



Product Update Bulletin 2009-2

This product update forwards changes to both software and documentation. The software update is Release 19.2 of CPEXPERT. The release number indicates that it is the second release of 2009.

With Release 19.2, CPEXPERT has been updated to: (1) support z/OS Version 1 Release 11; (2) provide support for CICS/TS Release 4.1; (3) provide additional analysis and features in the CICS Component and the WLM Component; (4) provide additional features in the DB2 Component; (5) provide updated documentation on CD; and (6) correct errors that have been reported.

- **Support z/OS Version 1 Release 11 (z/OS V1R11).** z/OS V1R11 was made Generally Available (GA) by IBM in September 2009. Since Computer Management Sciences is a Partner in Development with IBM, I normally can provide support for new IBM releases within 30 days of General Availability of the new IBM release.
 - All CPEXPERT components have been updated to provide support for z/OS V1R11.
 - All CPEXPERT documentation has been updated with references to applicable z/OS V1R11 documents from IBM.
- **Support CICS/TS Release 4.1.** CICS/TS Release 4.1 was made Generally Available by IBM in June 2009.
 - The CPEXPERT CICS Component has been updated to provide support for CICS/TS Release 4.1.
 - All relevant CPEXPERT documentation has been updated with references to applicable CICS/TS Release 4.1 documents from IBM. This includes the documentation for the CICS Component and the documentation for other CPEXPERT components, as appropriate.
- **Updates to the WLM Component.** The following rules and features have been added to the WLM Component:
 - **Added new rules.** The following rules have been added to the WLM Component:
 - Rule WLM095 (*Excessive CPU used by low Importance service class periods*) reports that an excessive amount of CPU time was used by service class periods with low Goal Importance during intervals when high overall CPU Busy was experienced by the LPAR. This finding should be considered as having no impact

on the performance of your computer system, but the finding could have a MEDIUM IMPACT, or HIGH IMPACT on the amount paid under Workload License Charges (WLC)¹. In some situations, assigning a WLM Resource Group to the service class periods (capping resource use by the service class periods) could reduce software license charges.

Please note that this analysis by CPEXpert is not intended to replace a comprehensive analysis of Workload License Charges, such as would be performed by the *LPAR Capacity and Software Usage Analysis (LCS) Software* product marketed by I/S Management Strategies, Ltd. (www.sherkow.com).

- Rule WLM460 (*SYSTEM work enqueued on resource held by lower importance*) reports that work in the SYSTEM service class was enqueued on a resource held by a service class with a lower Goal Importance.
- Rule WLM461 (*SYSSTC work enqueued on resource held by lower importance*) reports that work in the SYSSTC service class was enqueued on a resource held by a service class with a lower Goal Importance.
- Rule WLM462 (*Importance 1 enqueued on resource held by lower importance*) reports that work in a service class with a Goal Importance of 1, was enqueued on a resource held by a service class with a lower Goal Importance.
- Rule WLM464 (*High Importance enqueued on resource held by lower importance*) reports that work in a service class was enqueued on a resource held by a service class with a lower Goal Importance.
- Rule WLM466 (*Work enqueued on resource held by same Goal Importance*) reports that work in a service class was enqueued on a resource held by a service class with the same Goal Importance.
- Rule WLM468 (*Work enqueued on resource held by higher Goal Importance*) reports that work in a service class was enqueued on a resource held by a service class with a higher Goal Importance.
- **Modified rules.** The following WLM Component rules have been modified:
 - Rule WLM806 (*Operator changed service class associated with a job*) has been modified to produce the rule only if an operator changed the service class during execution or if there were multiple changes to the job status. This change was made because some automation software routinely alters the service class assignment of work, and this is not a cause for concern.

¹Thanks to **Harald Seifert** (HUK-Coburg, Germany) for suggesting this analysis!

