



## Product Update Bulletin 2010-1

This product update forwards changes to both software and documentation. The software update is Release 20.1 of CPEXPERT. The release number indicates that it is the first release of 2010.

With Release 20.1, CPEXPERT has been updated to: (1) provide additional analysis and features in the WLM Component; (2) provide additional features in the CICS Component; (3) provide additional features in the DB2 Component; (4) provide additional features in the DASD Component; (5) provide updated documentation on CD; and (6) correct errors that have been reported by CPEXPERT users.

- **Updates to the WLM Component.** The following rules and features have been added to the WLM Component:
  - **Added new rules.** The following rules<sup>1</sup> have been added to the WLM Component:
    - Rule WLM760 (*Large percent of SMF buffer space allocated to active buffers*) reports that a large percent of SMF buffer space was allocated to active SMF buffers. This finding could mean that SMF buffer space was in danger of becoming exhausted.
    - Rule WLM761 (*BUFUSEWARN message was produced*) reports that the BUFUSEWARN message IEE986E was produced to warn that a high percent of maximum SMF buffer space was allocated. This finding could mean that SMF buffer space was in danger of becoming exhausted.
    - Rule WLM762 (*SMF data was lost because no buffer space was available*) reports that all available SMF buffer space was used and SMF records were lost.
    - Rule WLM763 (*Control Interval (CI) size might be too small for SMF data sets*) reports that the Control Interval (CI) specified for SMF data sets might be too small, with the result that there is inefficient SMF record processing.
    - Rule WLM764 (*SMF recording was switched to more than two data sets*) reports that SMF recording was switched to more than two data sets, indicating that the SMF data set dump process was not able to keep up with the volume of SMF records written.

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<sup>1</sup>Thanks to **Rick Ralston** (HUMANA, KY) for suggesting this SMF analysis.

- Rule WLM765 (*SMF records were written to the SMF data set with recording spikes*) reports that SMF records were written to the SMF data set with recording spikes in the SMF Type 23 recording intervals. This could mean that the volume of application transactions is significantly increasing, or that new applications are running on the system and these new applications cause a significant increase in records being presented to SMF.
- Rule WLM767 (*NOBUFFS(HALT) was specified in SMFPRMxx*) reports that HALT was specified for the NOBUFFS parameter in the SMFPRMxx member of SYS1.PARMLIB.
- Rule WLM768 (*LASTDS(HALT) was specified in SMFPRMxx*) reports that HALT was specified for the LASTDS parameter in the SMFPRMxx member of SYS1.PARMLIB.
- **Modified rules.** The following WLM Component rules have been modified:
  - Rule WLM013 (*Response goal was specified for server service class*) was modified by adding an option to suppress specific service classes, so that WLM013 will not be produced for the designated service classes. CPEXpert produces a report of server/served information if WLM013 is produced.
  - Rule WLM016 (*Low velocity goal was specified for server service class*) was modified by adding an option to suppress specific service classes, so that WLM013 will not be produced for the designated service classes. CPEXpert produces a report of server/served information if WLM013 is produced.

Please note that the “suppress rules for specific service classes” feature can be applied to any rule produced by the WLM Component<sup>2</sup>. While the code exists only for Rule WLM013 and Rule WLM016 at present, it is easy for me to implement the feature for any other rule. Please send me an email if you wish any other rules optionally to be suppressed.

- **New analysis area.** Since the WLM Component can analyze so many areas, I added a series of variables with Release 15.2 to allow users to control which general areas should be analyzed and reported during any particular execution of the WLM Component. The number of variables increases with each new area analyzed by the WLM Component. Selecting only areas of interest limits the amount of output produced and limits the processing time required to run CPEXpert.

System Management Facilities (SMF) dynamically collects system and work unit information. This basic SMF information is augmented by information collected by other collectors of data (RMF, CICS, DB2, etc.). The information collected is organized into records identified by *SMF Record Types*, with the record types identified by a number in the range of 0-255. Any particular record type can be

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<sup>2</sup>Thanks to **Rick Ralston** (HUMANA, KY) for suggesting this feature.

further categorized into record subtypes. The SMF records are buffered and eventually written to SMF data sets or log streams. The buffering and writing process has potential for inefficient operation, losing records, or even system halt. With CPEXpert Release 20.1, the WLM Component **optionally** analyzes performance problems with SMF activity.

The following guidance variables in USOURCE(WLMGUIDE) now control which system areas that the WLM Component will analyze in any specific execution of the WLM Component:

VARIABLE	DESCRIPTION
CHKENQ	Analyze resource contention problems?
CHKGOAL	Analyze service class periods to determine reasons goals were missed?
CHKINIT	Analyze problems with WLM-managed initiators?
CHKIOP	Analyze problems with IOP/SAP imbalance?
CHKLOGGER	Analyze problems with System Logger?
CHKPAGE	Analyze problems with paging subsystem?
CHKPLCY	Analyze problems with WLM service policy definition?
CHKRPT	Analyze report class periods to determine reasons goals were missed?
CHKPRSM	Analyze problems with LPAR definitions and other PR/SM issues?
CHKSMF	Analyze problems with System Management Facilities (SMF)
CHKSYS	Analyze problems with SYSTEM/SYSSTC excessive CPU use?
CHKXCF	Analyze problems with coupling facility and XCF?
CHKZAAP	Analyze problems with System z Application Assist Processors (zAAP)?
CHZIIP	Analyze problems with System z <i>Integrated Information Processor</i> (zIIP)?

