



EPV for z/OS Plus Installation and Customization

*IT Cost
Under Control*



Supporting
EPV for z/OS Plus V11

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About this manual

This manual is intended to help anyone wanting to install and customize EPV for z/OS Plus V11.

Changes

Technical changes or additions to the text are indicated by a vertical line to the left of the change.

Terminology

A “view” is an EPV report presented in an HTML page.



1 Overview

Enterprise Performance Vision for z/OS Plus (EPV for z/OS) is a product designed to provide performance analysts, capacity and systems managers with a complete vision of their companies systems and workloads.

EPV for z/OS allows quick identification of anomalies, performance problems and abnormal resource consumptions; it is also an efficient tool for capacity planning.

The product uses auto discovery techniques that are completely transparent to the user, aggregates and correlates the useful metrics, producing valuable information ready to use.

EPV for z/OS uses standard metrics (SMF, IMS, DCOLLECT, etc.) available in any z/OS environment.

The product architecture is modular and very flexible. It can be installed on most of the hardware and software platforms on the market.

All information is presented on simple HTML static pages, which can be transferred onto any platform and accessed using a “browser”.

All tables on the html pages can be exported to a Microsoft Excel spreadsheet by a simple mouse click.

EPV for z/OS is a component of the EPV product suite.



2 Product components

The product components are :

- **EPV for z/OS Management Summary** provides integrated views showing information about major hardware components, software MSU utilization and workload throughput. In the hardware view, separate sections for standard CPUs, specialty processors and storage HW (disks and virtual tapes), are presented. In the software view, it is possible to track the amount of MSUs used and the difference against the BASELINE. In the throughput view the monthly trend of executed transactions by workload type is presented. EPV also provides management exceptions to underline if the monthly peak of the 4-hour rolling average MSU used, occurred in undesirable situations.
- **EPV for z/OS Exceptions** provides a complete vision of the most important hardware and software threshold violations helping to immediately identify problems and anomalies. The default thresholds fit well for most installations. Many of these thresholds are also self-adaptive and do not have to be customized or modified when there is an environment change.
- **EPV for z/OS Configuration** provides a detailed vision of the hardware and software configuration, including disk and tape space availability; this information is the first mandatory step in order to control and manage your systems and in general to perform all Capacity Management activities. EPV for z/OS correlates data coming from various sources and systems, producing a global vision of shared resources such as CECs, Coupling Facilities and Storage Processors, in a completely automated process. EPV for z/OS audits configuration changes allowing an immediate identification of possible anomalies related to them.
- **EPV for z/OS Workloads** provides a detailed vision of your workloads, allowing a simple and guided analysis of what is going on in complex environments through drill-down capabilities. Starting from a CEC or a Sysplex view, performance and resource consumptions can be analyzed drilling down to workloads and address spaces details. In addition the top list of I/O and CPU consumers is also provided.
- **EPV for z/OS Throughput** provides a detailed vision of users activities such as CICS transactions, DDF, IMS, MQ, WEBSPPHERE, TSO and batch JOBS. Starting from a Sysplex view, requests can be analyzed drilling down to system, subsystem and job/transaction details. For each of these kinds of requests, top lists are created to show jobs and transactions with the highest number of executions, heaviest resource usage and worst response time.
- **EPV for z/OS Resources** provides a complete vision of the “health” condition of the critical hardware resources, especially those shared amongst different z/OS systems as processors, specialty processors, memory and coupling facilities. Starting from an integrated enterprise view you can navigate and analyze any saturation or performance problem. The time period and resource causing the bottleneck are highlighted using a red background so they can be very easily located.



- **EPV for z/OS I/O Resources** provides a complete vision of the “health” condition for all critical hardware I/O resources, especially those shared amongst different z/OS systems as disks, virtual tapes, physical control units and channels. Starting from an integrated enterprise view you can navigate and analyze any saturation or performance problem. The time period and resource causing the bottleneck are highlighted using a red background so they can be very easily located.
- **EPV for z/OS Trends** provides daily, weekly and monthly views of productivity, performance and resource consumptions at the enterprise, system and workload levels. By use of these views it is possible to understand the growth of your workloads and its impact on your systems. An advanced statistical analysis spots positive or negative growth that lies outside the normal distribution and highlights it in the views. This feature helps locate abnormal situations.
- **EPV for z/OS WLC** reports the used MSU, both at system and subsystem level, according to the IBM WLC policy. EPV for z/OS reports the top value of the MSU “4 hours rolling average” for each machine and month. It is also possible to evaluate the effect on MSU consumption of the group capacity limit, if set. EPV for z/OS also provides automatic simulations allowing an estimate of possible MSU savings: by avoiding AAP/IIP eligible work running on standard CPUs or by accepting degradation of non mission critical workload.
- **EPV for z/OS User** creates user views for specific CICS and IMS transactions, batch JOBS and address spaces based on user specifications. This makes it possible to control specific tasks, compare their activity in different systems and create a trend view for each one of them.



3 Architecture

EPV for z/OS is a PERL application based on three tiers:

- Data Load Interface;
- Correlation and aggregation engine;
- HTML pages production engine.

EPV for z/OS provides a free light version of the EPV zParser product to read SMF data and store needed fields in a SQL database which will be the input for the Data Load Interface.

The data load interface is designed to optimize performance and resource consumption during the loading phase, avoiding duplication or data loss.

It is composed of PERL language exits that extract meaningful data and store it in a transition database. These exits represent a gateway from the environment to the product; there is an exit for each kind of data to load, and many others for general purposes.

The EPV for z/OS detail database by default contains the last 3 days, and it is designed to avoid data loss, data duplication, and to avoid the risk of producing incorrect statistics caused by non synchronized SMF data collections.

The EPV for z/OS detail database is not very large, containing only those variables used during the reporting phase.

The correlation and aggregation engine loads a daily SQL database, including only the metrics used during the reporting phase, aggregated at hour, day, month level.

Configuration parameters set the number of days and months to retain in the database.

The HTML pages production engine can be customized in order to:

- Produce the HTML pages for one or more days
- Report daily and monthly trends for a desired period
- Set the number of days to use when calculating averages and percentile statistics
- Perform the statistical analysis to spot statistical values outside the normal distribution
- Choose which and how many days to include in the statistics

The EPV for z/OS code is stored inside the EPVZOS_VXX folder under the PRODUCTS folder. The XX stays for the version number of the product.

The HTML pages are produced in an environment, and then transferred using FTP, or another file transfer program, to the desired server, using the appropriate conversion table when necessary (EBCDIC to ASCII).



4 Preliminary settings and verifications

Before you proceed with the EPV for z/OS installation you need to perform some preliminary actions and verifications.

4.1 Hardware and Software requirements

The following table summarizes EPV for z/OS Hardware and Software minimum requirements:

Component	Requirements
Operating System	any Microsoft Windows OS starting from NT any Unix/Linux system (special considerations apply to AIX systems, please contact EPV technical support if you need more information about this)
Hardware	Any hardware platform supported by the previous operating systems.
Processors	4
Memory	8 GB
Disk Space	The space needed for database tables and HTML pages depends on the number of monitored subsystems and the number of days retained in the performance DB.
Software	Supported DBMS: MySQL Server ver. 5.0 or higher. Microsoft MS SQL Server 2005 SP4 or higher.

Figure 1

4.2 SMF Input records

The SMF records in the following table are used and loaded into the EPV for z/OS database. The last column indicates which record types are mandatory in order to run EPV.

SOURCE	RECORD TYPE	SUBTYPE	DESCRIPTION	MANDATORY
SMF	0		IPL	
SMF	30	2, 3, 5, 6	JOBS	YES
SMF	70		CPU	YES
SMF	71		MEMORY	
SMF	72		WORKLOAD	YES



SMF	73		CHANNELS	
SMF	74	1, 4, 5, 7, 8	DEVICE, COUPLING FACILITY, CACHE, FICON DIRECTOR, ESS (PPRC)	
SMF	75		PAGE DATASET	
SMF	78	2, 3	I/O QUEUEING, VIRTUAL STORAGE	
SMF	101		DB2	
SMF	110		CICS	
SMF	113		CP MEASUREMENT FACILITY	
SMF	116		WEBSPHERE MQ	
SMF	120		WEBSPHERE	
SMF	xxx ¹	10,11,13,14,20	VIRTUAL TAPE CONTROL SYSTEM	
SMF	yyy ²	20,21,30,32,33	IBM VIRTUAL TAPE SERVER	

Figure 2

The IMS activity is not provided by any SMF record. This information can be generally gathered through 3 different sources:

- IMS LOG 7 and 8 records;
- IMS LOG FA records, written by the Mainview for IMS product developed by BMC Software;
- TAR records, produced by the IMFLEDT³ the utility (see Attachment A) provided by the Mainview for IMS product, developed by BMC Software, that correlates the 2 above sources.

EPV for z/OS supports all these sources, but, if they are available, we suggest using FA or TAR, because they provide more accurate and complete information.⁴

EPV for z/OS uses disk volume space statistics produced using the IBM utility IDCAMS with the DCOLLECT input option. These measurements must be gathered daily for all the systems.⁵

¹ It is a user record provided by SUN/STORAGETEK that contains VTCS activity data. The specific SMF record number used depends on the installation.

² It is a user record provided by IBM that contains VTS TS7700 activity data. The specific SMF record number used depends on the installation.

³ See “Mainview for IMS Offline – Customization and Utilities Guide”

⁴ The IMS LOG main function is recovery; performance and resource consumption is not as accurate as those produced by a monitor.

⁵ If a system can access all disks then its enough to gather DCOLLECT data from this system.



EPV for z/OS also supports tape volume space statistics produced using the SWSADMIN STK utility with the QU MVCP NAME(ALL) option. These measurements must be gathered daily for all the systems.⁶

4.3 SMF record 30 synchronization (subtype 2 & 3)

SMF 30 subtype 2 and 3 records are not produced by default.

To activate SMF interval accounting using the global recording interval the following parameters have to be set in the SMFPRMxx member of the SYS1.PARMLIB folder:

- INTVAL(mm) where mm is the interval duration; suggested values are 10 or 15 minutes;
- SYNCVAL(nn) where nn is the minute in the hour that starts the interval; suggested value is 00;

In addition the following parameter have to be set under SYS and SUBSYS sections:

- INTERVAL(SMF,SYNC).

Writing of these records has to be allowed in SMFPRMxx (under the TYPE sub parameter).

It's very important you synchronise SMF and RMF data; to do that you must set the following parameter in the ERBRMFxx member, used by RMF Monitor I, of your SYS1.PARMLIB folder:

- SYNCH(SMF).

⁶ If a system can access all the ACS then it's enough to gather statistics from this system.



5 Installation

Warning: if you performed the EXPRESS customization as described in the “EPV Plus Products for z/OS Installation and EXPRESS Customization” the EPV for z/OS Plus product is already installed. No other action is required.

To install EPV for z/OS you need to perform the following steps:

1. DBMS installation;
2. Prepare products and password folders in Windows;
3. Prepare products and password folders in Unix/Linux.

5.1 DBMS Installation

DBMS installation should have already been performed when installing the EPV zParser product which is a prerequisite to EPV. Please refer to the EPV zParser documentation.

5.2 Preparing products and password folders in Windows

Products and password folders should have already been prepared when installing the EPV zParser product which is a prerequisite to EPV. Please refer to the EPV zParser documentation.

If for any reason you need to update the EPV for z/OS product, in Windows systems you have to copy the supplied /PRODUCTS/EPVZOS_VXX folder (where XX stays for the version number of the product) from the EPV Installation CD to the PRODUCTS folder in EPV zParser installation folder.

From here on the “*\$EPVPATH*” variable should be substituted with the path where the installation software was copied.

WARNING: those folders should not be copied to the disk drive root folder, so we recommend to create a folder in the root (e.g. *\$EPVPATH=/EPVROOT*).

If you need to update the license key please copy the LICENSE_EPVZOS.EPV file in the *\$EPVPATH/PASSWORD* folder.

5.3 Preparing products and password folders in Unix/Linux

Products and password folders should have already been prepared when installing the EPV zParser product which is a prerequisite to EPV. Please refer to the EPV zParser documentation.

If for any reason you need to update the EPV for z/OS product, in Unix/Linux systems you have to copy the supplied /PRODUCTS/EPVZOS_VXX folder (where XX stays for the version number of the product) from the EPV Installation CD to the PRODUCTS folder in EPV zParser installation folder.



From here on the “*\$EPVPATH*” variable should be substituted with the path where the installation software was copied.

If you need to update the license key please copy the LICENSE_EPVZOS.EPV file in the *\$EPVPATH/PASSWORD* folder.

As discussed in Chapter 7 of the EPV zParser Installation and Customization manual, you can create a user profile in Windows by using the EPV Customization GUI and then move the user profile to a Unix/Linux system where the EPV products have to run.

Only in that case in order to run the EPV Customization GUI you have also to copy the supplied /PASSWORD, /PRODUCTS, /SETUP, /TOOLS, /DOCUMENTS and /USERPROFILE folders, and all the included subfolders, from the EPV Installation CD to a folder in a Windows system (e.g. /EPVROOT/).

All the provided products licenses have also to be copied in the PASSWORD folder. These licenses will only be used to run the EPV Customization GUI.

