



EPV for z/OS Installation and Customization



Supporting
EPV for z/OS V15

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About this manual

This manual is intended to help anyone wanting to install and customize EPV for z/OS V15.

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 (EPV) for z/OS is a product designed to provide performance analysts, capacity and systems managers with a complete vision of their company's systems and workloads.

EPV 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 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 spread sheet by a simple mouse click.

EPV is a post processor. However, by exploiting the Refresh Mode feature you have the possibility to produce report pages in near real-time. Please refer to "EPV for z/OS V15 Refresh Mode" manual for detailed explanations about setting up a complete automated environment.



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 analysed 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 user activities such as CICS transactions, DDF, IMS, MQ, WEBSHERE, TSO and batch JOBS. Starting from a Sysplex view, requests can be analysed 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 analyse 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 analyse 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 SW-Cost** reports support both the IBM WLC and TFP (Tailored Fit Pricing) policies. EPV reports the monthly values of the MSU “4 hours rolling average” peak and the total MSU used globally, by machine, capacity group and system. By following pre-defined paths, you can drill-down to the day and hour level. EPV also supports the NewApp (new application) policy providing the amount of MSU used by solution id and tenant resource group.
- **EPV for z/OS User** creates user views for specific CICS and IMS transactions, batch JOBS, address spaces, service, report classes and group of report classes, disks and storage groups based on user specifications. This makes it possible to control specific objects, compare their activity in different systems and create a trend view for each one of them.



3 Architecture

EPV is a PERL application based on three tiers:

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

EPV 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 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 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 code is stored inside the EPVZOS_VXX folder under the PRODUCTS folder. Where XX stand 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 installation you need to perform some preliminary actions and verifications.

4.1 Hardware and Software requirements

The following table summarizes EPV 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 Input records

4.2.1 SMF

The following SMF records need to be written and loaded into your detailed database:

SOURCE	RECORD TYPE	SUBTYPE	DESCRIPTION
SMF	0		IPL ¹
SMF	30	2, 3, 4, 5, 6	JOBS
SMF	42	6	DATA SET I/O STATISTICS
SMF	70		CPU
SMF	71		MEMORY
SMF	72		WORKLOAD
SMF	73		CHANNELS
SMF	74	1,2,3,4,5,7,8,9,10	DEVICE, XCF, OMVS, COUPLING FACILITY, CACHE, FICON DIRECTOR, ESS (PPRC), PCIE, SCM
SMF	75		PAGE DATASET
SMF	78	2, 3	I/O QUEUEING, VIRTUAL STORAGE
SMF	89	1	USAGE DATA
SMF	90	8, 10	SYSTEM STATUS (used for IPL data instead of SMF 0)
SMF	101		DB2
SMF	110		CICS
SMF	113		CP MEASUREMENT FACILITY
SMF	116		WEBSphere MQ
SMF	120		WEBSphere
SMF	xxx ²	10,11,13,14,20	VIRTUAL TAPE CONTROL SYSTEM
SMF	yyy ³	20,21,30,32,33	IBM VIRTUAL TAPE SERVER

Figure 2

¹ By default, SMF 90 is used to track IPLs. If you want to use SMF 0 you need to customize the URIPLS user exit.

² It is a user record provided by SUN/STORAGETEK that contains VTCS activity data. The specific SMF record number used depends on the installation.

³ It is a user record provided by IBM that contains VTS TS7700 activity data. The specific SMF record number used depends on the installation.



4.2.2 IMS

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

- IMS LOG 56 FA records;
- IMS LOG 7 and 8 records;
- IMS LOG FA records, written by the Mainview for IMS product developed by BMC Software;

EPV supports all these sources, but, if they are available, we suggest using 56 FA or FA, because they provide more accurate and complete information.⁴

The TAR variables created by SASIRUF, a program distributed by BMC Software to load IRUF files created with the IMFLEEDIT utility into SAS datasets, are supported on request.

4.2.3 DCOLLECT

EPV 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

4.2.4 VTCS

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.⁶

⁴ The IMS LOG 7 and 8 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 it's enough to gather DCOLLECT data from this system.

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



4.2.5 VTS

The JCL provided in Attachment E will produce VTS Historical Statistics. You have to run this job only if you are interested in VTS information.

As an alternative if you want to write VTS information in SMF you to perform the following steps:

- 1) Go to the IBM web site:

<http://public.dhe.ibm.com/storage/tapetool/>

- 2) Download the following files:

- `ibmcntl.xmi` Execution JCL for current tape analysis tools.
- `ibmjcl.xmi` Parameters needed for job execution, but do NOT need to be modified by the user.
- `ibmload.xmi` Load library for executable load modules.
- `ibmpat.xmi` Data pattern library only needed if you will be running the QSAMDRVR utility.
- `ibmtools.txt` The txt file includes the instructions to load the libraries (.xmi files) on z/OS.

- 3) You need to customize and run the BVIRHSTx JCL

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 has 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:

- `SYNC(SMF)`.



5 Installation

Warning: if you performed the EXPRESS customization as described in the “EPV V15 Installation and EXPRESS Customization” the EPV for z/OS product is already installed. No other action is required.

To install EPV 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 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 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/EPVROOT/USERPROFILE/\$ProfileName/COMMON/HTM⁷:

JAVA	contains JavaScript files (".JS"), style sheets (".CSS") and a configuration file (".TXT") for the user interface;
IMG	contains images used by EPV (EPV logo, Microsoft Excel icon, etc.);
UIHTML	contains HTML pages needed to EPV user interface
ZOSDOC	contains the pages of the help system;
ZOSHTML	contains all the HTML pages produced (empty at installation)
START.HTML	EPV HTML main page

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 HTM folder.

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



6 Migration

Some changes in the database structure have been implemented in EPV V15.

If you're installing EPV on Linux\Unix platform the first thing to do is to remove all the CR (Carriage Return) characters inside all the files contained in the EPV Migration tool, to do that please perform the following command from inside your MIGRATION folder:

```
find . -type f -name '*.*' -exec dos2unix '{}' \;
```

If you are using a previous version of EPV and you want to continue to use your EPV history data, please continue to read the following Chapter otherwise go to Chapter 7.

WARNING: Before proceeding with the migration we suggest to back up the EPV databases.

6.1 Preliminary settings

Before proceeding with the migration, you need also to customize the MIGRCONFIG.PL file located in the *\$EPVPATH/EPVROOT/PRODUCTS/EPVZOS_V15/MIGRATION* folder.

Open it with a text editor then set the following parameters:

- SOURCE_PROFILE, set the full path name of the EPV source profile. (eg. D:\EPVROOT_V14\USERPROFILE\EPV_V14).
- TARGET_PROFILE, set the full path name of the EPV target profile. (eg. D:\EPVROOT_V15\USERPROFILE\EPV_V15).
- CREATE_TABLE (Y/N), set to Y if you want to migrate to empty tables otherwise set to N if you want to APPEND the data to existent tables.
- CREATE_INDEX (Y/N), set to Y if you want to create indexes on the destination tables.
- USE_DUMP, set to Y when you want to migrate from a DBMS to another (eg. from MySQL to SQL Server or vice-versa). Setting this option to Y allow the MIGRATION tool to dump all the database tables on TXT files from the input DBMS and then reload them into the output DBMS. Even if the MIGRATION tool performs many controls still remains some risk related on how those DBMS manage the NULL values. For this reason, we suggest to use these settings only when you need to migrate from one DBMS to another. When you need to migrate EPV databases on the same DBMS we suggest to set USE_DUMP = N. If the database instances are on different machines, we strongly recommend to use DBMS proprietary functions to backup and restore the old databases on the new machine and then use the EPV MIGRATION tool locally with USE_DUMP = N.
- DEBUG, set the debug level.
- WORK, set the full path name of the temporary work directory.
- LOGPATH, set the full path name of the log directory.
- SQLDATAPATH, set the full path name of the MSSQL Server data folder (MSSQL Server only).
- SQLLOGPATH, set the full path name of the MSSQL Server log folder (MSSQL Server only).



- REMOTE_HOST, set to Y when the DB of the TARGET profile and the DB of the SOURCE profile are located on different server. (MSSQL Server only).

In order to choose the databases to migrate the EXECMIG.PL file has to be customized.

This file is located in the `$EPVPATH/EPVROOT/PRODUCTS/EPVZOS_V15/MIGRATION` folder and allows you to choose if migrate all or only some databases.

The databases set to 1 will be migrated, while the databases set to 0 will not.

