

## Section 3: Providing general guidance

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This section describes how to modify the General Environment Controls section of the GENGUIDE Module. Most users will make changes to the General Environment Controls section only when installing CPEXpert, or if their environment changes.

**Most guidance parameters are optional.** Only the first parameter (the PDB type) and potentially the second parameter (the MVSVR to specify the MVS version) are required. All other parameters are provided in response to the unique requirements of individual users of CPEXpert.

You should review the options to see if any apply to your organization.

Exhibit 3-1 illustrates the General Environment Controls section of the GENGUIDE Module. The following discussion provides information about each of the parameters in the General Environment Controls section:

```

*****
;
* SET GENERAL ENVIRONMENT CONTROLS. ;
*****
;
%LET PDB          = MXG          ; * INPUT IS FROM MXG PERFORMANCE DATA BASE          ;
%LET MVSVER       = SP6.10      ; * MVS VERSION (SPECIFY SP7.n FOR z/OS          ;
%LET PDBLIB       = PDBLIB      ; * SAS VARIABLE FOR THE PDB LIBRARY          ;
%LET TYPE30_1    = N           ; * TYPE 30 JOB INITIATION (Y= AVAILABLE)          ;
%LET TYPE30_4    = N           ; * TYPE 30 STEP TERMINATION (Y = AVAILABLE)          ;
%LET TYPE30_5    = N           ; * TYPE 30 JOB TERMINATION (Y = AVAILABLE)          ;
%LET TYPE30_V    = N           ; * TYPE 30 INTERVAL ACCOUNTING (Y= AVAILABLE)          ;
%LET TYPE30DD    = N           ; * MXG TYPE30 MOD. (Y = AVAILABLE)          ;
%LET TYPE42DS    = N           ; * MXG TYPE42DS (Y = AVAILABLE)          ;
%LET TYPE64      = N           ; * MXG TYPE64 (Y = AVAILABLE)          ;
%LET SMFTYP88    = N           ; * TYPE 88 RECORDS AVAILABLE IN MXG?          ;
%LET PAGESIZE    = 65          ; * STANDARD PAGE SIZE FOR PRINTED OUTPUT          ;
%LET PRINT       = PRINT       ; * USE STANDARD SAS PRINT OUTPUT FILE          ;
%LET PRSM        = N           ; * YOUR SYSTEM OPERATES UNDER PR/SM, MDF, MLPF          ;
%LET CPUPAGE     = .165        ; * APPROXIMATE CPU SERVICE UNITS PER PAGE-IN          ;
%LET CPUXCP     = .725        ; * APPROXIMATE CPU SERVICE UNITS PER EXCP          ;
%LET CPUSWAP    = 7.59        ; * APPROXIMATE CPU SERVICE UNITS PER SWAP          ;
%LET CYCLE       = 01          ; * MICS PROCESSING CYCLE (01 = CYCLE 01)          ;
%LET MICSLEV     = RMF6380     ; * MICS PRODUCT CHANGE LEVEL          ;
%LET MICSDERV    = N           ; * MICS DERIVATION MACROS          ;
%LET HARLIB      = &PDBLIB     ; * MICS HAR INFORMATION AREA          ;
%LET SCPLIB      = &PDBLIB     ; * MICS SCP INFORMATION AREA          ;
%LET BATLIB      = &PDBLIB     ; * MICS BAT INFORMATION AREA          ;
%LET DB2LIB      = &PDBLIB     ; * MICS DB2 INFORMATION AREA          ;
%LET MICJOB      = Y           ; * MICS BATJOB AVAILABLE?          ;
%LET MIC_TS      = Y           ; * MICS BAT_TS AVAILABLE?          ;
%LET MIC_ST      = Y           ; * MICS BAT_ST AVAILABLE          ;

