



## Product Update Bulletin 2003-1

This product update forwards updates to both software and documentation. The software update is Release 13.1 of CPEXPERT. The release number indicates that it is the first release of 2003.

This release (1) provides updates to the CICS Component, (2) provides updates to the WLM Component, (3) provides updates to the DASD Component, (4) provides updates to the DB2 Component, (5) provides new features for all components of CPEXPERT, (6) provides updated documentation on CD-ROM, and (7) corrects errors that have been reported.

- **Updates to the CICS Component.** With Release 13.1, the CICS Component has been updated with new analysis in several areas:
  - *Rule CIC109: CICS region is approaching maximum capacity*, provides analysis of the quasi-reentrant (QR) TCB approaching a limit that IBM indicates is maximum capacity.
  - *Rule CIC275: CICS-DB2 peak TCBs is approaching TCBLIMIT*, provides initial analysis of CICS-DB2 Connect performance problems
  - *Rule CIC276: CICS-DB2 peak tasks on Pool Ready Queue is high*, provides initial analysis of CICS-DB2 Connect performance problems
  - *Rule CIC277: CICS-DB2 pool threads in use is approaching limit*, provides initial analysis of CICS-DB2 Connect performance problems

The analysis of CICS-DB2 Connect performance problems will be expanded significantly with Release 13.2, with enhanced documentation of the rules listed above and with new rules added to analyze CICS-DB2 Connection problems<sup>1</sup>.

The following rules were added to analyze performance problems with CICS shared data tables:

- *Rule CIC401: Adds were rejected because shared data table was full*

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<sup>1</sup>The CICS-DB2 Connect rules listed above were suggested by **Rexaldo Avendano** (Kaiser Permanente). However, his suggestions were made as I began final testing of Release 13.1. These rules were added to Release 13.1, but the documentation is incomplete.

- *Rule CIC402: Records not found in CICS-maintained shared data table*
- *Rule CIC403: Records not found in user-maintained shared data table*
- *Rule CIC405: High data set activity for CICS-maintained shared data table*
- *Rule CIC406: VSAM data set might not be good candidate for shared data table*

The following rules were added to analyze performance problems with coupling facility data tables (CFDT)<sup>2</sup>:

- *Rule CIC420: High percent of structure entries were in use*
- *Rule CIC421: High percent of structure elements were in use*
- *Rule CIC422: High percent structure requests encountered length error*
- *Rule CIC423: High percent entries (CFDT or item) not found*
- *Rule CIC424: List full condition was reached for CFDT*
- *Rule CIC425: The CFDT list structure was out of space*
- *Rule CIC426: High percent version check failed for an entry being updated*
- *Rule CIC440: LOC=ANY storage request initially failed and was retried*
- *Rule CIC441: LOC=ANY requests were unable to obtain storage and failed*
- *Rule CIC442: LOC=ANY low percent minimum free storage*
- *Rule CIC443: LOC=BELOW storage request initially failed and was retried*
- *Rule CIC444: LOC=BELOW requests were unable to obtain storage and failed*
- *Rule CIC445: LOC=BELOW low percent minimum free storage*
- *Rule CIC446: CFDT pool server storage allocation was less than expected*

The following rule was added to allow users of the CICS Component to be informed of CPU time used by CICS work represented by a WLM report class. This new logic allows the CICS Component to associate CICS work with WLM report class information in SMF Type 72 records (MXG file TYPE72GO). The CICS Component will produce findings when designated conditions exist.

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<sup>2</sup>Thanks to **Rexaldo Avendano** (Kaiser Permanente) for providing test data so I could develop the CFDT rules.

- *Rule CIC700: CICS report class used more than specified percent CPU time*

The initial rule relates only to percent CPU time used by specific CICS work, but future rules could relate to other information contained in the MXG TYPE72GO file.

For users retaining only required CICS files to their MXG performance data base, please add the following MXG files<sup>3</sup> to your list of files to retain:

CICDB2GR - CICS-DB2 Connect statistics, global  
CICDB2RE - CICS-DB2 Connect statistics, Entry  
CICCF56D - CICS CFDT Server Coupling Facility List statistics  
CICCF57D - CICS CFDT Server Table Access statistics  
CICCF58D - CICS CFDT Server Request statistics  
CICCF59D - CICS CFDT Server Main Storage statistics

**PLEASE NOTE:** I have designed the logic and much of the coding to analyze performance problems with CICS Named Counters. I need test data from users to incorporate this analysis into CPExpert. If any user is using Named Counters, please send test data to me and I will make that analysis available in the October release of CPExpert. Thanks!

- **Enhancements to the WLM Component.** The following enhancements have been made to the WLM Component with Release 13.1,

Updates have been provided for neuMICS, to analyze additional problems or potential problems that occur with Service Definition specifications. The WLM Component analyzes<sup>4</sup> such areas as:

- Conflicts between Dynamic Alias Management specifications for Parallel Access Volume (PAV) and specifications for I/O Priority Management.
- Conflicts between CPU Critical specifications for transaction service classes and their associated CICS or IMS region service classes.
- Conflicts between job classes and workload executing in JES-managed initiators and WLM-managed initiators.

With Release 13.1, the output from the WLM Component can be produced based on “level of impact” of each finding. Some CPExpert users with large sites were receiving many pages of output from the WLM Component. This large output partially was because CPExpert was analyzing data from many systems, with 15-minute RMF intervals, and for 24 hours a day. Since such a large amount of output is difficult to

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<sup>3</sup>The MXG files do not have to be populated with observations if you are not using the CICS features, but the file structure must be in your performance data base.

