



## Product Update Bulletin 2007-1

This product update forwards updates to both software and documentation. The software update is Release 17.1 of CPEXPERT. The release number indicates that it is the first release of 2007.

With Release 17.1, CPEXPERT has been updated to: (1) add a feature to CPEXPERT Components that can optionally send an email alert<sup>1</sup> for selected findings that potentially have a significant adverse effect on performance, (2) provide additional analysis in the WLM Component, (3) provide additional analysis in the WMQ Component, (4) provide additional analysis/reporting options for the CICS component, (5) correct errors that have been reported, (6) provide updated documentation on CD, and (7) correct errors that have been reported.

- **CPEXPERT email alert feature.** CPEXPERT analyzes performance of many aspects of computer system performance, and produces findings when performance problems potentially exist. Some of the findings report situations that can have a significantly adverse impact on computer performance, while other findings might not be so important. While the entire report produced by CPEXPERT can be valuable, it can be useful to have an “alert” when certain high-impact findings are produced.

With CPEXPERT Release 17.1, an optional feature is provided so an alert can be sent via email to designated recipients. The email alert feature is invoked only if requested for the specific CPEXPERT component for which the email alert feature should be implemented. The email alert feature works as described below:

- When the email alert option is requested, all rules that result from CPEXPERT’s analysis are saved in special files in the CPEDATA SAS library. These files are available after CPEXPERT completes, and the files can be analyzed to select specific rules (or even rule combinations) that trigger an email alert to designated recipients.
- CPEXPERT provides a basic email alert feature, using macros stored in USOURCE. There is a unique macro for each CPEXPERT component. These email alert macros are invoked after all other CPEXPERT analysis and reporting has completed.
- The email alert macros select CPEXPERT rules that identify potential problems which might result in a high negative effect on performance. The selected rules are sent to designated email addresses, as an email alert.

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<sup>1</sup>Thanks to **Emily Johnson** (GEICO, Maryland) for suggesting the basic concept of providing an alert for high-impact findings. Thanks to **Andreas von Imhof** (Rabobank, Netherlands) and **Erwin Klaus** (Rabobank, Netherlands) for providing detailed suggestions and examples for the email feature, and for helping test the email feature of CPEXPERT.

- The email alert macros can be directly tailored by CPEXpert users. All CPEXpert processing has been completed when the CPEDATA files are produced and the email alert macros are invoked. Consequently, users can modify the macros (and test their modifications) without worry that any coding errors might affect CPEXpert processing.

**WARNING: The email alerts are not intended to replace the normal reports produced by CPEXpert.** The email alerts are intended to provide an alert of situations to which immediate attention might be appropriate. There are many possible findings produced by CPEXpert, reporting problems that can have a serious impact on performance. You should not neglect examining these normal findings in the CPEXpert report, simply because the email alert feature is implemented for selected findings!

- **Updates to the WLM Component.** The following rules and features have been added to the WLM Component:
  - Rule WLM061 (*Unequal number of slots allocated among local page data sets*) reports that CPEXpert has determined that an unequal number of slots were allocated to local page data sets, with the result that paging operations could have poor performance<sup>2</sup>.
  - Rule WLM062 (*High page slot usage of COMMON and PLPA data sets*) reports that there was a high page slot usage of the page slots allocated to COMMON and PLPA data sets. This finding warns of a potential system termination with wait state code X'3C', reason code 2/3.
  - Rule WLM063 (*Insufficient page slots were allocated to COMMON and PLPA*) that an insufficient number of page slots were allocated to COMMON and PLPA page data sets. This finding warns of a potential system termination with wait state code X'3C', reason code 2/3.
  - Rule WLM064 (COMMON page data set might have insufficient slots) reports that the COMMON page data set might have insufficient slots allocated, with the result that “spill over” might occur from COMMON to PLPA.
  - Rule WLM092 (There was excessive VLF trim activity)<sup>3</sup> reports that VLF trim activity could potentially cause significant performance degradation, and the MAXVIRT keyword of the CLASS statement potentially should be altered.

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<sup>2</sup>The new rules for the paging subsystem are based on IBM's Health Checker application. These problems reflect the need for a more robust paging subsystem with 64-bit architecture.

