that occurred in the recent past
- Data captured in each CICS region in a VSAM KSDS
  - Up to 26 per region
  - Data persists across region, CMAS and LPAR restarts
  - Data is gathered in the CICS region regardless of the state of the associated CMAS
  - The collected history data will not be reportable until the managing CMAS connects to a CICS region
- The amount of data collected is limited only by the size of the data sets



CICS PM V1.2 provides comprehensive historical task data access for diagnosis of:

•Current problems using recent history to identify the symptoms, leading up to the event

•Problems that have happened in the recent past in order to prevent future reoccurrence

For long-term analysis and capacity planning, CICS Performance Analyzer (CICS PA) offers extensive historical database capabilities.

Historical task data is collected on a set of extended VSAM KSDS files per CICS region. In order to identify which task data is to be collected, the CICS PM workstation client GUI can be used to define the collection criteria. Such criteria includes transaction ID, terminal ID, userID and unit-of-work ID. The CICS PM client can also be used to identify, what data is current being collected, and the status of the history data sets.

The amount of data collected is limited only by the size of the data sets. When these data sets are full, wrapping will occur, replacing oldest data first. This data persists across CICS region, CMAS and LPAR Restarts.

Historical task data

- CICS PM client provides the GUI interface to
  - Manage historical task data collection
    - Define and install collection criteria
    - To observe and discard installed definitions
    - Identify status of collection datasets
  - Work with collected historical task data
    - Extensive filtering capabilities
      - User can specify start/stop time or time interval
      - Constraints on the data such as transaction id, terminal id, userid and unit-of-work id
      - Scoping to a particular region, group of regions or CICSplex etc.
    - WUI launch to display selected historical task data views

Working with historical task data

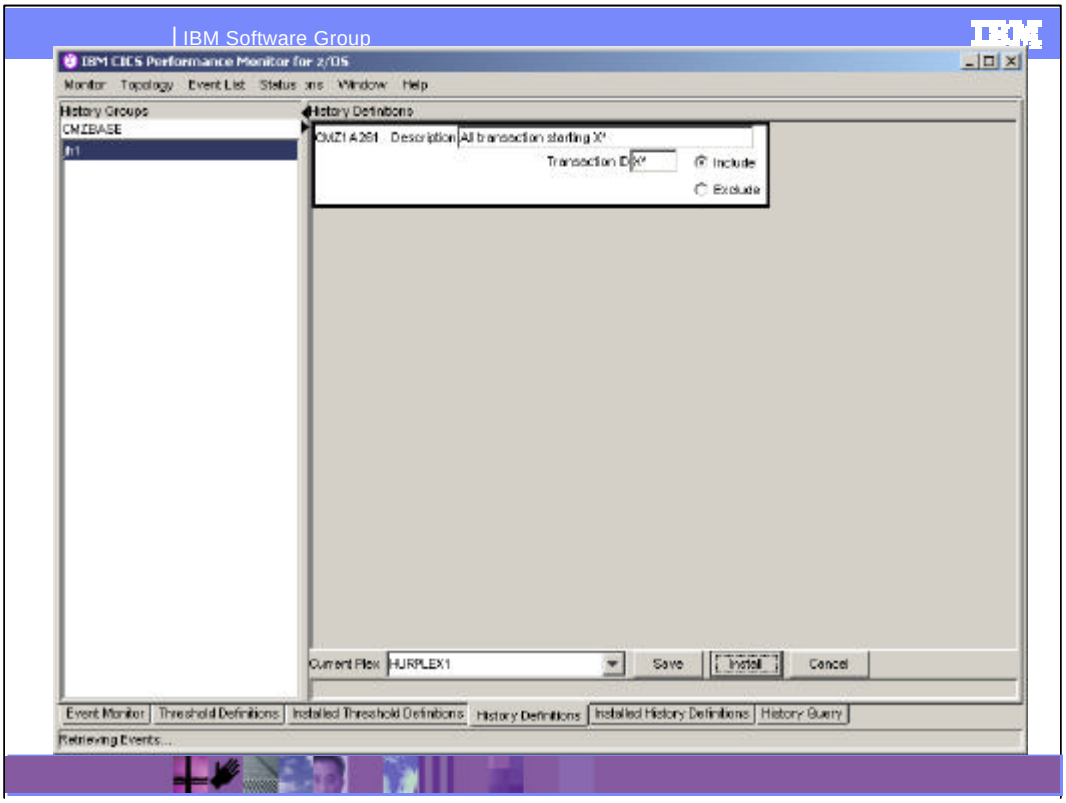
CICS PM provides extensive filtering capabilities against historical task data. In order to simplify access, the CICS PM client provides a launch window, where the filtering criteria can be specified. From here you can launch the Web User Interface directly to the data you specified.

Historical task data can be viewed from multiple CICS regions simultaneously by setting the appropriate context and scope in the client via the topology tree.

The historical task data extensive filtering capability and easy to use collection mechanisms offer significant enhancements to online problem determination capabilities of CICS PM.

CICS PM workstation client

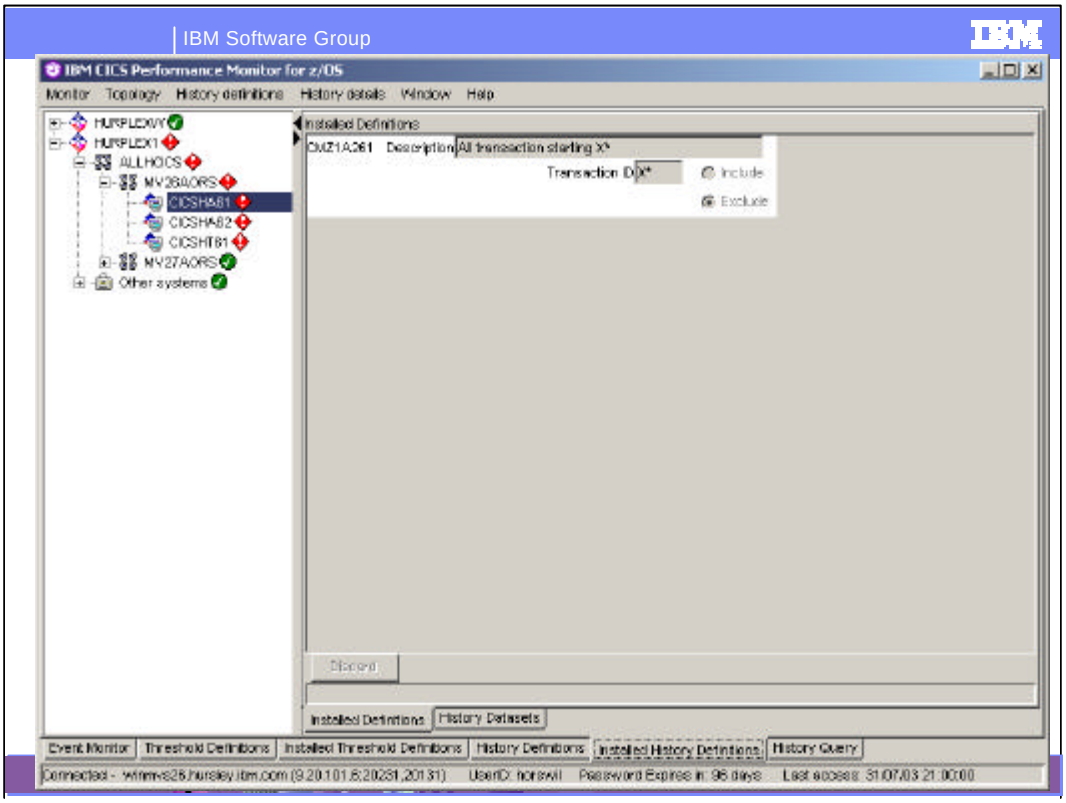
History Definitions



In this screen the user can create, save and install, the history collection criteria. Here you can see a definition for collecting information for transaction X*. The definition is in the group jh1 for HURPLEX1.

CICS PM workstation client

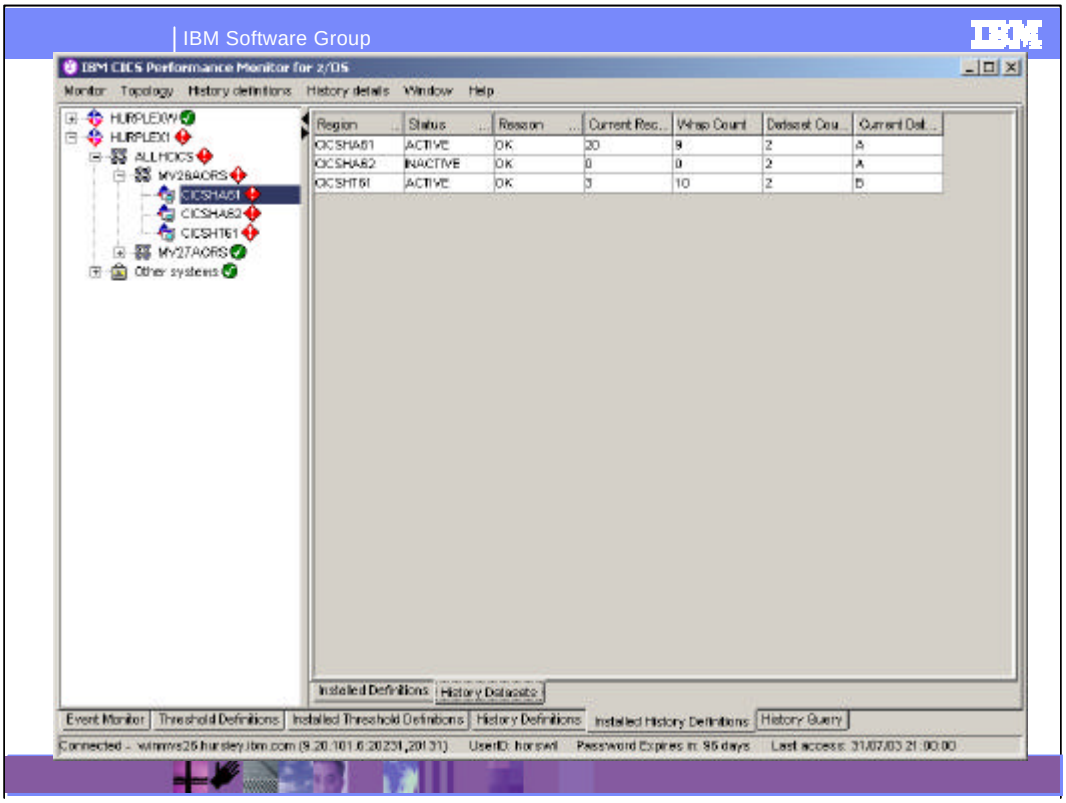
Installed History Definitions



The Installed History Definitions window enables you to modify installed history definitions that are currently in effect for the regions being monitored.

CICS PM workstation client

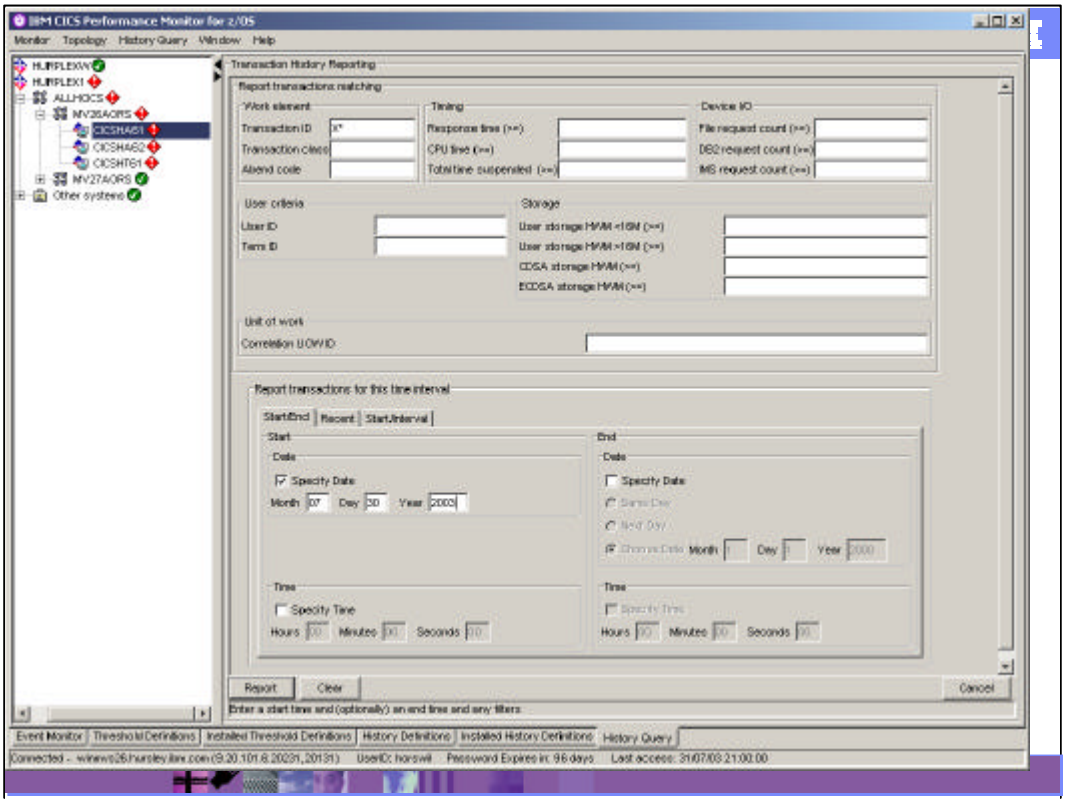
History Data Sets



When you set up a history definitions, the data is stored in VSAM KSDS data sets. There can be up to 26 (A-Z) data sets depending how you defined them during the installation process. This window enables you to view the status of those data sets for each CICS region.

CICS PM workstation client

History Query



The history query window allows you to filter the history data that has been collected through your history definitions. It is possible to filter data for transaction matching using the following criteria:

-Transaction ID, Transaction class, or abend code.

-File request count, DB2 request count, or IMS request count.

-User ID or Term ID.

-Storage, for example, DSA used, or high water marks for users storage both below and above 16MB and high water marks for CDSA or ECDSA.