- **Updates to the CICS Component.** The main changes with CPEXpert Release 20.1 include:
  - Links to CPEXpert CICS Component documentation have been added to the “Rules Suppressed” listing when producing SAS ODS html output (with the CPEXpert LINKPDF option enabled). This allows users to easily appreciate the rules that were suppressed based on missing data<sup>3</sup>. Consequently, users can decide whether they should implement statistics collection to provide the missing data.
- **Updates to the DB2 Component.** The main changes with CPEXpert Release 20.1 include:

<sup>3</sup>Thanks to **Rick Ralston** (HUMANA, KY) for suggesting this feature.

- An option has been provided to allow selection of up to 20 unique DB2 subsystems<sup>4</sup> while analyzing performance problems with DB2 subsystems.
- The DB2 Component logic has been modified to handle the case where an installation has multiple identical DB2 subsystem names defined in z/OS images.
- Links to CPEXpert DB2 Component documentation have been added to the “Rules Suppressed” listing when producing SAS ODS html output (with the CPEXpert LINKPDF option enabled). This allows users to easily appreciate the rules that were suppressed based on missing data. Consequently, users can decide whether they should implement statistics collection to provide the missing data.
- **Updates to the DASD Component.** The main changes with CPEXpert Release 20.1 were to:
  - Provide support for analyzing critical VSAM data sets when analyzing a MICS performance data base, but using a MXG TYPE42DS file created under a licensed MXG product installed at the installation.
  - Provide support for analyzing VSAM performance problems when analyzing a MICS performance data base, but using MXG TYPE42DS and MXG TYPE64 files created under a licensed MXG product installed at the installation.
  - Provide the DASCRIPT CPEXpert module to help performance analysts identify critical data sets (those VSAM data sets where the data sets were referenced by work running in service classes with a high Goal Importance, the work had significant access to the VSAM data sets, and the VSAM data sets experienced significant I/O response time).
  - Revise Section 1 (Introduction) to provide documentation regarding the analysis of specific data sets using the MXG TYPE42DS file versus using the TYPE14/15 approach (and problems with using the TYPE14/15 approach). Provide a discussion of using MXG files when analyzing VSAM performance problems when analyzing a MICS performance data base
  - Revise Section 2 (Installing the DASD Component) to provide additional documentation regarding how to install the CPEXpert modification to MXG or MICS, so CPEXpert can collect device-related information when MXG or MICS is processing SMF Type 30 records. Provide a discussion of how to identify critical data sets when CPEXpert is asked to analyze DASD performance problems from the perspective of critical data sets.
  - Expand Section 4 (Executing the DASD Component) to provide documentation on how to execute the DASCRIPT CPEXpert module, and to produce a report showing critical VSAM data sets.

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<sup>4</sup>Thanks to **Rick Ralston** (HUMANA, KY) for suggesting this feature.

- Correct errors reported by users.
- **Updates to the WebSphere MQ Component.** The WebSphere MQ Component: has been updated to correct minor errors reported by CPEXpert 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 have added a log of changes to the CPEXpert code for Release 20.1. 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 have followed the MXG model for releases (that is, the CHANGES log shows changes in the new release, while the CHANGESS log is an accumulation of changes). Additionally, I have described additions or changes to USOURCE members in the CHANGES log.
- **Add a log of errors reported.** I have added a log of all errors reported by users for CPEXpert Release 19.2. This error log is in the GENER192 module in SOURCE.

## FTP download

CPEXpert Release 20.1 (code and documentation) is available via ftp download from the CPEXpert 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 the ftp download instructions.**

## Installation

I suggest that you use the following steps to install Release 20.1;

- Create a new PDS titled "prefix.CPEXPERT.V201.SOURCE".
- Create a new PDS titled "prefix.CPEXPERT.V201.USOURCE".
- Install CPEXpert into the "prefix.CPEXPERT.V201.SOURCE" using the normal installation procedures described in the *CPEXpert Installation Guide*.

- Install CPEXpert into the "prefix.CPEXP.ERT.V201.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.CPEXP.ERT.V201.USOURCE". This step should be done so you do not have to recreate all of your unique parameters<sup>5</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.201.ebc* file from cd:\software\ as binary, to CPEXP.ERT.TAPE.RELV201, allocated as DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=0,AVGREC=K,SPACE(80,(150,50)), DSN=CPEXP.ERT.RELV201.IEBUPDTE. The *source.201.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\rel201\source. Copy the cd:\software\usource\ on the CD to prefix.cpexpert\rel201\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.
- **Downloading via ftp:** If you elected to download updates from my ftp server, you can copy the *source.201.ebc* file to CPEXP.ERT.TAPE.RELV201, allocated as DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=0,AVGREC=K,SPACE(80,(150,50)), DSN=CPEXP.ERT.RELV201.IEBUPDTE. The *source.201.ebc* file is in standard IEBUPDTE format. The updated CPEXpert user documentation also will be available on the ftp site. It is your option whether you wish to download only the manuals, or also download the individual rule documents. If you wish to download the individual rule documents, they will be available as pdf files in *Individual\_Rule\_Documentation.zip* on the ftp site.
- If you have implemented 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 individual rule documentation onto your system.**

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<sup>5</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 CPEXP.ERT.V201.USOURCE, you may wish to append the PREVIOUS macro from your old USOURCE(GENGUIDE) into your new USOURCE(GENGUIDE).

- 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.
- If you chose to implement the CPExpert email option, please update the xxxEMAIL modules in USOURCE to reflect your unique email requirements.

**Special note for SAS/ITRM users of CPExpert running the WLM Component:** With CPExpert Release 20.1, you must have the following MXG file structures in your performance data base.

**TYPE23      SMF INTERVAL STATISTICS (STATUS)**  
**TYPE90      MVS OPERATOR COMMAND ISSUED**

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:

**Dick Arnold** (Commerce Bank, KS)  
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**Don Williams** (University of North Carolina Hospitals, NC)

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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