5.4 HTML publishing folders

On the system that will host the HTML pages you have to verify that the following folders exist under *\$EPVPATH*⁷:

- JAVA** folder containing JAVA code, scripts and sheets for the user interface;
- IMG** folder containing images used by EPV (EPV logo, Microsoft Excel icon, etc.);
- ZOSDOC** folder containing the pages of the help system;
- ZOSHTML** folder containing all the HTML pages produced (empty at installation)

The following HTML pages have also to exist under *\$EPVPATH*: **START.HTML**, **HOME.HTML**, **ABOUT.HTML**, **CONTRIBUTORS.HTML**, **SCROLL.HTML**, **BOOKMARKS.HTML**, **FPZOS.HTML**, **EPVZTREE.HTML**, **ZRESEARCH.HTML**, **ZRESI.HTML** and **ZRESO.HTML**.

If any of these folder and files doesn't not exist you must copy what is missing from the /PRODUCTS/EPVUI folder of the EPV Installation CD to *\$EPVPATH*.

⁷ It depends on the type of installation you did (express or advanced) and on the installed products.



6 Manual Customization (mandatory)

If for any reason you don't want to use the EPV Customization GUI you can perform a manual customization following these steps.

Warning: if you performed the EXPRESS customization as described in the “EPV Plus V11 Installation and EXPRESS Customization” go to 6.4.

6.1 Customizing the DBs

All the procedures you need are placed under the TOOLS/ZOS folder and are classified by DB engine and platform installation. A unique procedure (RUNALL.BAT for Windows systems and RUNALL.sh for Unix/Linux systems) is provided which calls all the others in the right sequence.

To run the procedure, open a command prompt or shell and run:

- for Windows systems (MS SQL Server): RUNALL.BAT *youruser yourpassword instance*, where *youruser* and *yourpassword* are those defined in your DBMS and *instance* is the MS SQL Server instance;
- for Windows systems (MySQL): RUNALL.BAT *youruser yourpassword*, where *youruser* and *yourpassword* are those defined in your DBMS;
- for Unix and Linux systems (MySQL): ./RUNALL.sh *youruser yourpassword*, where *youruser* and *yourpassword* are those defined in your DBMS.

6.2 Customizing the SETTINGS parameters

In order to create the HTML reports under a desired location please open the SETTINGS.PL file placed under the *\$EPVPATH/USERPROFILE/\$ProfileName/COMMON* folder (where *\$ProfileName* is the name of your user profile set at EPV zParser installation) and customize the \$HTMDIR variable specifying the preferred HTML path.

6.3 Verify the MIPS table

The EPV for z/OS version 11 folder contains more different MIPS tables than in the past. They are named MIPS_{LTxx}.PL, MIPS_{ATxx}.PL, MIPS_{PTxx}.PL, MIPS_{ARxx}.PL, MIPS_{LRxx}.PL, MIPS_{HRxx}.PL and MIPS_{PRxx}.PL, where xx is the z/OS level (e.g xx=19 means z/OS version 1.9) and they are based on IBM LSPR benchmarks.

The MIPS_{LTxx} tables contain the low I/O rate (LoIO) estimated MIPS (for the IBM hardware models 2064 and higher only).

The MIPS_{ATxx} tables contain the estimated average MIPS (for all the IBM machines).

The MIPS_{PTxx} tables contain the Performance Capacity Index (PCI) estimated MIPS (it is currently available only for z/OS 1.9 benchmarks).



The **MIPSARxx** tables contain the average Relative Nest Intensity (RNI) estimated MIPS (e.g. xx=13 for z/OS 1.13).

The **MIPSLRxx** tables contain the low Relative Nest Intensity (RNI) estimated MIPS (e.g. xx=13 for z/OS 1.13).

The **MIPSHRxx** tables contain the high Relative Nest Intensity (RNI) estimated MIPS (e.g. xx=13 for z/OS 1.13).

The **MIPSPRxx** tables contain the Performance Capacity Index (PCI) estimated MIPS (e.g. xx=13 for z/OS 1.13).

EPV for z/OS uses the TABMIPS.PL file saved under the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS* folder (where *\$ProfileName* is the name of your user profile set at EPV zParser installation); by default it contains the values in the MIPSAR13 table. If you want to use other values you can copy any of the above tables in TABMIPS⁸.

Since EPV for z/OS version 8, customers **CAN MODIFY** TABMIPS table values but they **SHOULD NOT** modify the MIPSALTxx, MIPSATxx, MIPSPTxx, MIPSARxx, MIPSLRxx, MIPSHRxx and MIPSPRxx tables.

EPV, since version 8, uses two different automatic algorithms to set the machine capacity for general purpose processors (CPU pool). The used algorithm depends on the value assigned to the EPVMIPS CONFIG parameter. By default the CPU capacity is taken directly from the TABMIPS table without considering the MP effect added by specialty processors (AAP and IIP). Only when the EPVMIPS parameter is set to ENHANCED, EPV for z/OS estimates the CPU capacity taking into consideration the additional MP effect due to specialty processors.

EPV for z/OS always estimates the capacity for AAP and IIP taking into consideration the MP effect introduced by both general purpose and specialty processors.

However, MIPS tables and EPV for z/OS estimates have to be considered as "average" values because they do not take into consideration the number of active LPARs and their configuration. We strongly advice customers to use the IBM zPCR tool in order to get good estimates.

This is the reason why three exits (UEXMIPS.PL, UEXAMIPS.PL, UEXIMIPS.PL) are also provided in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder allowing customers to set their trusted MIPS values (possibly estimated using zPCR) for CPU, AAP and IIP pools capacity.

To avoid the risk of using obsolete MIPS values, the EPV for z/OS process will terminate if it finds a new machine model (or a different AAP/IIP configuration) whose MIPS values set in the exits have not been updated.

6.4 TSO service classes

You can customize the **UWTSO.PL** file under the path:

\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT to locate TSO service classes.

⁸ Verify in the chosen table if all the machines in your site are available. EPV Technologies will provide an updated version of the tables if you verify that some of your machines are missing.



7 Scheduling

Scheduling the EPV for z/OS provided procedures (manually or automatically) allows you to process data and produce the HTML reports daily.

All the .BAT procedures mentioned here are available as .sh to allow EPV for z/OS to run on Unix/Linux systems.

7.1 Collecting data once a day

When your environment is set to collect data once a day the whole EPV process is run by the ALLPHASES.BAT procedure, created during EPV zParser installation and scheduled daily, which is located in the `$EPVPATH/USERPROFILE/$ProfileName/COMMON/PROCS` folder.

Inside that procedure you should find (or add if missing) a CALL to the NIGHTBATCH_ZOS.BAT procedure also located under the `$EPVPATH/USERPROFILE/$ProfileName/EPVZOS//PROCS` folder.

7.2 Collecting data in continuous mode using EPV agents

When your environment is set to collect data in a continuous mode using the EPV agents, the daily consolidation process is run by the POSTZPARSER.BAT procedure, created during EPV zParser installation, which is located in the `$EPVPATH/USERPROFILE/$ProfileName/COMMON/PROCS` folder.

Inside that procedure you should find (or add if missing) a CALL to the NIGHTBATCH_ZOS.BAT procedure also located under the `$EPVPATH/USERPROFILE/$ProfileName/EPVSCHED/PROCS` folder.



8 Manual Customization (optional)

In the following some optional steps, to fit specific user needs, are described.

8.1 Customizing the CONFIG parameters

The default values are valid for most sites. However you can customize parameters and thresholds settings in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/CONFIG.PL* file (where *\$ProfileName* is the name of your user profile set at EPV zParser installation) as desired.

Attachment A provides a short description of all the EPV parameters and thresholds, their default values and their meaning.

8.2 Setting the path for loading VSM data

EPV also supports tape volume space statistics produced using the SWSADMIN STK utility with the QU MVCP NAME(ALL) option. These measurements must be gathered daily for all the systems and needs to be copied under the path specified in the VSMACSC parameter customized in the CONFIG.PL file.

8.3 MDETA customization

By default the CICS, IMS, DDF, WEBSPPHERE MQ, WEBSPPHERE data are not loaded in the MDETA database; if you want to load these data you need to change the following parameters MDETACX, MDETAIMS, MDETADB2, MDETAMQS, MDETAWAS, MDETAWJC in the CONFIG.PL file under the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS* folder.

8.4 Software configuration

The **UMWKLC.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder contains the identification logic to automatically group subsystems and workloads. You can modify this logic adding your specific workloads or changing your customizations by setting the WKLDESC variable which must not be longer than 30 characters.

8.5 Workload characterization

The **UMWKLW.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder contains the identification logic to automatically characterize workloads. You can modify this logic adding your specific workloads or changing your customizations by setting the WKL variable which must not be longer than 8 characters and must not contain blanks.



8.6 Thresholds and Exceptions customization

EPV for z/OS provides a set of base thresholds to control both resource utilization and application performance. Each base threshold is a single value controlling all the occurrences of a specific metric. Base thresholds can be customized by modifying the default values provided in the CONFIG.PL file of the *path/USERPROFILE/\$Profilename/EPVZOS* folder.

While the threshold value in the CONFIG.PL file is generally valid, there are situations where a different threshold value is needed for a specific system or for a particular hour of the day.

This is the reason why advanced thresholds have been introduced. The current implementation is based on a specific exit associated to each threshold. By changing the provided sample exit, customers can set as many different threshold values, for each controlled metric, as needed.

The name of all these user exits follows this naming convention: **T exception name**.

Each user exit contains an example of CASE statement with all the criteria variables which can be used to modify the threshold value.

Attachment B contains the default values for each base threshold and the name of each advanced threshold file.

Every time a base or advanced threshold is violated an exception is generated.

All generated exceptions are reported by default in the HTML group.

At the moment three different exception groups are defined: HTML, SYSTEM and STORAGE.

For each defined group except for the HTML group a text file is produced, (groupname.txt), containing a list of the exceptions associated with that specific group.

Through the **AGROUPS.PL** file, located in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder you can define as many groups as you need and assign exceptions (using an ALERT code) to groups.

Customizing the **AFILTERS.PL** file in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder you can exclude alerts or hours you do not want to consider: for example, you could consider warnings coming from the TEST environment not worth to generate exceptions.

8.7 Managed Exceptions

It is possible to manage individual exceptions which are repeatedly shown in the Exceptions vision. These could be known problems where responsibility has already been allocated in the user organization and which will be solved at a later time. To avoid the reporting of these exceptions you have to insert the name of the person responsible for the exception, exception name and range of dates in a sequential file which needs to be created at installation time (see Attachment C).

All the managed exceptions are reported in the new MANAGED EXCEPTIONS view inside the EXCEPTIONS menu.



8.8 Exclusion of incorrect values from statistical analysis

EPV for z/OS provides user exits to exclude values caused by loops or other anomalies which could partially invalidate trend statistical analysis. The name of these user exits follows this naming convention: **UESxxxxx.PL** where **xxxxxx** are the last five characters of each statistical exception name.

Each file contains an example CASE statement with all the criteria variables which can be used to eliminate the incorrect value.

Attachment D contains the name of all the statistical exceptions controlled by EPV for z/OS and the name of each user exit with a short description.

8.9 Sysplex Performance Indexes

The product calculates the Performance Index values for each Service Class Period by Sysplex.

The **UM72GO.PL** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder contains the logic to exclude unworthy service classes and periods. By default all Service Class Periods are included.

For SYSSTC and SYSTEM, we calculate Velocity, because the Performance Index is meaningless.

8.10 Exclusion of logical volumes from response time analysis

It is possible to exclude some logical volume from the response time analysis (i.e. work areas, public devices, etc.).

In order to accomplish this task you need to define the disks you want to exclude in the **UEXDISKS.PL** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.11 Exclusion of address spaces from workload detail views

The product allows you to exclude some address spaces from workload detail views.

In order to accomplish this task you need to customize the **UEXADSP.PL** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.12 Exclusion of transactions, requestors and jobs from throughput top views

You can exclude non-significant transactions, requestors and jobs from throughput top views.

In order to do that you need to customize the sample code provided in the following exits located under the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder:

UEXCICCA	CICS average CPU time
UEXCICCP	CICS total CPU time
UEXCICEL	CICS average elapsed time
UEXCICRE	CICS average response time



UEXCICTR	CICS total number execution
UEXDDFCA	DDF average CPU time
UEXDDFCP	DDF total CPU time
UEXDDFEL	DDF average elapsed time
UEXDDFIA	DDF average ZIIP time
UEXDDFIP	DDF total ZIIP time
UEXDDFTR	DDF total number execution
UEXIMSCA	IMS average CPU time
UEXIMSCP	IMS total CPU time
UEXIMSEL	IMS average elapsed time
UEXIMSIN	IMS average input queue time
UEXIMSTR	IMS total number execution
UEXJOBAB	JOB BATCH total CPU time abended execution
UEXJOBBCP	JOB BATCH total CPU time
UEXJOBDE	JOB BATCH total DISK EXCPs
UEXJOBDI	JOB BATCH total DISK I/O
UEXJOBEL	JOB BATCH average elapsed time
UEXJOBTE	JOB BATCH total TAPE EXCPs
UEXJOBWK	JOB BATCH record selection
UEXMQSCA	MQ SERIES average CPU time
UEXMQSCP	MQ SERIES total CPU time
UEXMQSGE	MQ SERIES total number of GET request
UEXMQSMS	MQ SERIES transaction inclusion in message distribution
UEXMQSPU	MQ SERIES total number of PUT request
UEXMQSTR	MQ SERIES total number execution
UEXTSOCP	TSO USER total CPU time
UEXWEBCA	WEBSPHERE Servlet or JSP average CPU time
UEXWEBCP	WEBSPHERE Servlet or JSP total CPU time
UEXWEBEL	WEBSPHERE Servlet or JSP average elapsed time
UEXWEBTR	WEBSPHERE Servlet or JSP total number execution
UEXWJCCA	WEBSPHERE EJB method average CPU time
UEXWJCCP	WEBSPHERE EJB method total CPU time
UEXWJCEL	WEBSPHERE EJB method average elapsed time
UEXWJCTR	WEBSPHERE EJB method total number execution

8.13 Assign a server name to an IP Address

You can assign a server name to an IP Address, from which a DDF request arrived, to make DB2 throughput views more meaningful. In order to do that you need to customize the sample code provided in the **UEXDNSDB.PL** file under the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.