```

## SAMPLE DISPLAY OF CPEXPERT.USOURCE(GENGUIDE)

### EXHIBIT 3-1

```

%LET MXG30_1 =           ; * MXG TYPE30_1 FULL NAME           ;
%LET MXG30_4 =           ; * MXG TYPE30_4 FULL NAME           ;
%LET MXG30_5 =           ; * MXG TYPE30_4 FULL NAME           ;
%LET MXG30_V =           ; * MXG TYPE30_V FULL NAME           ;
%LET MXG42DS =           ; * MXG TYPE42DS FULL NAME           ;
%LET MXG64 =             ; * MXG TYPE64 FULL NAME             ;
%LET MXG70 =             ; * MXG TYPE70 FULL NAME             ;
%LET MXG70PR =          ; * MXG TYPE70PR FULL NAME          ;
%LET MXG71 =             ; * MXG TYPE71 FULL NAME             ;
%LET MXG72 =             ; * MXG TYPE72 FULL NAME             ;
%LET MXG72GO =          ; * MXG TYPE72GO FULL NAME          ;
%LET MXG72SC =          ; * MXG TYPE72SC FULL NAME          ;
%LET MXG72DL =          ; * MXG TYPE72DL FULL NAME          ;
%LET MXG74 =             ; * MXG TYPE74 FULL NAME             ;
%LET MXG74CF =          ; * MXG TYPE74CF FULL NAME          ;
%LET MXG74ME =          ; * MXG TYPE74ME FULL NAME          ;
%LET MXG74PA =          ; * MXG TYPE74PA FULL NAME          ;
%LET MXG74ST =          ; * MXG TYPE74ST FULL NAME          ;
%LET MXG74SY =          ; * MXG TYPE74SY FULL NAME          ;
%LET MXG75 =             ; * MXG TYPE75 FULL NAME             ;
%LET MXG78CF =          ; * MXG TYPE78CF FULL NAME          ;
%LET MXG88 =             ; * MXG TYPE88 FULL NAME             ;
%LET SASODS = N         ; * CONTROLS WHETHER SAS ODS IS USED   ;
%LET PATH =             ; * PATH FOR ODS OUTPUT             ;
%LET FRAME = xxxFRAME   ; * GENERIC ODS FRAME NAME           ;
%LET CONTENTS = xxxxxCONT ; * GENERIC ODS CONTENTS NAME       ;
%LET BODY = xxxxxBODY   ; * GENERIC ODS BODY NAME           ;
%LET LINKPDF =          ; * LINK TO CPEXPERT DOCUMENTATION   ;
%LET STYLE =            ; * ODS HTML STYLE OPTION           ;
%LET PDFODS = N         ; * CONTROLS WHETHER SAS PDF IS USED   ;
%LET PDFFILE = filename ; * DEFINES THE SAS PDF OUTPUT FILE   ;
%LET TRANTAB = EBCDIC   ; * CONTROLS CHARACTER FORMAT OF HTML OUTPUT ;
%LET URL = N           ; * CONTROLS .HTM IN SAS ODS FRAME OUTPUT ;
*****;

```

## SAMPLE DISPLAY OF CPEXPERT.USOURCE(GENGUIDE)

### EXHIBIT 3-1 (Continued)

## Chapter 1: Type of performance data base

This is a required parameter. The **%LET PDB = MXG** statement defines the type of performance data base CPEXpert is to analyze.

Change the specification to **%LET PDB = MICS** to process a MICS performance data base.

## Chapter 2: MVS version

This is a required parameter **only** if you are executing the CPEXpert **SRM Component**, CPEXpert **MVS Component**, or the CPEXpert **TSO Component**. This parameter is not required for other CPEXpert Components.

The **%LET MVSVER = SPn.n** statement is a SAS macro statement to define the MVS version under which you are operating. This statement must be changed, if necessary, to reflect the MVS version under which your system operates.

**Use SP6.n for OS/390 releases of MVS, and use SP7.n for z/OS releases of MVS**, where “n” is the IBM Release Number of the version of MVS. For example, you should specify **%LET MVSVER = SP7.2** if you are operating under z/OS Version 1 Release 2.

## Chapter 3: PDBLIB JCL DD statement

The optional **%LET PDBLIB = PDBLIB** option was implemented at the request of a user who has the PDB organized into different SAS libraries - one library for each day. The user wanted to use SAS to automatically define the appropriate PDB library depending upon the day of week (e.g., Monday is MON.TYPE70, Tuesday is TUE.TYPE70, etc.).

The &PDBLIB macro variable was created and all references in the CPEXpert code was changed from "PDBLIB.member" to "&PDBLIB..member". The user can prefix CPEXpert with SAS code to determine the day of week and alter the global PDBLIB SAS macro variable accordingly. If you use this approach to refer to different performance data bases, you must remove the **%LET PDBLIB=PDBLIB** from the GENGUIDE member.

## Chapter 4: SMF Type 30 (Job Initiation) records available

The optional **%LET TYPE30\_1 = N** statement tells CPEXpert whether SMF Type 30 (Job Initiation) records are available for analysis. If you collect the SMF Type 30 (Job Initiation) records, CPEXpert can perform more analysis into potential performance problems.

This statement should be changed to **%LET TYPE30\_1 = Y** if you collect SMF Type 30 (Job Initiation) records for the system(s) being analyzed.

## Chapter 5: SMF Type 30 (Job Step) records available

The optional `%LET TYPE30_4 = N` statement tells CPEXpert whether SMF Type 30 (Job Step) records are available for analysis. The SMF Type 30 (Job Step) records are the SMF Type 30 (Subtype 4) records.

