Solving CICSplox Performance problems using the enhanced 3270 user interface in OMEGAMON XE for CICS on z/OS v5.1.0

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Abstract

Are you asked to do more with less? Tivoli continues to add capability to help you proactively analyze and manage your CICS subsystems across your Enterprise.

OMEGAMON XE for CICS on z/OS v5.1.0 introduces real-time CICSplex monitoring that can make it easier and faster to track down potential and actual outages. This session will show how the new e3270ui, introduced in OMEGAMON XE for CICS on z/OS v5.1.0, can improve your system availability and simplify CICS monitoring, management and problem solving.

But first...  

• The new release GA’d on March 9th 2012, and is available for immediate delivery!

• And, as always, please ask questions.
  • Ask them as we go,
  • Ask them at the end,
  • But ask them!
OMEGAMON XE for CICS on z/OS v5.1.0 - 
Product Overview

• The new release was built using extensive input from Customer Advisory Councils in Europe and North America, Early Adopter Program meetings etc.
  • We talked to a LOT of customers over the last couple of years.
  
• Problem solving – customers were asked to identify their most common problems, and scenarios which would solve them were developed.

OMEGAMON XE for CICS on z/OS v5.1.0 - 
Product Overview

• Three main features were implemented
  • An enhanced 3270 user interface (e3270ui)
  • CICSplex monitoring and reporting
  • Self Describing Agents (SDA)

• This presentation is focused on the new e3270ui but we will look at some TEP changes where appropriate.
In addition to the existing CUA, TEP and Menu System interfaces, an enhanced 3270 user interface (e3270ui) is made available in this release.

V5.1.0 is phase one of an extensive re-architecting. Not all features are available in the new user interface.

Most of the re-architecting is supported by code that is running in a new address space.

The new STC manages data collection and presentation, which we will be looking at over much of the next hour.

 القومון XE for CICS on z/OS v5.1.0 – Product Overview

CICSplex monitoring has been requested for years by a number of large customers.

So, what is a CICSplex?

A number of CICS regions which the customer wishes to monitor and manage as a single entity.

A CICSplex can contain one or more CICS regions, and they can span LPARs/Sysplexes

Typical CICSplex groups might be Test/Production, or Payroll apps/Accounting apps.

Why monitor (report) at the CICSplex level?

Increasingly complicated applications can span multiple CICS regions, and issues such as this are common; ‘Our users log onto CICS and often have no clear idea which CICS region they logged on to. Because they work through a menu system they sometimes don’t even know which transactions they are executing. All they know is their user name. We need a way to find out what that user is doing right now. . . . ’
OMEGAMON XE for CICS on z/OS v5.1.0 – Product Overview

• Why monitor (report) at the CICSplex level?
  • Monitoring the response time of an application which might span multiple CICS regions is complicated. CICSplex monitoring offers our customers a means of showing the response time of a transaction (or a service class, or an application) regardless of how many CICS regions contributed to that transaction’s response time.

• What does it look like?
  • The next few slides show a couple of aspects of CICSplex monitoring.

This is the default first panel for a user with the z/OS and CICS products installed. Note that they have 1 Sysplex and 2 CICSplexes defined in their environment.
OMEGAMON XE for CICS on z/OS v5.1.0 – Product Overview

Selecting the CICSpix, OMEGPLEX, expands the CICSpix to show the 8 regions that are categorised into the CICSpix.

Typing a slash (‘/’) next to the CICSpix name, and pressing enter displays the CICSpix options menu. Selecting a CICSpix and pressing enter uses the default character (S) to select, in this case, CICSpix Regions Summary.
This is the initial CICSpex Service Level Summary report, new in OMEGAMON XE for CICS on z/OS v5.1.0.

This is the second CICSpex Service Class Detail report, and is accessed from the previous report.
OMEGAMON XE for CICS on z/OS v4.2.0
- Infrastructure

Today with v 4.2

OMEGAMON XE for CICS on z/OS v5.1.0
- Infrastructure

Upgrading to 5.1
Understand physical and logical infrastructure views with OMEGAMON CICSpex level monitoring

PHYSICAL INFRASTRUCTURE
Agent is deployed on each LPAR to collect data irrespective of CICSpex allocation

LOGICAL VIEW
Under the pre-defined workspaces, the operator views the environment in terms of CICSpexes

Drill down into all CICSpex related reports in the e3270ui
OMEGAMON XE for CICS on z/OS v5.1.0
– Planning

- As mentioned earlier, one of the primary focus areas of the new release was CICSPlex monitoring. So the first question is how do we define a CICSPlex to the new product?