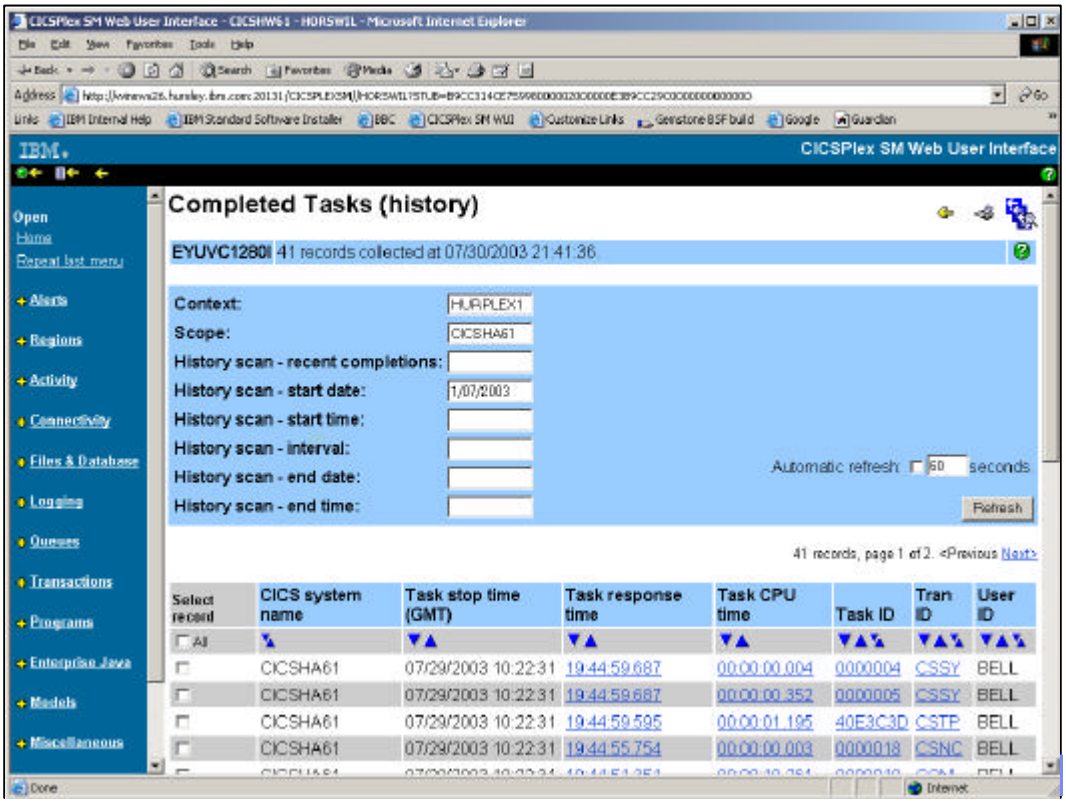
-Correlation Units of work, and

-Time period. This allows you to select a time period in a variety of ways.

The purpose of the query panel is to allow you to identify quickly, for example, the cause of either an application or a region running slowly. The topology pane allows you to focus onto a specific region, group of regions or the whole CICSplex. You can then select one of the fields from the Query panel to identify the tasks that are, for example, using too much processor time or storage.

CICS PM view sets

History report – completed tasks



Having defined your query, you can run it to produce a report.

CICS PM WUI View sets

- Using the CICSPlex SM Web User Interface server component of CICS Transaction Server ...
  - CICS PM provides a comprehensive series of view sets specifically tailored for performance analysis and problem determination
  - CICS PM view sets are automatically selected using links from the monitoring component of the CICS PM workstation client
  - The CICS PM view sets can also be invoked directly from a Web browser connected to the CICSPlex SM Web User Interface server
  - The CICS PM view sets include extensive links to allow easy navigation through the views as well as the ability to make operational changes to key system and resource parameters

CICS Performance Monitor, using the CICSPlex SM Web User Interface server component of CICS Transaction Server, provides a comprehensive series of view sets specifically tailored for performance analysis and problem determination. The view sets are automatically selected using the links from the monitoring component of the CICS PM workstation client. Alternatively, however, they can be invoked directly from a Web browser connected to the Web User Interface.

CICS PM - View set detail

- The CICS PM View sets provide real-time access to
  - All CICS system performance data
  - Resource-related performance data
  - Task level performance data collected by the CICS monitoring facility (CMF)
    - Including file resource usage by task
- Allow operational changes to key system and resource parameters
  - Maxtask limit, Dynamic Storage Area (DSA) limits
  - Dispatcher settings, Purging or Force Purging tasks
  - Deleting temporary storage queues, Opening/Closing files
  - Discarding unwanted CICS resource definitions

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CICS PM view sets provide real-time access to all CICS system and resource-related performance data, as well as access to all the task level performance data collected by the CICS monitoring facility (CMF), including file resource usage by task. The view sets include extensive links to allow easy navigation through the views as well as the ability to make operational changes to key system and resource parameters, for example: maxtask limit, dynamic storage area (DSA) limits, purging tasks, closing files, discarding unwanted CICS resource definitions, or deleting temporary storage queues.

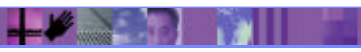
CICS PM - View sets

- System ...
  - CICS Regions
  - CICS Storage, Dispatcher, Loader, ...
- Resources ...
  - Programs, Files, Connections, ...
  - Logstreams and Journals, DB2 Entries, ...
  - Temporary storage queues, Transient data queues, ...
- Tasks
  - Task identification information, ...
  - Task status, Suspend information, ...
- Unit-of-Work Analysis
  - Including Enqueues, Data Set Name Failures, ...

These are the main categories of CICS PM WUI view sets which are provided in CICS PM. For the detail behind each category, please turn to the next 3 foils.

CICS PM - CICS System level view sets

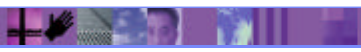
- CICS region
- CICS storage (DSAs and subpool usage)
- Transaction manager
- CICS dispatcher
- Loader
- Temporary storage, including shared temporary storage pools
- Transient data
- DB2 connection
- Recovery manager, including unit-of-work analysis
- Enqueue pools
- JVMpool
- User exits - global and task related



This is a what CICS system level view sets include.

CICS PM - Application Resource level view sets

- Transactions
- Transaction classes
- Programs
- Files, including data tables, data set names, and local shared resource (LSR) pools
- Connections
- Logstreams and Journals
- Temporary storage queues
- Transient data queues
- Terminals
- DB2 entries
- System and transaction dumps
- Enterprise Java resources



The view sets provide access to all the resources defined to the CICS systems.

CICS PM - other view sets

- Access to the performance information about all the active tasks in the CICS systems
  - Task identification information, ...
  - Task status, suspend information, ...
  - Unit-of-Work (UOW) analysis
  - CPU usage, ...
  - Storage usage - task, program, shared
  - Program, File, Temporary storage requests, and others ...
- Extensive range of task level views containing all CMF performance data
  - Including file resource usage by individual task
- Outstanding events together with threshold definitions

Other view sets are provided, giving access to the performance information about all the active tasks in the CICS systems, including task identification information, task status, suspend information, unit-of-work analysis, CPU usage, storage usage, program, file, temporary storage requests, and others. An extensive range of task level views is provided, with navigation links, which show all the performance data collected by the CMF, including file resource usage by individual task.

Also viewable are the outstanding events (as determined by the threshold definitions defined by the CICS PM workstation client, or set up by CICSPlex SM), together with the threshold definitions.

Customize your views

- Tailor the displayed data to your need
  - Use the supplied set of filters that can to select the data for specific resources.
  - Sort the data
- For advanced CICSPlex SM users – create your own views

While you cannot change any of the views in the CICS PM client you can filter the Web User Interface panels.

Using the Web User Interface with CICS PM- Initial menu

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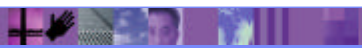
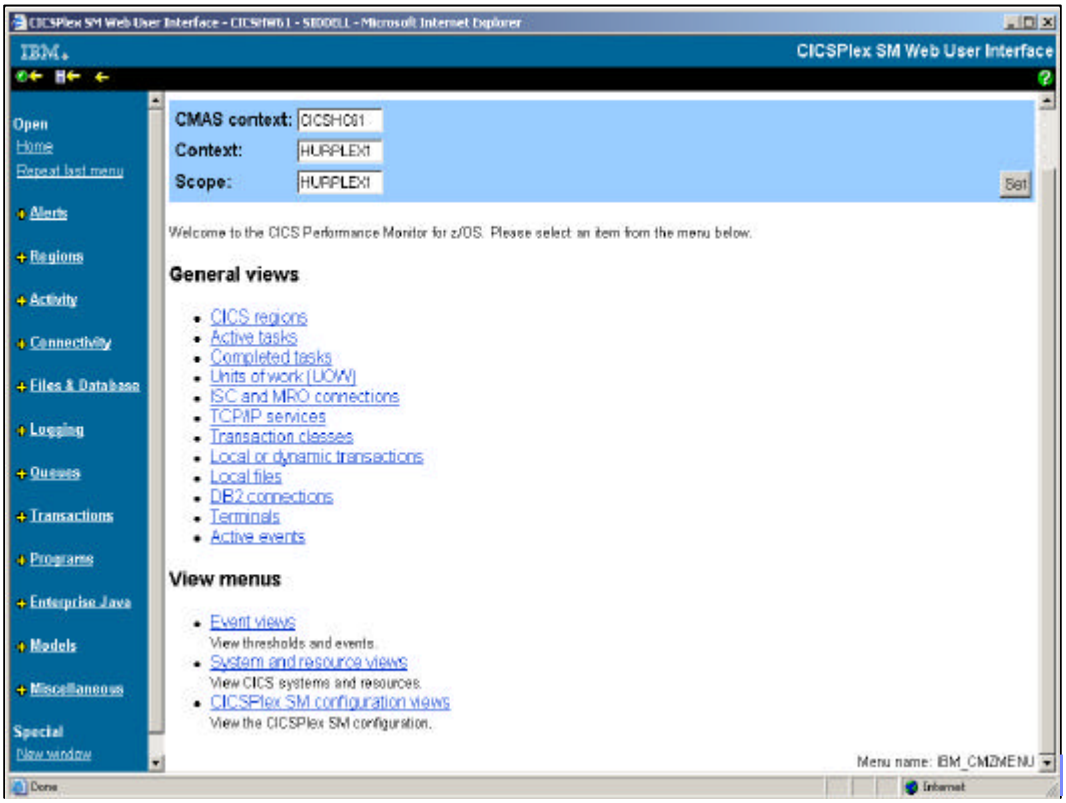


The next 2 slides show the CICSPlex SM Web User Interface (WUI) Menu view for the CICS Performance Monitor for z/OS.

It shows the most commonly accessed General views and also shows the hyperlinks to the Menu views for Events, the System and resource views and the CICSPlex SM configuration views.

On the left is shown the navigate view which can be also used as a short cut into the CICS PM views.

This is the default view of the Web User Interface if you had opened up a browser window. Calling from the CICS PM client takes you directly into the detailed views, bypassing this initial view



As well as general views, there are also options for further view menus, such as Event and System views

CICS PM view sets

CICS Regions - tabular view

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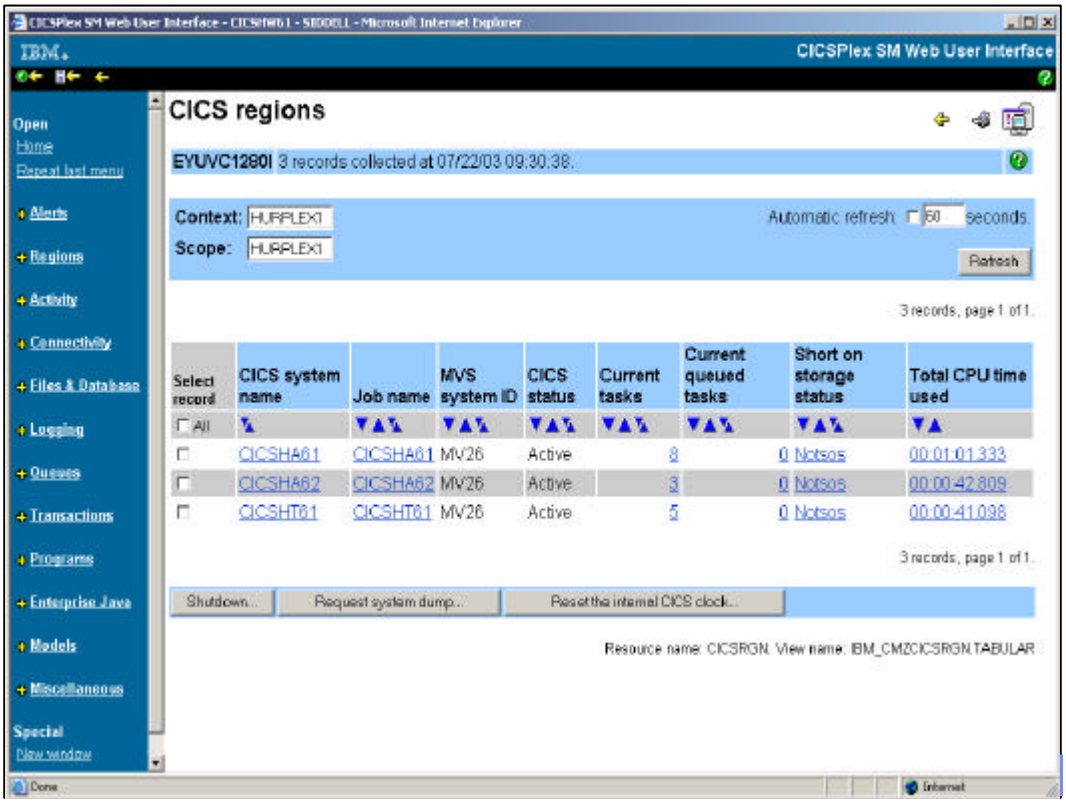

This slide shows the CICS PM WUI CICS region tabular view. It displays, in tabular format, some basic information on each CICS region, it's current status, the current number of tasks executing in each region, whether the region is short-on-storage, and other basic region information.

Selecting a specific CICS system name sets the scope of that specific CICS system and will take you into a series of more detailed views on every aspect of the CICS region's performance, down to individual tasks or CICS resources.