This statement should be changed to `%LET TYPE30_4 = Y` if you collect SMF Type 30 (Workload) records for the system(s) being analyzed. CPEXpert can perform more analysis into potential performance problems if you collect the SMF Type 30 (Job Step) records.

## Chapter 6: SMF Type 30 (Job) records available

The optional `%LET TYPE30_5 = N` statement tells CPEXpert whether SMF Type 30 (Job) records are available for analysis. The SMF Type 30 (Job) records are the SMF Type 30 (Subtype 5) records.

This statement should be changed to `%LET TYPE30_5 = Y` if you collect SMF Type 30 (Workload) records for the system(s) being analyzed. CPEXpert can perform more analysis into potential performance problems if you collect the SMF Type 30 (Job) records.

## Chapter 7: SMF Type 30 (Interval) records available

The optional `%LET TYPE30_V = N` statement tells CPEXpert whether SMF Type 30 (Interval) records are available for analysis. If you collect the SMF Type 30 (Interval) records, CPEXpert can perform more analysis into potential performance problems.

This statement should be changed to `%LET TYPE30_V = Y` if you collect SMF Type 30 (Interval) records for the system(s) being analyzed.

## Chapter 8: SMF Type 30 modification to MXG or MICS installed

The optional `%LET TYPE30DD = N` statement tells CPEXpert whether you have installed the CPEXpert modification to MXG or MICS code to collect SMF Type 30 (Data Definition) information.

The modification included with CPEXpert is quite simple. While MXG or MICS is processing SMF Type 30 records, CPEXpert records only the essential information required to identify the job name, the step name, service class (for Goal Mode) or the performance group number (for Compatibility Mode), the devices referenced and their Start I/O counts and connect times, and the beginning and end time of the measurement.

This information is sufficiently concise that less than 25 cylinders of DASD are required to hold the information for all job steps executed in a relatively large installation.

This modification allows CPEXpert to relate DASD performance information contained in SMF Type 74 records to specific service classes or performance groups, and to relate the Type 74 information to specific jobs or job steps.

The SMF Type 30 modification to MXG or MICS is available only with the DASD Component of CPEXpert, although other CPEXpert components use the information if the modification has been installed.

The TYPE30DD statement should be changed to **%LET TYPE30DD = Y** if you license the CPEXpert DASD Component, and if you have installed the CPEXpert modification to collect Type 30 (Data Definition) information for the system(s) being analyzed.

## Chapter 9: SMF Type 42 (Data Set) records available

The optional **%LET TYPE42DS = N** statement tells CPEXpert whether SMF Type 42 (Data Set) records are available for analysis. If you collect the SMF Type 42 (Data Set) records, CPEXpert can perform more analysis into potential performance problems. The SMF Type 42 (Data Set) records are highly recommended if you want the DASD Component to analyze VSAM performance problems.

This statement should be changed to **%LET TYPE42DS = Y** if you collect SMF Type 42 (Data Set) records for the system(s) being analyzed.

## Chapter 10: SMF Type 64 (VSAM Statistics) records available

The optional **%LET TYPE64 = N** statement tells CPEXpert whether SMF Type 64 (VSAM Statistics) records are available for analysis. If you collect the SMF Type 64 (VSAM Statistics) records, CPEXpert can perform analysis of potential performance problems with VSAM data sets.

This statement should be changed to **%LET TYPE64 = Y** if you collect SMF Type 64 (VSAM Statistics) records for the system(s) being analyzed.

## Chapter 11: SMF Type 88 (System Logger) records available

The optional **%LET SMFTYP88** statement tells CPEXpert whether SMF Type 88 (System Logger) records are available for analysis. If you collect the SMF Type 88 (System Logger) records, CPEXpert can perform more analysis into potential performance problems.

This statement should be changed to **%LET SMFTYP88 = Y** if you collect SMF Type 88 (System Logger) records for the system(s) being analyzed.

## Chapter 12: Page size for printer output

The optional **%LET PAGESIZE = 65** statement defines the standard page size. CPEXpert uses this information to make sure that the narrative associated with each rule is contained within a single page.

## Chapter 13: SAS printer output destination

The optional **%LET PRINT = PRINT** statement defines the standard SAS print output. The statement may be re-coded to define an output destination other than the standard print output.

## Chapter 14: PR/SM, MDF, or MLPF

The optional **%LET PRSM = N** statement tells CPEXpert whether your system operates under PR/SM (or MDF or MLPF). This statement should be changed to **%LET PRSM = Y** if you operate under PR/SM, MDF, or MLPF.

## Chapter 15: CPU service units (page-in) constant

The optional **%LET CPUPAGE = .165** statement tells CPEXpert the approximate number of CPU service units that are required to service a page-in operation from auxiliary storage. This information is derived from the information provided by IBM in the MVS Initialization and Tuning Guide.