The next few slides show how to configure the CICSPlex definitions to ensure that the regions appear where you expect them to appear.
First you'll select the CICSplex. A CICS region is then selected with a '/' character, which shows this menu. From here you'll select 'C' for Control Functions.

At this point you'll select option 'P'.
OMEGAMON XE for CICS on z/OS v5.1.0 - Planning
The rules allow you to classify regions into CICSplex groups.

- A default of OMEGPLEX is provided, and cannot be deleted
- If you have classified your regions using CPSM we will honor the CPSM classification if you do not provide a rule that would result in the classification of the CICS region into one of our CICSplexes.
- If you want to honor the CPSM definitions you need add no new rules.
OMEGAMON XE for CICS on z/OS v5.1.0
- CICSplex

- The classification of a region into a CICSplex results in the creation of a managed system list by the ITM framework.
- The MSLs, with a name of KCP_CICSplex_plexname allows queries to be distributed to the correct target(s).

OMEGAMON XE for CICS on z/OS v5.1.0
- CICSplex

- There is a new agent KCEAGENT which is started in every CICS agent address space.
- The agent waits until there is a CICS region to register to ITM.
- When CICS comes online a task will check if the CICSplex it belongs in is also online. If not the KCEAGENT registers the new CICSplex with the ITM framework.
- The KCEAGENT may register multiple CICSplexes.
- If the CICSplex is online the task will send a request to the KCEAGENT that it needs to include this CICS agent in its processing.
There are a couple of new commands, which are issued against the agent, which allow you to display registered CICSplesx(es), and the regions associated with a selected CICSplesx.

- `/F agentSTC,OC STATUS,CICSPLEX`
- `/F agentSTC,OC DISPLAY,PLEX=plexname`

These commands allow you see what was defined, and what the results of those definitions are.
This new command allows you to display the rules specified by the e3270ui user;

/IF agentSTC,OC DISPLAY,PLEXRULES

The classification rules are added via a take action command, which can be seen in the CANSTOM’s log.

All of the take action commands issued from the e3270ui can be protected using your standard security. There is an appendix which describes the security options in the Planning and Configuration guide.
OMEGAMON XE for CICS on z/OS v5.1.0
- CICSplex

The FIND command was developed to solve a couple of problems that users had raised:

- The logged on user who is ‘doing something’ in the CICS environment, but has no idea which region they logged onto.
- The customer who has tens of thousands of object definitions, for example programs, and wants to see all occurrences of an individual program across the CICSplex.

FIND is different from the filtering option implemented in the e3270ui. The CICS implementation of filtering requires that the user request a report and then apply the filter, which works well for generics, but if they know which object they are interested in FIND is probably faster.
OMEGAMON XE for CICS on z/OS v5.1.0
- FIND menu

OMEGAMON XE for CICS on z/OS v5.1.0
- FIND USER
OMEGAMON XE for CICS on z/OS v5.1.0 – FIND USER

OMEGAMON XE for CICS on z/OS v5.1.0 - FIND USER
OMEGAMON XE for CICS on z/OS v5.1.0
- FIND USER

OMEGAMON XE for CICS on z/OS v5.1.0
- FIND PROGRAM
OMEGAMON XE for CICS on z/OS v5.1.0
- FIND PROGRAM

Here we see a Program Summary with 2545 rows of data. If you are only interested in all CEE* programs you can filter the report to reduce the data that is displayed in the resulting report.

OMEGAMON XE for CICS on z/OS v5.1.0
- Filters
You can either press F4, or select View, Filters and the Program Name, and the resultant pop-up shows which columns are available for filtering.

The filter is added in this pop-up.
OMEGAMON XE for CICS on z/OS v5.1.0
- Filters

- Don’t forget to delete the filters when you have finished with the report – otherwise the next time you use that report you may find that the same filters are in place, and the results may not be what you expected!
OMEGAMON XE for CICS on z/OS v5.1.0
– Switch region context
Support for Web Services in CICS was added as a result of a customer request. Selecting either of the Web Services numbers on this panel will display the Web Services Summary report.
Selecting an individual Web Service will display the Web Services Detail report.
Message KCPOC1038 indicates which release of OMEGAMON CICS is being initialized in the CICS address space.
OMEGAMON XE for CICS on z/OS v5.1.0
– Troubleshooting

In the Common Interface STC (KOCCI) message KCPPR1038I indicates which release of OMEGAMON CICS is initializing.