CICS PM view sets

Active tasks - tabular view

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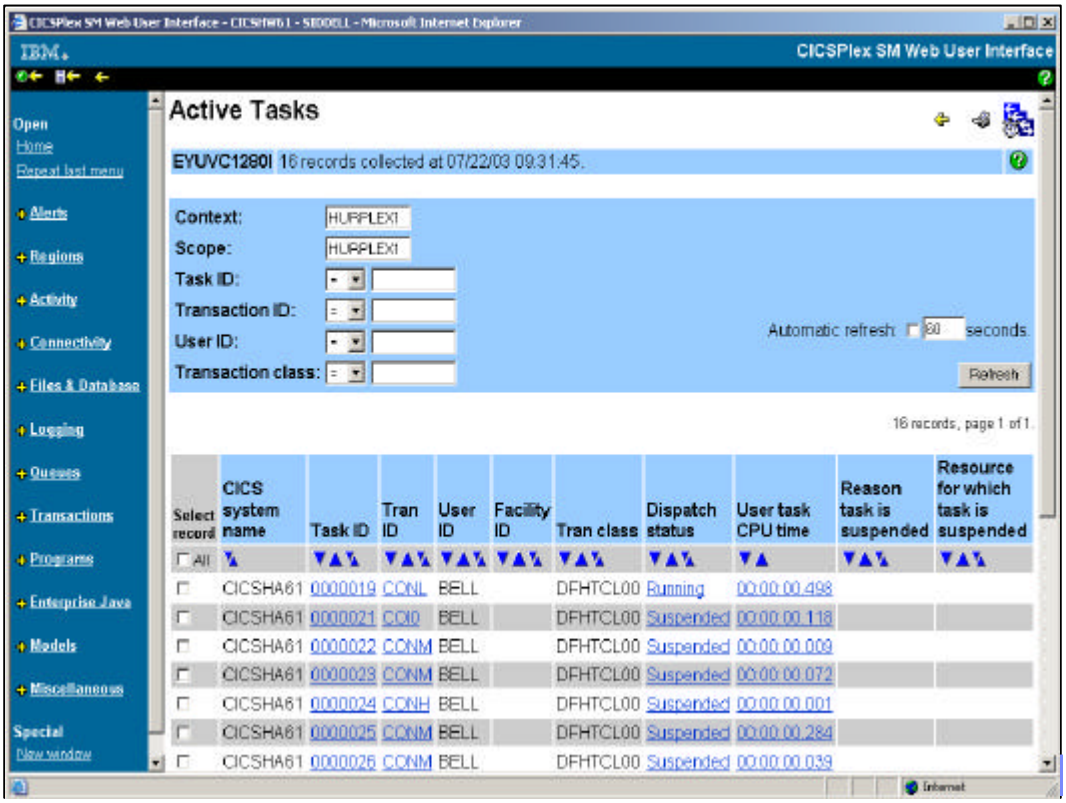

This slide shows the CICS PM Active task list in tabular form. Selecting a particular task will take you through a series of hyperlinked views that cover every available aspect of a current transactions performance. This information covers everything from basic transaction identification information, to response time, dispatch and CPU usage, transaction wait times, CICS API requests analysis, storage usage, and so on. Other hyperlinks will navigate you to specific CICS system resource that are related to each transaction.

CICS PM view sets

Dynamic storage area -detailed view

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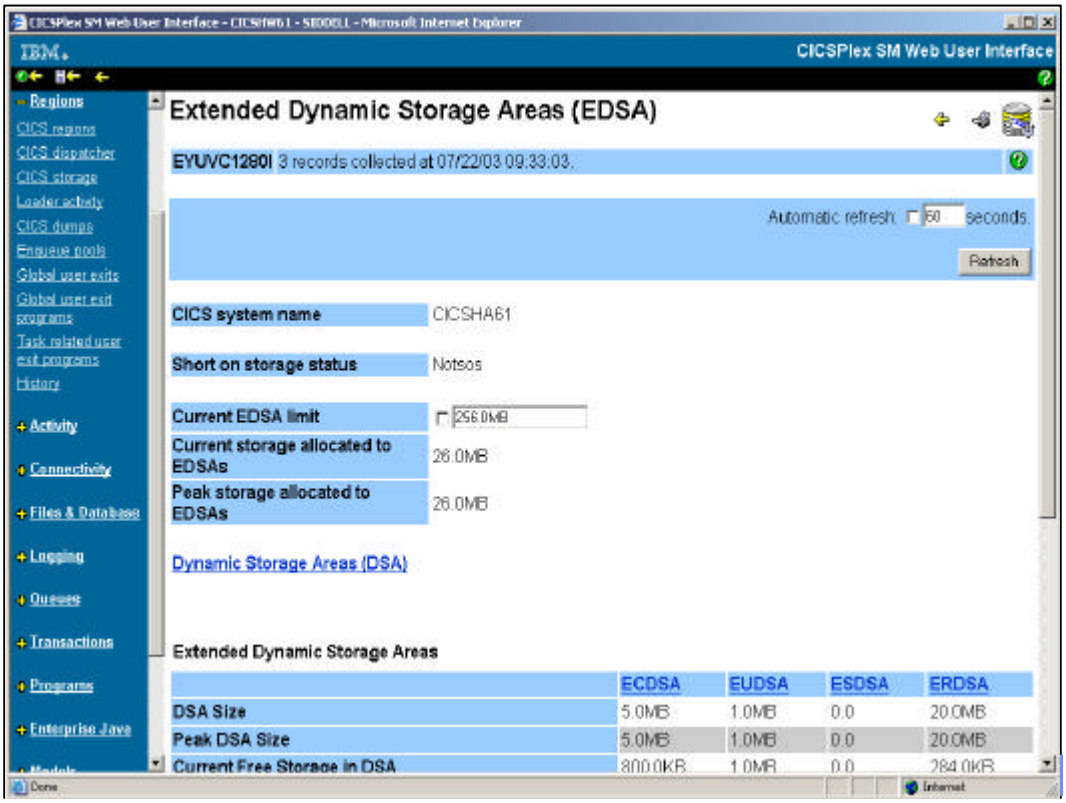
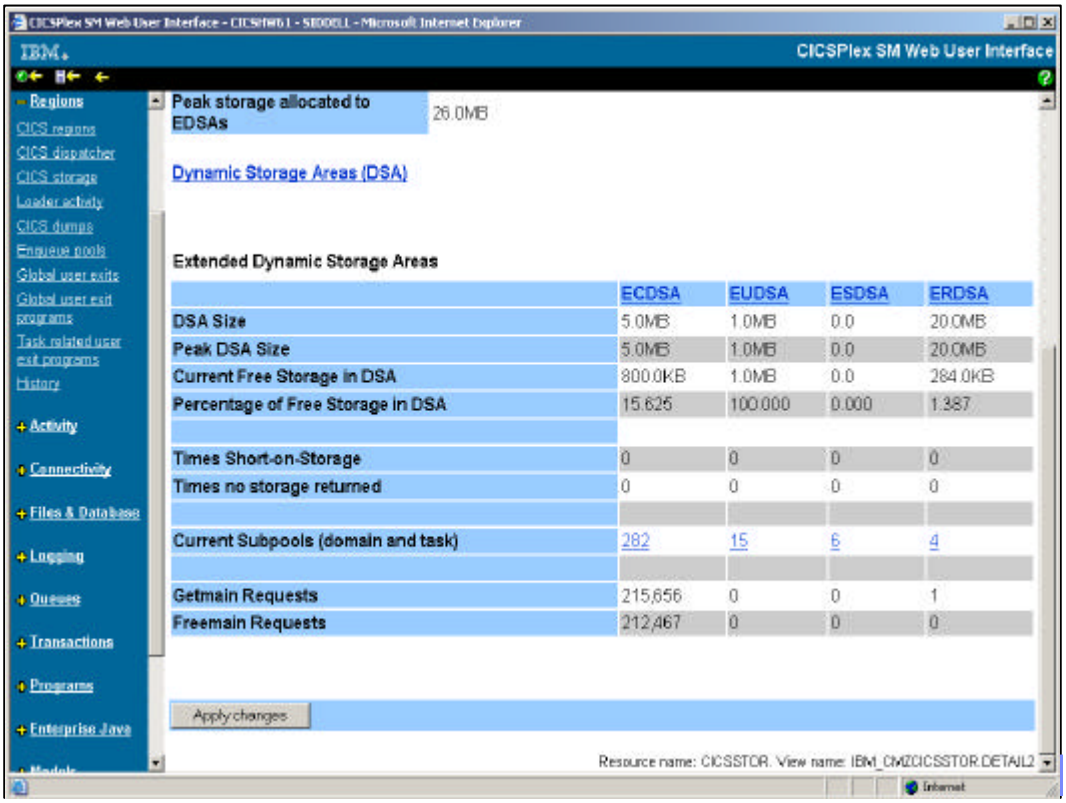


This is the detailed view for the DSAs. Note that on the detail view, there are fields that can be updated. These changes are then applied to the relevant CICS systems



This is the lower half of the previous view. Note the Apply Changes button

CICS PM view set

Task subpools - tabular view

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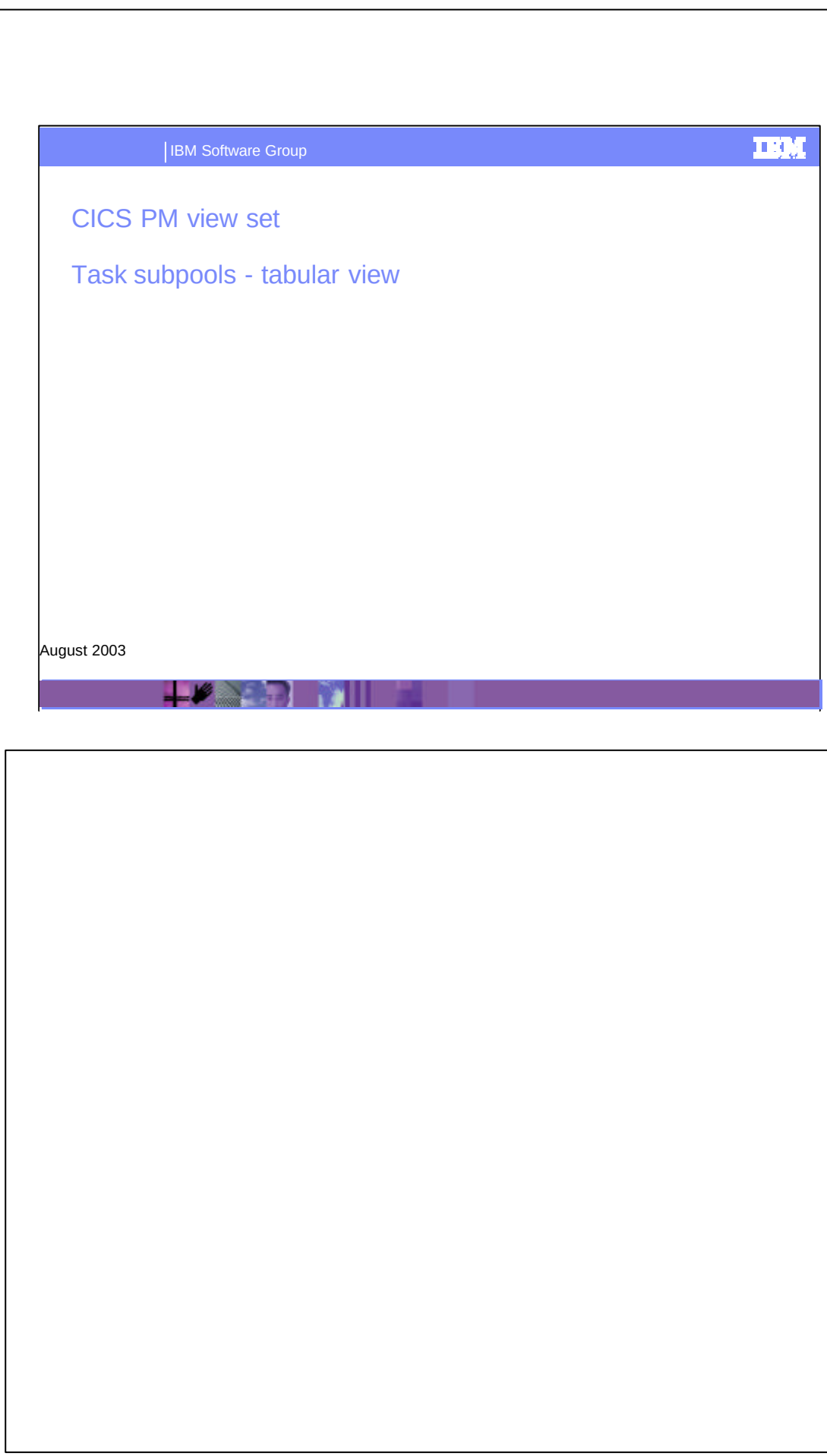

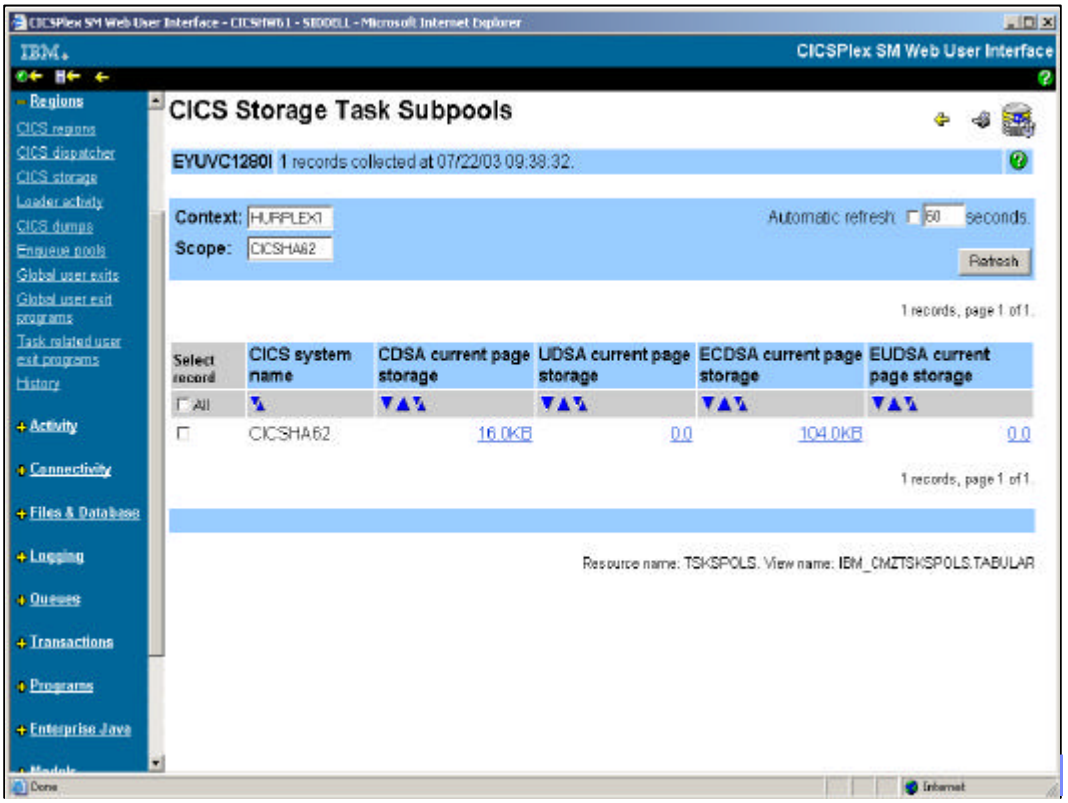

Here we see the Task Subpool for each DSA. Hyperlinking on the storage field will take us to the detail view