The default values for the PAGERT1 and PAGERT2 keywords which were in the IEAOPTxx member of SYS1.PARMLIB prior to MVS/ESA SP3.1<sup>1</sup> represent a paging rate which consumes five percent of the respective engine. Extrapolating the five percent allows a computation of the approximate number of service units required to perform a single page-in operation from auxiliary storage. Some analysts prefer to perform a multiple linear regression analysis (using page-in, page-out, swap, EXCP, etc.) to account for the uncaptured CPU time. If you use such a method and derive different CPU service units for page-in operations, you can use the **CPUPAGE** variable to guide CPEXpert with your unique values.

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<sup>1</sup>While the PAGERT1 and PAGERT2 keywords have not been available in IEAOPTxx since MVS/ESA Version 3.1, the corresponding constants are located in the MVS internal constants module IRARMCNS.

## Chapter 16: CPU service units (EXCP) constant

The optional **%LET CPUEXCP = .725** statement tells CPEXpert the approximate number of CPU service units that are required to service an I/O operation. This information is derived from the information published in professional journals (e.g., the Proceedings from the CMG International conferences). The published information was based upon multiple linear regression analysis (using page-in, page-out, swap, EXCP, etc.) to account for the uncaptured CPU time. If you use such a method and derive different CPU service units for I/O operations, you can use the **CPUEXCP** variable to guide CPEXpert with your unique values.

## Chapter 17: CPU service units (swap) constant

The optional **%LET CPUSWAP = 7.59** statement tells CPEXpert the approximate number of CPU service units that are required to service a swap operation from auxiliary storage. This information is derived from the information published in professional journals (e.g., the Proceedings from the CMG International conferences).

The published information was based upon multiple linear regression analysis (using page-in, page-out, swap, EXCP, etc.) to account for the uncaptured CPU time. If you use such a method and derive different CPU service units for I/O operations, you can use the **CPUSWAP** variable to guide CPEXpert with your unique values.

## Chapter 18: MICS processing cycle

**This optional parameter applies only to users with a MICS performance data base.**

The **%LET CYCLE = 01** statement allows you to specify a MICS processing cycle other than the most recently-created cycle.

## Chapter 19: MICS product change level

**This optional parameter applies only to users with a MICS performance data base. Although the parameter is optional, all MICS users should verify the product change level of MICS before running CPEXpert!**

The **%LET MICSLEV =RMF6380** statement allows you to specify the MICS product change level that created the performance data base to be analyzed by CPEXpert. CPEXpert has identified a variety of errors with MICS, particularly in OS/390 Goal Mode data. Depending on the MICS product change level, the MICS developers have corrected the errors. The CPEXpert code can either suppress analysis or (in some cases) apply corrections to the

MICS variables. However, CPEXpert must be able to identify which MICS product change level created the performance data base being analyzed.

MICS retains a SAS variable titled "MICSVER" in the MICS data sets. Unfortunately, the MICSVER variable contains "60" and is meaningless with regard identifying the MICS product change level. The CA-MICS product development staff is considering adding a new variable to MICS (perhaps in the HARCPU data set) that will be updated to reflect the MICS product change level. If this variable is added, CPEXpert can automatically determine the MICS product change level and can decide which corrections (if any) to apply.

Absent the variable in a MICS data set to identify the product change level, the CPEXpert user must verify the MICS product change level that created the data in the performance data base.

## Chapter 20: MICS variable derivation option

**This optional parameter applies only to users with a MICS performance data base.**

MICS derives many variables from basic information during its processing<sup>2</sup>. A MICS user has the option of (1) having MICS compute these variables as MICS builds its performance data base and storing the derived variables in appropriate data sets in the MICS data base, or (2) computing the variables each time the particular MICS data set is referenced. With the first option, the variables are computed only once, but storing the variables requires DASD space. With the second option, the variables are not stored on DASD, but processing time is required to compute the variables whenever they are referenced.

The MICS`DERV` statement allows you to specify whether the MICS derivation macros should be invoked by CPEXpert as it processes a MICS performance data base. The default (`%LET MICSDERV = N`) causes CPEXpert not to include the MICS derivation macros. Specify `%LET MICSDERV = Y`; if you wish CPEXpert to include the MICS derivation macros whenever it references a MICS performance data base.

**WARNING: If you wish CPEXpert to include the MICS derivation macros, you must include a SASAUTOS DD statement in your Job Control Language, pointing to the MICS MACAUTOS macro library.** Check with your MICS system administrator if you do not know the data set name of the MICS MACAUTOS macro library.

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<sup>2</sup>For example, MICS computes averages for many variables.

## Chapter 21: MICS JCL DD statement options

**These optional parameters apply only to users with a MICS performance data base.**

MICS divides its various files into logical "information areas" that can be contained in a single SAS library within a MICS data base unit or complex, or which can be in individual SAS libraries (perhaps on different volumes). Some installations have split the MICS information areas into separate SAS libraries. This action normally has been taken because of the size of the SAS files contained in the information areas.

