CPExpert ™

Product Update Bulletin 2004-1

This product update forwards updates to both software and documentation. The software update is Release 14.1 of CPExpert. The release number indicates that it is the first release of 2004.

This release (1) updates all CPExpert components for z/OS Version 1 Release 5 (V1R5), (2) provides updates to the CICS Component, (3) provides updates to the WLM Component, (4) updates the DB2 Component for DB2 Release 7, (5) provides minor documentation and coding updates to the DASD Component, (6) provides updated documentation on CD, (7) corrects errors that have been reported, and (8) announces the *WebSphere MQ Component* of CPExpert.

- **z/OS Version 1 Release 5 (V1R5).** z/OS V1R5 was made Generally Available (GA) by IBM in March 2004. Since Computer Management Sciences is a Business Partner with IBM, I normally can provide support for new IBM releases within 30 days of GA of the new IBM release.

  - All CPExpert components have been updated to provide support for z/OS V1R5.

  - All CPExpert documentation has been updated with references to applicable z/OS V1R5 documents from IBM.

- **Updates to the CICS Component**. With Release 14.1, the CICS Component has been updated in the following areas:

  The CICS Component has been updated to provide support for CICS/TS for z/OS Release 2.3.

  The CICS Component has been updated by adding the following new rules:

  - *Rule CIC269 (*Excessive GETMAIN/FREEMAIN activity for MRO sessions)[1] analyzes the effect on MRO GETMAIN/FREEMAIN activity caused by improper selection of values for the IOAREALEN keyword in the DEFINE SESSION parameters.

  - *Rule CIC279 (TCBLIMIT on DB2CONN is greater than MAXOPENTCBS in SIT)* reports a problem with the TCBLIMIT specified on the DB2CONN definition being larger than the MAXOPENTCBS in the System Initialization Table (SIT).

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[1]This rule was suggested by **Mark Kaplan** (Bank of America, GA), and was based on research and documentation provided by **Paul Gordon** (Bank of America, VA).

April, 2004

- *Rule CIC390 (Shared TS was used, but CICS TS statistics were not provided)* warns users that CPExpert has detected that the site is using Shared Temporary Storage, but no CICS Shared TS performance statistics were available for CPExpert to analyze. The likely cause of this condition is that the STATSOPTIONS and STATSINTERVAL parameters were not correctly specified when starting the CICS Shared Temporary Storage Queue servers.

- *Rule CIC490 (CFDT was used, but CFDT statistics were not provided)* warns users that CPExpert has detected that the site is using Coupling Facility Data Tables, but no CFDT performance statistics were available for CPExpert to analyze. The likely cause of this condition is that the STATSOPTIONS and STATSINTERVAL parameters were not correctly specified when starting the CICS Coupling Facility Data Table servers.

- *Rule CIC500 (Open H8 mode TCBs reached MAXHPTCBS limit)* analyzes whether the peak number of open (H8 mode) Task Control Blocks (TCBs) in use reached the limit set by the MAXHPTCBS parameter specified in the System Initialization Table (SIT). This finding is produced only if CPExpert calculates that the MAXHPTCBS limit could be increased for Java Hot-Pooling TCBs.

- *Rule CIC501 (Peak open H8 mode TCBs in use was approaching MAXHPTCBS)* analyzes whether the peak number of open (H8) Task Control Blocks (TCBs) in use was approaching the limit set by the MAXHPTCBS parameter specified in the System Initialization Table (SIT). This rule provides an "early warning" of a potential performance problem for Java Hot-Pooling TCBs.

- *Rule CIC530 (Open JVM TCBs reached MAXJVMTCBS limit)* analyzes whether the peak number of open (JVM mode) Task Control Blocks (TCBs) in use reached the limit set by the MAXJVMTCBS parameter specified in the System Initialization Table (SIT). This rule applies to open J8 mode TCBs with CICS/TS Release 2.2, and applies to both open J8 mode (CICS Key) TCBs and open J9 (User Key) mode TCBs with CICS/TS Release 2.3.

- *Rule CIC531 (Peak open JVM TCBs in use was approaching MAXJVMTCBS)* analyzes whether the peak number of open (JVM) Task Control Blocks (TCBs) in use was approaching the limit set by the MAXJVMTCBS parameter specified in the System Initialization Table (SIT). This rule applies to open J8 mode TCBs with CICS/TS Release 2.2, and applies to both open J8 mode (CICS Key) TCBs and open J9 (User Key) mode TCBs with CICS/TS Release 2.3. This rule provides an "early warning" of a potential performance problem.

- *Rule CIC535 (Excessive MVS storage constraint for Java Virtual Machine)* analyzes whether the CICS MVS storage monitor introduced with CICS/TS Release 2.3 detected that available MVS storage had become critically low (less than the 20MB threshold). In this situation, CICS behaves as though the MAXJVMTCBS limit was reached. This rule applies only with CICS/TS Release 2.3.