8.14 Setting SHIFTS

All Trend views provide HTML tables for different shifts. The file named **SHIFT.PL** located in the `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder contains our default shift values which should be modified with your standard company values. When migrating to a new version, it is very important to control your shift definitions in the **SHIFT.PL** file before loading new data. The easiest way is by copying the **SHIFT.PL** file from your old folder to the new one. EPV for z/OS summarizes the shifts when producing the HTML pages.

8.15 Publishing on the IBM HTTP Server on zSeries

To publish the EPV for z/OS HTML pages on the IBM HTTP Server on zSeries, the following steps are needed:

- a) Verify that all files and directories are in uppercase except for the .class suffix.
- b) Transfer all the files in the IMG directory in binary mode.
- c) Transfer the .pdf files in the ZOSDOC directory in binary mode.
- d) Transfer the following files in the JAVA directory in binary mode:

- *.JS
- *.class
- *.CSS

Transfer all the other files in ascii mode using the following quote command⁹:
quote site sbdataconn=(IBM-1047,ISO8859-1)

IMPORTANT NOTE:

Beyond these general rules the correct FTP mode (binary or ascii) depends on how customers set their web server. Depending on the **addtype** statement in **httpd.conf** the different file types have to be transferred in binary or ascii mode.

Normally .JS files are used without converting to ebcdic (the conversion needs to be done again when transferring the .JS to the client; it takes some time and is not good for performance). However if the .JS files are defined as ebcdic they need to be transferred in ascii.

The .CSS should in any case be defined using an **8bit addtype** and transferred in binary mode to work properly.

8.16 Exporting views in Microsoft Excel

It is possible to load an EPV for z/OS view or an entire EPV for z/OS page to a Microsoft Excel spreadsheet.

⁹ IBM-1047 has to be eventually substituted with the DefaultFsCp value set in httpd.conf (if different from IBM-1047).



This functionality is based on ActiveX. In order to use it you need to set the security of your browser at a low level, or better insert the EPV for z/OS website in the list of the trusted sites.

The advanced export option permits users to save the view or entire page at a specified location and perform the execution of an automatic macro. The following steps need to be performed :

- a) **Set an environment variable:** on the PC where you perform the advanced export you need to set an environment variable: the variable name **must be** EPVXCL and it must contain a valid path pointing to a directory where you want to store your Excel files. The value set in the variable must end with a backslash.
- b) **Excel file naming convention:** each EPV for z/OS view has an associated standard name; you can find this name looking at the folder name of the opened work sheet. In order to use the advanced export functionality you need to save the sheet in the path defined before, with the same name appearing in the folder.
- c) **Main macro name:** in order to automatically activate a macro you must name the macro EPVEXEC. The advanced export function will search for an Excel file in the defined path with the name of the chosen view, if it exists, it will load the data and execute the EPVEXEC macro (if defined).

If you cannot modify the security of your browser, EPV for z/OS allows you to use two different export functionalities.

If you right click on a table cell you will get the standard browser menu and the users will be able to use the Export to Excel function available in latest IE versions¹⁰. In this case the view exported to a Microsoft Excel spreadsheet appears without the standard EPV for z/OS format.

Another way allows you to export the entire page without using ActiveX. In this case the user should follow these instructions:

- a) **copy and open an Excel template:** on the installation CD you can find the EPV_EXPORT Excel file located inside the HTM\TOOLS directory. Copy this file to your PC and open it.
- b) **get the html page URI:** clicking on the right mouse button, you should select the GET PAGE URI item; this function opens a new HTML page that show the URI you want to export.
- c) **export page:** you should copy the HTML page URI and paste that in the input box that appears in the above Excel template

8.17 Customizing the user interface

EPV for z/OS pages are produced following HTML standards. It is possible to customize the appearance of pages (font, colours, etc.); for a detailed description of the utilized styles see the “EPV V11 - User Interface”.

¹⁰ Similar function can be obtained using other browsers through add-on and plugins.



8.18 Application user exits

EPV for z/OS allows you to summarize applications CPU consumptions by using two keys called GROUP1 and GROUP2. This functionality is provided for CICS, IMS, DDF, Websphere, batch JOBS, address spaces and disks.

The default value is 'ZOTHER' when nothing is defined. EPV for z/OS produces related statistics in the Throughput vision. The following user exits, located under the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder, can be customized to create your aggregations:

APPLAS	Address spaces applications;
APPLCICS	CICS applications;
APPLDDF	DDF applications;
APPLDISK	DISK applications;
APPLIMS	IMS applications;
APPLJOBS	JOB applications ¹¹ ;
APPLWEBJ	EJB container applications;
APPLWEBW	WEB container applications.

8.19 CICS and IMS transactions outlier distribution

EPV for z/OS now identifies individual transactions showing CPU consumptions or elapsed time which are outside their normal variability. The detailed throughput HTML page contains the actual value and the distance in percent from normal distribution limits.

The following user exits, located under the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder, should be used to include or exclude transactions from this analysis; by default all transactions are excluded:

USTATIMS.PL	to include or exclude IMS transactions from CPU and elapsed time distribution statistics
USTATCX.PL	to include or exclude CICS transactions from CPU and elapsed time distribution statistics

IMPORTANT NOTE:

You need to be cautious when choosing how many transactions you want to control because of the amount of data to process.

8.20 Cryptographic coprocessor types

The TYPE field which identifies the hardware type is a number coded in SMF records.

You can customize the hardware type and set a more meaningful value by coding the **UEXCRYTC** file of the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder.

¹¹The **APPLFMTS** and **UEXJOBAP** member includes sample code to make batch JOBS aggregation easier.



8.21 Cryptographic accelerator types

The TYPE field which identifies the hardware type is a number coded in SMF records. You can customize the hardware type and set a more meaningful value by coding the **UEXCRYTA** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.22 Excluding old machines from WLC views

You can exclude old machines from WLC views by customizing the **UEXWLC** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.23 Assign a user name to each CEC serial number

You can assign a user name to each CEC serial number by customizing the **UEXCEC** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder. The settings take place during the EPV for z/OS HTML phase.

8.24 Assign a user name to each Physical Control Unit serial number

You can assign a user name to each Physical Control Unit serial number by customizing the **UEXPCU** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder. The settings take place during the EPV for z/OS HTML phase.

8.25 Assign a SITE value to each VTCS

You can assign a SITE value to each Virtual Tape Control System (VTCS). It can be necessary to identify correctly each machine when the same name has been assigned to different VTCS installed in different sites. You can customize the **UEXVSITE** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.26 Assign SITE and VTID values to each VTS

You can assign SITE and VTID values to each Virtual Tape Server TS7700 (VTS). You can customize the **UEXHSITE** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

8.27 Assign size capacity to VTS cartridge

Cartridge capacity depends on drive type, media type and initialization algorithms used, so it is not automatically set. You have to do that by customizing the sample code provided in the **UEXVTSME** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.



8.28 Management Summary Hardware Utilization – User algorithms

The `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder contains more different algorithms which can be customized. For each algorithm there are three exits to evaluate processors (GCP, AAP and IIP), disk and tape hardware utilization. They are named UEXMSCP_x, UEXMSDS_x and UEXMSTA_x, where x is a number from 0 to 2.

The **UEXMSCP_x** contains the code to choose the peak of processors utilization by identifying the days of the month presenting the highest utilization values and averaging them.

The **UEXMSDS_x** contains the code to choose the peak of disk utilization by identifying the days of the month presenting the highest utilization values and averaging them.

The **UEXMSTA_x** contains the code to choose the peak of tape utilization by identifying the days of the month presenting the highest utilization values and averaging them.

EPV for z/OS uses the UEXMSCPU, UEXMSDSK and UEXMSTAP files; by default they contain the code in the UEXMSCP0, UEXMSDS0 and UEXMSTAP0 respectively. If you want to use other algorithm code you can copy any of the above exits in the UEXMSCPU, UEXMSDSK and UEXMSTAP files.

8.29 Management Summary – User baseline

In many situations IBM proposes contracts to customers where software costs are not based on pure variable WLC but on a baseline. The **BASECECS** file contains the monthly baseline value for each analyzed CEC. This is not a value that EPV for z/OS can discover automatically so it has to be provided by customizing this file in the `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder.

8.30 Management Summary – Throughput

EPV provides the throughput view to understand if a variation in resource consumptions corresponds to a variation in the systems throughput. You can exclude non-significant system or subsystem from the throughput view by customizing the sample code provided in the user exit UEXMSTHR in the `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder.

8.31 Management Summary – Exceptions

The `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder contains five different user exits UEXMSE_{xx} which can be customized in order to identify anomalies in the WLC monthly peaks.

The **UEXMSE01** contains the code to identify if the peak occurs in a not business critical day.

The **UEXMSE02** contains the code to identify if the peak occurs in a not business critical hour.

The **UEXMSE03** contains the code to identify if the peak is due to not business critical systems.

The **UEXMSE04** contains the code to identify if the peak is due to not business critical workloads.

The **UEXMSE05** contains the code to identify if the peak is due to workloads which could run on ZAAP and ZIIPs.



8.32 Channel description

The **CHANDESC** file in the `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` folder contains the description and code of each channel type. The used codes are the ones reported in the IEE174I message produced as a response to the "D M=CHP(xx)" system command. You can customize this information or add new channel types.

8.33 Create views in GMT time

EPV for z/OS can create views in GMT time. The EPV for z/OS databases will always contain all datetimes in local time. By modifying the GMT CONFIG.PL parameter to YES all the local times are normalized to GMT time. It is also possible to normalize all the local times to any other time by specifying an offset from GMT. The offset has to be set in the GMTOFF CONFIG.PL parameter.

8.34 Customizing the recovery procedure

By default EPV for z/OS loads the detail data in the MDETA database for the last 3 days, maintains the hourly summarized data for the last 60 days and uses this data to create the daily reports for the last two days. In cases where you want to automatically recover data older than 60 days and create the daily html pages for them without the need to modify manually the CONFIG.PL parameters (\$MDETDAYS, \$DETAIL, \$RPTEPVS, \$RPTEPVE), you can customize the RECOVER.PL member located under the `$EPVPATH/USERPROFILE/$Profilename/COMMON` folder. The recovery procedure dynamically changes the above CONFIG.PL parameters internally in the program to permit the loading and creation of the html pages without modifying the original CONFIG.PL parameters.

The following parameters need to be customized:

- \$RECOVERY = To activate the recovery procedure set to YES (default is NO);
- \$MINDURTM = Minimum interval duration in seconds accepted with the same SYSTEM and DATE by the recovery procedure (default is 3600);
- \$MAXRPTDAYS = Maximum number of HTML reporting days (default is 2);
- \$STGDB = Parser Staging Database – used only when collecting data in continuous mode (default is BLANK).

WARNING: the recovery procedure doesn't change any of the trend configuration parameters. In order to maintain the recovered data into the HTML trend reports and in the EPV trend database, you need to verify that the trend parameters in the CONFIG.PL member cover the period you want to maintain.



8.35 User views

EPV for z/OS permits you to create user views for specific CICS and IMS transactions, batch JOBS, Address Spaces and DISKS.

This makes it possible to compare activity in different systems in the same view and/or create a trend view for a specific activity.

Before the user views can be created you need to allocate the USRZOS database if not already done during the installation process; they will contain CICS user data (i.e. **USRCICS** exit), IMS user data (i.e.. **USRIMS** exit), job batch user data (i.e. **USRJOBS** exit), address space user data (i.e. **USRADDR** exit) and disk user data (i.e. **USRDISK** exit); all the user exit are located under the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS/USEREXIT* folder.

After these simple allocation steps, you need to populate the files **USRADDR**, **USRCICS**, **USRIMS**, **USRJOBS** and **USRDISK** with your specific address spaces, CICS transactions, IMS transactions, batch jobs and disks respectively. It is important to add your objects after the second row. After this customization the daily process will produce the HTML user views.

8.36 Customizing the SORT feature

EPV for z/OS allows you to sort most views inside the HTML pages; to avoid performance problems when you use this feature, EPV for z/OS provides two variables inside the **EPV_CONFIG.TXT** file¹² located in the JAVA directory. The **SORTMIN** and **SORTMAX** variables allows to sort only the tables with a number of records in that range.