CPEXpert normally uses the DD name PDBLIB (or whatever name you have specified if you modify the `%LET PDBLIB = PDBLIB` statement) to describe the SAS library in which the MICS information areas reside. You can direct CPEXpert to use a different SAS library for selected MICS information areas if you wish CPEXpert to use a different SAS library for any particular information area.

- The **`%LET HARLIB = &PDBLIB`** statement allows CPEXpert to reference the HAR information area wherever it may be placed.

You do not need to use the `%LET HARLIB =` statement if MICS has been installed with the HAR, SCP, BAT, and CIC information areas in a single data base unit or complex. The default statement in GENGUIDE (`%LET HARLIB = &PDBLIB`) causes CPEXpert to reference the HAR information area files in the SAS library pointed to by the PDBLIB DD statement.

However, you can uniquely define the SAS library containing the MICS HAR information area if your HAR information area is not in the SAS library pointed by the PDBLIB DD JCL statement. You might, for example, specify **`%LET HARLIB = HARLIB`** to cause CPEXpert to use the SAS library pointed to by the HARLIB DD JCL statement whenever CPEXpert requires files in the HAR information area.

CPEXpert establishes a default null value for the HARLIB macro variable, and tests this variable after including CPEXPRT.USOURCE(GENGUIDE). If the HARLIB variable is null after including GENGUIDE, CPEXpert will set the HARLIB variable to the value of the PDBLIB macro variable. The point of this is that you do not have to worry about including the HARLIB variable in GENGUIDE if you are an existing user of CPEXpert.

- The **`%LET SCPLIB = &PDBLIB`** statement applies only to users with a MICS performance data base. See the above discussion related to the HARLIB variable for an explanation of the SCPLIB variable.
- The **`%LET BATLIB = &PDBLIB`** statement applies only to users with a MICS performance data base. See the above discussion related to the HARLIB variable for an explanation of the BATLIB variable.

- The **%LET DB2LIB = &PDBLIB** statement applies only to users with a MICS performance data base. See the above discussion related to the HARLIB variable for an explanation of the DB2LIB variable.

## Chapter 22: MICS MICJOB, MIC\_TS, and MIC\_ST variables

**These optional parameters apply only to users with a MICS performance data base.**

MICS places batch job, TSO, and started tasks information from the SMF Type 30 records into the MICS BATJOB, BAT\_TS, and BAT\_ST files, respectively. Not all sites retain these files, but some CPEXpert code requires data in these files. The MICJOB, MIC\_TS, and MIC\_ST allows CPEXpert to function properly in these files are not available.

- The **%LET MICJOB = Y** variable controls whether CPEXpert should expect that the MICS BATJOB file is available. If MICJOB=Y is specified, CPEXpert will expect the BATJOB file to be in the SAS library pointed to by the BATLIB statement. If MICJOB=N is specified, CPEXpert will suppress code that requires the MICS BATJOB file.
- The **%LET MIC\_TS = Y** variable controls whether CPEXpert should expect that the MICS BAT\_TS file is available. If MIC\_TS=Y is specified, CPEXpert will expect the BAT\_TS file to be in the SAS library pointed to by the BATLIB statement. If MICJOB=N is specified, CPEXpert will suppress code that requires the MICS BAT\_TS file.
- The **%LET BAT\_ST = Y** variable controls whether CPEXpert should expect that the MICS BATJOB file is available. If BAT\_ST=Y is specified, CPEXpert will expect the BATJOB file to be in the SAS library pointed to by the BATLIB statement. If BAT\_ST=N is specified, CPEXpert will suppress code that requires the MICS BAT\_ST file.

Please note that some CPEXpert components provide unique guidance capability for the MICS files used by the specific component. For example, the CPEXpert DB2 Component provides flexibility with respect to the MICS DB2xxx files. Please refer to the User Manual for the relevant CPEXpert component for additional information.

## Chapter 23: MXG JCL DD statement options

**These optional parameters apply only to users with a MXG performance data base.** These parameters are used **only** if your MXG data sets are placed into different SAS libraries (perhaps residing on different DASD volumes).

CPEXpert normally uses the DD name PDBLIB (or whatever name you have specified if you modify the **%LET PDBLIB = PDBLIB** statement) to describe the SAS library in which the MXG data sets reside.

You can direct CPEXpert to use a different SAS library for selected data sets if you wish CPEXpert to use a different SAS library for any particular data set. This is accomplished by changing the appropriate %LET MXGxx statement to refer to the **full name of the MXG data set**, including the SAS library DD name.