The default behaviour is the following:

```
our %migDbs = (WORK => 0,  
              MDETA => 0,  
              MRESA => 1,  
              MWKLA => 1,  
              MTHRU => 1,  
              MWRMF => 1,  
              MSTAT => 1,  
              MTRND => 1,  
              USRZOS => 0);
```

Once completed the customization you can proceed with the migration of the databases.

6.2 Choosing your migration strategy

EPV provides a useful tool that allows you to perform the migration. The utility EPVMIGRATION.exe is located in the `$EPVPATH/EPVROOT/PRODUCTS/EPVZOS_V15/MIGRATION` folder.

Open a DOS command prompt in that directory then execute the EPVMIGRATION.exe file then choose one of the following options:



```
C:\WINDOWS\system32\cmd.exe - EPVMIGRATION.exe

D:\Lavoro\Software\Test\EPVROOT_V14\PRODUCTS\EPVZOS_V14\MIGRATION>EPVMIGRATION.exe
=====
= EPV MIGRATION TOOL =
=====

Options:
1) Standard migration
2) In-place migration
3) Exit
```

Figure 3

6.3 Standard migration

Choose the standard migration when you want to move the EPV databases in a different DB server or on the same DB server but having different database names.

WARNING: Before performing the standard migration, you need to install the EPV products (see Chapter 5) afterwards you need to create the User Profile as described in the Chapter 9.

If you have customized all the parameters in the MIGRCONFIG.PL file the migration procedure will start immediately otherwise you will need to set the missing parameters, see the example below:



```
C:\WINDOWS\system32\cmd.exe - EPVMIGRATION.exe

D:\Lavoro\Software\Test\EPVROOT_V14\PRODUCTS\EPVZOS_V14\MIGRATION>EPVMIGRATION.exe
=====
= EPV MIGRATION TOOL =
=====

Options:
 1) Standard migration
 2) In-place migration
 3) Exit
1
Check for DB source connection (localhost\ZWORK01)...done!
Check for DB target connection (localhost)...done!
Fri Dec 16 16:24:00 2016 -
Fri Dec 16 16:24:00 2016 - START EPV EPVMIGRATION FROM V13 TO V14

Are you sure you want to migrate the EPV databases from:
D:\Lavoro\Software\Test\EPVROOT_V14\USERPROFILE\V13 profile
to:
D:\Lavoro\Software\Test\EPVROOT_V14\USERPROFILE\V14 profile? (YES/NO) _
```

Figure 4

Once defined all the parameters you can confirm the input and output profile, then the EPV migration procedure can start.

At the end of the procedure you can check the EPVMIGRATION.log file located in the LOGPATH folder.

6.4 In-place migration

Choose the In-place migration when you want to upgrade the current EPV databases. This step will upgrade EPV to the higher version keeping the same database names of the previous version.

The In-place migration includes also the following tasks:

- Backup of the EPV products.
- Backup of the EPV Databases.

Once defined all the parameters in the MIGRCONFIG.PL file you can choose the option 2 then confirm the input profile.



```
C:\WINDOWS\system32\cmd.exe - EPVMIGRATION.exe

D:\Lavoro\Software\Test\EPVROOT_V14\PRODUCTS\EPVZOS_V14\MIGRATION>EPVMIGRATION.exe
=====
= EPV MIGRATION TOOL =
=====

Options:
 1) Standard migration
 2) In-place migration
 3) Exit
2
Check for DB source connection (localhost\ZWORK01)...done!
Check for DB target connection (localhost\)...done!
Fri Dec 16 16:26:48 2016 -
Fri Dec 16 16:26:48 2016 - START EPV EPVMIGRATION FROM V13 TO V14

Are you sure you want to migrate the EPV Databases from EPV V13 to EPV V14? (YES/NO)
_
```

Figure 6

Optionally you can execute the following tasks:

1. Backup the EPV products, the backup file will be created on the folder defined by the \$WORK parameter.
2. Backup the EPV databases, the backup files will be created on the folder defined by the \$WORK parameter.

Afterwards the procedure will ask to create the _OLD databases if they were not already created.



```
C:\WINDOWS\system32\cmd.exe - EPVMIGRATION.exe

Options:
1) Standard migration
2) In-place migration
3) Exit
2
Check for DB source connection (localhost\ZWORK01)...done!
Check for DB target connection (localhost)...done!
Fri Dec 16 16:26:48 2016 -
Fri Dec 16 16:26:48 2016 - START EPV EPVMIGRATION FROM V13 TO V14

Are you sure you want to migrate the EPV Databases from EPV V13 to EPV V14? (YES/NO)
y

Do you want to backup the EPV products (V13)? (YES/NO) n
Fri Dec 16 16:27:42 2016 - PLEASE ATTENTION! Backup of the EPV products not available!

Do you want to backup the current EPV Databases? (YES/NO) n
Fri Dec 16 16:27:44 2016 - PLEASE ATTENTION! Backup of EPV Databases not available!

Do you want to create the EPV Databases (_OLD)? (YES/NO)
The current DBs will be temporary moved in the _OLD DBs!
```

Figure 7

Enter YES then wait until the migration procedure ends.

At the end of the In-place migration your EPV databases will be up to date.

6.5 HTML Pages migration

Once the database migration (standard/in place) is completed in some cases you may need to bring the old HTML Pages produced with the old EPV version (V14) in the new environment (EPV V15).

In order to bring the HTML Pages from the old to the new environment please do the following:

1. Copy all the HTML daily folders you want to migrate (Example: D26MAR14) from the $\$EPVPATH(V14)/EPVROOT/USERPROFILE/\$ProfileName/COMMON/HTM/ZOSHTML$ folder to the:
 $\$EPVPATH(V15)/EPVROOT/USERPROFILE/\$ProfileName/COMMON/HTM/ZOSHTML$ folder.
2. Copy the contents of the JAVA folder from your V14 environment:
 $\$EPVPATH(V14)/EPVROOT/USERPROFILE/\$ProfileName /COMMON/HTM /JAVA$
to the V15 JAVA folder:
 $\$EPVPATH(V15)/EPVROOT/USERPROFILE/\$ProfileName /COMMON/HTM /JAVA.$



6.6 EPVCustomizationChecker

The EPVCustomizationChecker tool has to be used as the final migration step.

It allows to quickly check which customizations were done on parameters or user exits in the old profile and have therefore to be re-applied to the new profile.

In order to use the EPVCustomizationChecker please follow these steps:

1. Run the EPVCustomizationsChecker.exe program located in the *\$EPVPATH/EPVROOT/SETUP* folder;
2. Select the folder where the EPV profile you want to analyze is located (Example: C:/EPVROOT);
3. Select the current EPV Profile you want to check (Example: C:/EPVROOT_V14/USERPROFILE/*\$ProfileName*);
4. Click on a product in order to see the customizations done for that product, or click on the 'EPV COMMON' button if you are interested to see the customizations done into files common to all the EPV products (as the SETTINGS.PL file).
5. Once you have selected the product or the 'EPV COMMON' button a table with all the modified member's name and the description of the customizations done will be shown.
6. Now you are ready to do the same customizations in the members of your new profile (Example: C:/EPVROOT_V15/USERPROFILE/*\$ProfileName*).



7 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 V15 Installation and EXPRESS Customization” go to 6.4.

7.1 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.

7.2 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.

7.3 Verify the MIPS table

EPV for z/OS version 15 provides the following MIPS tables, based on IBM LSPR benchmarks.

The **MIPSARxx** tables contain the average Relative Nest Intensity (RNI) estimated GCP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPSLRxx** tables contain the low Relative Nest Intensity (RNI) estimated GCP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPSHRxx** tables contain the high Relative Nest Intensity (RNI) estimated GCP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPSPRxx** tables contain the Performance Capacity Index (PCI) estimated GCP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPIARxx** tables contain the average Relative Nest Intensity (RNI) estimated IIP MIPS ((for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).



The **MIPILRxx** tables contain the low Relative Nest Intensity (RNI) estimated IIP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPIHRxx** tables contain the high Relative Nest Intensity (RNI) estimated IIP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

The **MIPIPRxx** tables contain the Performance Capacity Index (PCI) estimated IIP MIPS (for z/OS 2.1, 2.2 and 2.3; xx should be 21, 22 or 23 in this case).

EPV uses the MIPSTAB member for GCP engine and MIPITAB for IIP engines; by default, they contain the values in the MIPSAR21 or MIPIAR21 tables. If you want to use other values, you can copy any of the above tables in MIPSTAB or in MIPITAB⁸.