- **Updates to the WLM Component**. The WLM Component has been updated in the following areas:

  - All appropriate references have been updated to show detail references for z/OS Version 1 Release 5, and all logic has been updated for z/OS Version 1 Release 5.

  - Rule WLM005 (*Velocity Goal may be too high for batch service class*) has been altered to combine all findings in this area under a single rule that shows the service class periods involved.

  - Rule WLM025 (*The service class period was inactive*) has been altered to combine all findings in this area under a single rule that shows the service class periods involved.

  - Rule WLM0085 *(Operator forced start of job in a WLM-managed job class*) is a **new** rule to analyze potential problems with operators manually starting jobs in a WLM-managed job class.

  - All WLM Component rules that describe CICS-WLM interface have been updated to show appropriate references for CICS/TS Release 2.3.

  - A new reporting option has been provided related to the "CPU activity by service class period and importance" report. This report previously was produced when any service class period missed its goal because it was denied access to a processor. The new reporting options allow the report to be suppressed, or allow the report to be produced for all service class periods regardless of whether they missed their performance goal.

  - A new reporting option has been provided related to the "MPL levels by type of address space" report. This report previously was produced when any service class period missed its goal because it was delayed for MPL reasons. The new reporting options allow the report to be suppressed, or allow the report to be produced regardless of whether any service class period missed its performance goal for MPL reasons.

  - Section 2 (*Specifying Guidance Variables*) has been updated to reflect a new approach to reporting results from the WLM Component's analysis. This new approach is particularly suited for large sites that use the WLM Component to analyze performance problems with *many* systems. In such cases, the WLM Component typically produces an unacceptably large amount of output.

    The new approach creates a history file of the results from the WLM Component's analysis, and CPExpert historical reporting is based on this history file. Reporting can be an overview of the results, a summary of findings, a summary plus additional relevant data, or a detailed description of problems and likely implications of the problems. The reporting from the history file can be selectively produced, based on any system, or any interval in the history. The history retention is a user-selectable option.

  - Section 3 (*Using the WLM Component*) has been revised to suggest analysis and reporting procedures, depending on the size of the site. Primarily, the suggestions

deal with ways in which sites analyzing a large number of systems (and typically producing a large amount of findings from the WLM Component) can tailor the output to their needs. Additionally, a new chapter (Chapter 3: Executing the WLMCPE Module to report historical data) has been added to Section 3. This chapter provides operational details about executing the WLM Component for historical reporting.

- Section 4 (*Analyzing the Workload Manager*) has been updated to describe certain effects implicit in the Workload Manager logic when a Performance Index greater than 4 is calculated for percentile response goals.

- All logic dealing with coupling facility structures has been revised to account for the fact that the SMF Type 74(Subtype 4) structure and request data are written for each system by SMF, regardless of whether a system is actually connected to a structure. This had led to incorrect analysis of coupling facility structures in both the WLM Component and DB2 Component (the analysis was correct for systems connected to a structure, but was erroneously duplicated for systems that were not connected to a structure).

- A new module (**WLMHIST**) has been added to USOURCE. The USOURCE(WLMHIST) guidance module provides guidance to the WLM Component when it is reporting the historical results from previous analysis by the WLM Component.

- **Updates to the DB2 Component**. The main changes to the DB2 Component for CPExpert Release 14.1 are to update the DB2 Component for DB2 Release 7, to update the DB2 Component to support z/OS Version 1 Release 5, and to correct errors reported by users.

- **Updates to the DASD Component**. The main changes to the DASD Component for CPExpert Release 14.1 are to make minor revisions to the documentation and to correct errors reported by users.

- **Updated documentation on CD**. This release provides all updated documentation to reflect new or revised rules. The CPExpert documentation is accessible via Adobe Acrobat Reader. A free version of Adobe Acrobat Reader is available at *http://www.adobe.com/products/acrobat/readstep2.html*.

  There is no additional charge for the CD versions of CPExpert documentation. If any user does not have the capability to access documentation on CD (or simply prefers to have hard-copy documentation), please send me a note.

- **Add log of changes to code**. I've added a log of changes to the CPExpert code for Release 14.1. This log is titled CHANGES and shows each module changed (except when the change is minor). Interested users can review the CHANGES log to see what code changes have been made, and can easily identify new guidance variables. I've followed the MXG model for future releases (that is, the CHANGES log show changes in the new release, while the CHANGESS log is an accumulation of changes.

- **Correct errors that have been reported**. I've added a new member titled SOURCE(GENER132) that contains a listing of the errors that were discovered in CPExpert code for Release 13.2, and acknowledges the user who found the error.

  I **really** appreciate notes from users reporting problems or simply asking questions. As I said in the original delivery letter for CPExpert, if errors occur with your installation, please don't waste your time trying to solve the error. Just send me an email or phone me, and I will quickly fix the problem!

- **Announce the WebSphere Component**. This product update announces the **WebSphere MQ Component** of CPExpert.