The CICS performance solution from IBM

- IBM Tivoli OMEGAMON XE for CICS on z/OS V5.1
  - Performance Analysis in Real time
  - Solve problems while they impact the systems
  - Near Term History and Summarization
- IBM CICS Performance Analyzer for z/OS V3.2
  - Performance Analysis for day-to-day CICS tuning, threadsafe analysis, service-level reporting, accounting/chargeback, and problem determination
  - Solve today’s problems and plan for tomorrow’s capacity usage
- IBM Application Performance Analyzer for z/OS V11.1
  - Performance Analysis to isolate application performance problems and test the effect of increased workloads.
  - Solve problems before deploying new or changed applications
CICS Performance Analyzer for z/OS

"up to 90% time savings (average 50%) when system programmers were tasked with the identification and validation of performance related changes" *

"better able to improve performance and “better able to diagnose the root cause” of performance issues" *

CICS Explorer plug-in “saves “time jumping from one tool to another in a single view”

*Source: Branham report: IBM CICS Tools: Unrealized Productivity Gains and True Cost Savings

CICS PA integration with Tivoli OMEGAMON XE for CICS

A single view for Comprehensive Performance Reporting and Analysis for CICS

CICS Monitoring Facility (CMF) data (SMF 110)
CICS Statistics data (SMF 110)
CICS Server Statistics data (SMF 110)
CICS Transaction Gateway Statistics data (SMF 111)
DB2 Accounting records (SMF 101)
WebSphere MQ Accounting records (SMF 116)
OMEGAMON XE for CICS records (SMF 112) – see graphic
z/OS System Logger (SMF 88)
Fine tune your overall application performance with APA

**Problem**
- The complexities of CICS applications often mean that performance problems come to light, not only with CICS, but DB2, IMS, MQ, and across languages or DASD

**Solution**
- APA helps programmers identify constraints and improve the entire applications performance, no matter where the problem resides. Baselines can be taken to compare with future analysis runs after changes are made.

**Value**
- APA rapidly provides the information which is required to assist with application performance problem resolution

"APA V11.1 is another major, enhancement-rich advance for IBM’s powerful z/OS® APF (Application Performance Management) solution"*

*Source: Software Strategies white paper: In New zEnterprise ™ System Era, IBM z/OS® Problem Determination Tool Suite Leads Again – as ISVs Up Games*


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**OMEGAMON XE for CICS on z/OS v5.1.0 – Additional resources**

- Additional information can be found at these sites.
  - OMEGAMON XE for CICS on z/OS v5.1.0 ‘how to’ viewlets
    - [http://www.youtube.com/ismconnect](http://www.youtube.com/ismconnect)
  - Ed Woods’ blog, “Tivoli with a z” has an introduction to the e3270ui
    - [http://tivoliwithaz.blogspot.com/](http://tivoliwithaz.blogspot.com/)
  - The Integrated Service Management Library (ISML) has samples for RTA2SLA and Epilog
To summarise

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OMEGAMON XE for CICS on z/OS v5.1.0

- The end – any questions?
Appendices

- The following slides contain information which is beyond the scope of the presentation, but which may be beneficial to you when planning for the new release.

OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

- Supports CICS/TS v3.1 – CICS/TS v4.2
- Supports CICS TG v7.0 – v8.1
  - Websphere Application Server v6.1 – v8.0
- Supports z/OS v1.11 – v1.13
- Supports all GA releases of DB2, IMS and Messaging subsystems.
- The product has a new PID, which customers will need if they want to open a service request, it is 5698-T07
OMEGAMON XE for CICS on z/OS v5.1.0 – Planning

- SMP/E package includes all required FMIDs.
  - OMEGAMON XE for CICS on z/OS v5.1.0
  - OMEGAMON XE for CICS TG on z/OS v5.1.0
  - End-to-End v5.6.0
  - OMNImon Base v7.0.0
- IBM Tivoli Management Services on z/OS V6.2.3 (5698-A79) FMID is a separately orderable prerequisite of our product package.
  - zOS SMPE installation requirements: 5698-A79 IBM Tivoli Management Services on z/OS V06.02.03 or higher is required. However, IBM Tivoli Monitoring Version 6.2.3 Fix Pack 1 (6.2.2-TIV-ITM-FP0001) or higher is recommended.

OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

- Refer to the Recommended Maintenance Technote 1290883
  - and the product PSP for any additional PTFs that may be required during product installation.