Customers **CAN MODIFY** MIPSTAB or MIPITAB tables values but they **SHOULD NOT** modify the MIPSALTxx, MIPSATxx, MIPSPTxx, MIPyARxx, MIPyLRxx, MIPyHRxx and MIPyPRxx tables.

EPV uses two different automatic algorithms to set the machine capacity for each CP pool. The used algorithm depends on the value assigned to the EPVMIPS and EPVMIPI CONFIG parameters. By default the CPU capacity is taken directly from the MIPSTAB table without considering the MP effect added by specialty zIIP processors. Only when the EPVMIPS parameter is set to ENHANCED, EPV estimates the CPU capacity taking into consideration the additional MP effect due to specialty processors.

By default for the IIP processors, EPV estimates the IIP capacity taking into consideration the MP effect. Only when the EPVMIPI parameter is set to TABLE, EPV take the capacity directly from the MIPITAB table without considering the MP effect.

MIPS tables and EPV 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 and set them in the MIPSTAB and MIPITAB tables.

Two exits (UEXMIPS, UEXIMIPS) are also provided, for special needs, in the USERLIB library. They allow customers to set their trusted MIPS values for CPU and IIP pools capacity.

They should be used only in special circumstances.

Please note that, to avoid the risk of using obsolete MIPS values, the EPV process will terminate if it finds a new machine model (and IIP configuration) whose MIPS values set in the exits have not been updated.

7.4 TSO service classes

The **UWTSO.PL** file under the path:

\$EPVPATH/PRODUCTS/EPVZOS/USEREXIT contains the identification logic to automatically 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.



8 Scheduling

Scheduling the EPV 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 to run on Unix/Linux systems.

8.1 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.

8.2 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.



9 Manual Customization (optional)

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

9.1 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.

9.2 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.

9.3 MDETA customization

By default, the CICS, IMS, DDF, WEBSphere MQ and WEBSphere 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.

IMPORTANT NOTE:

All the user exit files are located in `$EPVPATH/PRODUCTS/EPVZOS_V15/USEREXIT`. Before applying a change, you have to copy the user exit you want to customize in `$EPVPATH/USERPROFILE/$Profilename/EPVZOS/USEREXIT` and then modify it.

9.4 Software configuration

The `UMWKL.C.PL` file 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.

9.5 Workload characterization

The `UMWKL.W.PL` file 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.



9.6 Top Jobs steps detail

The product allows you to analyse at step level jobs showed in top jobs throughput views.

In order to do that you need to customize the user exit sample code provided in the **UEXSTEPS.PL** file where you should put the logic to include the jobs of interest.

The settings take place during the EPV load phase; by default, this exit doesn't load any step data because the size of this data can be very large.

9.7 Top CICS and IMS transaction statistics

EPV allows you to analyse the most important statistics for each IMS and CICS transaction showed in top transaction throughput views. You could verify the behaviour of each transaction by comparing the statistics data with the last 8 days and with the last 7 weeks.

In order to do that you need to customize the user exit sample code provided in the **UEXIMSTC.PL** (for IMS transactions) and the **UEXCICTC.PL** (for CICS transactions) files where you should put the logic to include the transaction of interest.

The settings take place during the EPV HTML phase; by default, no IMS or CICS transaction are selected.

9.8 Top Datasets detail

The product allows you to analyse dataset activity on disks showed in top disks resource views

In order to do that you need to customize the user exit sample code provided in the **UEXDSET.PL** file where you should put the logic to include the disks or jobs of interest.

The settings take place during the EPV load phase; by default, this exit doesn't load any step data because the size of this data can be very large.

9.9 Detailed Monthly views

EPV may provide detailed monthly views in Resources Monthly Trends. These views show the CPU, IIP and IIP eligible consumptions by CEC, LPAR capacity group and single LPAR, in all the hours of the month.

To get the reports the **MONTHDET** parameter, provided in the CONFIG.PL file under the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZOS* folder needs to be set to the number of months to report. Allowed values are from 0 to 13. The default value is 0.

The settings take place during the EPV HTML phase.

9.10 Mobile characterization

If you are using WLM mobile workload support you don't have to perform any customization.

By default, EPV will use WLM provided measurements and produce mobile workload statistics in the Workloads and WLC visions.

Alternatively, EPV allows you to identify the mobile applications and their CPU consumptions by customizing some user exits. This functionality is provided for CICS, IMS, DDF, Websphere MQ, address spaces and service and report class. It can also be used to identify and measure "new application" to be charged using the IBM zCAP pricing option.



The user exit sample code provided in the following files can be customized to create your own aggregations:

UEXASMB.PL	mobile Address Spaces;
UEXCICMB.PL	mobile CICS transactions;
UEXDDFMB.PL	mobile DDF requests;
UEXIMSMB.PL	mobile IMS transactions;
UEXMQSMB.PL	mobile MQ requests;
UEXSRCMB.PL	mobile Service/Report class;

EPV produces mobile workload statistics (including CICS, DDF, IMS and MQ aggregations) in the WLC vision.

If you want to use this alternative method, you should set the MOBWLM parameter to NO.

9.11 Thresholds and Exceptions customization

EPV 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 *\$EPVPATH/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, you can define as many groups as you need and assign exceptions (using an ALERT code) to groups.

Customizing the **AFILTERS.PL** file, 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.



9.12 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.

9.13 Exclusion of incorrect values from statistical analysis

EPV provides user exits to exclude values caused by loops or other anomalies which could partially invalidate trend statistical analysis. The name of files including 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 and the name of each user exit with a short description.

9.14 Sysplex Performance Indexes

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

The user exit sample code provided in the **UM72GO.PL** file 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.

9.15 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 user exit sample code provided in the **UEXDISKS.PL** file.

9.16 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 user exit sample code provided in the **UEXADSP.PL** file.

9.17 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 user exit sample code provided in the following files:

UEXCICCA.PL	CICS average CPU time
UEXCICCP.PL	CICS total CPU time
UEXCICEL.PL	CICS average elapsed time



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

9.18 Identify DDF requestors

By default DDF requestors are identified by using the QLACLOCN (location name) field.

You can customize the user exit sample code provided in the **UEXDNSDB.PL** file placed under the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZOS/USEREXIT* folder to use the authorization authid (QWHCAID) or both QLACLOCN and QWHCAID. You can also assign a server name to an IP Address, from which a DDF request arrived, to make DB2 throughput views more meaningful.



9.19 Setting SHIFTS

All Trend views provide HTML tables for different shifts. The file named **SHIFT.PL** 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 summarizes the shifts when producing the HTML pages.

9.20 Publishing on the IBM HTTP Server on zSeries

To publish the EPV 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.

9.21 Application user exits

EPV 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.

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



The default value is ‘ZOTHER’ when nothing is defined. EPV produces related statistics in the Throughput, Configuration and Workload vision.

The user exit sample code provided in the following files can be customized to create your aggregations:

APPLAS.PL	Address spaces applications;
APPLCICS.PL	CICS applications;
APPLDDF.PL	DDF applications;
APPLDISK.PL	DISK applications;
APPLIMS.PL	IMS applications;
APPLJOBS.PL	JOB applications ¹⁰ ;
APPLWEBJ.PL	EJB container applications;
APPLWEBW.PL	WEB container applications.

Depending on the **GRPJBINT** parameter settings the following SMF records will be used for batch jobs:

- job end (SMF 30 subtype 5); it’s the default;
- address space interval accounting (SMF 30 subtype 2 and 3).

9.22 Report Class grouping

EPV allows you to summarize Report Class CPU consumption by using a key called RPTGROUP.

The default value is ‘ZOTHER’ when nothing is defined. EPV produces related statistics in the Workload vision.

The user exit sample code provided in the **UEXRCGRP.PL** file can be customized to create your own aggregations.

9.23 CICS and IMS transactions outlier distribution

EPV 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 percentage from normal distribution limits.

The user exit sample code provided in the following files can 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.

¹⁰The **APPLFMTS** and **UEXJOBAP** member includes sample code to make batch JOBS aggregation easier.



9.24 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 modifying the user exit sample code provided in the **UEXCRYTC.PL** file.

9.25 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 modifying the user exit sample code provided in the **UEXCRYTA.PL** file.

9.26 Initial weight to calculate minimum entitlement

EPV allows to choose which weight, between initial and current weight, has to be used in minimum entitlement group capacity calculation.

By default, initial weight is used for zEC12 and z13 machine and current weight for all the others.