  The last CPExpert component that I developed was the DB2 Component, issued in 1999. Based on requests from several CPExpert users, I have spent considerable time over the past year researching and developing the *WebSphere MQ Component* of CPExpert. In brief, the WebSphere MQ Component analyzes SMF Type 115 and SMF Type 116 records[2], processed by MXG and placed into a MXG performance data base. The Type 115 statistics records and Type 116 accounting records are analyzed to identify performance problems with *WebSphere MQ for z/OS*[3], and the associated CPExpert documentation describes how to solve the problems that are identified.

  With the initial release[4] of the WebSphere MQ Component, performance problems are analyzed from the following perspectives:

  - **General queue manager problems**. This analysis primarily examines queue definitions, identifying problems with objects in page sets and buffer pools, basic queue manager parameters, etc.

  - **Buffer Pool Manager problems**. This analysis examines problems with buffer pool sizes and message characteristics in different buffer pools.

  - **Log Manager problems**. This analysis examines problems in such areas as backouts, active logs, archive logs, and checkpoint activity.

  - **Server problems**. This analysis examines problems with DB2 server calls and server delays.

  - **Shared queue and shared queue cluster problems**. This analysis examines coupling facility problems with sharing queues and queue.

  Please email or call if you want more information about the new WebSphere MQ Component of CPExpert.

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[2]SMF Type 116 accounting records must reflect the new accounting data released in WebSphere MQ Version 5.2

[3]Thanks to **Dick Arnold** (JP Morgan/Chase, TX) and **Chuck Hopf** (MBNA, TX) for providing extensive test data and support to the CPExpert WebSphere MQ Component development effort.

[4] Scheduled to be available by July 2004.

Installation

I suggest that you use the following steps to install Release 14.1:

- Create a new PDS titled "prefix.CPEXPERT.V141.SOURCE".

- Create a new PDS titled "prefix.CPEXPERT.V141.USOURCE".

- Install CPExpert into the "prefix.CPEXPERT.V141.SOURCE" using the normal installation procedures described in the *CPExpert Installation Guide*.

- Copy your **old** USOURCE members into "prefix.CPEXPERT.V141.USOURCE". This step should be done so you do not have to recreate all of your unique parameters[5].

- If you elected to receive updates to CPExpert on CD, the software is distributed on the CD that contains the CPExpert user documentation. I have created a BAT file for you so that you can easily upload the new software. This file is titled "UPLOAD.BAT" and will be located in the SOFTWARE directory of the CD. The BAT file was created per your instructions (i.e., using SEND, etc.).

- If you have installed the CPExpert option to produce output to SAS Output Delivery System (ODS) and if you have exercised the LINKPDF option so you can "click" on the rule to see the documentation, **please remember to load the new documentation onto your system**.

Thanks

I would like to say "**Thank you**" to the following individuals. These folks have discovered errors, proposed new features, graciously sent me test data, or suggested documentation changes since the last Update Bulletin:

Rexaldo Avendano (Kaiser Permanente, CA)
Markus Bansemir (HUK-Coburg, Germany)
Dick Arnold (JP Morgan/Chase, TX)
Glenn Becker (Social Security Administration, MD)
Glenn Bowman (Wakefern Food Corporation, NJ)
Lloyd Edwards (Wellpoint, CA)
Kris Ferrier (State of Washington, WA)
Paul Gordon (Bank of America, GA)
Marnel Groebner (State of Washington, WA)
Chuck Hopf (MBNA, TX)

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[5]The exception to this statement is if you chose to use the "yesterday" option in selecting data. The "yesterday" calculation is done by a PREVIOUS macro contained in USOURCE(GENGUIDE). The PREVIOUS macro is placed in USOURCE so you can select "yesterday" as the immediate previous day, or can define "yesterday" as any other previous day you chose. Placing the PREVIOUS macro in USOURCE(GENGUIDE) allows you to make such a modification, without your altering a SOURCE member. Consequently, if you copy your old USOURCE(GENGUIDE) member to CPEXPERT.V14.USOURCE, you may wish to append the PREVIOUS macro from the Release 14.1 USOURCE into your USOURCE(GENGUIDE) member.

Mark Kaplan (Bank of America, GA)
Hugh Lapham (Royal Canadian Mounted Police, Canada)
Tom Marchant (Capital One, VA)
Eric Mendolson (Health Insurance Plan of Greater New York, NY)
Barry Merrill (Merrill Consultants, TX)
Michael Morris (Royal Canadian Mounted Police, Canada)
William Nicholson (Bank of America, VA)
Alex Torben Nielsen (TELE DANMARK A/S, Denmark)
Patrick O'Brien (Health Insurance Plan of Greater New York, NY)
Bryant Osborn (Bank of America, VA)
Bill Page (Citigroup NA, New York)
Wayne Russell (Bank of America, VA)
Harald Seifert (HUK-Coburg, Germany)
Hari Shanmugadhasan (Royal Canadian Mounted Police, Canada)

Please send me an email or phone if you have suggestions, you want new features, or you would like to see more or different reporting done by CPExpert.

Best regards,

Don Deese

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