- Distributed Application Support image deliverables:
  - LCD7-5139 IBM Tivoli OMEGAMON Application Support Files for z/OS V5.1.0 DVD
  - LCD7-5138-00 IBM Tivoli OMEGAMON XE z/OS V5.1.0 Language Pack CD-ROM

- DVD Prereq and Distributed TEMS:
  - IBM Tivoli Monitoring (ITM) Version 6.2.3, then ITM V6.2.3 fix pack 1 (6.2.3-TIV-ITM-FP0001) or higher is required.
OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

- The revised OMEGAMON QuickInstall Guide should be the first document that the customers read!
- The OMEGAMON v510 consolidated image and the ITM623 Fix pack 1 will not be available on physical media until April 6, 2012:
  - ITM623 fixpack 1 should be obtained from Fix Central until April 6, when it is available in Fulfillment.
  - The V510 Consolidated image: LCD7-5139, should be obtained from the application support files IBM support site server. Refer to technote #1255545, "Locating ITM Workspace Application Support Files for z/OS Agents". It will be available for download on March 9, 2012 (GA).
- Note: If SDA is enabled for adding application support, you do not have to download or install the v510 Consolidated image, unless you want to install OMEGAMON DE, the TEP Desktop or the sample BIRT/TCR reports.
- The products included on the OMEGAMON V510 Consolidate image no longer contains any metafiles or platform specific files such as RKCPDEFW.

Hub installation considerations:
- Hub TEMS on z/OS - If OMEGAMON CICS and your Hub TEMS are not installed in the same CSI (a consolidated CSI is recommended), you must install UA62353 and UA63362 prior to connecting the OMEGAMON XE for CICS v510 agent to the Hub TEMS.
- Hub TEMS on a distributed platform - Regardless of whether you are using SDA for application support seeding or not, you must install ITM623 FP1 prior to connecting your OMEGAMON XE for CICS v510 agent to the distributed Hub TEMS.
- Hub TEMS on a unix or linux platform - you can ignore message: "KCIIN2463W Warning: This installation media does not contain any components which can be run on the current system platform architecture. To install components which can run on this system, please locate the installation media containing files similar to <platform>.jar. If you are installing application support, continue with the installation to see a list of support files."
OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

• SDA install requirements for OMEGAMON XE for CICS
  • To support SDA processing for pristine or new installs, we have moved the allocation of the RKCPDEFW file from the CICS agent configuration into the Hub TEMS agent installation on distributed and zOS.
    • ITM623 FP1 contains the support and delivery of the RKCPDEFW with the distributed Hub TEMS
    • APAR OA37631 PTF UA62353 for FMID HKDS623
  Configuration updates
  • APAR OA37475 PTF UA63362 for FMID HKLV623
  ITM623 SDA error

OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

• There are no features of the existing v4.x.0 release that have been ‘removed’ with the exception of the CICS EPILOG reporter.
  • CICS Performance Analyzer is the preferred reporting option for OMEGAMON XE for CICS v5.1.0 data.
  • Existing customers who use EPILOG are advised to take a copy of the v4.x.0 TKANMOD dataset, which contains the relevant load modules, the documentation and the JCL samples in TKANSAM, and ensure their availability. They can continue to use the EPILOG reporter against data produced by the new release.
  • New customers who wish to use EPILOG will be able to download the load modules, documentation and samples from the Integrated Service Library site.
OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

• During the installation of earlier releases of OMEGAMON XE for CICS on z/OS there was a requirement to allocate the RKCPDEFW file, which is used to save some Service Level Analysis related control information.
  • In this new release these steps are no longer required as the ITM installer on distributed platforms, and the installer steps on z/OS, will allocate the dataset.
  • This means that the customer can install the ITM framework and add CICS later without having to recycle their v5.1.0 STCs to pick up the dataset.

OMEGAMON XE for CICS on z/OS v5.1.0 - Planning

• Previous releases allowed the customer to set a Service Level Analysis collection interval for the agent.
  • In a multi agent environment this could now cause problems if different intervals were specified at different agents.
  • The collection interval is now set in the TEP, to ensure synchronisation of the interval across agents.
  • The setting is also limited to intervals that are supported by the ITM framework. The supported collection intervals are 1 min, 5 mins, 15 mins, 30 mins and 1 hr.
  • The SLA subtask is now zIIP enabled.
    • If you have an zIIP engine available you may see significant performance benefits when the SLA code runs there.
OMEGAMON XE for CICS on z/OS v5.1.0 - Upgrade

• Upgrade Considerations:
  • CICSTG packaging change
    • CICSTG FMID is now part of the CICS product Receive, Apply and Accept jobs. SMPE requires the creation of a USS directory for SMPE target DDDEF TKAJJAR. If you do not want to install CICS TG, you can omit this fmid from the SMPE jobs.
    • The TKGWJAR target DDDEF has been replaced with TKAJJAR
    • The USS target directory name associated with the DDDEF has also been changed
    • Follow the “Complete the Configuration” instructions for making the required directory name changes
  • The CICS and CICSTG agents no longer require registration to the Local TEMS on z/OS
  • If you wish to use the new features delivered with this package such as CICSpex reporting, e3270ui and SDA, you will need to reconfigure your RTEs. Otherwise, you can install and reload the RTEs and wait to reconfigure until you are ready to use the new product features.