<sup>4</sup>You must tell CPExpert that BATJOB, BAT\_TS, and BAT\_ST are available using the MICJOB, MIC\_TS, and MIC\_ST guidance variables.

review, options have been added to allow a user to specify that the output should be available on a summary basis, for only important findings, or for all findings.

- **Updates to the DASD Component.** The following changes have been made to the DASD Component with Release 13.1:
  - A new feature allows users to specify target response times for specific data sets. The DASD Component will use information from TYPE42DS records to detect data sets that miss a specified response objective. The devices on which the data sets reside will then be analyzed to identify performance problems.
  - Variables have been added so a user can specify that CPEXpert should ignore devices that are below a minimum I/O response, below a minimum I/O rate, or below a minimum total I/O wait time; and to suppress listing RMF intervals for devices that have no problems in the interval.
  - The CPEXpert modification to MXG or neuMICS has been modified to revised the "MAXDASD variable value exceeded:" message. This message can be produced by the CPEXpert code that extracts device information from SMF TYPE30 records (as either MXG or neuMICS processes the SMF data). The previous message indicated that the MAXDASD variable was too low and some devices were ignored by CPEXpert. One implication of this message was that user tended to increase the MAXDASD value to very large numbers. Since this value controls array sizes in many modules of the DASD Component, a large value for MAXDASD caused unnecessary overhead. With the new approach, the code lists the jobs that have excess devices. A user can decide whether these jobs are sufficiently important to warrant the increased execution time of the DASD Component.
  - The logic that processes TYPE42DS has been revised to significantly increase execution efficiency of the DASD Component.
- **New features for all components of CPEXpert.** The following new features have been added to all components of CPEXpert:
  - **Add the ability to select up to 10 systems individually for analysis.** Until Release 13.1, a user had the options of analyzing data for all systems in the performance data based, analyzing data for a specific sysplex (in case the performance data base contained data for more than one sysplex), or analyzing data for a specific system in the performance data base. With Release 13.1, up to 10 systems can be individually selected for analysis.
  - **Enhance the options provided with the SAS Output Delivery System (ODS).** With Release 13.1, users who exercise the SAS ODS feature for creating CPEXpert output can optionally create the output as a PDF file, which can be emailed to other users. Additionally, users can optionally specify a STYLE feature for either HTML or PDF output, if they have a preferred STYLE for HTML or PDF output. The optional links that are available with the HTML have been revised; SAS at some user sites did not create the HTML output in the "standard" way, and the CPEXpert code

that inserted links into the HTML output did not work properly. I have revised the code to place the links into the output as the output is created, rather than attempting to place the links into the final HTML output created by SAS.

- CPEXpert now specifies `OPTIONS COMPRESS=N`; to override any site specification for file compression. Experiments have shown that CPEXpert code runs significantly faster (using much less CPU time) if compression has been turned off.
- **Update documentation on CD-ROM.** This release provides all updated documentation to reflect new or revised rules. The CPEXpert documentation is accessible via Adobe Acrobat Reader, and the CD-ROM contains a free copy of Adobe Acrobat Reader. The Adobe Acrobat Reader should be installed on your PC under Windows<sup>5</sup>.

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

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.**

- **Correct errors that have been reported.** I've added a new member titled SOURCE(GENER122) which contains a listing of the errors that were discovered in CPEXpert code for Release 12.2, and an acknowledgment of 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 and I will quickly fix the problem!

## Installation

I suggest that you use the following steps to install Release 13.1:

- Create a new PDS titled "prefix.CPEXPERT.V131.SOURCE".
- Create a new PDS titled "prefix.CPEXPERT.V131.USOURCE".
- Install CPEXpert into the "prefix.CPEXPERT.V131.SOURCE" using the normal installation procedures described in the *CPEXpert Installation Guide*.

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<sup>5</sup>Other free versions of Adobe Acrobat Reader are available (for example, a UNIX version is available). I believe that all CPEXpert users have access to Windows, and it did not seem worthwhile cluttering up the CD-ROM with the other versions of Adobe Acrobat Reader. Please call me if you require other versions.

- Copy your **old** USOURCE members into "prefix.CPEXPERT.V131.USOURCE". This step should be done so you do not have to recreate all of your unique parameters.
- If you elected to receive updates to CPExpert on diskette, the software is distributed on the CD-ROM 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-ROM. The BAT file was created per your instructions (i.e., using SEND, etc.).

## Thanks

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

**Rexaldo Avendano** (Kaiser Permanente, CA)  
**Markus Bansemir** (HUK-Coburg, Germany)  
**Hemanth Buchireddy** (Lexis-Nexis, OH)  
**Glenn Bowman** (Wakefern Food Corporation, NJ)  
**Darrell Faulkner** (Computer Associates, VA)  
**Kris Ferrier** (State of Washington, WA)  
**Niek Greuter** (ABN-AMRO, The Netherlands)  
**Yaohua Hu** (Insurance Services Office, NJ)  
**Mike Jacques** (Branch Bank and Trust, NC)  
**Hugh Lapham** (Royal Canadian Mounted Police, Canada)  
**Tom Marchant** (Capital One, VA)  
**Barry Merrill** (Merrill Consultants, TX)  
**Alex Torben Nielsen** (TELE DANMARK A/S, Denmark)  
**Raff Rushton** (Kaiser Permanente, CA)  
**Harald Seifert** (HUK-Coburg, Germany)  
**Michel Tordion** (Royal Canadian Mounted Police, Canada)  
**Reddy Valisekkagari** (Lexis-Nexis, OH)

Please call, fax, or send me an email 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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