CICS PM view sets

Task subpools - detailed view

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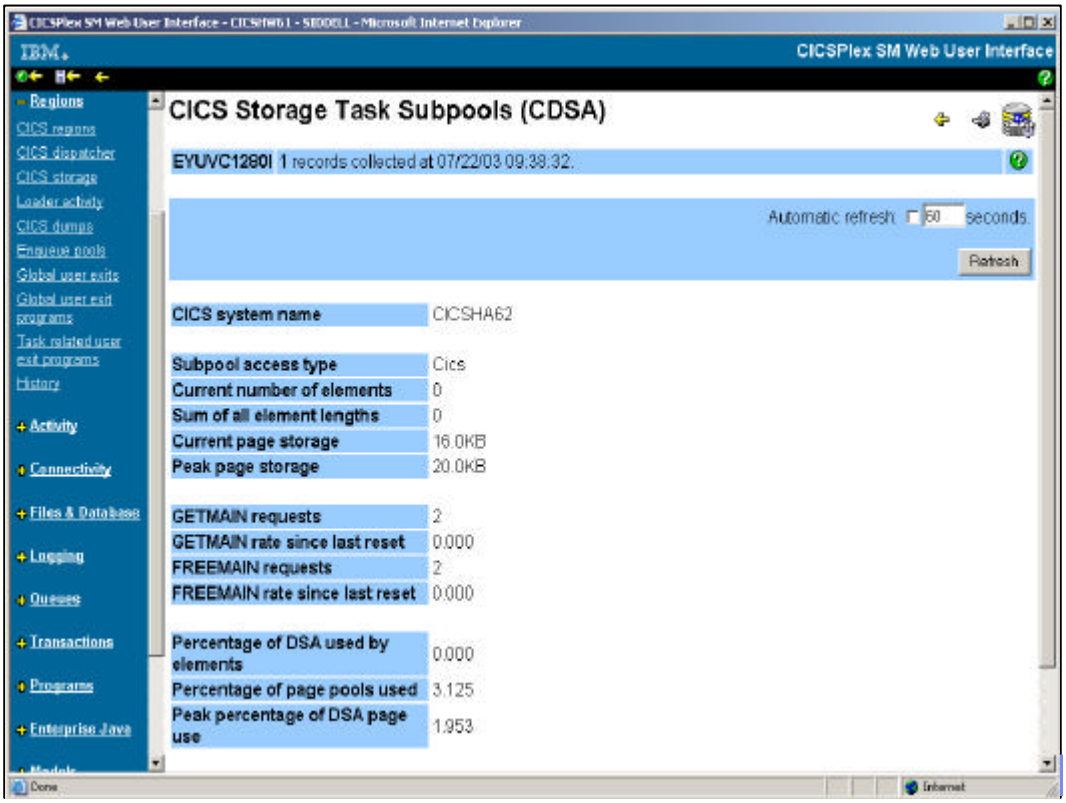
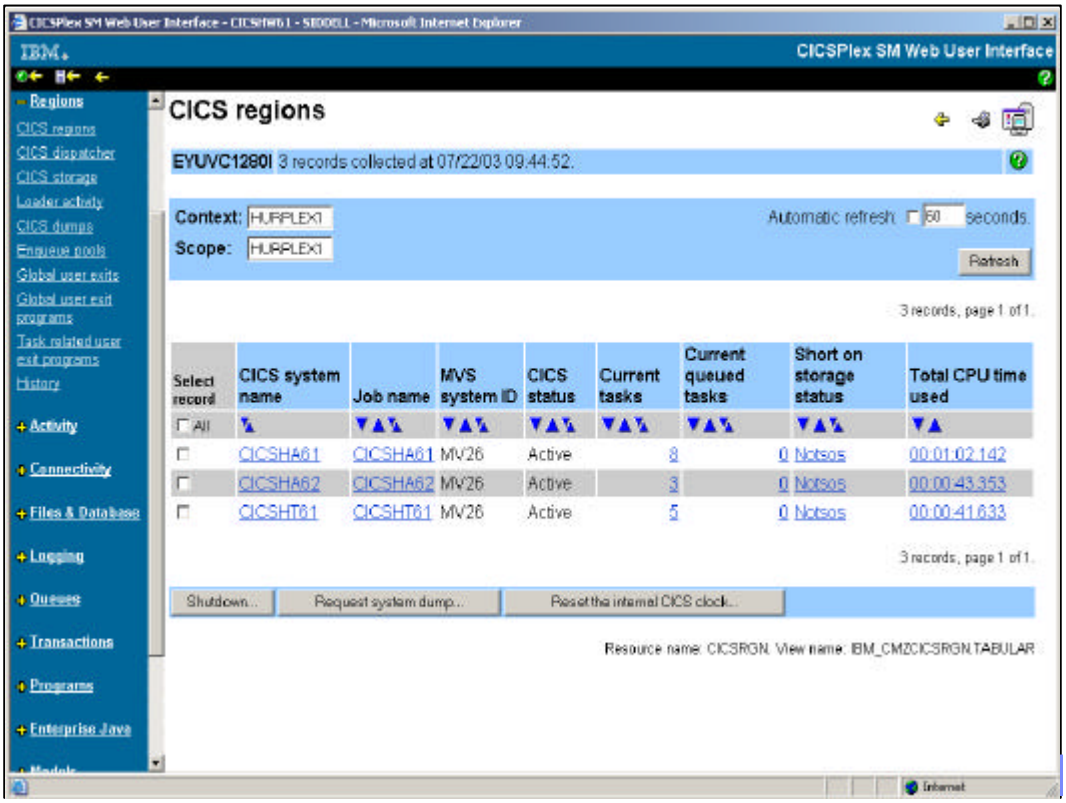


Here is the result of that hyperlink – we're now looking at the detailed view for the subpool

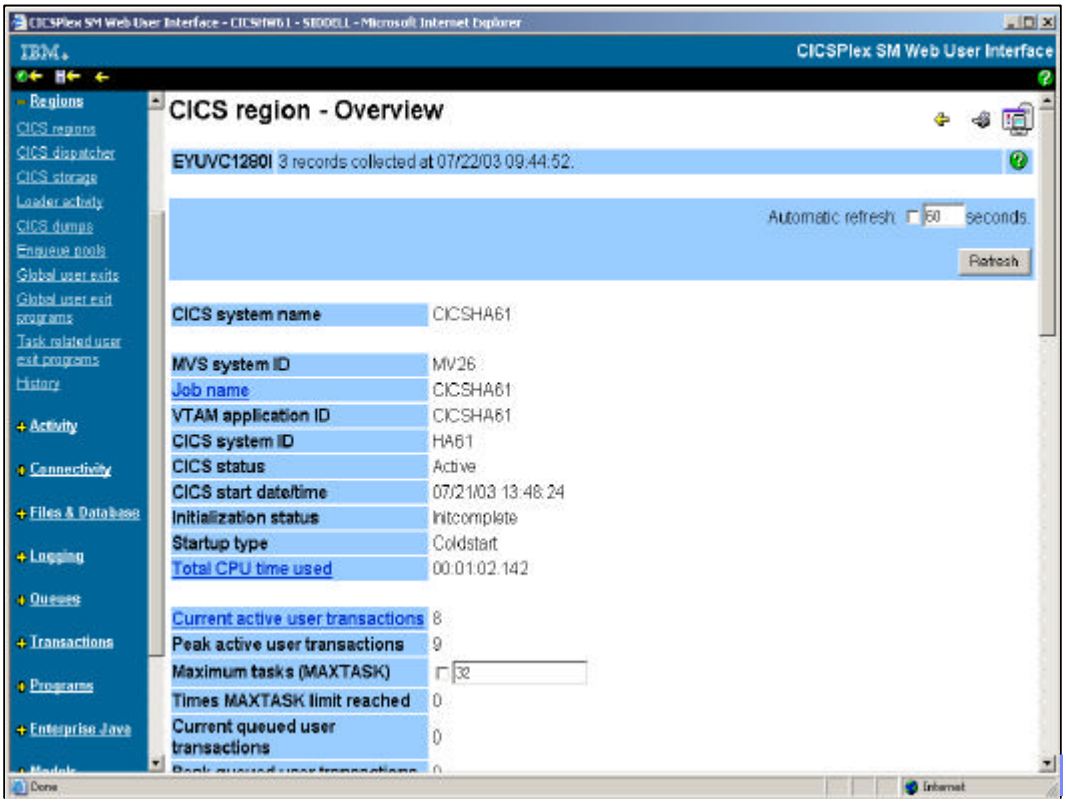
CICS PM usage

Managing resources - Max Tasks

August 2003

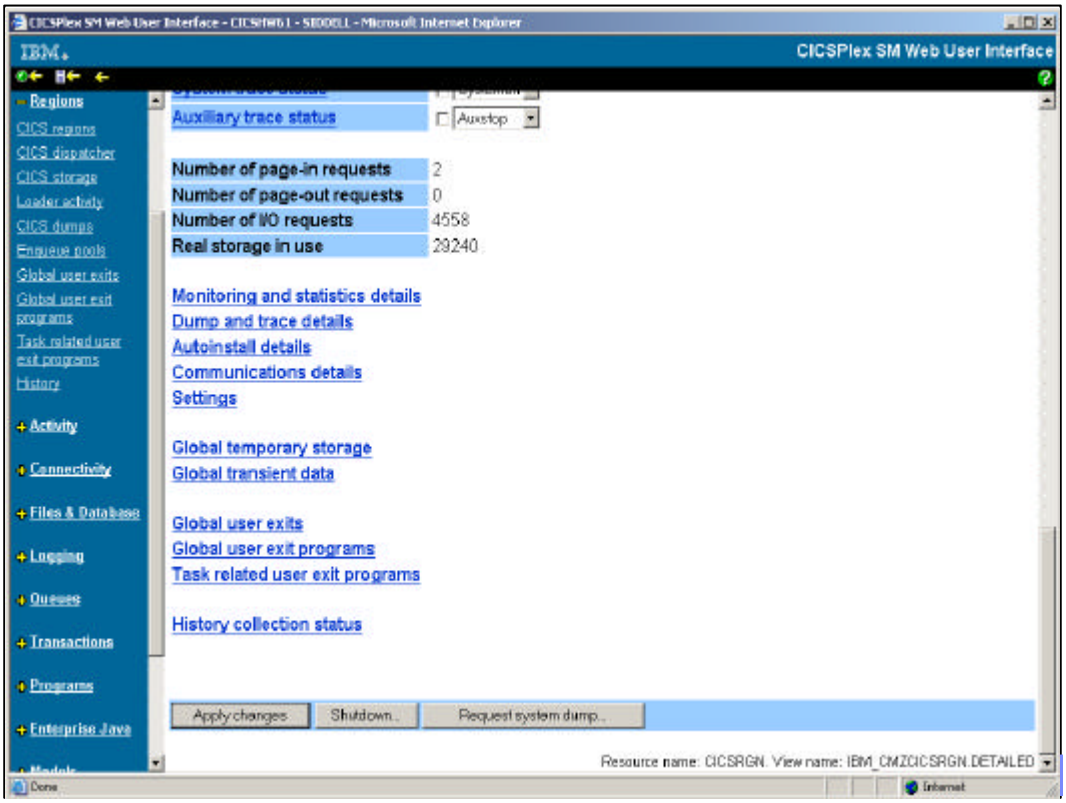


Our starting point is the CICS Region display. As MAX TASKS is an attribute of a CICS system, we select our region of choice from the list by hyperlinking on the CICS systems name

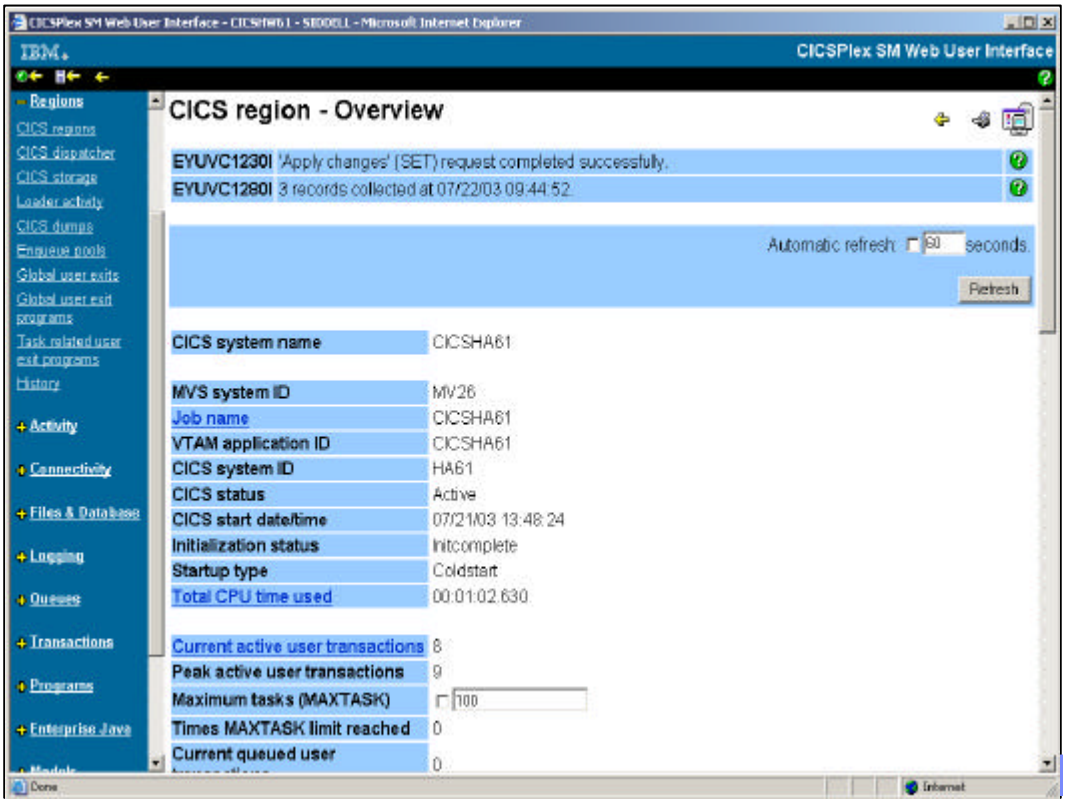


This produces our detailed view. Our field is Maximum number of active and suspended tasks. As this in unprotected, we can overtype the value.