For example, suppose you have placed the SMF Type 74 information processed by MXG into a SAS data set titled "MYTYPE74" and you wish to refer to this SAS data set by the DD statement named "MYLIB74". You would code the following to cause CPEXpert to refer to your Type 74 information as MYLIB74.MYTYPE74:

```
%LET MXG74 = MYLIB74.MYTYPE74;
```

CPEXpert establishes a default null value for each MXGxx macro variable. CPEXpert tests this macro variable after including CPEXPERT.USOURCE(GENGUIDE). If any MXGxx variable is null after including GENGUIDE, CPEXpert will set the variable to the value of the &PDBLIB macro variable concatenated with "TYPExx" for the appropriate MXG TYPExx data set. The point of this is that you do not have to worry about including any of the MXGxx variables in GENGUIDE if you are an existing user of CPEXpert.

Additionally, you do not have to specify the name of all MXG TYPExx data sets. You need to specify only the data sets residing in a SAS library other PDBLIB.

Please note that some CPEXpert components provide unique guidance capability for the MXG files used by the specific component. For example, the CPEXpert CICS Component provides flexibility with respect to the MXG CICxxx files. Please refer to the User Manual for the relevant CPEXpert component for additional information.

## Chapter 24: SAS Output Delivery System

Output from CPEXpert is created using Basic SAS statements. This Basic SAS output is designed for a standard SAS printer (line) format. With SAS Release 8, SAS users can use the SAS Output Delivery System to create output that is formatted in Hypertext Markup Language (HTML). This output can be browsed with Internet Explorer, Netscape, or any other browser that fully supports the HTML 3.2 tag set.

The CPEXpert WLM Component, DB2 Component, CICS Component, and DASD Component support the SAS ODS features<sup>3</sup>.

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<sup>3</sup>You normally would specify the SAS ODS guidance variables in the guidance member for the respective CPEXpert component. For example, you normally would specify guidance for the WLM Component in USOURCE(WLMGUIDE). The discussion is included in this CPEXpert *Installation Guide* document because most new CPEXpert users would appreciate knowing the process involved with exercising the SAS ODS features as a part of installing CPEXpert.

The below options can be placed in USOURCE(GENGUIDE) so they apply to all CPEXpert components. Alternatively, the options can be placed in USOURCE(xxxGUIDE), where “xxx” is the suffix of a particular CPEXpert component to which the specifications apply.

## Chapter 24.1: SAS Output Delivery System - SASODS variable

The **SASODS** guidance variable is applicable only if you wish to exercise the SAS ODS features of CPEXpert. The SASODS variable tells CPEXpert to implement SAS ODS commands to open HTML files and to direct output from CPEXpert to those HTML files **in addition to** the output that goes to the standard SAS printer destination.

The default value for the SASODS variable is “N”, indicating that the SAS ODS feature should not be used by CPEXpert. CPEXpert can be directed to implement the SAS ODS feature<sup>4</sup> by specifying **%LET SASODS=Y;** in USOURCE(xxxGUIDE), where “xxx” is the WLM, DB2, CIC, or DAS to indicate the WLM Component, DB2 Component, CICS Component, or DASD Component. Alternatively, the **%LET SASODS=Y;** statement can be placed in USOURCE(GENGUIDE) so all CPEXpert components will create SAS ODS output.

In addition to specifying **%LET SASODS=Y;** in USOURCE(xxxGUIDE), you must take the following steps to use the SAS ODS feature:

- C Allocate a partitioned data set where SAS will place the HTML output from CPEXpert components. Each CPEXpert component will “open” and “close” the HTML destinations, using FRAME, CONTENTS, and BODY file names (PDSE member names) that you have defined to the particular component. The definitions of these file names are described below.

The SAS Institute gives the following example for allocating the partitioned data set under SAS (of course, this data set allocation can be implemented using a JCL DD statement):

```
/* Allocate a PDSE for the HTML Output. */
filename pdsehtml '.example.htm'
                    dsntype=library dsorg=po
                    disp=(new, catlg, delete);
```

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<sup>4</sup>The SASODS guidance variable and other variables related to the SAS ODS feature are ignored unless you are executing at SAS Version 8.