Moreover to sort correctly the numeric data inside each table, you should verify the **FMT** variable located in **EPV_CONFIG.TXT** file. The value of this variable should be equal to the one assigned to the **FMT** parameter located in the **CONFIG.PL** file of the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS* folder.

¹² For a detailed description of these sort variables, see the “EPV V11 - User Interface”.



9 Using the EPV Customization GUI

The EPV Customization GUI has been designed to run on a Windows system, however you can create a profile which can be used to run the EPV products on Unix or Linux.

To start working with the EPV Customization GUI, you must enter the SETUP folder and run the EpvInst.exe program.

9.1 ADVANCED customization

You will get the windows in Figure 3 where you have the possibility to choose the customization mode.

To proceed with the ADVANCED customization you have to select ADVANCED and press CONTINUE (for the EXPRESS customization please refer to the EPV Plus V11 Installation and EXPRESS Customization manual).

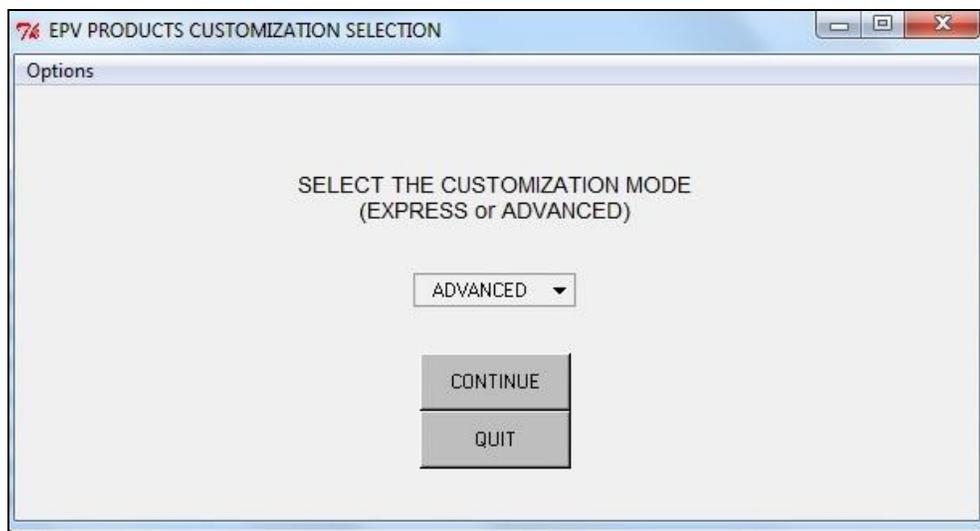


Figure 1

In the next window you are asked to select a profile.

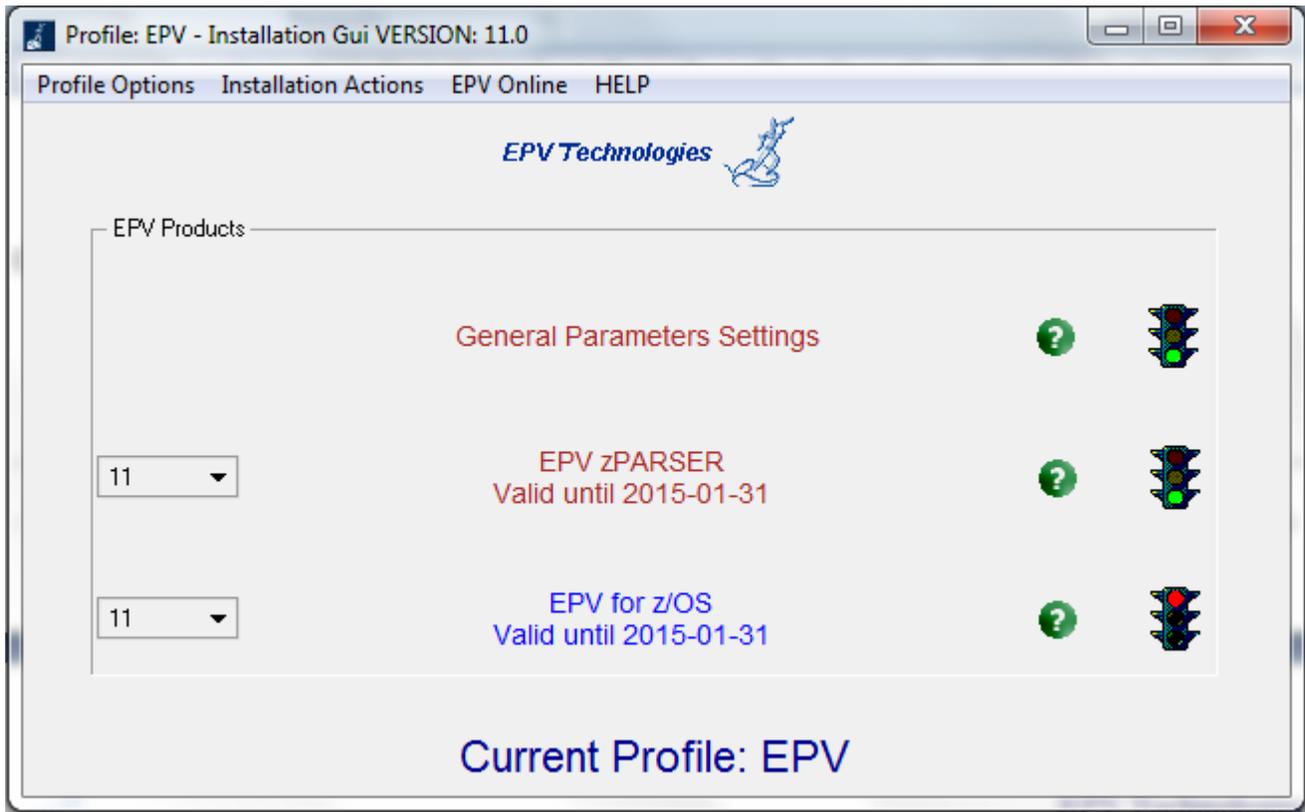


Figure 2

Click OK and choose an existing profile (normally created during the EPV zParser installation).



9.2 Customizing the DBs

After selecting the user profile you have to run the Create DataBases and Install Stored Procs options (in this order) provided under the Installation actions menu on the top of the window, as shown in the image below, to create the databases needed by the EPV for z/OS product:

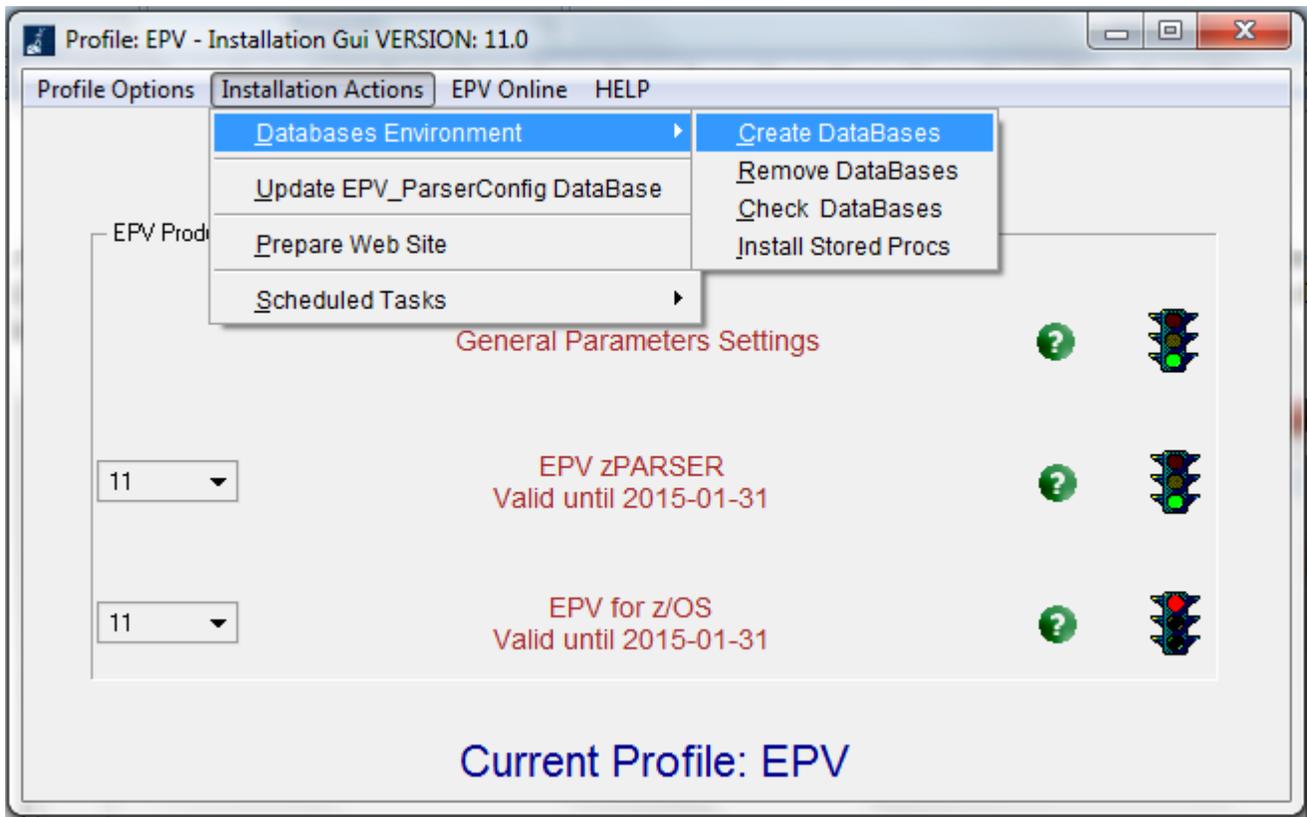


Figure 5

Warning: this window does not appear when installing EPV Plus Products in Unix/Linux. In this case the DBs have to be allocated after moving the profile in the Unix/Linux system by performing the steps described in Chapter 9.4.



9.3 Customizing the product's parameters

If you have a valid license for the EPV for z/OS product you first need to select the correct version from the combo box located at the left side of the main panel and then choose the EPV for z/OS entry.

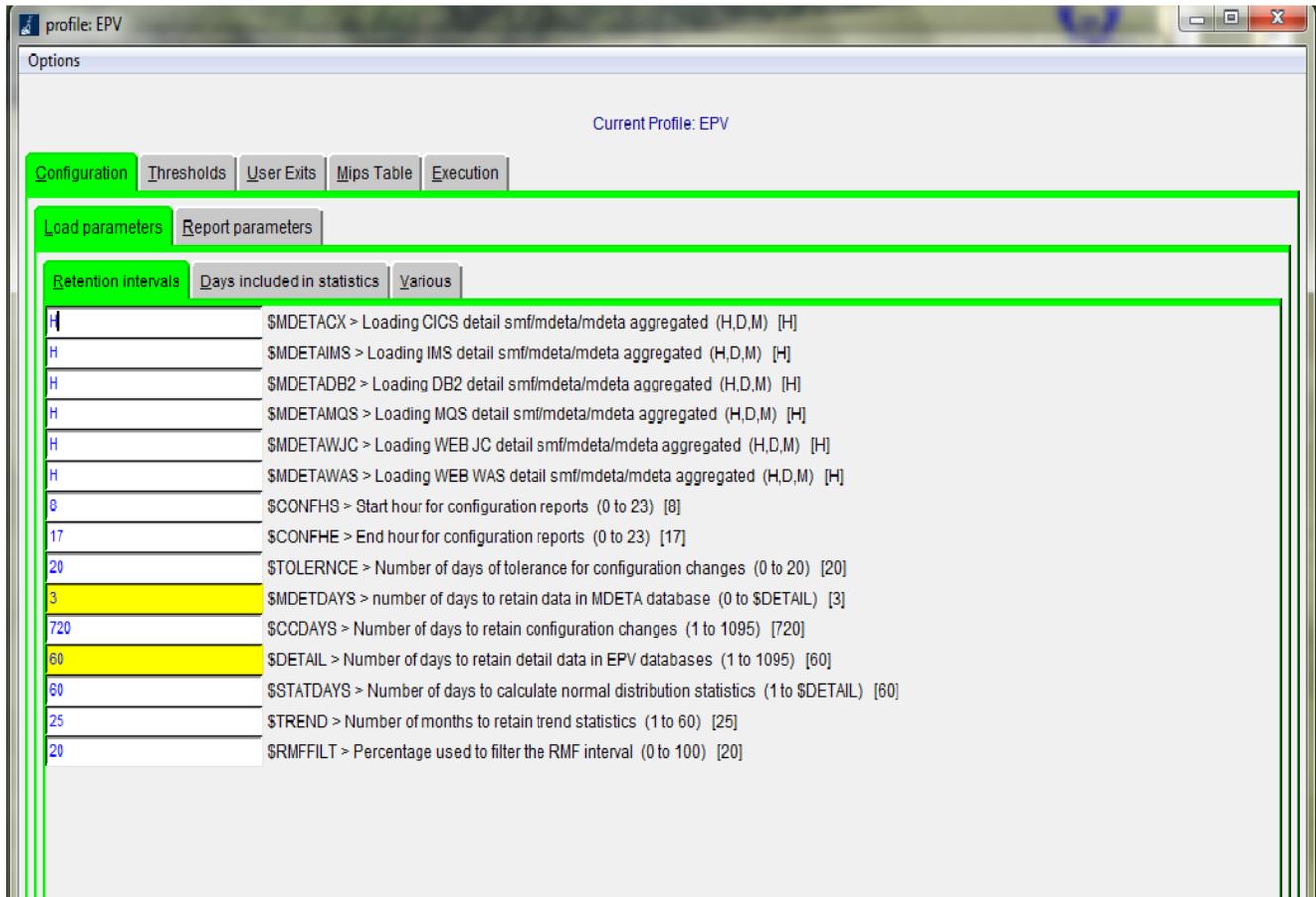


Figure 6

Through this panel you can customize all the parameters needed by EPV for z/OS, change the default threshold settings, modify the user exits, decide what kind of benchmark to use to evaluate the MIPS of your environment and so on.