You can change this behaviour by customizing the user exit sample code provided in the **UEXENTIT.PL** file.

9.27 Grouping CEC to define CMP

You can define a group of CECs in order to evaluate WLC costs based on the new Country Multiplex Pricing policy. In order to do that you need to customize the user exit sample code provided in the **UEXCMP.PL** file. By default, all the CECs are included in the CMPALL group.

9.28 Defining containers for the TFP policy

You can define a container in order to evaluate software costs based on the new Tailored Fit Pricing policy. In order to do that you need to customize the user exit sample code provided in the **UEXLPCNT.PL** file. By default, no container is defined.

9.29 Exclusion of systems to collect data at CEC level

The product allows you to exclude some systems when we need to collect CP consumptions data at CEC level.

In order to accomplish this task, you need to customize the user exit sample code provided in the **UEXPRSYS.PL** file. The settings take place during the EPV LOAD phase for data at RMF interval and during the EPV HTML phase for data at hour interval.

9.30 Excluding old machines from WLC views

You can exclude old machines from WLC views by customizing the user exit sample code provided in the **UEXWLC.PL** file.

9.31 Assign a user name to each CEC serial number

You can assign a user name to each CEC serial number by customizing the user exit sample code provided in the **UEXCEC.PL** file. The settings take place during the EPV HTML phase.



9.32 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 user exit sample code provided in the **UEXPCU.PL** file. The settings take place during the EPV HTML phase.

9.33 Assign a user name to each Storage Group

You can assign a user name to each Storage Group by customizing the user exit sample code provided in the **UEXSTGRP.PL** file. The settings take place during the EPV HTML phase.

9.34 Assign a user name to each PCIE serial number

You can assign a user name to each hardware accelerator PCIE serial number by customizing the user exit sample code provided in the **UEXZEDC.PL** file. The settings take place during the EPV HTML phase.

9.35 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 user exit sample code provided in the **UEXVSITE.PL** file.

9.36 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 user exit sample code provided in the **UEXHSITE.PL** file.

9.37 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 user exit sample code provided in the **UEXVTSME.PL** file.

9.38 Management Summary Hardware Utilization – User algorithms

The `$EPVPATH/PRODUCTS/EPVZOS_V15/USEREXIT` folder contains different algorithms which can be customized.

For each algorithm there are four sets of user exits to evaluate processors (GCP and ZIIP), memory usage, disk and tape hardware utilization. They are included in the **UEXMSCPx.PL**, **UEXMSMEx.PL**, **UEXMSDSx.PL** and **UEXMSTAx.PL** files, where x is a number from 0 to 2.

UEXMSCPx.PL 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.

UEXMSMEx.PL contains the code to choose the peak of memory usage by identifying the days of the month presenting the highest utilization values and averaging them.

UEXMSDSx.PL 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.

UEXMSTAx.PL 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 uses the **UEXMSCPU.PL**, **UEXMSMEM.PL**, **UEXMSDSK.PL** and **UEXMSTAP.PL** files; by default, they contain the code in the **UEXMSCP0**, **UEXMSME0**, **UEXMSDS0** and **UEXMSTAP0** respectively. If you want to use other algorithms you can copy any of the other user exits in the files used by EPV.

9.39 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 user exit sample code provided in the **BASECECS.PL** file contains the monthly baseline value for each analysed CEC. This is not a value that EPV can discover automatically so it needs to be customized.

9.40 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 user exit sample code provided in the **UEXMSTHR.PL** file.

9.41 Management Summary – Exceptions

The user exit sample code provided in the **UEXMSExx.PL** can be customized in order to identify anomalies in the WLC monthly peaks.

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

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

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

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

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

9.42 Cache residency time

To estimate the residency time of each cache level, the **CACHECEC** table contains all the needed information (CPs, number of caches and cache size by level) for each CEC model.

Supported CEC models are: z196, z114, zEC12, zBC12, z13, z13s, z14 and z15.

Up to z14 the hardware model provided in SMF70HWM allows to automatically match the appropriate line in the table.

In z15 the hardware model is fixed at T01 (8561 machine type) or T02 (8562 machine type) for all the feature options. Unfortunately, no information about the feature is provided in SMF so customers need to customize the **UEXHWMRMRS** file to override the hardware model and match the appropriate entry in the **CACHECEC** table:

- 8561 - T01, for the Max34 feature;
- 8561 - T02, for the Max71 feature;
- 8561 - T03, for the Max108 feature;
- 8561 - T04, for the Max145 feature;
- 8561 - T05, for the Max190 feature;
- 8562 - T01, for the Max04 feature;



- 8562 - T02, for the Max13 feature;
- 8562 - T03, for the Max21 feature;
- 8562 - T04, for the Max31 feature;
- 8562 - T05, for the Max65 feature.

The settings take place during the EPV HTML phase.

9.43 Channel description

The user exit sample code provided in the **CHANDESC.PL** file 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.

9.44 Create views in GMT time

EPV can create views in GMT time. The EPV databases will always contain all date-times 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 needs to be set in the **GMTOFF CONFIG.PL** parameter.

9.45 Customizing the recovery procedure

By default, EPV 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 activate/deactivate by modifying the CONFIG.PL parameters file.

The following parameters need to be customized:

- **\$RECOVERY** = To activate/deactivate the recovery procedure set to YES/NO (default is YES);
- **\$MINDURTM** = Minimum number of seconds needed for at least one system (default is 7200);

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.

9.46 User views

EPV allows you to create user views for specific address spaces, CICS and IMS transactions, batch jobs, disks, storage groups, service classes, report classes and report class groups.



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.

After these simple allocation steps, you need to populate the **USRADDR**, **USRCICS**, **USRIMS**, **USRJOBS**, **USRDISK**, **USRSTGR**, **USRRPTC**, **USRSRVC** and **USRRRCGR** files with your specific address spaces, CICS transactions, IMS transactions, batch jobs, disks, storage groups, service classes, report classes and report class groups respectively.

It is important you add your objects after the second row. After this customization, the daily process will produce the HTML user views.

9.47 Customizing the SORT feature

EPV allows you to sort most views inside the HTML pages; to avoid performance problems when you use this feature, EPV provides two variables inside the **EPV_CONFIG.TXT** file¹¹ located in the JAVA directory. The **SORTMIN** and **SORTMAX** variables allow sorting 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.

9.48 Customizing the “client” station

The contents of any EPV HTML page can be exported to a Microsoft Excel sheet.

In order to get full advantage of this feature you need to have the Microsoft Excel 2000 or higher version installed on your client station.

The information produced by EPV is more readable if your display resolution is set at 1024X768 with small characters.

9.49 Automatic deletion of old pages in the Windows environment

The deletion of old EPV html pages can be performed by the **RemoveOldFile.exe** program that runs in the Windows environments¹². This program must be scheduled daily on the server hosting the EPV HTML pages; it will automatically delete, in the specified path, pages older than a user defined number of days.

This program can be found on the installation CD under \TOOLS and must be customized to fit your needs.

Contact EPV Support for a full explanation of the parameters that must be modified.

9.50 HELPLINK feature

This new feature creates a list of links to the daily EPV HTML pages that can be used when you activate the EPV SEARCH function.

¹¹ For a detailed description of these sort variables, see the “EPV V11 - User Interface”.

¹² If the publication server is in z/OS or UNIX environment, the UNIX rm function should be implemented.



After the EPV HTML process, you must schedule daily the **ZHELPLNK.BAT** (in Windows) or the **ZHELPLNK.SH** in (Unix/Linux) located in the installation CD under the /TOOLS/HELPLINK/ZHELPLNK directory.

Before running the process, you have to customize the path inside the file **CONFIG.PL** located in the same directory.



10 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.

10.1 ADVANCED customization

You will get the windows in Figure 8 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 V15 Installation and EXPRESS Customization manual).