We increase our value to 100



If we scroll down to the end of the screen, we can see the Apply Changes button. Selecting this will implement our change for us



Having made our change(s), CPSM reports the successful execution of the request

CICS PM usage

Managing Resources - Enabling files

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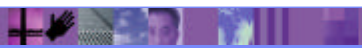
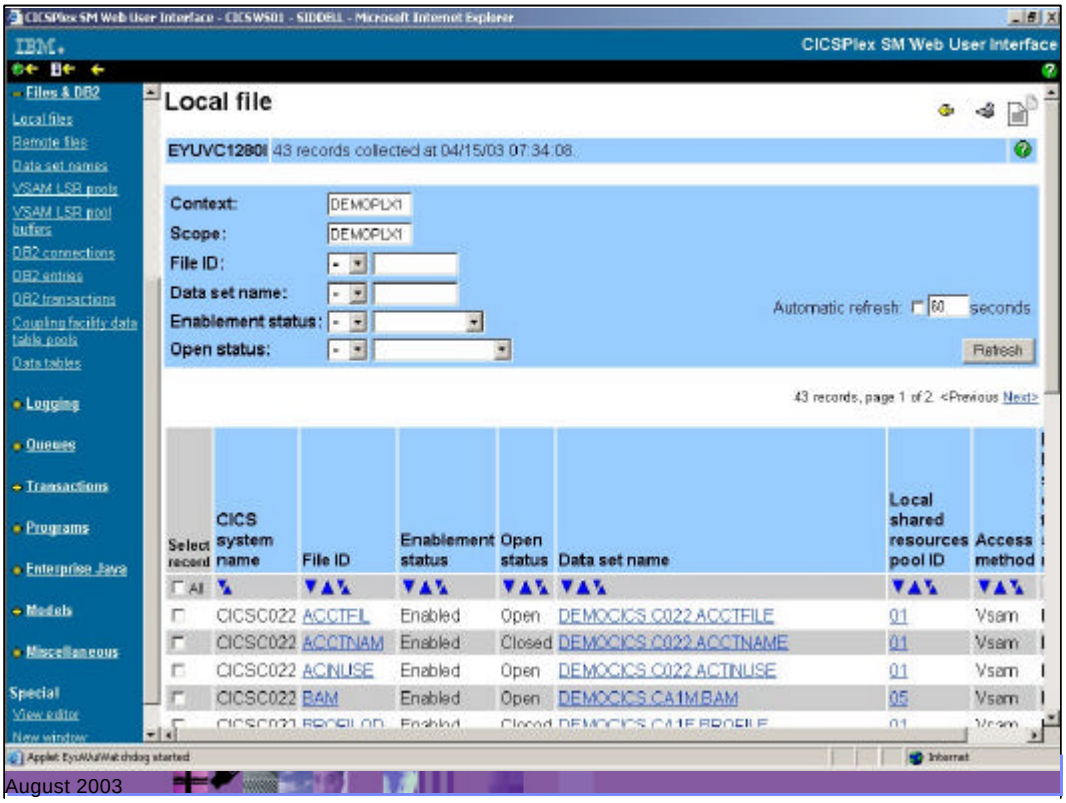
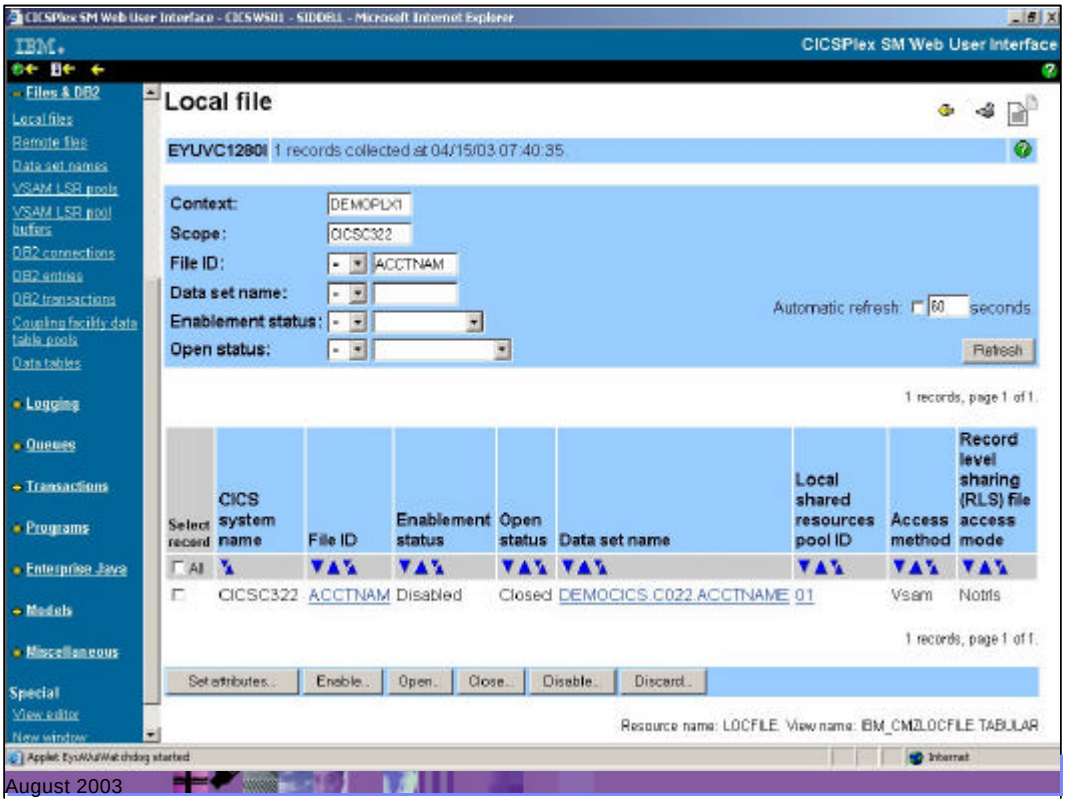


Here we will show a real time scenario demonstrating how to deal with a short on storage condition in a CICS region

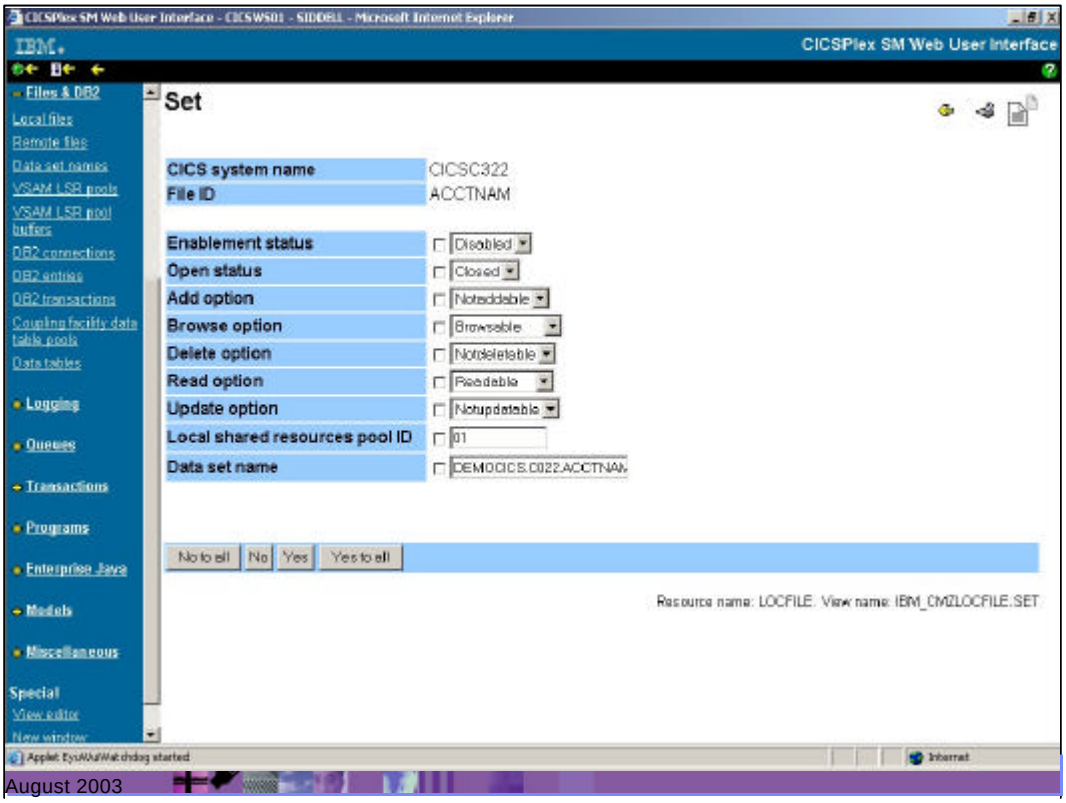
We need to enable a file in CICS region CICS322. The file name is ACCTNAM. We begin by selecting the Files & DB2 option on the navigation part of the menu - left hand side of the page



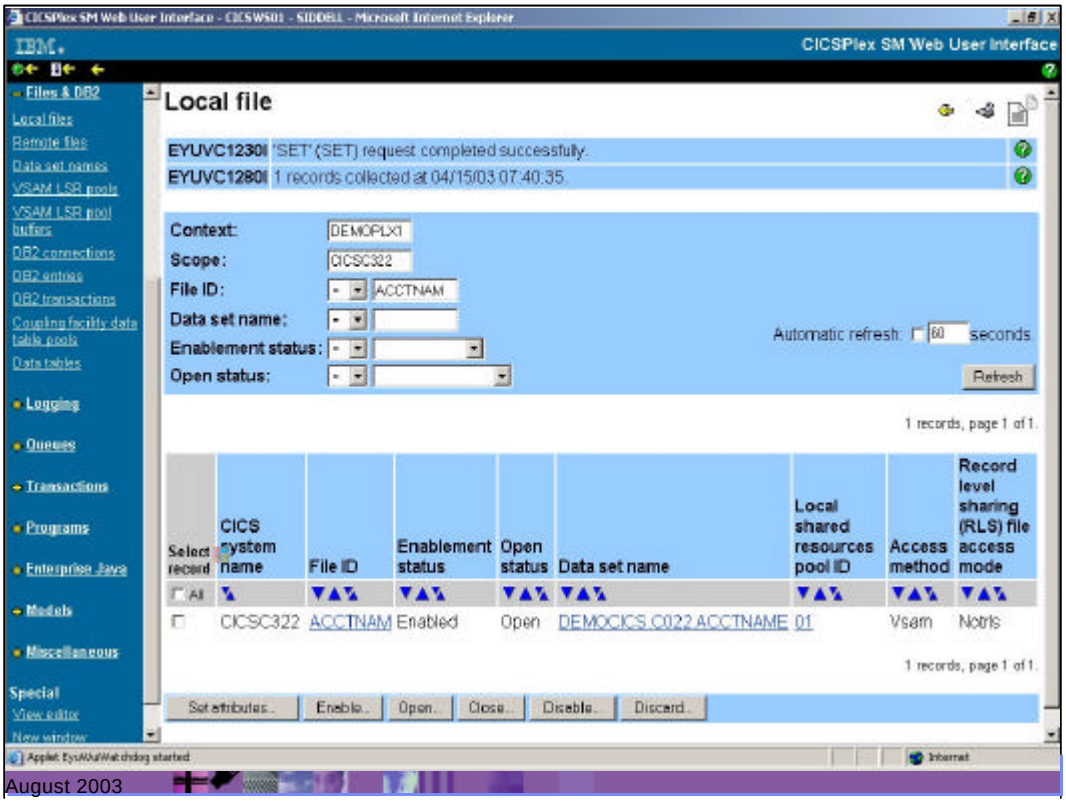
This will take us to our Local Files view. CPSM regards files as defined locally or remotely - in our DEMOPLX1 all the files are defined as local. However, there are more files than we need to see, so we can specify filters to get to the detail we require



By changing our Scope to the name of the CICS region, CICS322, and File Id to the name of our file, ACCTNAM, we see the details for this file only. Not only id the file closed, but it is disabled, so we select the Set Attributes field to change multiple fields