For a detailed description of all this options please refer to Attachment A, B, C and D at the end of this manual or to the detailed description done in the previous chapters for the manual installation.

Finally save the customizations you have done by clicking on the 'Options' menu and choosing the 'Save and Return' option; it will close the panel and bring you again to the main window where the light at the right of the product will appear green in order to signal that the customization step for the product has been correctly done.

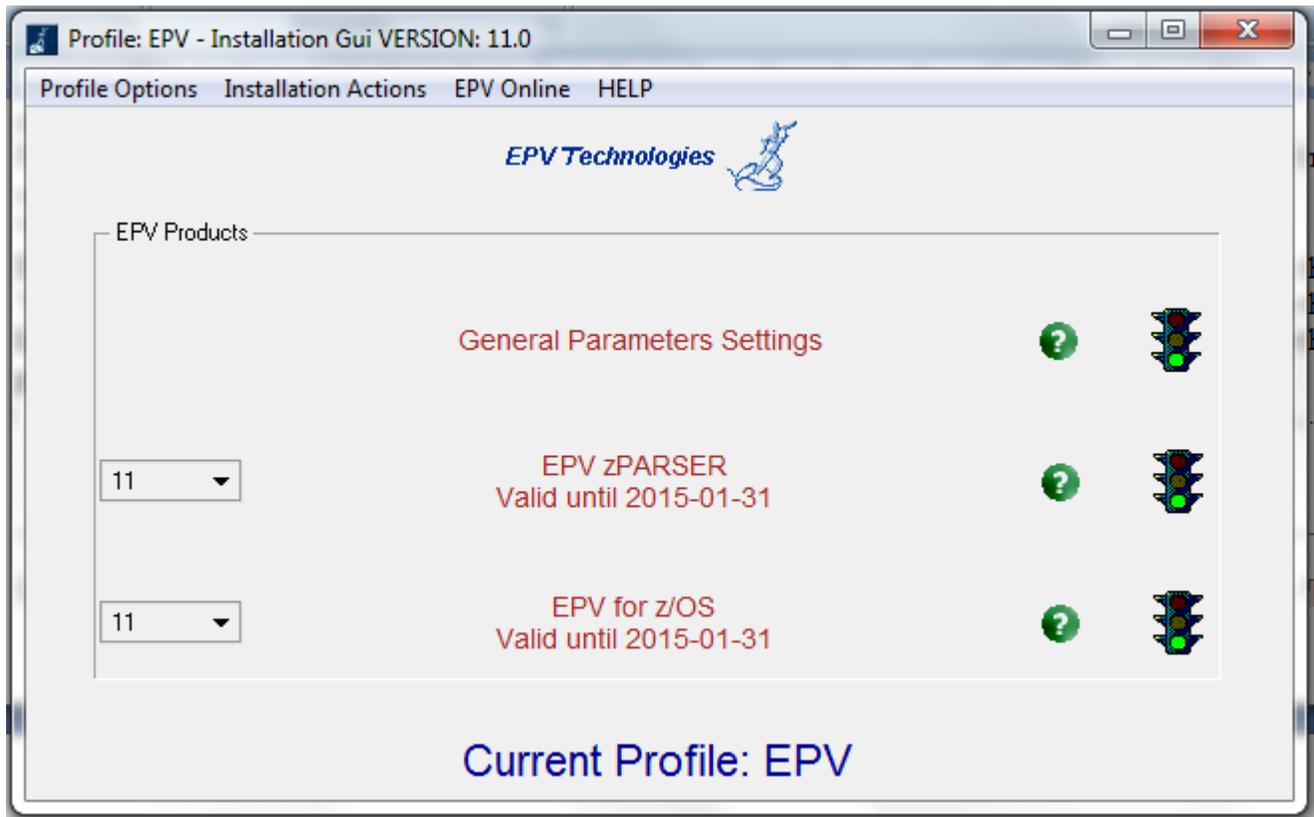


Figure 7



9.4 Additional customization steps for Unix and Linux systems

If you need to move a new or modified profile to a Unix or Linux system you have to perform the following additional customization steps:

- a) export a variable named `$EPVPATH` that contains your EPV path installation root folder; this can be accomplished by issuing the following command:

```
export EPVPATH=/home/epv/EPVROOT/
```

or by putting it in the EPV user automatic logon script (e.g. `bashrc` or `/etc/profile`).
- b) change the permission of all folders and files, inside it, to at least 755;
- c) remove all the CR (Carriage Return) inside all the `.sh` files in the profile; you can do that by using the standard `DOS2UNIX` utility; we suggest to run the following command from inside your `$profilename`: **`find . -type f -name '*.sh' -exec dos2unix '{}' \;`**
- d) if not already done, you have to allocate the z/OS DBs by executing the `RUNALL.sh` script, located in `$EPVPATH/TOOLS/EPVZOS/MYSQL_PROCS/UNIX`, providing MySQL user name and password (e.g. `./RUNALL.sh youruser yourpassword`).



9.5 EPV online (only when running in Windows systems)

The EPV online menu permits you to load data, create reports and view all the log files interactively.

Warning: be aware that to run the EPV Plus Products on a regularly basis you have to put the appropriate procedures in your daily scheduling (see Chapter 7).

You should run the phases in the same order in which they appear in the following menu:

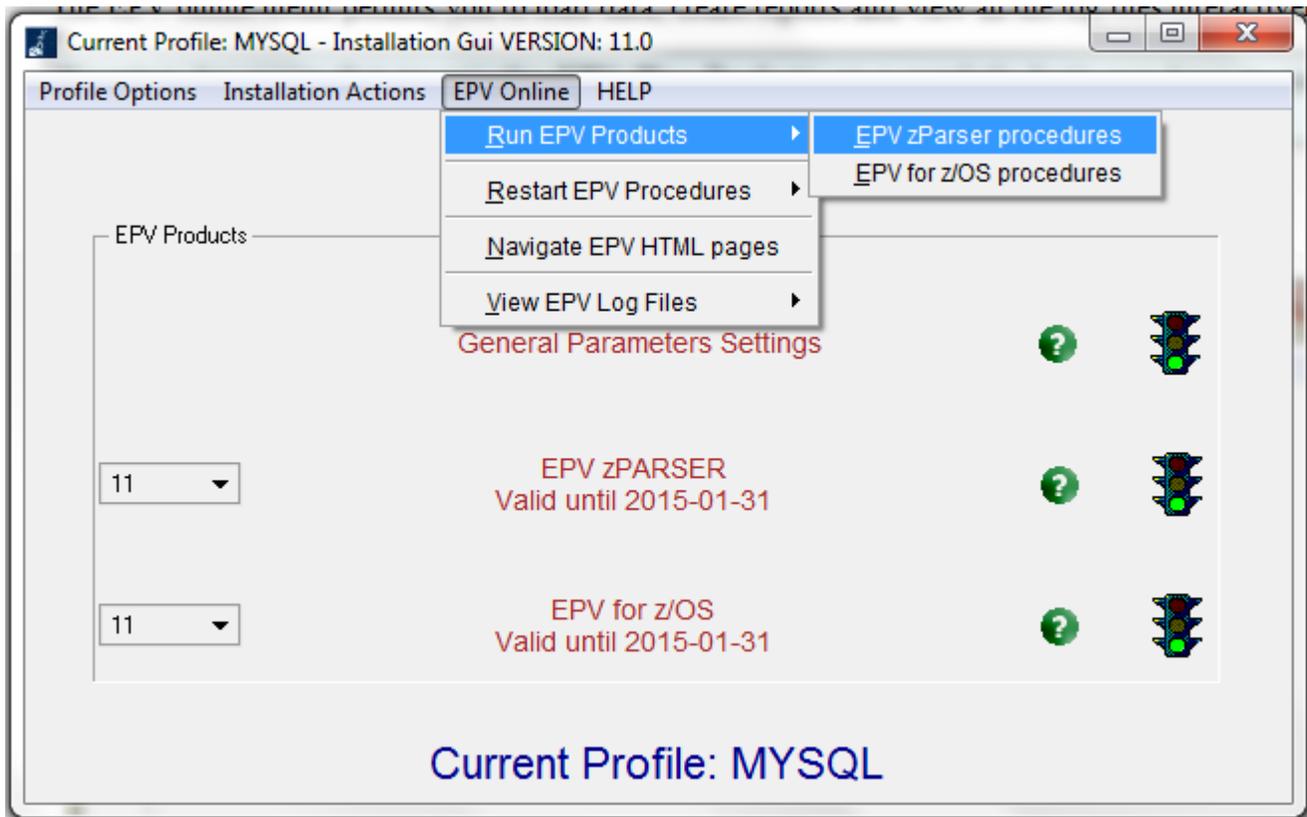


Figure 8

For each step a dedicated window will be opened. From this window it is possible to check the return code of each step performed and view the relative detail log created by the EPV Plus Products. This feature is very useful to perform spot loading of old data or to produce html pages for old dates without changing the user profile settings.



10 Customer support

For any technical problem with or question about EPV for z/OS write an email to:

epv.support@epvtech.com

For any other issue about EPV for z/OS please write an email to:

epv.info@epvtech.com



Attachment A – Config parameters

Default values are included in square brackets.

\$MDETA	EPV for z/OS DataBase \$MDETA > Detail DB name
\$MCONF	EPV for z/OS DataBase \$MCONF > Configuration DB name
\$MRESA	EPV for z/OS DataBase \$MRESA > Resource analysis DB name
\$MWKLA	EPV for z/OS DataBase \$MWKLA > Workload analysis DB name
\$MWRMF	EPV for z/OS DataBase \$MWRMF > RMF interval analysis DB name
\$MSTAT	EPV for z/OS DataBase \$MSTAT > Statistic DB name
\$MTRND	EPV for z/OS DataBase \$MTRND > Trend DB name
\$USRZOS	EPV for z/OS DataBase \$USRZOS > Trend DB name
\$ZWORK1	EPV for z/OS DataBase \$ZWORK1 > First work DB name
\$ZWORK2	EPV for z/OS DataBase \$ZWORK2 > Second work DB name
\$ZWORK3	EPV for z/OS DataBase \$ZWORK3 > Third work DB name
\$ZWORK4	EPV for z/OS DataBase \$ZWORK4 > Fourth work DB name
\$ZWORK5	EPV for z/OS DataBase \$ZWORK5 > Fifth work DB name
\$ZWORK6	EPV for z/OS DataBase \$ZWORK6 > Sixth work DB name
\$MDETACX	Loading CICS: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$MDETAIMS	Loading IMS: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$MDETADB2	Loading DB2: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$MDETAMQS	Loading MQS: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$MDETAWJC	Loading WebSphere EJB: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$MDETAWAS	Loading WebSphere WEB: H to load detailed data in the ZPARSER DB; D to load detailed data in the MDETA DB; M to load aggregated data (at 1 minute interval) in MDETA DB [H]
\$CCSTART	Retention intervals \$CCSTART > Start hour for configuration database (0 to 8) [8]
\$CCEND	Retention intervals \$CCEND > End hour for configuration database (17 to 24) [17]
\$TOLERNCE	Retention intervals \$TOLERNCE > Number of days of tolerance for configuration changes (0 to 20) [20]



\$MDETDAYS	Retention intervals \$MDETDAYS > number of days to retain data in MDETA database (0 to \$DETAIL) [3]
\$CCDAYS	Retention intervals \$CCDAYS > Number of days to retain configuration changes (1 to 1095) [720]
\$DETAIL	Retention intervals \$DETAIL > Number of days to retain detail data in EPV databases (1 to 1095) [60]
\$STATDAYS	Retention intervals \$STATDAYS > Number of days to calculate normal distribution statistics (1 to \$DETAIL) [60]
\$TREND	Retention intervals \$TREND > Number of months to retain trend statistics (1 to 60) [25]
\$RMFFILT	Retention intervals \$RMFFILT > Percentage used to filter the RMF interval (0 to 100) [20]
\$MINSDAYS	Retention intervals \$MINSDAYS > Minimum number of days to calculate normal distribution statistics (1 to \$DETAIL) [30]
\$MONDAY	Days included in statistics \$MONDAY > Include Monday in statistical analysis (YES or NO) [YES]
\$TUESDAY	Days included in statistics \$TUESDAY > Include Tuesday in statistical analysis (YES or NO) [YES]
\$WEDDAY	Days included in statistics \$WEDDAY > Include Wednesday in statistical analysis (YES or NO) [YES]
\$THUDAY	Days included in statistics \$THUDAY > Include Thursday in statistical analysis (YES or NO) [YES]
\$FRIDAY	Days included in statistics \$FRIDAY > Include Friday in statistical analysis (YES or NO) [YES]
\$SATDAY	Days included in statistics \$SATDAY > Include Saturday in statistical analysis (YES or NO) [NO]
\$SUNDAY	Days included in statistics \$SUNDAY > Include Sunday in statistical analysis (YES or NO) [NO]
\$HOLIDAY	Days included in statistics \$HOLIDAY > Include Holiday in statistical analysis (YES or NO) [NO]
\$EPVMIPS	Various \$EPVMIPS > Estimate the MP effect in the MIPS values calculation algorithm (DEFAULT or ENHANCED) [DEFAULT]
\$CHECKMIP	Various \$CHECKMIP > Control MIPS values when CEC is updated (YES or NO) [Y]
\$LOADSMF	Various \$LOADSMF > Load type settings (DEFAULT or FORCE) [DEFAULT]
\$R120INT	Various \$R120INT > Read Smf 120 record interval (YES or NO) [Y]
\$STAT	Various \$STAT > Activate normal distribution (YES or NO) [YES]
\$STD	Various \$STD > Number of std to test for normal distribution(only when STAT is Y) (>0) [3]