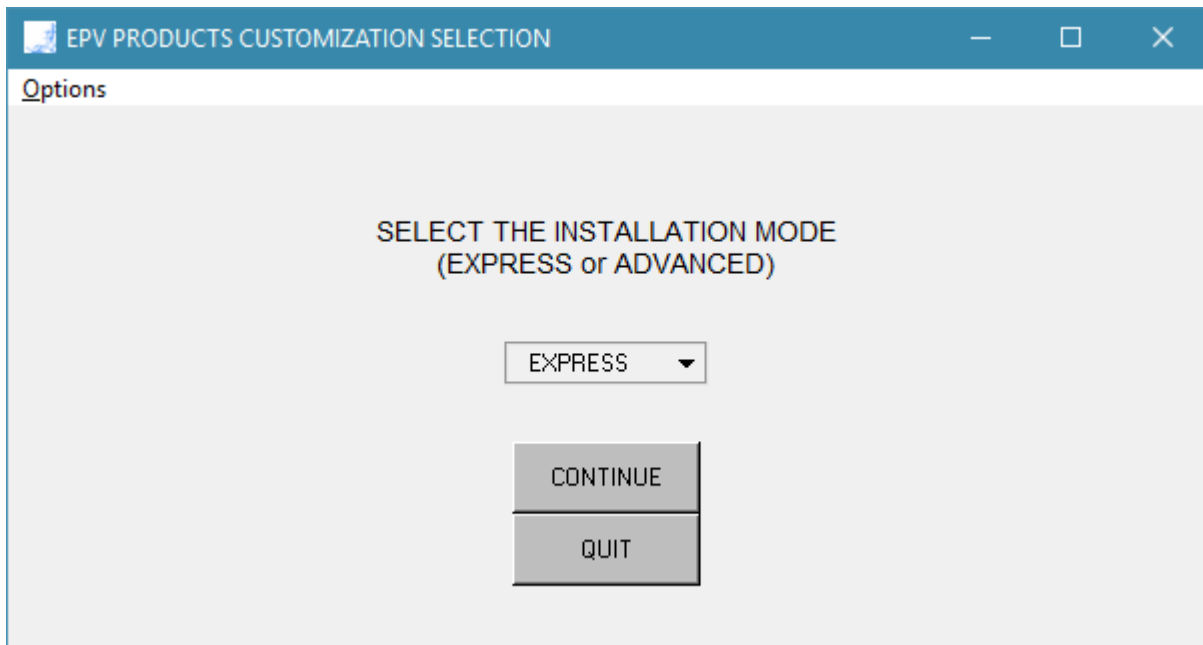


Figure 8

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

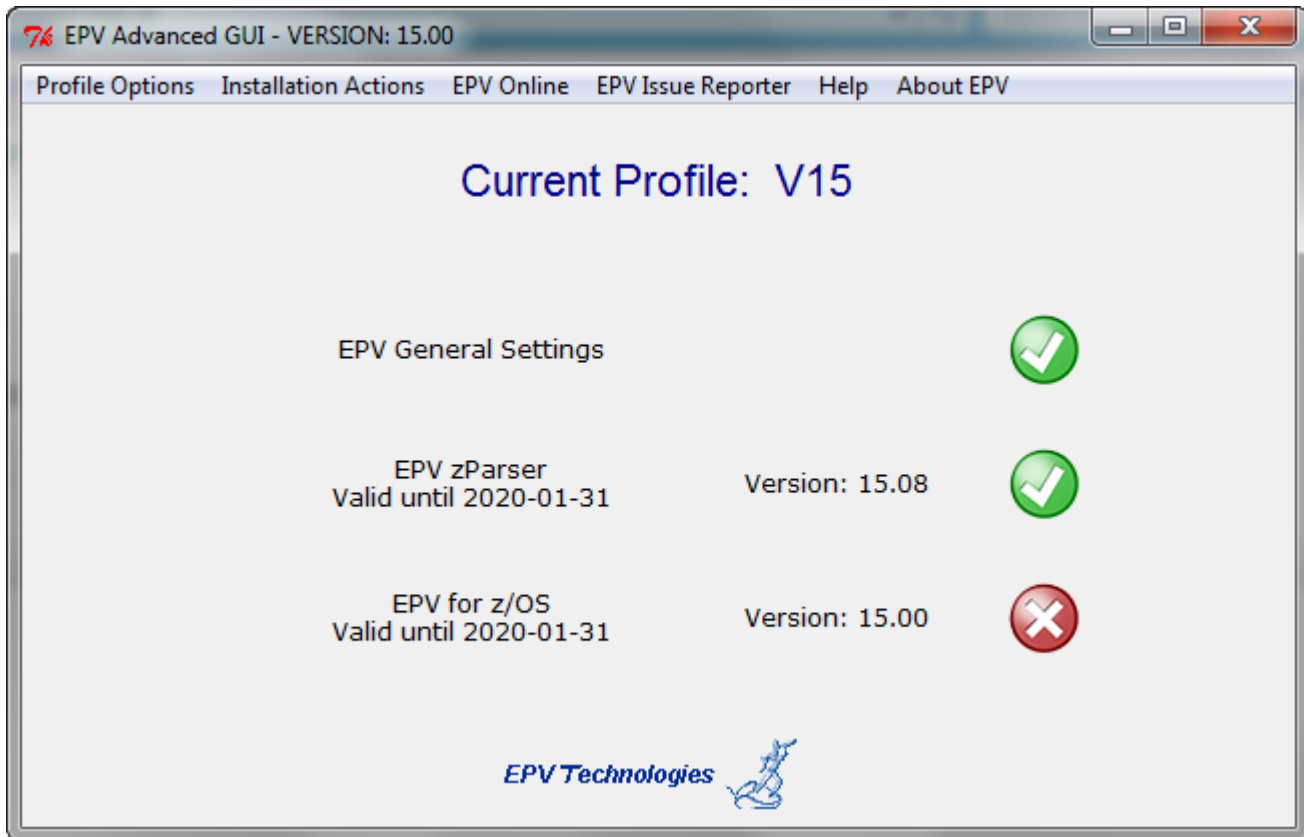


Figure 9

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



10.2 Customizing the product's parameters

If you have a valid license for the EPV for z/OS product a valid expiration date is prompted under the EPV for z/OS label and the label itself is selectable. Click on the EPV for z/OS label to enter the product customization section.

Through the panel shows in Figure 10 you can customize the name of the DBs.

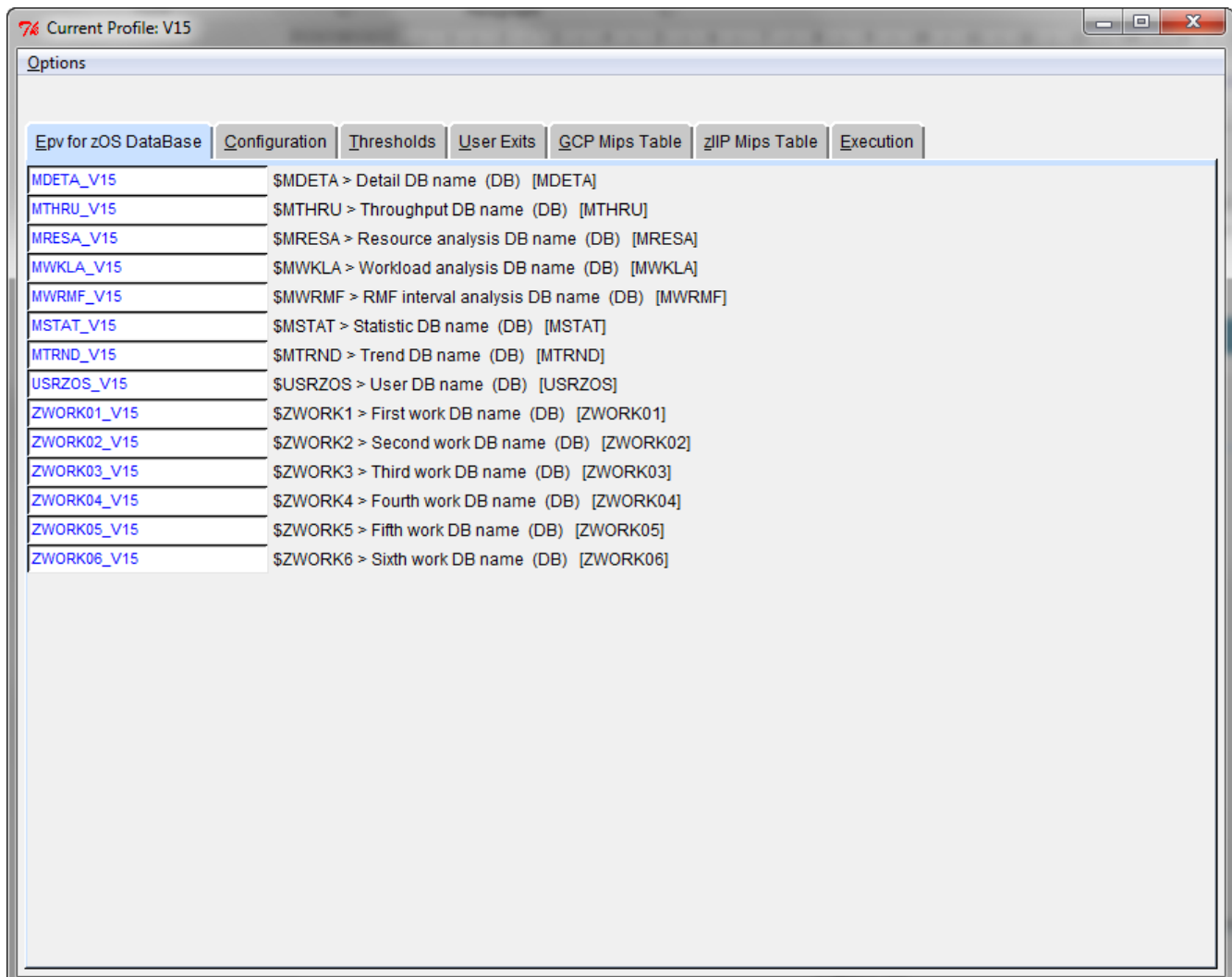


Figure 10

Now you can click on the Configuration panel, see Figure 11.