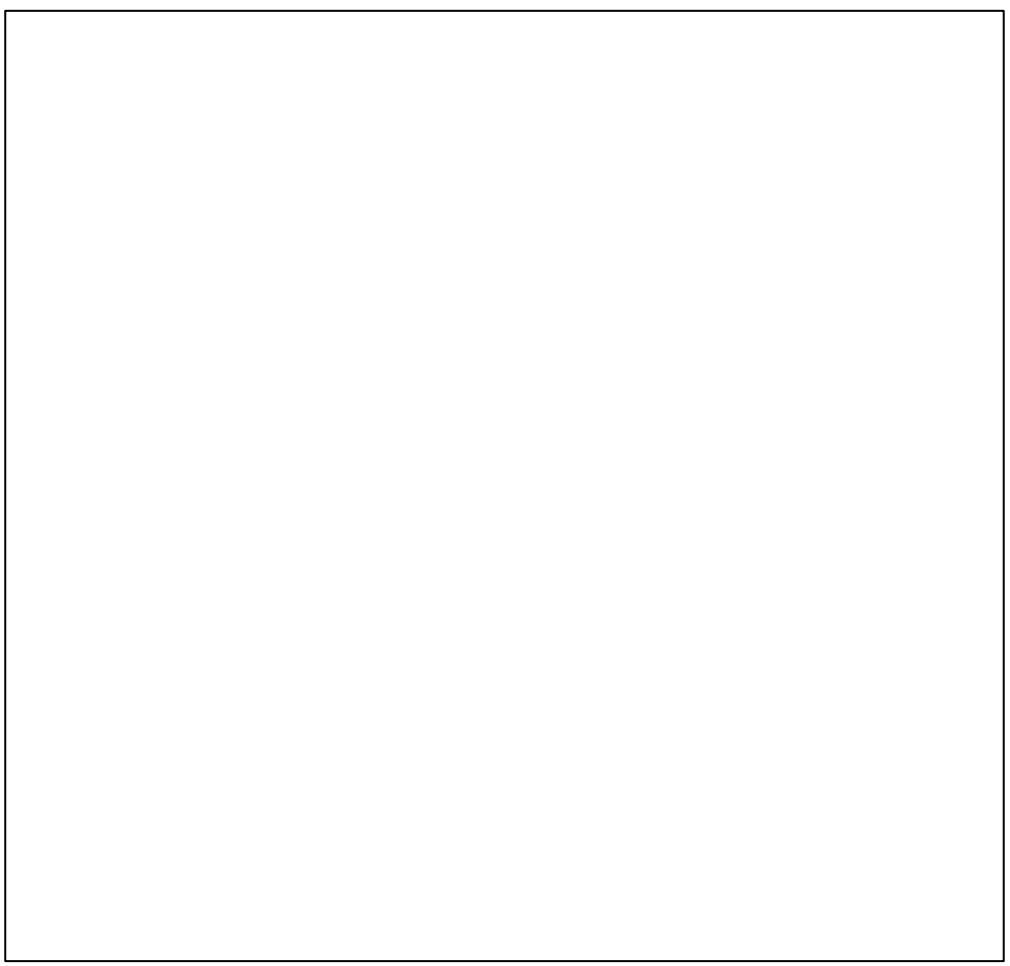
Now we can change the values from the pull-down selections for each field, and apply the changes



Having changed the values, our changes have been accepted and the file is now ready for use

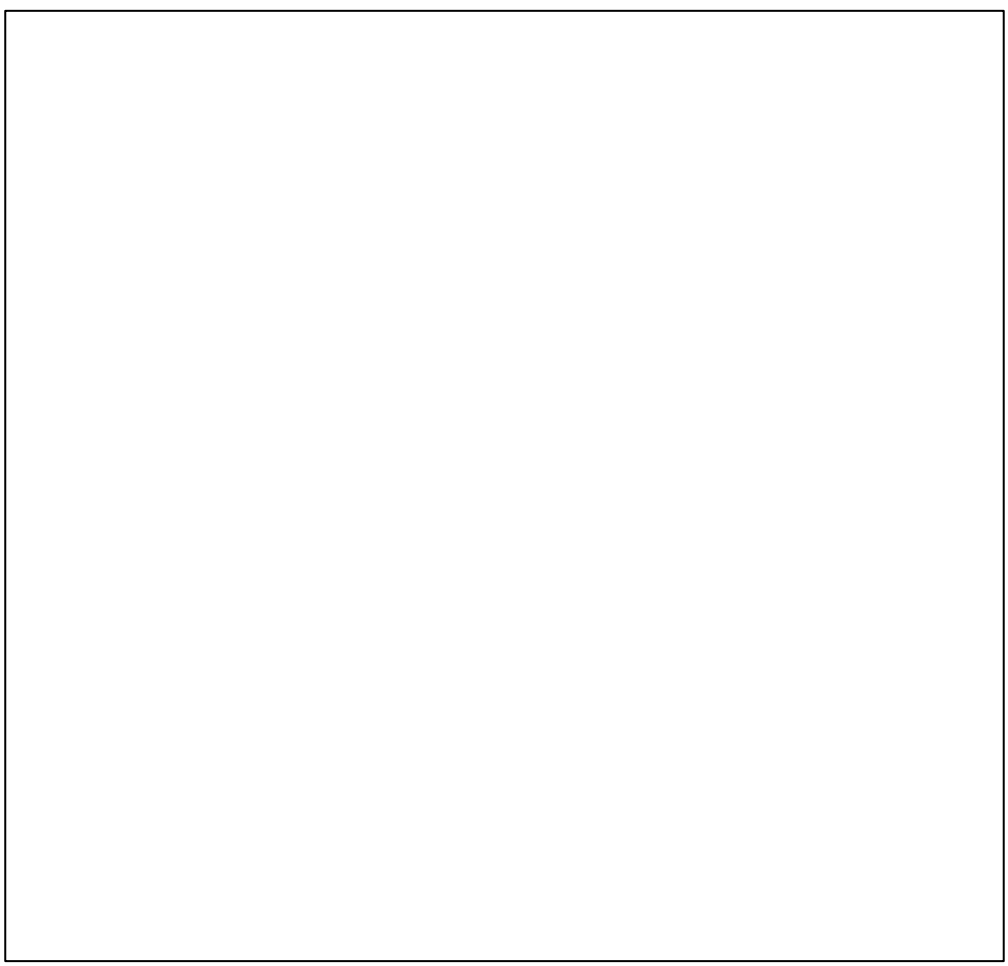
KILL functionality

- Users need the ability to remove problem tasks under all circumstances
- Situations can arise where a user cannot list tasks in a region or cancel a problem task
  - A waiting or looping CICS task can bring the CICS region to a halt
    - This may impact CICS PM because the CPSM listener runs under QR TCB
- "KILL" function provided by various vendor products partially addresses these requirements
  - Used as a last resort before recycling the system
  - May keep system up and allow SLAs to be met



KILL functionality

- Two main elements to IBM solution in plan for 2003
  - Enhance existing support for cancelling tasks to remove offending tasks more efficiently
    - Earlier detection of deferred purge
    - Initiate purge (or forcepurge) for the "oldest" instead of the "first found" task marked for purge
    - More frequent detection of deferred purge
    - Reduces the need for "KILL“
    - Provides a more reliable method of removing problem tasks without comprising system integrity
  - Provide a ‘KILL’ function
    - Via new keyword available on the INQUIRE and SET commands
    - Via the MVS console
      - Requests executed under a TCB other than the QR TCB
      - Addresses looping tasks
      - Provides audit trail on transactions that have been ‘KILLed’
- Delivered in base CICS Transaction Server V2.2
- Invokable from CICS PM



CICS PM usage

An Alert scenario

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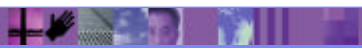
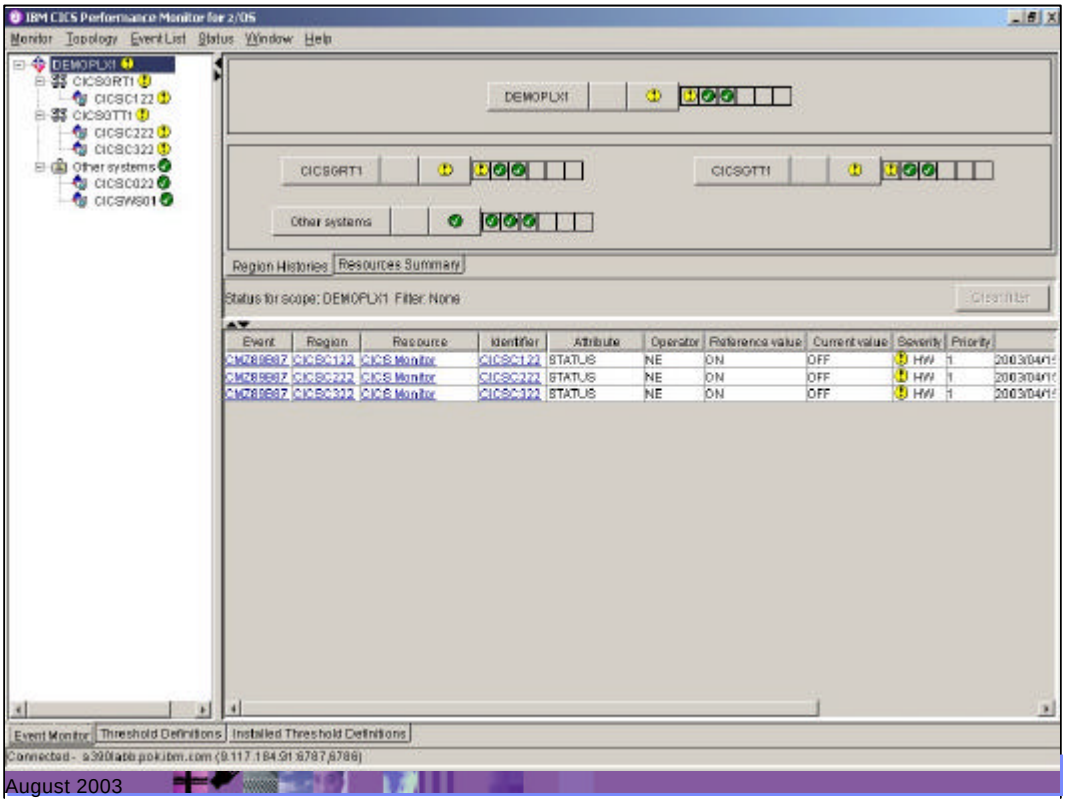
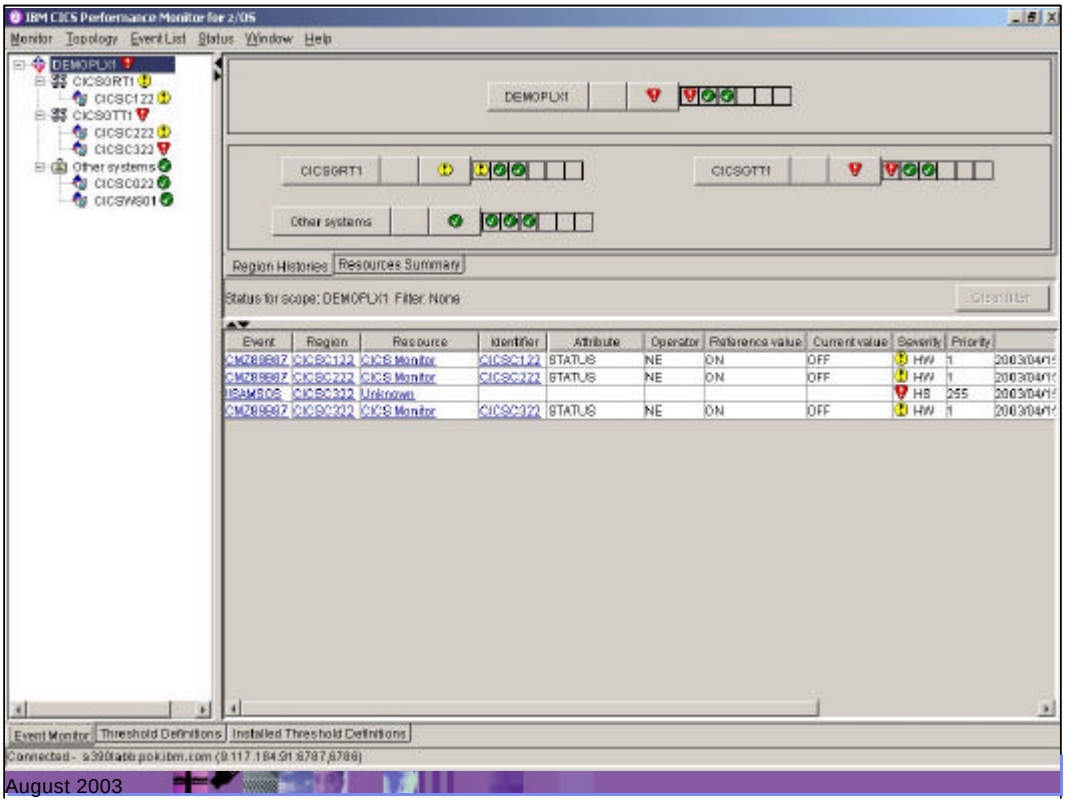


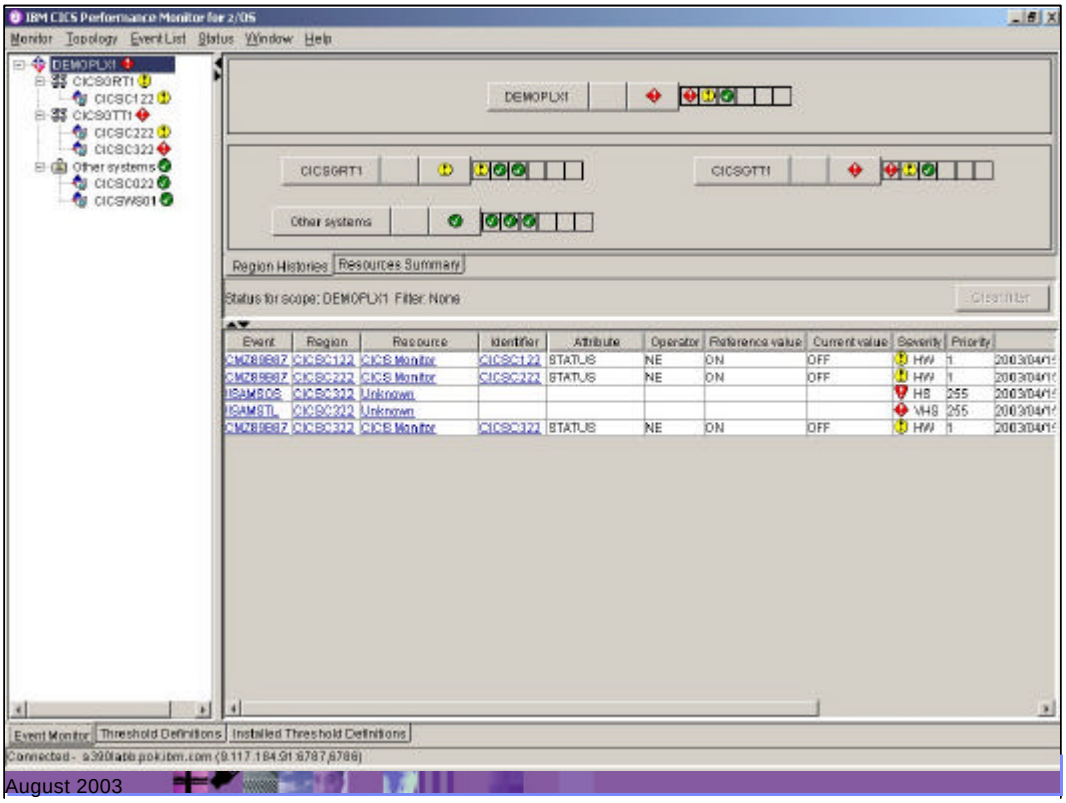
Here we will show a real time scenario demonstrating how to deal with a short on storage condition in a CICS region



Here we have CICS PM reporting 3 warnings about our CICSPlex DEMOPLX1. At this point, we're not too concerned.