\$REG	Various \$REG > Use proc reg to calculate latent demand (YES or NO) [NO]
\$VSMACSC	Various \$VSMACSC > Path of the VSMACSC logs directory
\$RPTEPVS	Time intervals \$RPTEPVS > Start reporting date (DEFAULT or yyyy-mm-dd) [DEFAULT]
\$RPTEPVE	Time intervals \$RPTEPVE > End reporting date (DEFAULT or yyyy-mm-dd) [DEFAULT]
\$RMFHS	Time intervals \$RMFHS > Start interval RMF Resource reporting date (0 to 8) [8]
\$RMFHE	Time intervals \$RMFHE > End interval RMF Resource reporting date (17 to 24) [23]
\$CCHTM	Time intervals \$CCHTM > Number of days to report configuration changes (1 to 365) [360]
\$CCRPT	Time intervals \$CCRPT > Default to report the configuration changes of last cchtm days or date to start from specific date (DEFAULT or yyyy-mm-dd) [DEFAULT]
\$NAVIGATE	Time intervals \$NAVIGATE > Number of days to navigate in main HTML page (1 to \$DETAIL) [10]
\$PCTSTAT	Time intervals \$PCTSTAT > Number of days to perform percentile statistics (1 to \$DETAIL) [60]
\$TRENDHR	Time intervals \$TRENDHR > Number of days to perform mean statistics (1 to \$DETAIL) [60]
\$TRENDDAY	Time intervals \$TRENDDAY > Number of days in day trend vision (1 to \$DETAIL) [60]
\$TRENDMON	Time intervals \$TRENDMON > Number of months in month trend vision (1 to \$TREND) [25]
\$TOPJOBS	Top statistics \$TOPJOBS > Number of top address spaces each hour in workload vision (1 to 50) [10]
\$TOPPAG	Top statistics \$TOPPAG > Number of top paging address spaces each hour in resource vision (1 to 50) [10]
\$TOPSTORG	Top statistics \$TOPSTORG > Number of top storage groups each month in resource trend month vision (1 to 50) [10]
\$TJOBS	Top statistics \$TJOBS > Number of top JOBS in workload vision (1 to 100) [50]
\$TCICS	Top statistics \$TCICS > Number of top CICS transaction in workload vision (1 to 50) [50]
\$TIMS	Top statistics \$TIMS > Number of top IMS transaction in workload vision (1 to 100) [50]
\$TDDF	Top statistics \$TDDF > Number of top DDF DB2 transaction in workload vision (1 to 100) [50]
\$TMQS	Top statistics \$TMQS > Number of top DDF MQS transaction in workload vision (1 to 100) [50]



\$TWEB	Top statistics \$TWEB > Number of top WEB transaction in workload vision (1 to 100) [50]
\$TTSO	Top statistics \$TTSO > Number of top TSO transaction in throughput vision (1 to 100) [50]
\$TOPDISK	Top statistics \$TOPDISK > Number of top DISKS for each PCUID in resource vision (1 to 50) [20]
\$TOPOBJ	Top statistics \$TOPOBJ > Number of top objects in workload vision (1 to 100) [50]
\$RDAYMON	Days included in trend day \$RDAYMON > Include Monday in trend day reports (YES or NO) [YES]
\$RDAYTUE	Days included in trend day \$RDAYTUE > Include Tuesday in trend day reports (YES or NO) [YES]
\$RDAYWED	Days included in trend day \$RDAYWED > Include Wednesday in trend day reports (YES or NO) [YES]
\$RDAYTHU	Days included in trend day \$RDAYTHU > Include Thursday in trend day reports (YES or NO) [YES]
\$RDAYFRI	Days included in trend day \$RDAYFRI > Include Friday in trend day reports (YES or NO) [YES]
\$RDAYSAT	Days included in trend day \$RDAYSAT > Include Saturday in trend day reports (YES or NO) [NO]
\$RDAYSUN	Days included in trend day \$RDAYSUN > Include Sunday in trend day reports (YES or NO) [NO]
\$RDAYHOL	Days included in trend day \$RDAYHOL > Include Holiday in trend day reports (YES or NO) [NO]
\$RMONMON	Days included in trend month \$RMONMON > Include Monday in trend month reports (YES or NO) [YES]
\$RMONTUE	Days included in trend month \$RMONTUE > Include Tuesday in trend month reports (YES or NO) [YES]
\$RMONWED	Days included in trend month \$RMONWED > Include Wednesday in trend month reports (YES or NO) [YES]
\$RMONTHU	Days included in trend month \$RMONTHU > Include Thursday in trend month reports (YES or NO) [YES]
\$RMONFRI	Days included in trend month \$RMONFRI > Include Friday in trend month reports (YES or NO) [YES]
\$RMONSAT	Days included in trend month \$RMONSAT > Include Saturday in trend month reports (YES or NO) [YES]
\$RMONSUN	Days included in trend month \$RMONSUN > Include Sunday in trend month reports (YES or NO) [YES]
\$RMONHOL	Days included in trend month \$RMONHOL > Include Holiday in trend month reports (YES or NO) [YES]
\$RINDMON	Days included in trend month index \$RINDMON > Include Monday in trend resource month index reports (YES or NO) [YES]



\$RINDTUE	Days included in trend month index \$RINDTUE > Include Tuesday in trend resource month index reports (YES or NO) [YES]
\$RINDWED	Days included in trend month index \$RINDWED > Include Wednesday in trend resource month index reports (YES or NO) [YES]
\$RINDTHU	Days included in trend month index \$RINDTHU > Include Thursday in trend resource month index reports (YES or NO) [YES]
\$RINDFRI	Days included in trend month index \$RINDFRI > Include Friday in trend resource month index reports (YES or NO) [YES]
\$RINDSAT	Days included in trend month index \$RINDSAT > Include Saturday in trend resource month index reports (YES or NO) [NO]
\$RINDSUN	Days included in trend month index \$RINDSUN > Include Sunday in trend resource month index reports (YES or NO) [NO]
\$RINDHOL	Days included in trend month index \$RINDHOL > Include Holiday in trend resource month index reports (YES or NO) [NO]
\$DBDEC	Various \$DBDEC > Decimal point to store in EPV databases (1 to 3) [3]
\$DEBUG	Various \$DEBUG > Debug detail level (0 to 3) [2]
\$FMT	Various \$FMT > number format (E/S/U) Europe/Switzerland/Usa (E, S or U) [E]
\$ASMIPS	Various \$ASMIPS > Initial daily address space MIPS for address space detail (1 to 50) [1]
\$OLDSHIFT	Various \$OLDSHIFT > Use old historical shifts when produce monthly trend pages (YES or NO) [NO]
\$GMT	Various \$GMT > Normalize user data to GMT (YES or NO) [NO]
\$GMTOFF	Various \$GMTOFF > GMT offset to normalize the user hour (-12 to 12) [0]
\$TOPHWMGS	Various \$TOPHWMGS > Number of last months in hardware utilization, management summary reports (1 to 25) [3]
\$TOPSWMGS	Various \$TOPSWMGS > Number of last months in software utilization, management summary reports (1 to 25) [13]
\$MGSHOURS	Various \$MGSHOURS > Range of hours to include in EPV hardware utilization, management summary reports (0 to 23) [9,10,11,12,15,16]
\$MGSUSER	Various \$MGSUSER > Item name to show in combo box to select user reports, management summary reports (USER or) [USER]
\$WLMUNK	Various \$WLMUNK > Threshold for unknown delay percentage to avoid performance index alert (1 to 100) [90]
\$WLCMONTH	Various \$WLCMONTH > NO to create only current and previous monthly WLC html pages, YES to create all monthly WLC html pages (YES or NO) [NO]
\$VTSLOCAL	GMT offset to normalize VTS data to local time (-12 to 12) [0]



\$INRDY	General CPU thresholds \$INRDY > Threshold for in-ready tasks (>0) [1.5]
\$PERFHIG	General CPU thresholds \$PERFHIG > Performance index check (>0) [1.2]
\$CPUTRCIC	General CPU thresholds \$CPUTRCIC > Threshold CPU time(sec) used for each CICS transaction (>0) [900]
\$CPUTRIMS	General CPU thresholds \$CPUTRIMS > Threshold CPU time(sec) used for each IMS transaction (>0) [900]
\$CPUTRDDF	General CPU thresholds \$CPUTRDDF > Threshold CPU time(sec) used for each REQ through DDF to DB2 (>0) [900]
\$CPUTREJB	General CPU thresholds \$CPUTREJB > Threshold CPU time(sec) used for each EJB method (>0) [900]
\$CPUTRWEB	General CPU thresholds \$CPUTRWEB > Threshold CPU time(sec) used for each web appl (>0) [900]
\$CPUJOB	General CPU thresholds \$CPUJOB > Threshold CPU time(sec) used for each batch job (>0) [900]
\$CPUSTC	General CPU thresholds \$CPUSTC > Threshold CPU time(sec) used for each STC address space (>0) [900]
\$CPUTSO	General CPU thresholds \$CPUTSO > Threshold CPU time(sec) used for each TSO address space (>0) [900]
\$CPUOMVS	General CPU thresholds \$CPUOMVS > Threshold CPU time(sec) used for each OMVS address space (>0) [900]
\$CPTRIMS	General CPU thresholds \$CPTRIMS > Threshold CPU time (sec) used for each transaction IMS (>0) [900]
\$CPTRDDF	General CPU thresholds \$CPTRDDF > Threshold CPU time (sec) used for each requestor thru DDF to db2 (>0) [900]
\$CPTRCIC	General CPU thresholds \$CPTRCIC > Threshold CPU time (sec) used for each transaction CICS (>0) [900]
\$CPTREJB	General CPU thresholds \$CPTREJB > Threshold CPU time (sec) used for each EJB method (>0) [900]
\$CPTRWEB	General CPU thresholds \$CPTRWEB > Threshold CPU time (sec) used for each WEB appl (>0) [900]
\$CECAVA	General CPU thresholds \$CECAVA > Threshold for %CEC available (0 to 100) [5]
\$CPUBUSY	General CPU thresholds \$CPUBUSY > Threshold for %CPUBUSY used (0 to 100) [95]
\$MVSCPUD	General CPU thresholds \$MVSCPUD > Threshold for difference between MVSBUSY and CPUBUSY (0 to 100) [15]
\$CAPRAT30	General CPU thresholds \$CAPRAT30 > Threshold for capture ratio record 30 (0 to 100) [70]
\$CAPRAT72	General CPU thresholds \$CAPRAT72 > Threshold for capture ratio record 72 (0 to 100) [50]



\$CECELAP	General CPU thresholds \$CECELAP > Threshold for CPU time(sec) used by AAP eligible workload (>0) [1800]
\$CECELIP	General CPU thresholds \$CECELIP > Threshold for CPU time(sec) used by IIP eligible workload (>0) [1800]
\$CPCPR72	General CPU thresholds \$CPCPR72 > Threshold for GCP capture ratio record 72 (0 to 100) [70]
\$CPCPR30	General CPU thresholds \$CPCPR30 > Threshold for GCP capture ratio record 30 (0 to 100) [0]
\$AAPJOB	Special CPU thresholds \$AAPJOB > Threshold AAP CPU time(sec) used for each batch job (>0) [900]
\$AAPSTC	Special CPU thresholds \$AAPSTC > Threshold AAP CPU time(sec) used for each STC address space (>0) [900]
\$AAPTSTO	Special CPU thresholds \$AAPTSTO > Threshold AAP CPU time(sec) used for each TSO address space (>0) [900]
\$AAPOMVS	Special CPU thresholds \$AAPOMVS > Threshold AAP CPU time(sec) used for each OMVS address space (>0) [900]
\$IIPJOB	Special CPU thresholds \$IIPJOB > Threshold IIP CPU time(sec) used for each batch job (>0) [900]
\$IIPSTC	Special CPU thresholds \$IIPSTC > Threshold IIP CPU time(sec) used for each STC address space (>0) [900]
\$IIPTSTO	Special CPU thresholds \$IIPTSTO > Threshold IIP CPU time(sec) used for each TSO address space (>0) [900]
\$IIPOMVS	Special CPU thresholds \$IIPOMVS > Threshold IIP CPU time(sec) used for each OMVS address space (>0) [900]
\$IIPTRDDF	Special CPU thresholds \$IIPTRDDF > Threshold IIP CPU time(sec) used for each request through DDF to DB2 (>0) [900]
\$IPTRDDF	Special CPU thresholds \$IPTRDDF > Threshold iip time (sec) used for each requestor thru DDF to db2 (>0) [900]
\$JOBABND	Special CPU thresholds \$JOBABND > Threshold total CPU time (sec) used for each batch job in abend total CPU time (sum of cp,ifa,zip) (>0) [600]
\$AAPCPR30	Special CPU thresholds \$AAPCPR30 > Threshold for AAP capture ratio record 30 (0 to 100) [0]
\$AAPCPR72	Special CPU thresholds \$AAPCPR72 > Threshold for AAP capture ratio record 72 (0 to 100) [70]
\$IIPCPR30	Special CPU thresholds \$IIPCPR30 > Threshold for IIP capture ratio record 30 (0 to 100) [0]
\$IIPCPR72	Special CPU thresholds \$IIPCPR72 > Threshold for IIP capture ratio record 72 (0 to 100) [70]
\$AAPBUSY	Special CPU thresholds \$AAPBUSY > Threshold for % IFABUSY Used (0 to 100) [95]
\$APCECAV	Special CPU thresholds \$APCECAV > Threshold for % AAP CEC Available (0 to 100) [15]