<sup>3</sup>Thanks to **Glen Bowman** (Wakefern Food Corporation, NJ) for suggesting the general analysis of LLA/VLF. Thanks to **Sam Knutson** (GEICO, MD) for suggesting this specific rule.

- Rule WLM609 (*Too many transport classes were defined*) reports that more transport classes were defined to XCF than recommended by IBM.
- Rule WLM610 (*Duplicate buffer sizes were specified for transport classes*) reports that transport classes were defined in which there were duplicate buffer sizes among the transport classes.
- Rule WLM611 (*XCF service time was slow for coupling facility structure path*) reports that the service time was slow for XCF message signalling on a path defined with a coupling facility structure.
- Rule WLM612 (*XCF service time was slow for CTC path*) reports that the service time was slow for XCF message exchange on a path defined with a CTC channel.
- Two WLM Component rules have been modified. Rule WLM632 (*An inbound path was non-operational*) and Rule WLM633 (*An outbound path was non-operational*) have been modified to produce only one notification of the finding. Previously, these rules produced with a finding per RMF measurement interval, with the intent of showing intervals when an operator might have varied the path. However, this design produced a large amount of output and that level of detail is not needed.
- The optional email alert feature is implemented for the WLM Component via the **wlmemail** macro in USOURCE.
- **Updates to the WMQ Component.** The following rules<sup>4</sup> and features have been added to the WMQ Component:
  - Rule WMQ230 (*There was inefficient buffer pool GET/PUT activity*) reports that the GET/PUT activity for a buffer pool required that a buffer be acquired via a buffer steal operation. The level of buffer steal activity indicated that the GET/PUT activity for the buffer pool was inefficient.
  - Rule WMQ325 (*System paging activity for the log output buffer*) reports that there was system paging for the log output buffer.
  - The optional email alert feature is implemented for the WMQ Component via the **wmqemail** macro in USOURCE.
- **Updates to the DB2 Component.** The optional email alert feature is implemented for the DB2 Component via the **db2email** macro in USOURCE.

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<sup>4</sup>Thanks to **Yaohua Hu** (Insurance Services Organization, NJ) for providing test data that allowed this analysis to be developed.

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

- With CPEXpert Release 16.2, I redesigned the overall operational structure of the CICS Component. With that new approach, the CICS Component optionally selects and analyzes all specified regions (whether specified by “wild-card” or uniquely identified to CPEXpert) in a single pass of the CICS interval statistics. This new logic significantly reduced the processing time for analyzing CICS performance, particularly for sites with a large number of CICS regions. For example, when 112 regions were selected for analysis (out of several hundred regions with data in the CICS interval statistics), the redesign reduced the CPU time by more than 90%.

This savings in processing time was attractive to users of the CICS Component when multiple CICS regions were analyzed by CPEXpert. However, the logic resulted in a consolidated report of all CICS regions selected for analysis. Sadly, a consolidated report of a large number of regions made it difficult to review the output, particularly when the CICS performance staff was accustomed to examining CPEXpert’s analysis based on a report for each region.

With CPEXpert Release 17.1, all CICS regions selected for analysis can be processed by CPEXpert in one pass (using the “wild card, family of regions” approach), but performance problems with the regions can be reported on a region-by-region<sup>5</sup> basis. This new design has the advantage of saving processing time during the data shaping and analysis process, while reporting the results from CPEXpert’s analysis by individual regions.

- The optional email alert feature is implemented for the CICS Component via the **cicemail** macro in USOURCE.
- **Updates to the DASD Component.** The main changes to the DASD Component for CPEXpert Release 17.1 are to correct minor 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>.
- **Add a log of changes to code.** I’ve added a log of changes to the CPEXpert code for Release 16.2. 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

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<sup>5</sup>Thanks to **Paul Gordon** (Bank of America, Virginia) for suggesting this feature.

followed the MXG model for releases (that is, the CHANGES log shows changes in the new release, while the CHANGES log is an accumulation of changes). Additionally, I've described additions or changes to USOURCE members in the CHANGES log.

- **Add a log of errors reported.** I've added a log of all errors reported by users. This error log is in the GENER162 module in SOURCE.

## FTP download

CPEXpert Release 17.1 (both code and documentation) is available via ftp download from my ftp server. If you prefer this method of obtaining the update, please send an email to [Don\\_Deese@cpexpert.com](mailto:Don_Deese@cpexpert.com) to obtain instructions for ftp download, obtain your user id, and obtain your password. If you have requested ftp download in past, I will automatically send you ftp download instructions.