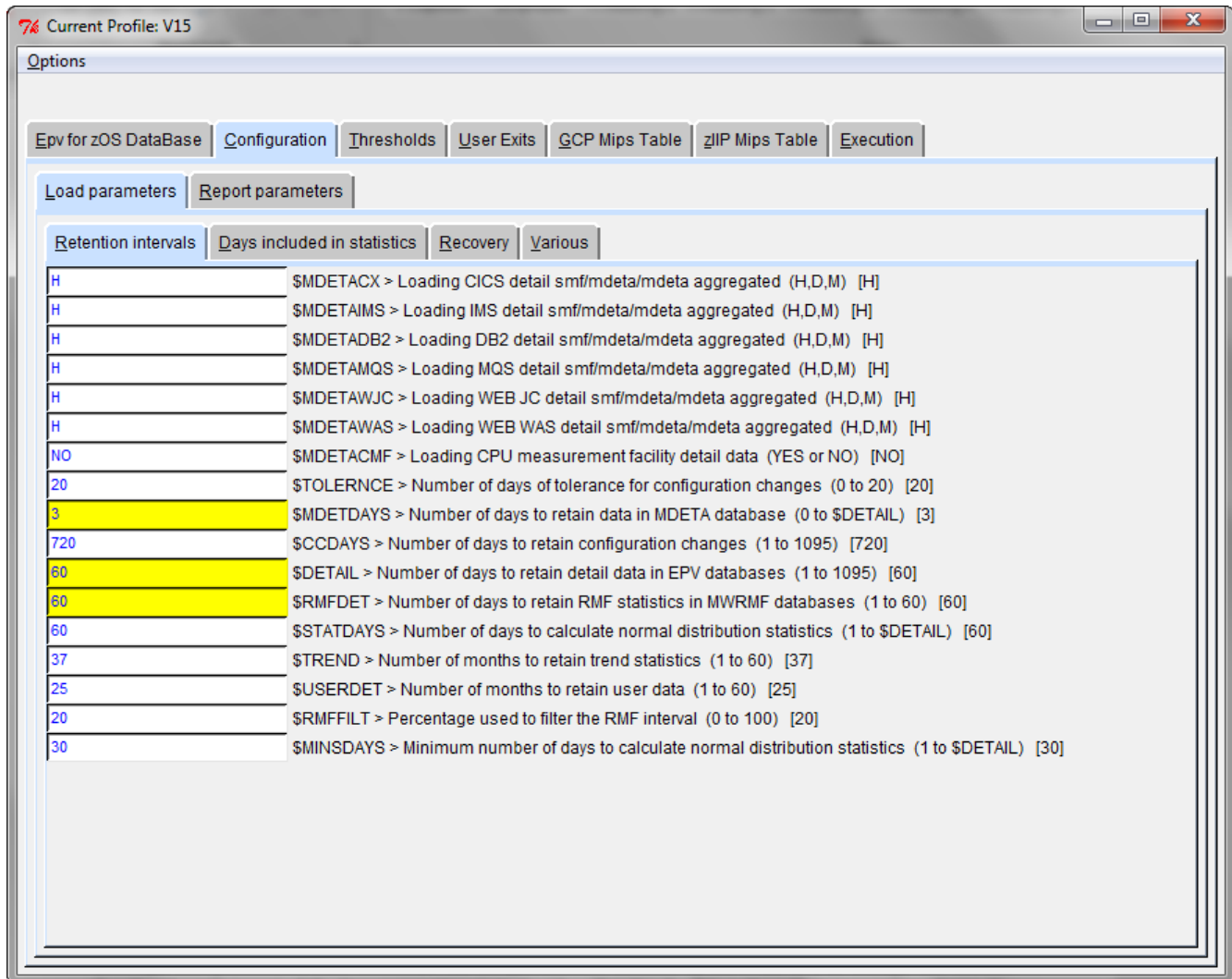


Figure 11

Through this panel, you can customize all the parameters needed by EPV for z/OS, change the default threshold settings, modify the user exits, and 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.

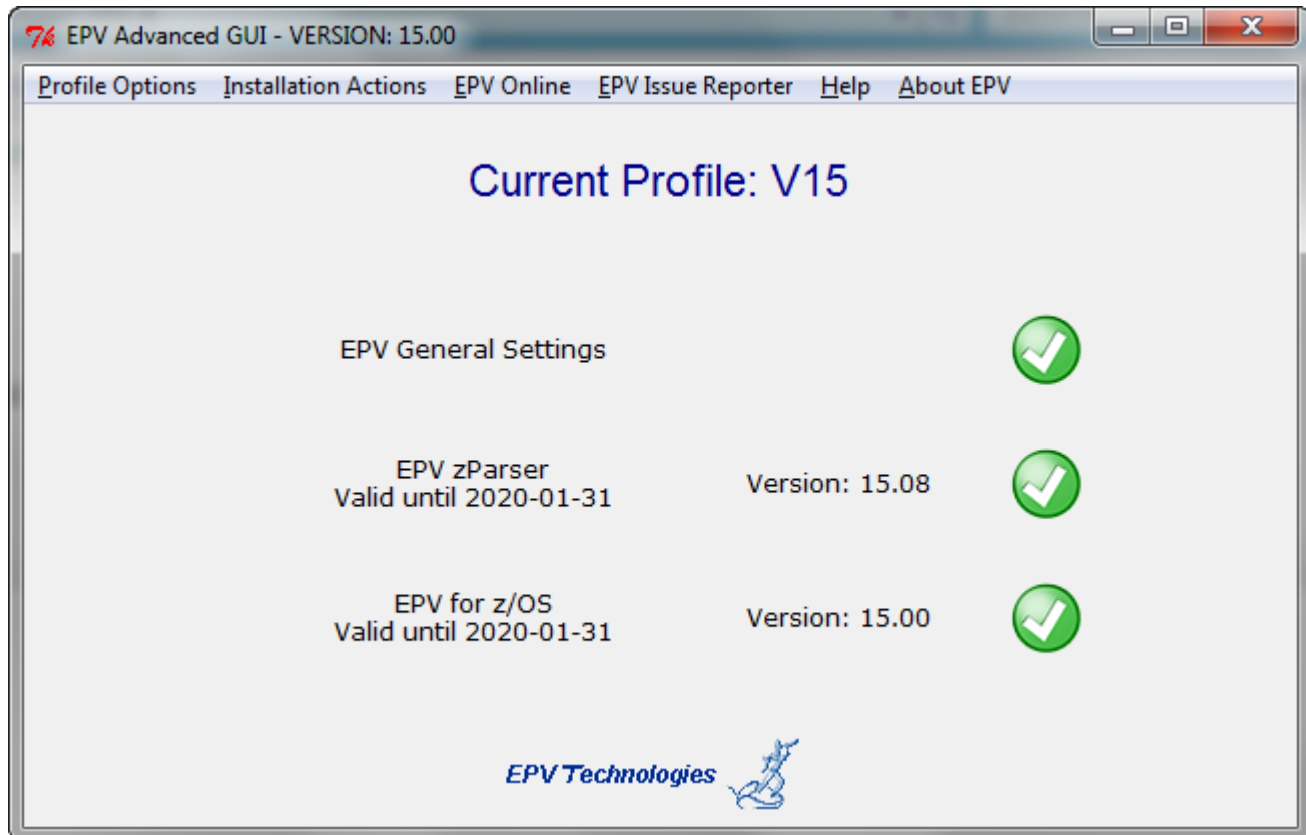


Figure 12



10.3 Customizing the DBs

After customized the EPV for z/OS product 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:

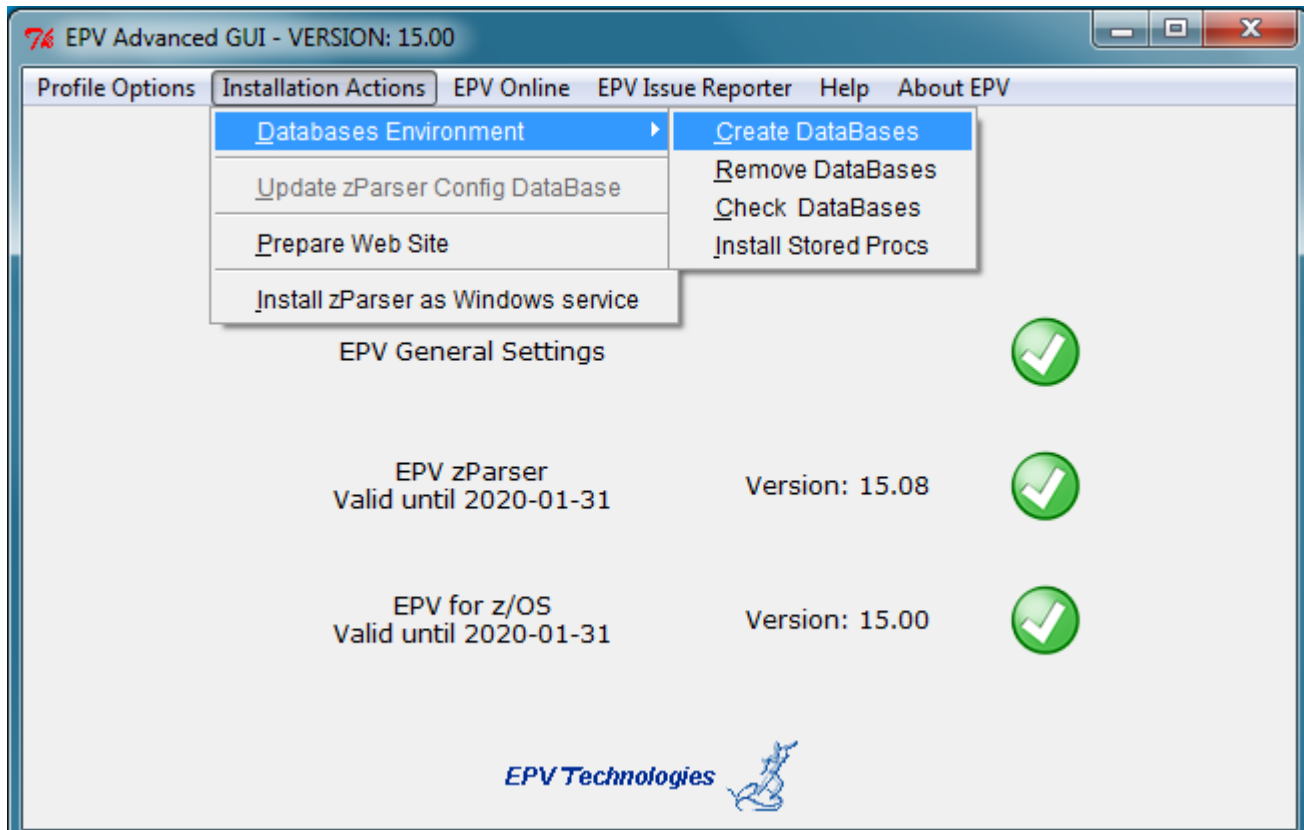


Figure 13

Warning: this window does not appear when installing EPV 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.



10.4 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`).



10.5 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 Products on a regularly basis you have to put the appropriate procedures in your daily scheduling (see Chapter 7).

Please note that, to protect data and application integrity, the Run EPV Products and the Restart EPV Procedures functions are not available when in continuous mode.

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

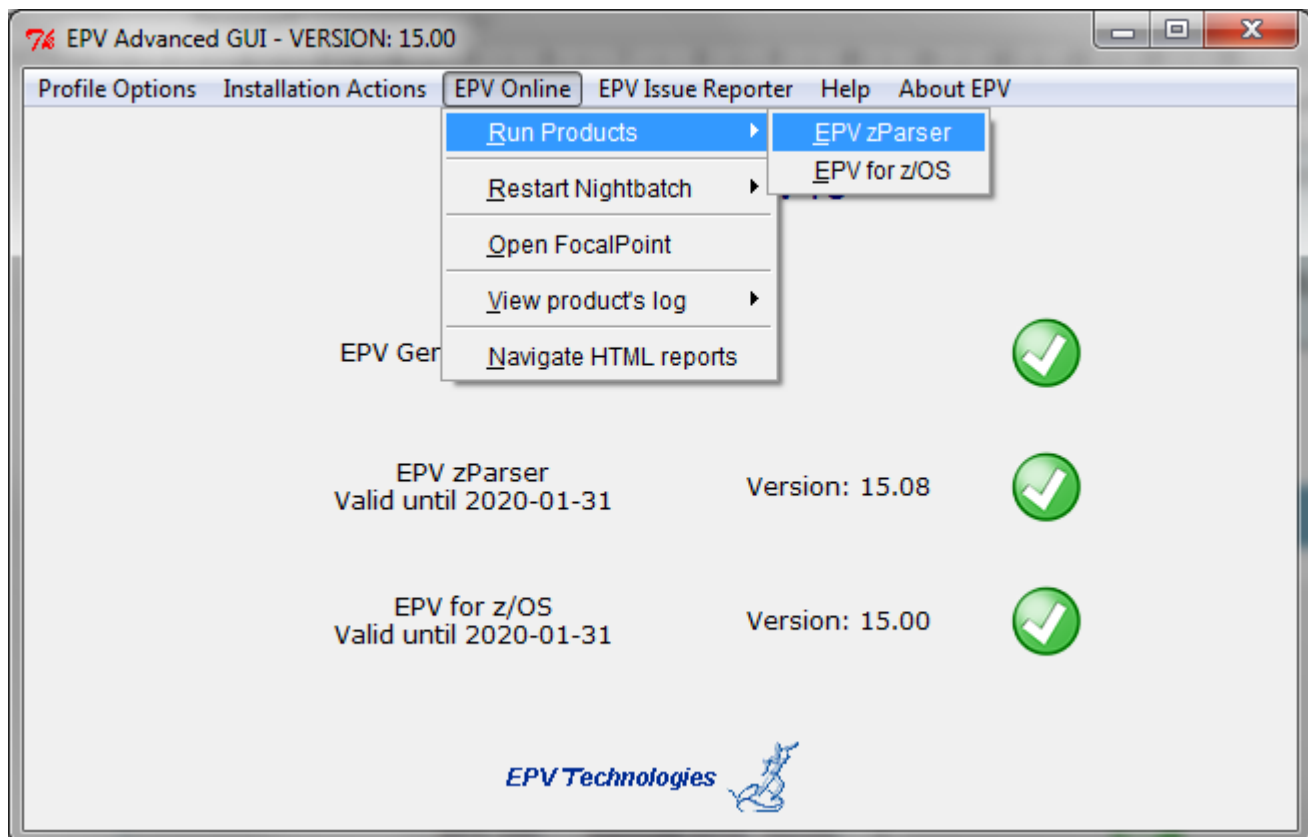


Figure 14

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 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.



11 EPV Utilities

11.1 EXCLSYS feature.

It's possible to produce multiple HTML sites filtering the information reported by SYSTEM using the UEXSYS.PL user exit. To do that please follow the steps listed below:

1. Create as many new user profile as you need using the 'Save Profile As' function of the GUI. Each user will have his html site that will be filled with the filtered information.
2. Customize the UEXSYS.PL user exit of each new user profile accordingly with your needing.
3. Make a copy of the NIGHTBATCH_ZOS_HTML.BAT procedure placed under the user profile\EPVZOS\PROCS folder, rename it as NIGHTBATCH_ZOS_EXCLSYS.BAT and edit the SEQ parameter passing the name of the Parallel sequence dedicated to the EXCLSYS feature. The customized procedure should look like:

```
NIGHTBATCH_ZOS.exe "your user profile full path" "SEQ=ParallelSequence_ZOS_EXCLSYS.pl"
```

4. Schedule each NIGHTBATCH_ZOS_EXCLSYS.BAT procedure after the ordinary NIGHTBATCH, you can add the CALL to these procedures inside the ALLPHASES:BAT procedure if you have installed EPV in "ONCE A DAY" mode or inside the POSTZPARSER.BAT procedure if you are using the "CONTINUOUS MODE".