\$APPHYOV	Special CPU thresholds \$APPHYOV > Threshold for % AAP CEC Physical overhead (0 to 100) [2]
\$IIPBUSY	Special CPU thresholds \$IIPBUSY > Threshold for % ZIPBUSY Used (0 to 100) [95]
\$IPCECAV	Special CPU thresholds \$IPCECAV > Threshold for % IIP CEC Available (0 to 100) [15]
\$IPPHYOV	Special CPU thresholds \$IPPHYOV > Threshold for % IIP CEC Physical overhead (0 to 100) [2]
\$APCPR72	Special CPU thresholds \$APCPR72 > Threshold for AAP capture ratio record 72 (0 to 100) [70]
\$APCPR30	Special CPU thresholds \$APCPR30 > Threshold for AAP capture ratio record 30 (0 to 100) [0]
\$IPCPR72	Special CPU thresholds \$IPCPR72 > Threshold for IIP capture ratio record 72 (0 to 100) [70]
\$IPCPR30	Special CPU thresholds \$IPCPR30 > Threshold for IIP capture ratio record 30 (0 to 100) [0]
\$STGFREE	General thresholds \$STGFREE > Thresholds for % of free space for storage group (0 to 100) [10]
\$IORATE	General thresholds \$IORATE > Threshold for disk included from record 74 and 74ca (>0) [0.2]
\$READHIT	General thresholds \$READHIT > Threshold for cachio read hits (0 to 100) [20]
\$IOSTIPC	General thresholds \$IOSTIPC > Threshold average iosq time(ms) for each pcu (0 to 10) [2]
\$IOSQTIM	General thresholds \$IOSQTIM > Threshold average iosq time(ms) for each disk (>0) [10]
\$IOSTISY	General thresholds \$IOSTISY > Threshold Average iosq time (ms) for each system (0 to 10) [5]
\$IOSTISS	General thresholds \$IOSTISS > Threshold average iosq time (ms) for each ssid (0 to 10) [5]
\$RESPTIM	General thresholds \$RESPTIM > Threshold average response time(ms) for each disk (>0) [30]
\$XCFRESP	General thresholds \$XCFRESP > Threshold average response time(ms) for each XCF disk (>0) [2000]
\$RESTISS	General thresholds \$RESTISS > Threshold average response time (ms) for each ssid (0 to 100) [20]
\$RESTISY	General thresholds \$RESTISY > Threshold Average Response Time (ms) for each system (0 to 100) [20]
\$RESTIPC	General thresholds \$RESTIPC > Threshold average response time(ms) for each pcu (0 to 100) [10]
\$PENDTIM	General thresholds \$PENDTIM > Threshold average pending time(ms) for each disk (>0) [1]



\$PENTIPC	General thresholds \$PENTIPC > Threshold average pending time (ms) for each pcu (0 to 10) [1]
\$PENTISY	General thresholds \$PENTISY > Threshold average pending time (ms) for each system (0 to 10) [1]
\$SLOLOCAL	General thresholds \$SLOLOCAL > Threshold local total page datasets (0 to 100) [50]
\$SLOHIGH	General thresholds \$SLOHIGH > Threshold single page datasets (0 to 100) [30]
\$SLOLOCA	General thresholds \$SLOLOCA > Threshold local total page datasets (0 to 100) [50]
\$UICTHR	General thresholds \$UICTHR > Threshold average highest unreferenced interval(UIC) (>0) [200]
\$PAGFATH	General thresholds \$PAGFATH > Threshold page fault rate (0 to 100) [50]
\$CSABUSE	General thresholds \$CSABUSE > Threshold CSA below 16Mb utilization (0 to 100) [90]
\$CSAAUSE	General thresholds \$CSAAUSE > Threshold CSA above 16Mb utilization (0 to 100) [80]
\$CHANUSE	General thresholds \$CHANUSE > Threshold single channel utilization (0 to 100) [50]
\$CHPEXC	General thresholds \$CHPEXC > Threshold channels open exchanges (>0) [6]
\$READHIT	General thresholds \$READHIT > Threshold for cachio read hits (>0) [80]
\$PHYOVHD	General thresholds \$PHYOVHD > Threshold for CEC physical overhead (0 to 100) [2]
\$FCDPADL	General thresholds \$FCDPADL > Threshold for Ficon Director pacing delay time microsecs (0 to 100) [50]
\$FXFR16M	General thresholds \$FXFR16M > Threshold for % fixed frames used below 16 mb (0 to 100) [70]
\$FXFR02G	General thresholds \$FXFR02G > Threshold for % fixed frames used between 16 mb and 2 GB (0 to 100) [50]
\$FXFRTOT	General thresholds \$FXFRTOT > Threshold for % fixed frames used (0 to 100) [50]
\$VSMMTHI	VTCS and VTS thresholds \$VSMMTHI > Threshold Mount Time secs for VTCS hit recall for each VSM (0 to 100) [30]
\$VSMMTNH	VTCS and VTS thresholds \$VSMMTNH > Threshold Mount Time secs for VTCS not hit recall for each VSM (0 to 1000) [300]
\$VSMMTHI	VTCS and VTS thresholds \$VSMMTHI > Threshold mount time secs for VTCS hit recall for each VSM (0 to 100) [30]
\$VSMMTNH	VTCS and VTS thresholds \$VSMMTNH > Threshold mount time secs for VTCS not hit recall for each VSM (0 to 1000) [300]



\$SYSMTHI	VTCS and VTS thresholds \$SYSMTHI > Threshold mount time secs for VTCS hit recall for each system (0 to 100) [30]
\$SYSMTNH	VTCS and VTS thresholds \$SYSMTNH > Threshold mount time secs for VTCS not hit recall for each system (0 to 1000) [300]
\$VTSMTHI	VTCS and VTS thresholds \$VTSMTHI > Threshold mount time secs for VTS hit recall for each VTS (0 to 100) [30]
\$VTSMTNH	VTCS and VTS thresholds \$VTSMTNH > Threshold mount time secs for VTS not hit recall for each VTS (0 to 1000) [300]
\$VTSIMMQ	VTCS and VTS thresholds \$VTSIMMQ > Threshold average age, in secs, of the logical volumes in the immediate queue for each cluster inside each VTS (0 to 1000) [300]
\$VTSDEFQ	VTCS and VTS thresholds \$VTSDEFQ > Threshold average age, in secs, of the logical volumes in the deferred copy queue for each cluster inside each VTS (0 to 10000) [1800]
\$CFSYNTM	Coupling facility thresholds \$CFSYNTM > Threshold synchronous time(ms) for coupling facility (>0) [100]
\$CFASYTM	Coupling facility thresholds \$CFASYTM > Threshold asynchronous time(ms) for coupling facility (>0) [1000]
\$CFSTSTM	Coupling facility thresholds \$CFSTSTM > Threshold synchronous time(ms) for coupling facility structure (>0) [100]
\$CFSTATM	Coupling facility thresholds \$CFSTATM > Threshold asynchronous time(ms) for coupling facility structure (>0) [1000]
\$CFCPBSY	Coupling facility thresholds \$CFCPBSY > Threshold for %CPUBUSY used for coupling facility (0 to 100) [50]
\$CFMEUTI	Coupling facility thresholds \$CFMEUTI > Threshold for %MEMORY used for coupling facility (0 to 100) [50]
\$CFDIRLI	Coupling facility thresholds \$CFDIRLI > Threshold for % of list or directory entries used for coupling facility structure (0 to 100) [80]
\$CFDATLO	Coupling facility thresholds \$CFDATLO > Threshold for % of data elements or directory entries used for coupling facility structure (0 to 100) [80]
\$CFXDIRR	Coupling facility thresholds \$CFXDIRR > Threshold for % of directory entries reclaims used for coupling facility structure (0 to 100) [1]
\$CFLOCCO	Coupling facility thresholds \$CFLOCCO > Threshold for % of requests delayed for lock contention for coupling facility structure (0 to 100) [5]
\$CFFALCO	Coupling facility thresholds \$CFFALCO > Threshold for % of requests delayed for false lock contention for coupling facility structure (0 to 100) [1]



Attachment B – Base and EXCEPTIONS thresholds

BASE THRESHOLD	ADVANCED THRESHOLD USER EXIT	DESCRIPTION	DEFAULT VALUE
AAPBUSY	TAAPBUSY	PERCENT OF AAP SYSTEM BUSY	95
AAPJOB	TAAPJOB	JOB AAP CPU TIME IN SECONDS	900
AAPOMVS	TAAPOMVS	OMVS AAP CPU TIME IN SECONDS	900
AAPSTC	TAAPSTC	STC AAP CPU TIME IN SECONDS	900
AAPTSO	TAAPTSO	TSO USER AAP CPU TIME IN SECONDS	900
APCECAV	TAPCECAV	PERCENT OF AAP CEC AVAILABLE	15
APCPR30	TAPCPR30	PERCENT OF AAP CAPTURE RATIO FOR SMF 30 RECORD	0
APCPR72	TAPCPR72	PERCENT OF AAP CAPTURE RATIO FOR SMF 72 RECORD	70
APPHYOV	TAPPHYOV	PERCENT OF AAP CEC PHYSICAL OVERHEAD	2
CECAVA	TCECAVA	PERCENT OF CEC AVAILABLE	5
CECELAP	TCECELAP	CPU TIME IN SECONDS USED BY AAP ELIGIBLE WORKLOAD	1800
CECELIP	TCECELIP	CPU TIME IN SECONDS USED BY IIP ELIGIBLE WORKLOAD	1800
CFASYTM	TCFASYTM	COUPLING FACILITY ASYNCHRONOUS TIME IN MICROSECONDS	1000
CFCPBSY	TCFCPBSY	COUPLING FACILITY PERCENT CPU BUSY	50
CFDATLO	TCFDATLO	COUPLING FACILITY STRUCTURE PERCENT OF DATA ENTRIES OR DIRECTORY ENTRIES USED	80
CFDIRLI	TCFDIRLI	COUPLING FACILITY STRUCTURE PERCENT OF LIST OR DIRECTORY ENTRIES USED	80
CFFALCO	TCFFALCO	COUPLING FACILITY STRUCTURE PERCENT OF REQUESTS DELAYED TO FALSE LOCK CONTENTION USED	1
CFLOCCO	TCFLOCCO	COUPLING FACILITY STRUCTURE PERCENT OF REQUESTS DELAYED TO LOCK CONTENTION USED	5
CFMEUTI	TCFMEUTI	COUPLING FACILITY PERCENT MEMORY USED	50
CFSTATM	TCFSTATM	COUPLING FACILITY STRUCTURE ASYNCHRONOUS TIME IN MICROSECONDS	1000
CFSTSTM	TCFSTSTM	COUPLING FACILITY STRUCTURE SYNCHRONOUS TIME IN MICROSECONDS	100
CFSYNTM	TCFSYNTM	COUPLING FACILITY SYNCHRONOUS TIME IN MICROSECONDS	100
CFXDIRR	TCFXDIRR	COUPLING FACILITY STRUCTURE PERCENT OF DIRECTORY ENTRIES RECLAIMS USED	1
CHANUSE	TCHANUSE	PERCENT OF CHANNEL PROCESSOR UTILIZATION	50
CHPEXC	CHPEXC	NUMBER OF CHANNEL OPEN EXCHANGES	6
CPCPR30	TCPCPR30	PERCENT OF GCP CAPTURE RATIO FOR SMF 30 RECORD	0
CPCPR72	TCPCPR72	PERCENT OF GCP CAPTURE RATIO FOR SMF 72	70