Now CICS PM is reporting a system availability problem - short on storage - as notified by the !!SAMSOS event.



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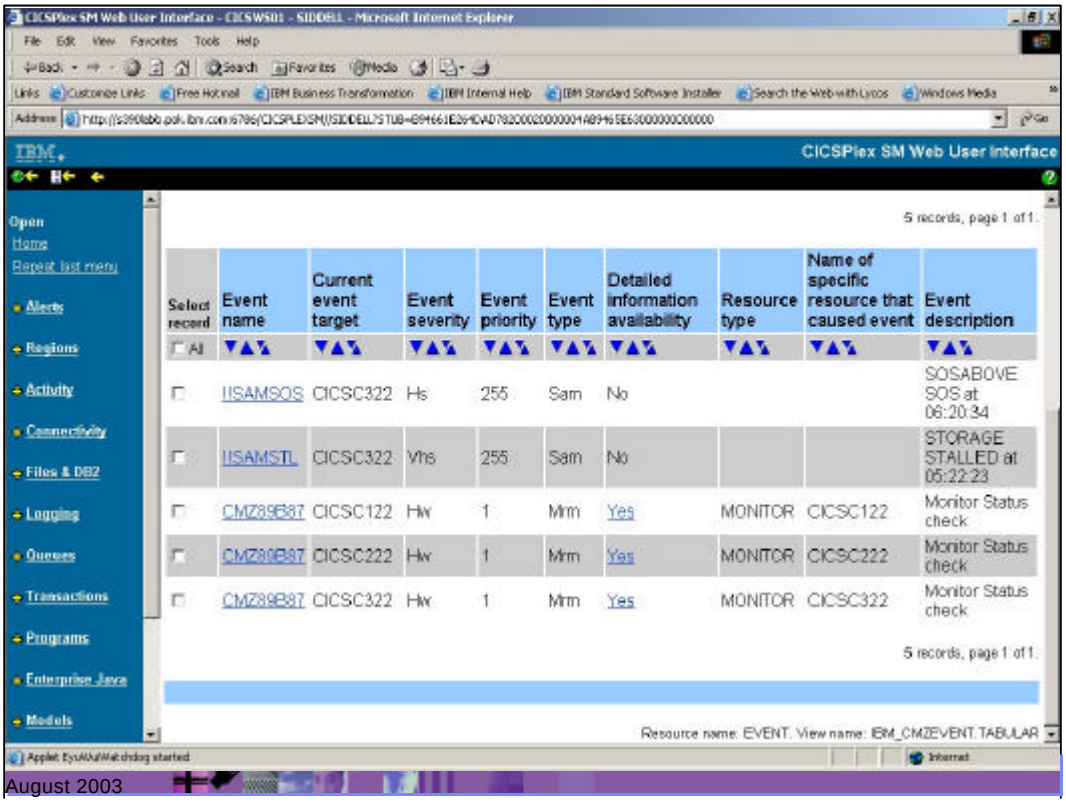
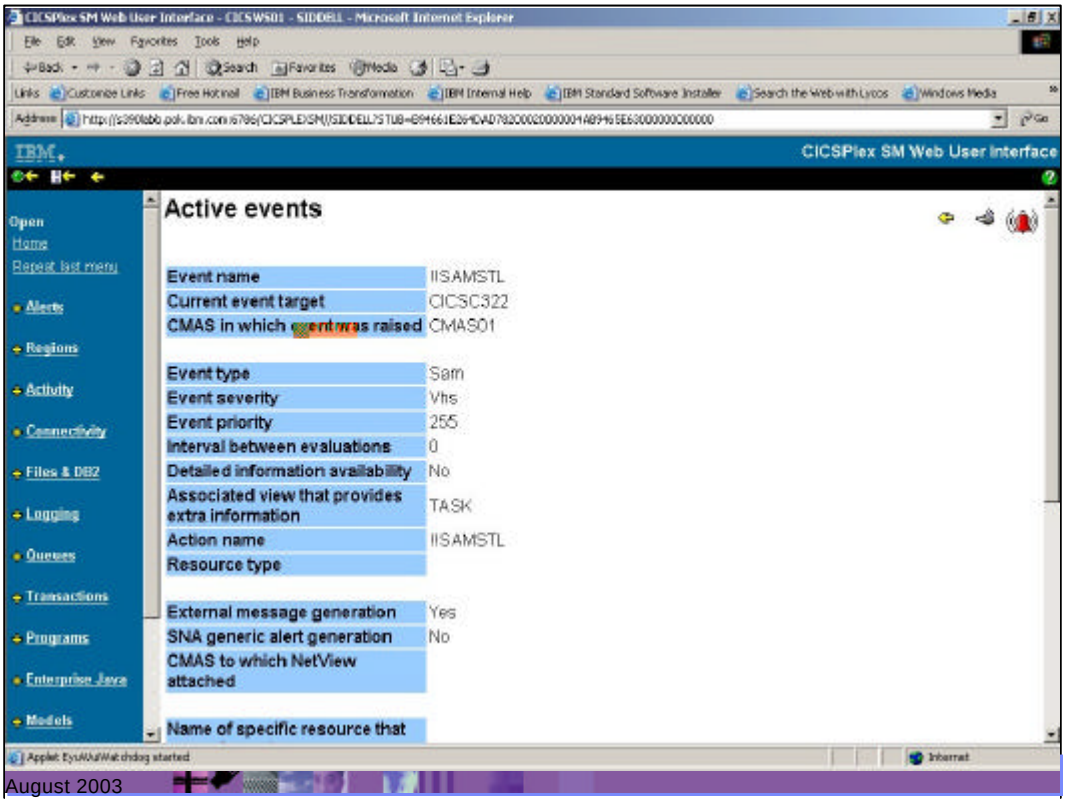
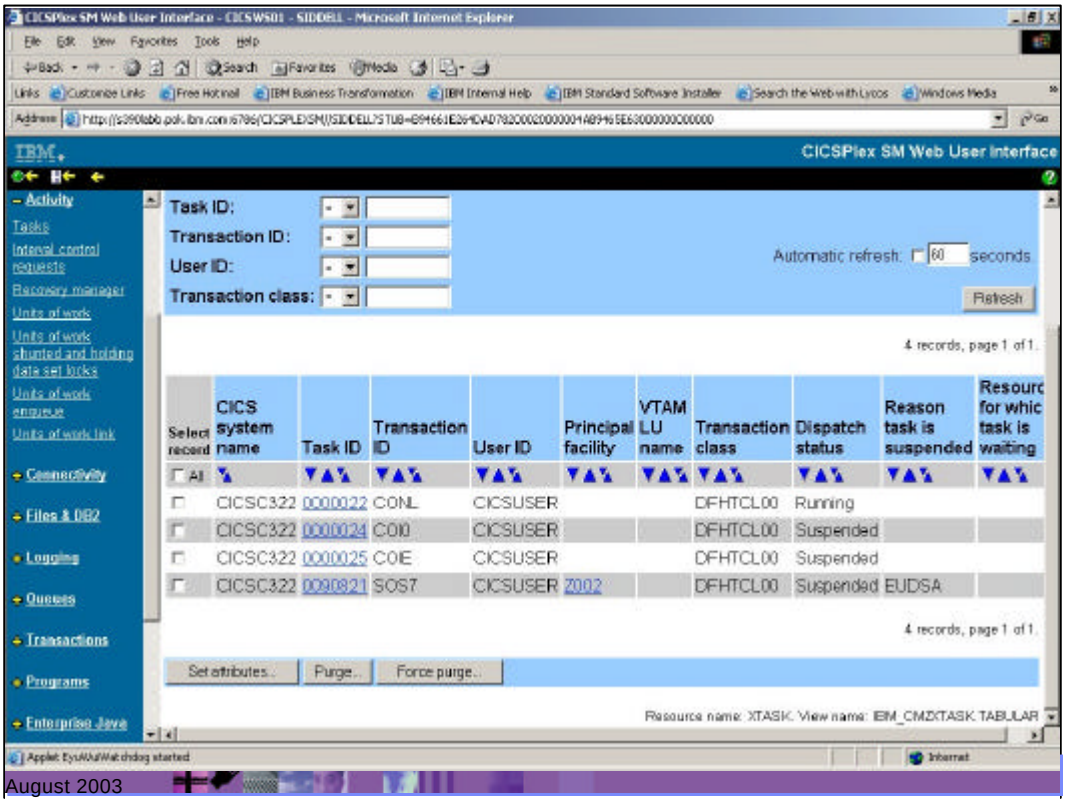
The situation has worsened - we now have a stall in the system, meaning that transactions are unable to run. We need to investigate.



We hyperlink from the CICS PM client to the Web User Interface by clicking on the event. Once here, we can select the event to get more details.

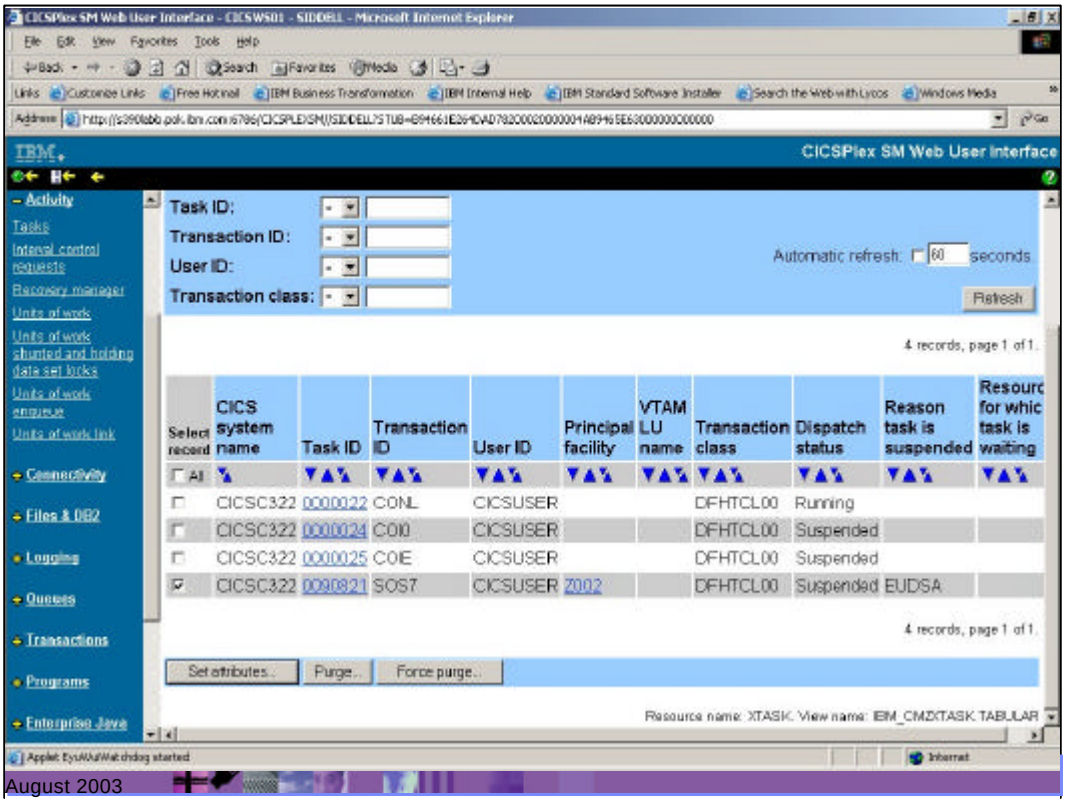


By clicking on the !!SAMSTL event, the details tell us that the associated view is TASK, so we go to Active Tasks to discover where our problem is.

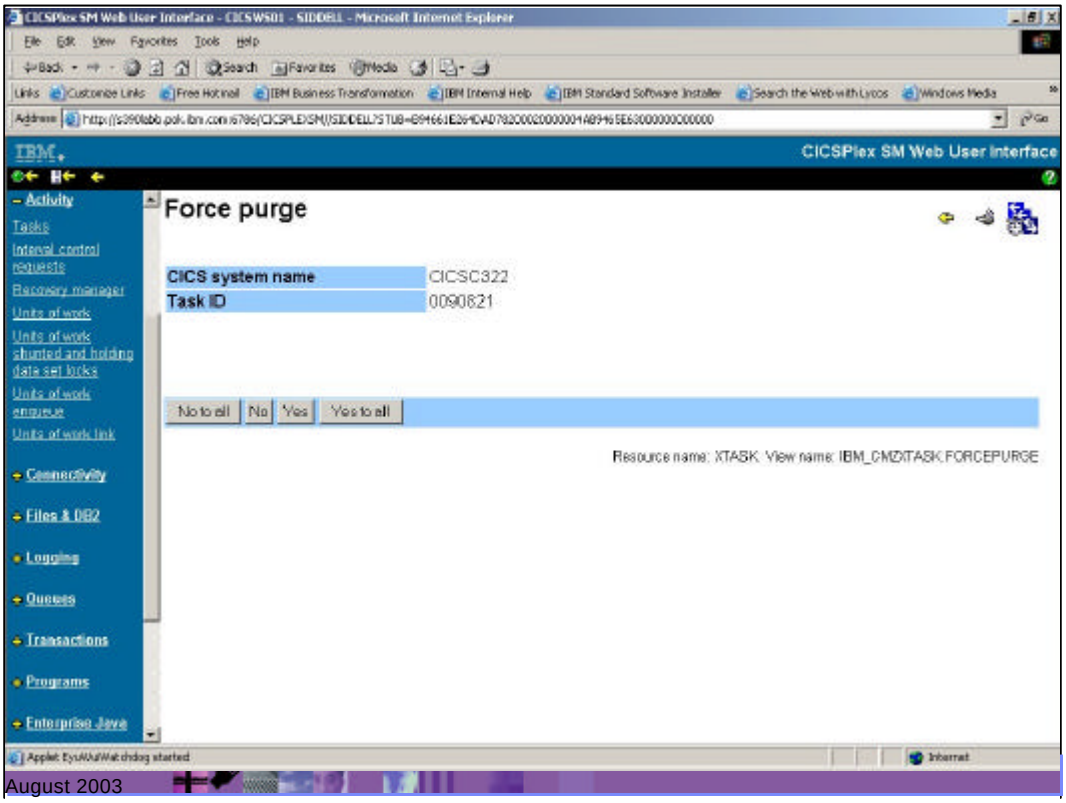


In the Active Task view, we see that task 90821 is suspended because there is insufficient storage. This is causing CICS to suspend further tasks.