- Rule WLM806 (*LPAR weights are too similar for special processors*) has been modified to suppress the finding if the LPAR is running in HiperDispatch Management Mode.
- Rule WLM820 (*PR/SM Ready Queue caused significant delay to work in LPAR*) has been modified to suppress the finding if the LPAR is running in HiperDispatch Management Mode.
- **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. Selecting only areas of interest limits the amount of output that is produced and limits the processing time required to run CPEXpert.

Enqueue promotion issues were analyzed with CPEXpert Release 19.1, and general enqueue issues are analyzed with CPEXpert Release 19.2 (this release). CPEXpert processes SMF Type 77, Type 30, and Type 72 information to accumulate information related to jobs, service classes, and Goal Importance as related to enqueue issues. This processing is not necessary and the enqueue information can be annoying if you are not interested in enqueue analysis. Consequently, I have added a CHKENQ guidance variable to control whether enqueue analysis is done.

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 PR/SM, IRD, and HiperDispatch?
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)?

NOTE: The default specification of CPEXpert is for the WLM Component to analyze **only** reasons that service class periods missed their performance goals and **only** the WLM Service Definition (that is, CHKGOAL and CHKPLCY are the defaults). I decided on this as the initial analysis because new users sometimes become overwhelmed by the number of problems that are found in their environment.

You must explicitly specify **%LET variable = Y** (where “variable” is one of the above guidance variables) if you wish the WLM Component to analyze other areas. Any combination of analysis can be specified. The WLM Component will provide a listing identifying any analysis area that is not selected, so you will be alerted that the analysis was not done.

- **Enhanced support for MICS.** I have obtained considerable MICS test data² with this CPEXpert release, so comprehensive testing could be done of the WLM Component analyzing a MICS performance data base. Consequently, you might see additional analysis performed and more results produced if you are using CPEXpert to analyze a MICS performance data base.

- **Updates to the CICS Component.** In addition to the support for CICS/TS 4.1 described earlier, the following rules and features have been added to the CICS Component:
 - **Added new rules.** The following rules have been added to the CICS Component:
 - Rule CIC515 (*JVM server T8 mode TCBs in use reached THREADLIMIT value*) reports that the number of open (JVM server) T8 mode Task Control Blocks (TCBs) in use reached the limit set by the THREADLIMIT parameter specified in the JVMSERVER Resource Definition. The THREADLIMIT parameter specifies the maximum number of threads that are allowed in the Language Environment enclave for the JVM server. The JVM server TCBs consist of T8 mode TCBs, introduced with CICS/TS Release 4.1.
 - Rule CIC516 (*Peak JVM server T8 TCBs in use approached THREADLIMIT*) reports that the number of open (JVM server) T8 mode Task Control Blocks (TCBs) in use was approaching the limit set by the THREADLIMIT parameter specified in the JVMSERVER Resource Definition.
 - Rule CIC650 (*CICS Event Processing was disabled in EVENTBINDING*) reports that CICS Event Processing was disabled in EVENTBINDING, with the result that events defined in the EVENTBINDING were not captured by CICS Event Processing. CICS Event Processing was introduced with CICS/TS Release 4.1.
 - Rule CIC652 (*CICS Event Processing Filter operations failed*) reports that some CICS Event Processing filter operations failed because CICS was unable to determine whether an event should have been captured. This situation could

²Thanks to **Rick Ralston** (Humana, KY) for providing detailed MICS test data.

occur because of incorrect specifications, because of missing information, because of incomplete or incorrect filter operations, etc.