		RECORD	
CPTRCIC	TCPTRCIC	MAXIMUM NUMBER OF CPU SECONDS FOR CICS TRANSACTION	900
CPTRDDF	TCPTRDDF	MAXIMUM NUMBER OF CPU SECONDS FOR DDF TRANSACTION	900
CPTREJB	TCPTREJB	MAXIMUM NUMBER OF CPU SECONDS FOR EJB TRANSACTION	900
CPTRIMS	TCPTRIMS	MAXIMUM NUMBER OF CPU SECONDS FOR IMS TRANSACTION	900
CPTRWEB	TCPTRWEB	MAXIMUM NUMBER OF CPU SECONDS FOR WEB TRANSACTION	900
CPUBUSY	TC PUBUSY	PERCENT OF SYSTEM BUSY	95
CPUJOB	TCPUJOB	JOB CPU TIME IN SECONDS	900
CPUOMVS	TCPUOMVS	OMVS CPU TIME IN SECONDS	900
CPUSTC	TCPUSTC	STC CPU TIME IN SECONDS	900
CPUTSO	TCPUTSO	TSO USER CPU TIME IN SECONDS	900
CSAAUSE	TCSAAUSE	PERCENT OF CSA USED ABOVE 16 MB	80
CSABUSE	TCSABUSE	PERCENT OF CSA USED BELOW 16 MB	90
FCDPADL	TFCDPADL	AVERAGE PACING DELAY TIME IN MICROCONDS FOR EACH FICON DIRECTOR	50
FXFR02G	TFXFR02G	PERCENT OF FIXED FRAMES USED BETWEEN 16 MB AND 2 GB	50
FXFR16M	TFXFR16M	PERCENT OF FIXED FRAMES USED BELOW 16 MB	70
FXFRTOT	TFXFRTOT	PERCENT OF TOTAL FIXED FRAMES USED	50
IIPBUSY	TIIPBUSY	PERCENT OF IIP SYSTEM BUSY	95
IIPJOB	TIIPJOB	JOB IIP CPU TIME IN SECONDS	900
IIPOMVS	TIIPOMVS	OMVS IIP CPU TIME IN SECONDS	900
IIPSTC	TIIPSTC	STC IIP CPU TIME IN SECONDS	900
IIPTSO	TIIPTSO	TSO USER IIP CPU TIME IN SECONDS	900
INRDY	TINRDY	LIMIT FOR NUMBER OF INREADY TASKS. THE LIMIT IS CALCULATED BY MULTIPLYING THE NUMBER OF LOGICAL CPUS BY THE DEFAULT INRDY VALUE	1.5
IOSQTIM	TIOSQTIM	AVERAGE DISK IOSQ TIME IN MILLISECONDS	10
IOSTIPC	TIOSTIPC	AVERAGE PCU IOSQ TIME IN MILLISECONDS	2
IOSTISS	TIOSTISS	AVERAGE SSID IOSQ TIME IN MILLISECONDS	5
IOSTISY	TIOSTISY	AVERAGE SYSTEM IOSQ TIME IN MILLISECONDS	5
IPCECAV	TIPCECAV	PERCENT OF IIP CEC AVAILABLE	15
IPCPR30	TIPCPR30	PERCENT OF IIP CAPTURE RATIO FOR SMF 30 RECORD	0
IPCPR72	TIPCPR72	PERCENT OF IIP CAPTURE RATIO FOR SMF 72 RECORD	70
IPPHYOV	TIPPHYOV	PERCENT OF IIP CEC PHYSICAL OVERHEAD	2
IPTRDDF	TIPTRDDF	MAXIMUM NUMBER OF IIP CPU SECONDS FOR DDF TRANSACTION	900
JOBABND	TJOBABND	GCP+AAP+IIP CPU TIME IN SECONDS FOR JOBS IN ABEND	600
MVSCPUD	TMVSCPUD	DIFFERENCE BETWEEN MVSBUSY AND CPUBISY	15
PAGFATH	TPAGFATH	PAGE FAULT RATE	50
PENDTIM	TPENDTIM	AVERAGE DISK PENDING TIME IN MILLISECONDS	2
PENTIPC	TPENTIPC	AVERAGE PCU PENDING TIME IN MILLISECONDS	1



PENTISY	TPENTISY	AVERAGE SYSTEM PENDING TIME IN MILLISECONDS	1
PERFHIG	TPERFHIG	PERFORMANCE INDEX VALUE	1.2
PHYOVHD	TPHYOVHD	PERCENT OF CEC PHYSICAL OVERHEAD	2
READHIT	TREADHIT	PERCENT OF CACHE READ HITS	80
RESPTIM	TRESPTIM	AVERAGE DISK RESPONSE TIME IN MILLISECONDS	30
RESTIPC	TRESTIPC	AVERAGE PCU RESPONSE TIME IN MILLISECONDS	10
RESTISS	TRESTISS	AVERAGE SSID RESPONSE TIME IN MILLISECONDS	20
RESTISY	TRESTISY	AVERAGE SYSTEM RESPONSE TIME IN MILLISECONDS	20
SLOHIGH	TSLOHIGH	PERCENT FULL SINGLE PAGE DATASET	30
SLOLOCA	TSLOLOCA	PERCENT FULL LOCAL TOTAL PAGE DATASET	50
STATDAYS		NUMBER OF DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS FOR TREND DAY ANALYSIS	60
STD		NUMBER OF STANDARD DEVIATIONS TO TEST NORMAL DISTRIBUTION OR TREND DAY ANALYSIS	3
STGFREE	TSTGFREE	PERCENT OF FREE STORAGE GROUP	10
SYSMTHI	TSYSMTHI	AVERAGE MOUNT TIME FOR VTCS HIT RECALL IN SECONDS OF EACH VTCS AND SYSTEM	30
SYSMTNH	TSYSMTNH	AVERAGE MOUNT TIME FOR VTCS NOT HIT RECALL IN SECONDS OF EACH VTCS AND SYSTEM	300
UICTHR	UICTHR	HIGHEST UNREFERENCED INTERVAL	200
VSMTHI	TVSMTHI	AVERAGE MOUNT TIME FOR VTCS HIT RECALL IN SECONDS OF EACH VTCS	30
VSMMTNH	TVSMMTNH	AVERAGE MOUNT TIME FOR VTCS NOT HIT RECALL IN SECONDS OF EACH VTCS	300
VTSDEFQ	TVTSDEFQ	AVERAGE AGE OF THE LOGICAL VOLUMES IN THE DEFERRED COPY QUEUE IN SECONDS FOR EACH CLUSTER INSIDE EACH VTS	1800
VTSIMMQ	TVTSIMMQ	AVERAGE AGE OF THE LOGICAL VOLUMES IN THE IMMEDIATE QUEUE IN SECONDS FOR EACH CLUSTER INSIDE EACH VTS	300
VTSMTHI	TVTSMTHI	AVERAGE MOUNT TIME FOR VTS HIT RECALL IN SECONDS OF EACH VTS	30
VTSMTNH	TVTSMTNH	AVERAGE MOUNT TIME FOR VTS NOT HIT RECALL IN SECONDS OF EACH VTS	300
XCFRESP	TXCFRESP	XCF AVERAGE RESPONSE TIME IN MICROSECONDS	2000



Attachment C – Managed Exceptions

To use the Managed Exceptions function, the following steps have to be performed:

1) Create your company's exceptions management file.

```

/**
//MANAGE EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=*
//MANAGEA DD DSN=YOUR.PREFIX.MALERTS.MANAGE,DISP=(,CATLG,DELETE),
// UNIT=SYSDA,SPACE=(CYL,(1,1)),
// DCB=(DSORG=PS,RECFM=FB,LRECL=255,BLKSIZE=0)
/**

```

2) Insert the above created file in the MHTML file

```
FILENAME MANAGEA 'YOUR.PREFIX.MALERTS.MANAGE';
```

3) After creating the HTML pages the 'YOUR.HTM.PREFIX.MALERTS.MANAGE.TXT' file will automatically be created. This contains the skeleton of all your exceptions excluding the ones defined in the AFILTERS file.

EXAMPLE OF SKELETON:

MODIFIED BY	START	END	ALERT	OBJECT	MESSAGE	COMMENT
<i>modified by</i>	<i>dd/mm/yy</i>	<i>dd/mm/yy</i>	IOSQTIM	VOLSER=DB22WK	IOSQTIME.....	

The MODIFIED BY, START, END and COMMENT columns should be customized by the user who wants to manage an exception. The modified lines have to be copied in the 'YOUR.PREFIX.MALERTS.MANAGE' file.

4) On the next run, MANAGED EXCEPTIONS which are inside the defined starting and ending dates will not be produced. They will also be excluded from the 'YOUR.HTM.PREFIX.MALERTS.MANAGE.TXT' file.

In the Windows environment you can customize the MANAGEA file provided in the \$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT folder and update the path inside the MHTML file. Also in this case, after creating the HTML pages, you have to customize the 'MALERTS.MANAGE.TXT' file inside the ZOSHTML directory to set the MODIFIED BY, START, END and COMMENT columns.



Attachment D – Statistical User Exits

ALERTS NAME	USER EXIT NAME	DESCRIPTION
STDCICAC	UESCICAC	ABNORMAL CICS APPLID TOTAL CPU TIME
STDCICAR	UESCICAR	ABNORMAL CICS APPLID ELAPSED TIME
STDCICAT	UESCICAT	ABNORMAL CICS APPLID TRANSACTIONS
STDCICTR	UESCICTR	ABNORMAL SYSTEM CICS TRANSACTIONS
STDDDFAC	UESDDFAC	ABNORMAL DB2 SUBSYS TOTAL CPU TIME
STDDDFAI	UESDDFAI	ABNORMAL DB2 SUBSYS TOTAL IIP TIME
STDDDFAR	UESDDFAR	ABNORMAL DB2 SUBSYS ELAPSED TIME
STDDDFAT	UESDDFAT	ABNORMAL DB2 SUBSYS TRANSACTIONS
STDDDFTR	UESDDFTR	ABNORMAL SYSTEM DB2 TRANSACTIONS
STDIMSAC	UESIMSAC	ABNORMAL IMS REGION TOTAL CPU TIME
STDIMSAR	UESIMSAR	ABNORMAL IMS REGION ELAPSED TIME
STDIMSAT	UESIMSAT	ABNORMAL IMS REGION TRANSACTIONS
STDIMSTR	UESIMSTR	ABNORMAL SYSTEM IMS TRANSACTIONS
STDJOBTR	UESJOBTR	ABNORMAL SYSTEM JOB EXECUTIONS
STDMQSAC	UESMQSAC	ABNORMAL MQSERIES SUBSYS TOTAL CPU TIME
STDMQSAT	UESMQSAT	ABNORMAL MQSERIES SUBSYS TRANSACTIONS
STDMQSTR	UESMQSTR	ABNORMAL SYSTEM MQSERIES TRANSACTIONS
STDSYSAP	UESSYSAP	ABNORMAL SYSTEM AAP SERVICE UNITS
STDSYSEX	UESSYSEX	ABNORMAL SYSTEM DISK EXCPS
STDSYSIP	UESSYSIP	ABNORMAL SYSTEM IIP SERVICE UNITS
STDSYSSU	UESSYSSU	ABNORMAL SYSTEM SERVICE UNITS
STDSYSTP	UESSYSTP	ABNORMAL SYSTEM TAPE EXCPS
STDTSOTR	UESTSOTR	ABNORMAL SYSTEM TSO TRANSACTIONS
STDWEBAC	UESWEBAC	ABNORMAL WEB APPLID TOTAL CPU TIME
STDWEBAR	UESWEBAR	ABNORMAL WEB APPLID ELAPSED TIME
STDWEBAT	UESWEBAT	ABNORMAL WEB APPLID TRANSACTIONS
STDWEBTR	UESWEBTR	ABNORMAL SYSTEM WEB TRANSACTIONS
STDWJCAC	UESWJCAC	ABNORMAL EJB APPLID TOTAL CPU TIME
STDWJCAR	UESWJCAR	ABNORMAL EJB APPLID ELAPSED TIME
STDWJCAT	UESWJCAT	ABNORMAL EJB APPLID TRANSACTIONS
STDWJCTR	UESWJCTR	ABNORMAL SYSTEM EJB TRANSACTIONS
STDWKLAP	UESWKLAP	ABNORMAL WORKLOAD AAP
STDWKLEX	UESWKLEX	ABNORMAL WORKLOAD DISK EXCPS
STDWKLIP	UESWKLIP	ABNORMAL WORKLOAD IIP
STDWKLSU	UESWKLSU	ABNORMAL WORKLOAD SERVICE UNIT
STDWKLTP	UESWKLTP	ABNORMAL WORKLOAD TAPE EXCPS
STDWKSAP	UESWKSAP	ABNORMAL SYSTEM WORKLOAD AAP
STDWKSEX	UESWKSEX	ABNORMAL SYSTEM WORKLOAD DISK EXCPS
STDWKSIP	UESWKSIP	ABNORMAL SYSTEM WORKLOAD IIP
STDWKSSU	UESWKSSU	ABNORMAL SYSTEM WORKLOAD SERVICE UNIT
STDWKSTP	UESWKSTP	ABNORMAL SYSTEM WORKLOAD TAPE EXCPS



Related documentation

The following manuals complement the information provided in this manual:

- *EPV zParser V11 Installation and Customization*
- *EPV for z/OS Plus V11 Database Layout*
- *EPV for z/OS V11 Release Notes*
- *EPV for z/OS V11 List of Views*
- *EPV for z/OS V11 Preparing Input for a Demo*
- *EPV for z/OS V11 Getting Started*
- *EPV V11 User Interface*
- *EPV Plus V11 Operations Guide*