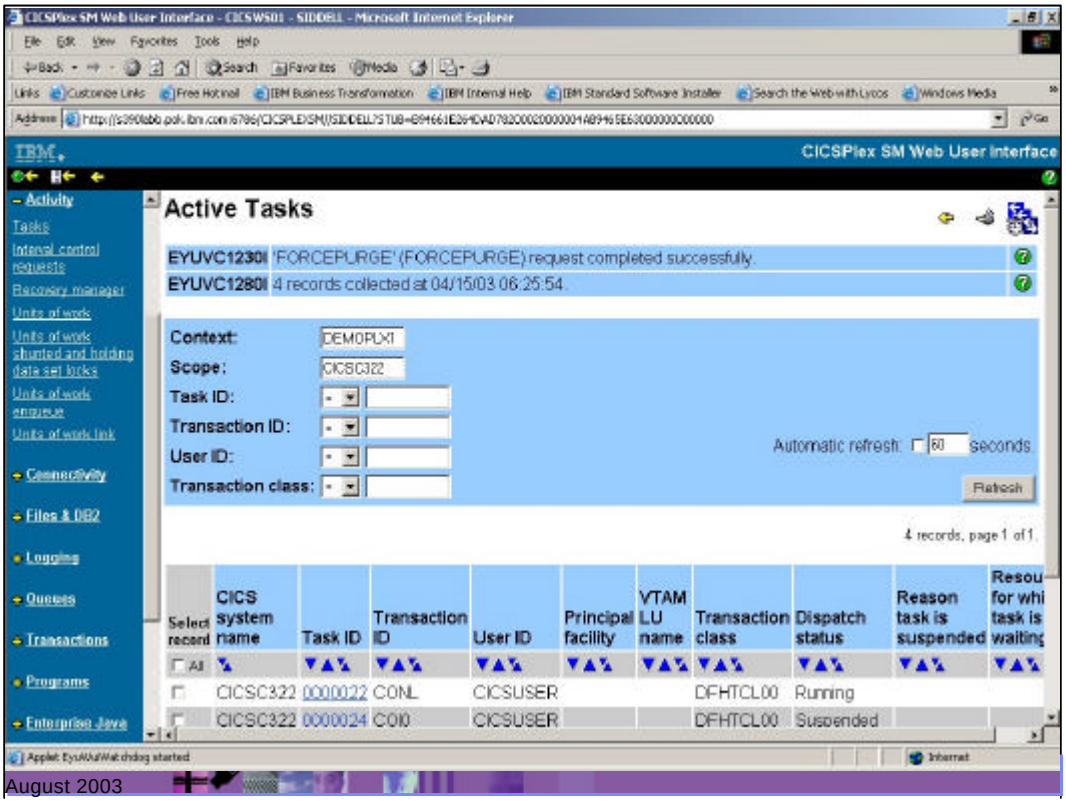
We can either increase storage via WUI or purge the task.



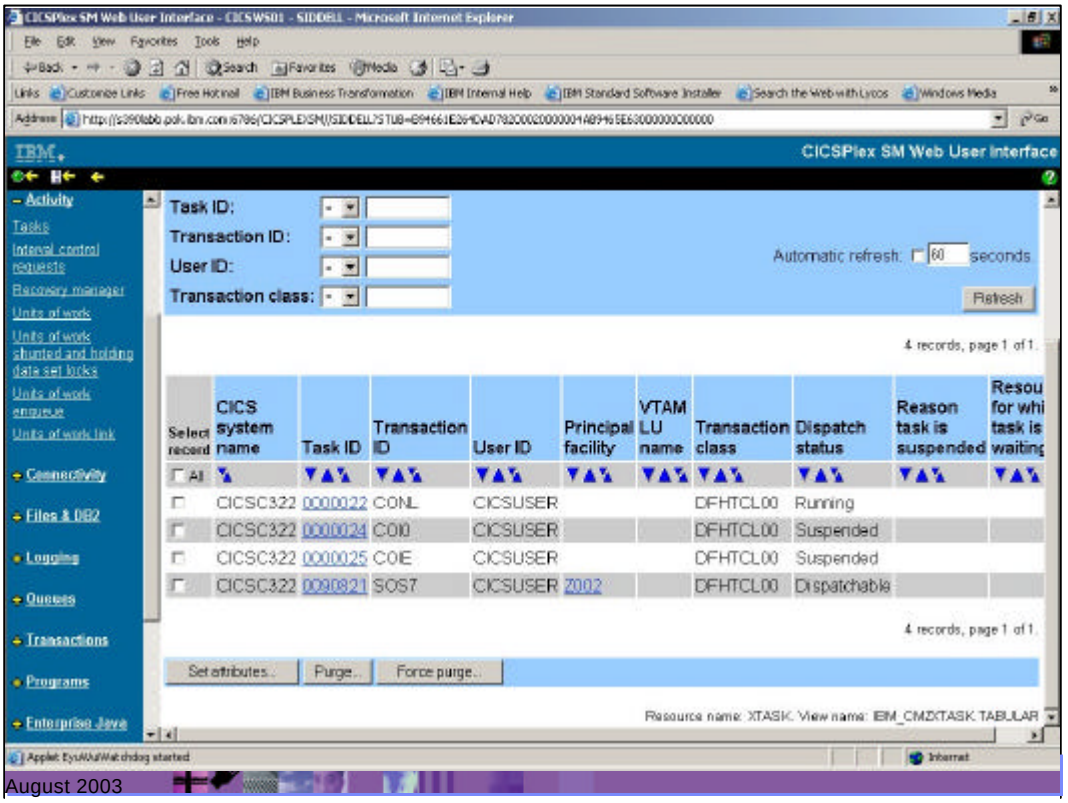
By selecting the Force Purge button, we can remove the offending task.



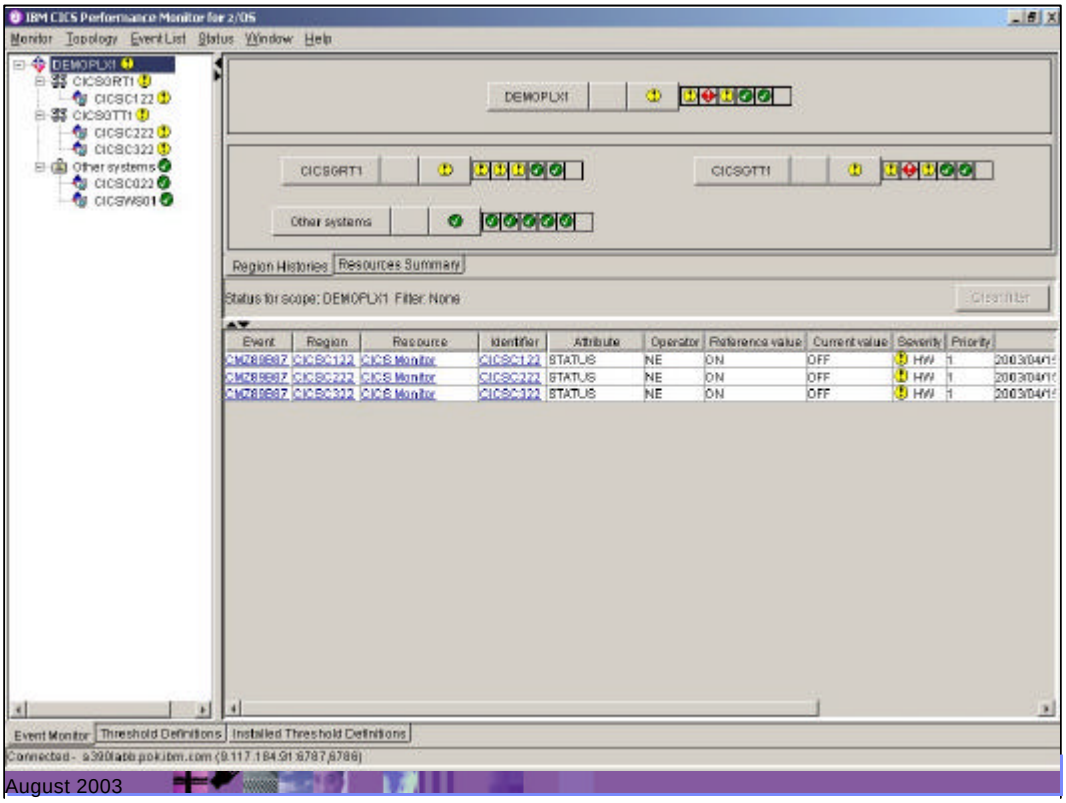
Here we confirm which task is to be purged, and proceed.



Our request has been completed successfully.



Our Active Tasks view no longer contains the offending task



When we return to CICS PM, we see that our system events have now been cleared, and we have now had a transaction dump reported to us because we purged the task

Why use CICS PM

- Improves availability and system integrity
  - Provides Single point of control for managing multiple CICS regions
  - Based standard APIs and proven CICS TS and CICSPlex SM system management technologies
- Helps reduce down time
  - Identify potential problems quickly with intuitive cross-system navigation
  - Take immediate actions to avoid problems
- Increases flexibility of performance management
  - Single System Image access to the data in multiple CICS regions
- Fast time-to-exploitation
  - Easy to install, set up, learn and use
  - Support for the latest releases of CICS Transaction Server

Here are some benefits of using CICS PM.

CICS PA can complement CICS PM to provide capacity-planning capabilities.

CICS PM and CICS PA, along with the existing system management functions of CICS TS and CICSPlex SM, provide customers with an effective solution to monitor and improve the productivity of their CICS systems and help plan capacity for future requirements.

What is CICS Performance Analyzer for z/OS ?

- Comprehensive off-line performance reporting for CICS
  - CICS Monitoring Facility (CMF) data (SMF 110)
    - Performance, Resource and Exception
  - DB2 Accounting records (SMF 101)
  - WebSphere MQ Accounting records (SMF 116)
  - MVS System Logger records (SMF 88)
- Flexible reporting
- Historical Data base
  - Trending and capacity planning
  - Product number - 5655-F38
  - CICS PA V1.3 GA - 29 August 2003
- Releases Supported ...
  - CICS Transaction Server for z/OS, Version 2
  - CICS Transaction Server for OS/390, Version 1

IBM CICS Performance Analyzer (CICS PA) for z/OS, V1.3 can help optimize system and application performance by:
Providing comprehensive off-line performance reporting for your CICS systems

Helping you tune, manage, and plan your CICS systems

CICS Performance Analyzer (CICS PA) is an off-line performance monitoring tool. It uses the CICS SMF 110 data collected by the CICS Monitoring Facility (CMF), DB2 Universal Database for z/OS and WebSphere MQ Accounting records and the MVS System Logger, to produce a wide range of batch reports and data extracts that can be utilized to analyze CICS system and application performance.

CICS PA offers extensive historical data base capability for trend analysis and capacity planning.

Why use CICS PA?

- Reduce cost of tuning and capacity planning analysis
- Take proactive approach to CICS systems tuning
- Provide detailed performance bottleneck analysis
- Uncover trends leading to poor CICS performance or even outages
- Enable capacity planning for optimal performance
- Identify potential to improve application design and review application performance before these applications go in production

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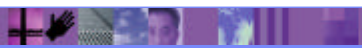


Here are some of the benefits that can be realized using the CICS Performance Analyzer:-
Improve transaction response times

Analyze and improve CICS transaction resource usage

Analyze CICS application performance

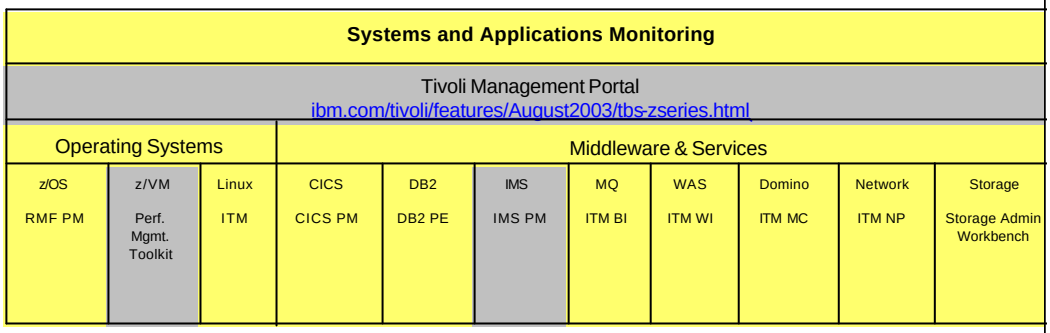
Provides information on usage trends for capacity planning activities.
CICS PA can also complement other performance analysis tools you might be using by providing more detailed information on how specific CICS resources are being used.

CICS PA can complement CICS PM to provide capacity-planning capabilities.

CICS PM and CICS PA, along with the existing system management functions of CICS TS and CICSPlex SM, provide customers with an effective solution to monitor and improve the productivity of their CICS systems and help plan capacity for future requirements.

IBM Software Group

IBM Integrated Performance Management for zSeries



RMF PM: ibm.com/eserver/zseries/zos/rmf
DB2 PE: ibm.com/software/data/db2imstools/db2tools/db2pe
IMS PM: Coming in 2003
IMS PA: ibm.com/software/data/db2imstools/imstools/imspa.html

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CICS Performance Monitor is a part of an extensive portfolio of IBM zSeries® tools. These tools support the entire enterprise application life cycle to help you build, integrate, test and manage enterprise solutions. You can leverage your investments zSeries platform and exploit the latest functions introduced in CICS Transaction Server. This portfolio includes a suite of tools for integrated performance management on zSeries, which provides the ability to monitor health of all IBM zSeries systems and applications. And ensure continuous application availability and improve business performance.

Publications

- CICS PM User's Guide (GC34-6194):
  - Single self contained manual
  - Non-CPSM users would only need this book
  - Keeps CPSM terminology to an absolute minimum
  - Documents simplified installation for non-CPSM user
  - With accompanying procs ...
  - Contains all the CICS PM views
  - With accompanying explanations
- CICS PM Program Directory (GI10-2556)
- CICS PM Redbook - IBM Tools: CICS Performance Monitor V1.1, SG24-6922

More Information ...

ibm.com/cics/products/tools.html