- Rule CIC654 (*CICS Event Processing failed to capture some events*) reports that CICS Event Processing determined that event capture for events were required but Event Processing failed to capture the events because resources are not available or other relevant information could not be acquired.
- Rule CIC656 (*CICS Event Processing events not emitted by EP Adapter - configuration*) reports that CICS Event Processing events were captured but were not emitted because the Event Processing Adapter encountered a problem relating to a resource specified in the *Event Dispatcher Adapter* configuration section of the Event Binding.
- Rule CIC658 (*CICS Event Processing events not emitted by EP Adapter - other cause*) reports that CICS Event Processing events were captured but were not emitted because the Event Processing Adapter encountered a problem (such as insufficient storage) in the CICS environment.
- Rule CIC660 (*CICS Event Processing events were not filtered*) reports that some CICS Event Processing events were not filtered because filters had not been defined for the events, because of incorrect specifications, because of missing information, because of incomplete or incorrect filter operations, etc. If a large number of events were not filtered, significant processing could be required by CICS Event Processing, the CICS Event Processing Adapter, and the destination software.
- **Modified rule.** The following CICS Component rules have been modified:
 - Rule CIC501 (*Peak H8 mode TCBs in use approached MAXHPTCBS*) has been modified to correct the calculation of suggested maximum MAXHPTCBS value.
 - Rule CIC602 (*Mismatched TCP/IP send/receive session count (partner group)*) has been modified to correct the code that populates variables with partner groups.
- **Updates to the DB2 Component.** The DB2 Component has been enhanced to allow users to specify descriptions³ of individual buffer pools. These descriptions typically would describe how the buffer pools are used, or describe the application using the buffer pools. CPEXpert then associates the descriptions with the DB2 buffer pools when producing buffer pool findings. Different buffer pool descriptions can be used for different DB2 subsystems. This feature is particularly helpful for sites that have a large number of DB2 subsystems in which DB2 buffer pools serve different applications.

³Thanks to **Glenn Bowman** (Wakefern Food Corporation, NJ) for suggesting this feature.

- **Updates to the DASD Component.** Changes to the DASD Component with CPEXpert Release 19.2 were to correct errors reported by users.
- **Updates to the WebSphere MQ Component.** The following changes have been made to the WebSphere MQ Component:
 - **Modified rule.** The logic in Rule WMQ340 has been modified to compute a rolling average of checkpoints taken.
 - **Other Changes.** Other changes to the WebSphere MQ Component with CPEXpert Release 19.2 were 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>.
- **Add a log of changes to code.** I've added a log of changes to the CPEXpert code for Release 19.1. 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 releases (that is, the CHANGES log shows changes in the new release, while the CHANGESS 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 for CPEXpert Release 19.1. This error log is in the GENER191 module in SOURCE.

FTP download

CPEXpert Release 19.2 (both 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 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 19.2;

- Create a new PDS titled "prefix.CPEXPRT.V192.SOURCE".

- Create a new PDS titled "prefix.CPEXPERT.V192.USOURCE".
- Install CPEXpert into the "prefix.CPEXPERT.V192.SOURCE" using the normal installation procedures described in the *CPEXpert Installation Guide*.
- Install CPEXpert into the "prefix.CPEXPERT.V192.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.CPEXPERT.V192.USOURCE". This step should be done so you do not have to recreate all of your unique parameters⁴.
- 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.192.ebc* file from cd:\software\ as binary, to CPEXPERT.TAPE.RELV192, allocated as DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=0,AVGREC=K,SPACE(80,(150,50)), DSN=CPEXPERT.RELV192.IEBUPDTE. The *source.192.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\rel192\source. Copy the cd:\software\usource\ on the CD to prefix.cpexpert\rel192\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.192.ebc* file to CPEXPERT.TAPE.RELV192, allocated as DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=0,AVGREC=K,SPACE(80,(150,50)), DSN=CPEXPERT.RELV192.IEBUPDTE. The *source.192.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.

⁴The 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.V192.USOURCE, you may wish to append the PREVIOUS macro from your old USOURCE(GENGUIDE) into your new USOURCE(GENGUIDE).

- 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.**
- 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.

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:

Glenn Bowman (Wakefern Food Corporation, NJ)
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Al Sherkow (I/S Management Strategies, Ltd., WI)
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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

Computer Management Sciences, Inc.
634 Lakeview Drive
Hartfield, Virginia 23071-3113
(804) 776-7109 FAX: (804) 776-7139
www.cpexpert.com
Don_Deese@cpexpert.com