**NOTE: If your organization specifies default DCB attributes, please make sure that you specify RECFM=VB, LRECL=8196, BLKSIZE=27998 and DSORG=PO in JCL.**

- C Identify to CPEXpert the data set that was created as shown above (the example uses “pdsehtml” as the data set name, but you can use another name). This identification is accomplished using the **PATH** statement described in Chapter 1.2 below. **This is a required step if you exercise the SAS ODS feature.**
- C Specify **%LET SASODS=Y;** in USOURCE(GENGUIDE).
- C Optionally specify a value for the **FRAME** variable, described in Chapter 24.3 below.
- C Optionally specify a value for the **CONTENTS** variable, described in Chapter 24.4 below.
- C Optionally specify a value for the **BODY** variable, described in Chapter 24.5 below.
- C Optionally specify a value for the **LINKPDF** variable, described in Chapter 24.6 below.
- C Optionally specify a value for the **STYLE** variable, described in Chapter 24.7 below.
- C Optionally specify a value for the **PDFODS** variable, described in Chapter 24.8 below.
- C Optionally specify a value for the **PDFFILE** variable, described in Chapter 24.9 below (**REQUIRED** if PDFODS is used).
- C Optionally specify a value for the **TRANTAB** variable, described in Chapter 24.10 below.
- C Optionally specify a value for the **URL** variable, described in Chapter 24.11 below.

Some users wish to access the SAS ODS output created by CPEXpert on their IBM mainframe in a PDSE file, some users wish to access the SAS ODS output in an HFS directory, some users wish to download the SAS ODS output to a web server, some users wish to download the SAS ODS output to a PC, and some users will create and access the SAS ODS output on a PC under Windows. The below table shows the various settings that should be specified, depending on where the SAS ODS output was created and where it will be accessed.

	<b>System where SAS ODS will be accessed</b>				
<b>CPEXpert feature</b>	<b>IBM OS/390 PDSE</b>	<b>HFS Directory</b>	<b>Download to Web server</b>	<b>Download to Windows</b>	<b>Created under Windows</b>
FRAME file	filename	filename	filename	filename	filename
CONTENTS file	filename	filename.htm	filename	filename	filename
BODY file	filename	filename.htm	filename	filename	filename
URL	N	N	Y	Y	Y
Comments			Transfer to web server as binary file. Add .htm to file names during download. Translate to ASCII during download.	Add .htm to file names during download. Translate to ASCII during download.	

## Chapter 24.2: SAS Output Delivery System - PATH variable

The PATH variable is applicable only if you exercise the SAS ODS features, however **this is a required variable if you use the SAS ODS feature; there is no default specification for this variable.**

The PATH variable specifies the file name (or the DDNAME) of the external file where all HTML output produced by CPEXpert will be placed. If you use a DDNAME, the file specification would be the same as the DDNAME name used when creating the partitioned data set as described above. For example, you might have used "CPEHTML" as the DDNAME name, and the actual data set name might be prefix.CPEXPRT.HTM. In this case<sup>5</sup>, the PATH variable would be specified as **%LET PATH=CPEHTML;**

<sup>5</sup>The PATH specification would be a full directory identification if operating under Windows on a PC. For example, you might specify %LET PATH=C:\CPEXPRT\OUTPUT\HTML; and CPEXpert would place all HTML output in this HTML directory.

## Chapter 24.3: SAS Output Delivery System - FRAME variable

The FRAME variable is applicable only if you exercise the SAS ODS features. The FRAME variable identifies the file (PDSE member) that integrates the HTML table of contents and the HTML body file. A table of contents and the body file are displayed when the frame file is opened using a standard web browser. The default value used by CPEXpert for the FRAME variable is **xxxFRAME**, where “xxx” is WLM, DB2, CIC, or DAS for the WLM Component, DB2 Component, CICS Component, or DASD Component, respectively. You can alter this default by changing the value of the FRAME variable. This name is where you would point your browser to examine output created by the particular CPEXpert component.

## Chapter 24.4: SAS Output Delivery System - CONTENTS variable

The CONTENTS variable is applicable only if you exercise the SAS ODS features. The CONTENTS variable identifies the file (PDSE member) that contains a table of contents to the HTML output from the CPEXpert component. The contents file links to the body file, which holds the actual output from the CPEXpert component. The default value used by the CPEXpert for the BODY variable is **xxxCONT**, where “xxx” is WLM, DB2, CICS, or DASD for the WLM Component, DB2 Component, CICS Component, or DASD Component, respectively. You can alter this default by changing the value of the CONTENTS variable.

## Chapter 24.5: SAS Output Delivery System - BODY variable

The BODY variable is applicable only if you exercise the SAS ODS features. The BODY variable identifies the file (PDSE member) that contains the HTML output from the CPEXpert component. The default value used by CPEXpert for the BODY variable is **xxxBODY**, where “xxx” is WLM, DB2, CICS, or DASD for the WLM Component, DB2 Component, CICS Component, or DASD Component, respectively. You can alter this default by changing the value of the BODY variable.

## Chapter 24.6: SAS Output Delivery System - LINKPDF variable

The LNKPDF variable is applicable only if you exercise the SAS ODS features, and if you wish to have the HTML rules link to rule descriptions in the CPEXpert documentation.