OMEGAMON XE for CICS on z/OS v5.1.0 - Upgrade

• Revised STC requirements:
  • Required OMEGAMON XE for CICS on z/OS STCs:
    • CANSDSSST - TEMS (either on a distributed or z/OS system)
    • CANSTOM - OMEGAMON Enhanced 3270 User Interface (e3270ui)
    • CANSOCx - OMEGAMON for CICS (3270), aka Menu System.
    • CANSC5 - OMEGAMON XE for CICS agent (or it can be configured to run in a TEMS).
  • Optional STCs/components:
    • CANSGW - OMEGAMON XE for CICS TG agent (or it can be configured to run in a TEMS).
    • CANSC2x - OMEGAMON II for CICS (CUA)
    • CANSET - ETE (needed for OMCICS RTA VTAM LU definite response)
    • CANSCN - OMEGAMON Subsystem (needed for INTR, and miscellaneous OMEGAMON 3270 commands).
OMEGAMON XE for CICS on z/OS v5.1.0 - Upgrade

- TEPS is no longer required for Product installation or upgrades if SDA is enabled:
  - A TEPS is not required for initial product installation or upgrade, as long as SDA is being used for application support seeding.
  - The tacmd cli is required for administration of SDA installed components (refer to ITM Administration Guide). To install the tacmd CLI, from your ITM V6.2.3 installation image, select the Tivoli Enterprise Services User Interface Extensions feature (KUE), under the TEMA, TEPS, or TEMS component selection list. It can be installed on any machines that has access to soap services communication to the Hub TEMS. Note: You do not need to run a TEMA, TEPS or TEMS in the machine that you intend to use the tacmd cli.

- If you do want to run a TEPS, you can install it after the OMEGAMON XE for CICS V510 product installation has been completed but you will only need to install the ITM v623 installation image. The TEPS is SDA enabled by default. If SDA application support seeding has been successfully completed at the Hub TEMS, when the TEPS, running only the framework connects to the SDA seeded Hub, the OMEGAMON CICS application support files will be automatically installed into the TEPS.

- After the product installation has been completed, If you wish to modify the OMEGAMON WLM definitions, you must use the OMEGAMON CICS Service Level Analysis View available in the TEPS interface: the TEPS interface is not required for IBM WLM definitions and service level analysis reporting.

- If you want to use other ITM features such as TEPS Historical, Policies, situations, etc, then you will want to install a TEPS but it does not have to be installed until after you have completed the OMEGAMON CICS product install or upgrading, using SDA seeding.
OMEGAMON XE for CICS on z/OS v5.1.0 -
Upgrade

- Hilev.TKANDATV members KC5CAT/ATR/DOC/MAP/BAR have all been renamed to use the KCP prefix
- RTE load processing (ICAT and Parmgen) will delete the KC5 members from the RTE’s DATV file
- If you run the RTE load process and RKANDATV is allocated, the DELETE step will fail. When you start the agent or TEMS, you will get duplicate catalog errors in the RKLVLOG log.
  - We are working toward no restarts for our STC during software installs and upgrades, but this is not yet true for the DELETE processing.

OMEGAMON XE for CICS on z/OS v5.1.0 -
SDA

- **Verification of successful SDA processing for CICS and CICSTG agents:**
  - When the TEMS is running on z/OS, when SDA processing completes successfully, you will see the following messages written to the TEMS RKLVLOG:
    - **KFASD101** Self-Describing Install Completed Successfully for PRODUCT CP, VER <05100000>, ID <TMS>, IDVER <05100000>. (OMEGAMON XE for CICS)
    - **KFASD101** Self-Describing Install Completed Successfully for PRODUCT GW, VER <05100000>, ID <TMS>, IDVER <05100000>. (OMEGAMON XE for CICS TG)
  - You will also see these error messages the first time you use SDA to install a product:
    - "KFASDM_DeleteTapplpropLocal") Open request for delete local TAPPLPROPS failed. status <79> product <CP> product version <05100000>
    - "KFASDM_RequestMgr") KFASDM_DeleteTapplpropLocal returned sqlStatus 79. product <CP> product version <05100000>
  - These are normal messages. After the product is successfully installed, SDA will try to delete all prior versions of the install record, if any, of the same product. If there is no prior version install record, the delete will get a return code of 79.