## Installation

I suggest that you use the following steps to install Release 17.1;

- Create a new PDS titled "prefix.CPEXPRT.V171.SOURCE".
- Create a new PDS titled "prefix.CPEXPRT.V171.USOURCE".
- Install CPEXpert into the "prefix.CPEXPRT.V171.SOURCE" using the normal installation procedures described in the *CPEXpert Installation Guide*.
- Install CPEXpert into the "prefix.CPEXPRT.V171.USOURCE" using the normal installation procedures described in the *CPEXpert Installation Guide*. This step will cause the email macros to be loaded into USOURCE.
- Copy your **old** USOURCE members into "prefix.CPEXPRT.V171.USOURCE". This step should be done so you do not have to recreate all of your unique parameters<sup>6</sup>.
- If you elected to receive updates to CPEXpert on CD, the software is distributed on the CD that contains the CPEXpert user documentation.
  - **Installing CPEXpert from CD to MVS.** Copy the *source.ebc* file from `cd:\software\source.ebc` as binary, to CPEXPRT.TAPE.REL171, allocated as

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<sup>6</sup>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 CPEXPRT.V171.USOURCE, you may wish to append the PREVIOUS macro from the Release 16.2 USOURCE into your USOURCE(GENGUIDE) member.

DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=0,AVGREC=K,SPACE(80,(150,50)),  
DSN=CPEXPRT.REL171.IEBUPDTE. The *source.ebc* file is in standard  
IEBUPDTE format.

Use the JCL described in Exhibit 2-1 of the *CPExpert Installation Guide* to install the  
CPExpert software. Copy your old USOURCE members as described above.

- **Installing CPExpert from CD to PC:** Copy the cd:\software\source\ on the CD to  
prefix\cpexpert\rel171\source. Copy the cd:\software\usource\ on the CD to  
prefix.cpexpert\v171\usource using the normal installation procedures as described  
in the *CPExpert Installation Guide*. This step will cause the email macros to be  
loaded into usource. Copy your old usource members as described above. Make  
sure that you update your usource(genguide) member to specify **%LET SOURCE  
=user\_directory;** statement to point to the new SOURCE directory.
- If you have installed the CPExpert option to produce output to the SAS Output Delivery  
System (ODS) and if you have exercised the LINKPDF option so you can “click” on a rule  
in the html output to see the documentation, **please remember to load the new  
documentation onto your system.**
- If you chose to implement the xxxHTML option (e.g., WLMHTML) to provide your own  
SAS ODS HTML statement parameters, please place your own macros into USOURCE  
and concatenate the USOURCE pds ahead of the SOURCE pds.

**Special note for SAS/ITRM users of CPExpert running the WLM Component:** With  
CPExpert Release 17.1, you must have the following MXG file structure in your performance  
data base.

#### **TYPE41VF TYPE 41 VLF STATISTICS**

SAS gives an invalid return to the %sysfunc(exist(file)) macro with SAS/ITRM, so the above  
files must be in your pdb, even if they are null files.

## **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.N.Avendano** (Kaiser Permanente, CA)  
**Markus Bansemir** (HUK-COBURG, Germany)  
**James.Barton** (US Veterans Administration, Texas)  
**Glenn Bowman** (Wakefern Food Corporation, NJ)  
**Craig Collins** (State of Wisconsin, WI)

**Michael Duffy** (Lloyds TSB, United Kingdom)  
**Kris Ferrier** (State of Washington, WA)  
**Paul Gordon** (Bank of America, VA)  
**Yaohua Hu** (Insurance Services Organization, NJ)  
**Emily Johnson** (GEICO, MD)  
**Kenneth D Jones** (Bell Aliant, Halifax, Nova Scotia, Canada)  
**Erwin Klaus** (Rabobank, Netherlands)  
**Sam Knutson** (GEICO, MD)  
**Hugh Lapham** (Royal Canadian Mounted Police, Canada)  
**Barry Merrill** (Merrill Consultants, TX)  
**Al Sherkow** (I/S Management Strategies, Ltd., WI)  
**Andreas von Imhof** (Rabobank, Netherlands)  
**Bruce Widlund** (Merrill Consultants, TX)

Please 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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