The HTML output in the BODY file produced by the CPEXpert component can **optionally** contain links to the CPEXpert Rule Description documentation<sup>6</sup>. You can use a browser to browse the FRAME (or the BODY) file and if you wish to reference the CPEXpert

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<sup>6</sup>These links are not created by the SAS ODS software. The links are created by CPEXpert after the standard CPEXpert report has been produced. CPEXpert modifies the output from SAS ODS to create the links.

documentation associated with a particular finding, you can simply click on the link produced in the Rule Heading line.

The default value used by the CPEXpert component for the LINKPDF variable is blank (null), indicating that links should not be placed in the body of the SAS ODS output. You can alter this default by changing the value of the LINKPDF variable in one of two ways:

- C Specify **%LET LINKPDF = URL address;** in USOURCE(xxxGUIDE). This specification will cause CPEXpert to create links in the Rule Description title line of every rule that is produced by the CPEXpert component. With this specification, the CPEXpert Rule Descriptions can be in a file specified by the **URL address** argument. For example, suppose that Rule CIC107 were produced by the CICS Component. If you specified **%LET LINKPDF = http://www.cpexpert.com/;**, CPEXpert would generate a link to <http://www.cpexpert.com/CIC107.pdf><sup>7</sup>.
- C Specify **%LET LINKPDF = Y;** in USOURCE(xxxGUIDE). This specification will cause CPEXpert to create links in the Rule Description title line of every rule that is produced by the CPEXpert component. With this specification, the CPEXpert Rule Descriptions must be in the same partitioned data set as is the xxxBODY, where “xxx” is WLM, DB2, CICS, or DASD for the WLM Component, DB2 Component, CICS Component, or DASD Component, respectively. These CPEXpert Rule Descriptions could have been loaded to the partitioned data set that was defined as explained earlier.

**The CD issued with each release of CPEXpert contains directories that have individual Rule Descriptions for the CPEXpert components that you license. You should copy all “.pdf” Rule Descriptions for each CPEXpert component that you license, from the CPEXpert CD to the URL location for which you wish to have CPEXpert place links.**

You should update the Rule Descriptions at the location specified by the URL when you receive a new CPEXpert release, since many Rule Descriptions change with each new release.

## **Chapter 24.7: SAS Output Delivery System - STYLE variable**

The STYLE variable is applicable only if you exercise the SAS ODS features. The SAS ODS STYLE option specifies the style definition to use in writing HTML files. The default value for the STYLE variable is %LET STYLE=;, which indicates that CPEXpert should use the default SAS ODS STYLE option. You can specify %LET STYLE=”your STYLE specification” if you wish to use a style definition that is unique to your organization. The STYLE variable can be used with either the HTML specification or the PDF specification.

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<sup>7</sup>This example is for illustration purposes only. [www.cpexpert.com](http://www.cpexpert.com) does not contain [CIC107.pdf](http://www.cpexpert.com/CIC107.pdf). You should specify your own URL.

## Chapter 24.8: SAS Output Delivery System - PDFODS variable

The PDFODS variable is applicable only if you exercise the SAS ODS features, and if you wish to have output directed to a PDF file. The default value for the PDFODS variable is %LET PDFODS=N;, which specifies that PDF output should not be created.

You can specify %LET PDFODS=Y; in USOURCE(GENGUIDE) if you wish SAS to create CPEXpert output in PDF format. If you specify %LET PDFODS=Y;, you **MUST also specify a value for the PDFFILE variable described below.**

## Chapter 24.9: SAS Output Delivery System - PDFFILE variable

The PDFFILE variable is applicable only if you exercise the SAS ODS/PDF feature described above. The PDFFILE variable specifies the file name of the file in which SAS should place the PDF output. The PDFFILE name should specify either the DD name of the output, or a file described with a SAS FILENAME statement.

## Chapter 24.10: SAS Output Delivery System - TRANTAB variable

The TRANTAB variable is applicable only if you exercise the SAS ODS features. The default character format used by CPEXpert for SAS ODS is ASCII. This format is suitable when the output is to be sent to an ASCII-based web server. You can override this character format to be EBCDIC if you do not plan to send the output to an ASCII-based web server, by specifying %LET TRANTAB=EBCDIC in USOURCE(GENGUIDE).

## Chapter 24.11: SAS Output Delivery System - URL variable

The URL variable is applicable only if you exercise the SAS ODS features. The default value for the URL variable is %LET URL=N;, which is applicable if you are going to access the SAS ODS output from CPEXpert in IBM PDSE or in an HFS directory.

If you download the SAS ODS output to a web server, download the SAS ODS output to a PC, or are running CPEXpert under WINDOWS, you must specify that a URL is to be used by SAS when it creates the SAS FRAME file. If %LET URL=Y; is specified in USOURCE(GENGUIDE), CPEXpert will generate SAS code to create the URL specifications in the SAS FRAME file.