11.2 MIPS check and MIPS update utilities

It's possible to check if the MIPS values stored in all your EPV databases are correct using the **MIPSCHK** utility.

This new feature search for strange MIPS values in your databases, using an algorithm based on historical data, and produce a log that alerts you when not congruent data are found.

In this case, you can use the **MIPSUPD** utility to update the correct MIPS values in all your EPV databases and recalculate all the measures depending on the new value set.

To run these utilities, you can use a copy of the EPV.BAT procedure placed under your user profile\EPVZOS\PROCS directory and edit the statement as highlighted below:

to run the **MIPSCHK** utility:

```
EPVLOAD.exe "path to your user profile" " MIPSCHK" "ZWORK01"  
rem EPVHTML.exe " path to your user profile " "ALL" "ZWORK01"
```

to run the **MIPSUPD** utility:

```
EPVLOAD.exe "path to your user profile" " MIPSUPD" "ZWORK01"  
rem EPVHTML.exe " path to your user profile " "ALL" "ZWORK01"
```

all the other statement contained in the procedure should remain the same.



12 Customer support

For any technical problem with or question about EPV write an email to:

epv.support@epvtech.com

For any other issue about EPV please write an email to:

epv.info@epvtech.com



Attachment A – Config parameters

Default values are included in square brackets.

PARAMETER	DESCRIPTION	DEFAULT VALUE
DATABASES		
MDETA	DETAIL DB NAME	
MTHRU	THROUGHPUT DB NAME	
MRESA	RESOURCE ANALYSIS DB NAME	
MWKLA	WORKLOAD ANALYSIS DB NAME	
MWRMF	RMF INTERVAL ANALYSIS DB NAME	
MSTAT	STATISTIC DB NAME	
MTRND	TREND DB NAME	
USRZOS	USER DB NAME	
ZWORK1	FIRST WORK DB NAME	
ZWORK2	SECOND WORK DB NAME	
ZWORK3	THIRD WORK DB NAME	
ZWORK4	FOURTH WORK DB NAME	
ZWORK5	FIFTH WORK DB NAME	
ZWORK6	SIXTH WORK DB NAME	
RETENTION INTERVALS		
MDETACX	LOAD CICS DETAIL DATA: D = DETAIL CICS DATA IN MDETA DB M = SUMMARIZED CICS DATA IN MDETA DB H = CICS DATA WITHOUT MDETA DB	H
MDETAIMS	LOAD IMS DETAIL DATA: D = DETAIL IMS DATA IN MDETA DB M = SUMMARIZED IMS DATA IN MDETA DB H = IMS DATA WITHOUT MDETA DB	H
MDETADB2	LOAD DDF DETAIL DATA: D = DETAIL DDF DATA IN MDETA DB M = SUMMARIZED DDF DATA IN MDETA DB H = DDF DATA WITHOUT MDETA DB	H
MDETAMQS	LOAD MQS DETAIL DATA: D = DETAIL MQS DATA IN MDETA DB M = SUMMARIZED MQS DATA IN MDETA DB H = MQS DATA WITHOUT MDETA DB	H
MDETAWJC	LOAD WEB JC DETAIL DATA: D = DETAIL WEB DATA IN MDETA DB M = SUMMARIZED WEB DATA IN MDETA DB H = WEB DATA WITHOUT MDETA DB	H
MDETAWAS	LOAD WEB WAS DETAIL DATA:	H



	D = DETAIL WEB DATA IN MDETA DB M = SUMMARIZED WEB DATA IN MDETA DB H = WEB DATA WITHOUT MDETA DB	
MDETACMF	LOAD CPU MEASUREMENT FACILITY DATA: N = NO MF DATA Y = LOAD MF DATA	H
TOLERNCE	NUMBER OF DAYS OF TOLERANCE FOR CONFIGURATION CHANGES	20
MDETDAYS	NUMBER OF DAYS TO RETAIN DATA IN MDETA DATABASE	3
CCDAYS	NUMBER OF DAYS TO RETAIN CONFIGURATION CHANGES	720
DETAIL	NUMBER OF DAYS TO RETAIN DETAIL DATA IN EPV DATABASES	60
RMFDET	NUMBER OF DAYS TO RETAIN RMF STATISTICS IN MWRMF DETAIL DATABASE	60
STATDAYS	NUMBER OF DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS	60
TREND	NUMBER OF MONTHS TO RETAIN TREND DATABASE	25
USERDET	NUMBER OF MONTHS TO RETAIN USER DATABASE	25
USERTRD	NUMBER OF DAYS TO SHOW IN USER TREND PAGES	200
RMFFILT	PERCENTAGE USED TO FILTER THE RMF INTERVAL	20
MINSDAYS	MINIMUM NUMBER OF DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS	30
DAYS INCLUDED IN STATISTICS		
MONDAY	INCLUDE MONDAY IN STATISTICAL ANALYSIS	YES
TUESDAY	INCLUDE TUESDAY IN STATISTICAL ANALYSIS	YES
WEDDAY	INCLUDE WEDNESDAY IN STATISTICAL ANALYSIS	YES
THUDAY	INCLUDE THURSDAY IN STATISTICAL ANALYSIS	YES
FRIDAY	INCLUDE FRIDAY IN STATISTICAL ANALYSIS	YES
SATDAY	INCLUDE SATURDAY IN STATISTICAL ANALYSIS	NO
SUNDAY	INCLUDE SUNDAY IN STATISTICAL ANALYSIS	NO
HOLIDAY	INCLUDE HOLIDAY IN STATISTICAL ANALYSIS	NO
RECOVERY		
RECOVERY	ENABLE/DISABLE THE RECOVERY MODE	YES
MINDURTM	MINIMUM NUMBER OF SECONDS NEEDED FOR AT LEAST ONE SYSTEM	7200
MAXRPTDAYS	MAXIMUM NUMBER OF REPORTING DAYS. RANGE - (REPORTING ENDING DATE - MAXRPTDAYS)	2
VARIOUS		
EPVMIPS	ESTIMATE THE MP EFFECT WHEN CALCULATE THE MIPS VALUES FOR GCP.	DEFAULT
EPVMIPI	ESTIMATE THE MP EFFECT WHEN CALCULATE THE MIPS VALUES FOR zIIP	ENHANCED
CHECKMIP	CONTROL MIPS VALUES WHEN CEC IS UPDATED	YES



LOADSMF	FORCE OLD DATA IN EPV	DEFAULT
R120INT	READ SMF 120 RECORD INTERVAL	YES
R113SUB	READ SMF 113 SUBTYPE RECORD	2
IMSLOGTYPE	LOGIMS TYPE TO USE (LOGIMSFA,LOGIMS56FA,LOGIMS78)	LOGIMS5 6FA
USRINT	SKIP RECORD WHEN INTERVAL IS LESS THEN	110
STAT	ACTIVATE NORMAL DISTRIBUTION	YES
DELTA42	NUMBER OF SECONDS BETWEEN RECORD 42 STARTTIME AND RECORD 30 STARTTIME VALUES	0
STD	NUMBER OF STD TO TEST FOR NORMAL DISTRIBUTION(ONLY WHEN STAT IS Y)	3
EVENTLOG	WRITE LOG MESSAGES TO THE EVENT LOG (0:DISABLE - 1:LOAD ONLY - 2:LOAD & HTML)	1
VSMACSC	PATH OF THE VSMACSC LOGS DIRECTORY	
DSLOAD	LOAD DS ACTIVITY DATA IN MDETA, SMF RECORD TYPE 42 SUBTYPE 6	NO
STEPLOAD	LOAD JOB STEPS DATA IN MDETA, SMF RECORD TYPE 30 SUBTYPE 4	NO
S304PART	SET TO YES TO DEFINE THE MWKLA.STEPS TABLE AS PARTITIONED.	NO
S426PART	SET TO YES TO DEFINE THE MRESA.DISKPERF TABLE AS PARTITIONED.	NO
REPORT PARAMETERS		
RPTEPVS	START REPORTING DATE (DEFAULT OR YYYY-MM-DD)	DEFAULT
RPTEPVE	END REPORTING DATE (DEFAULT OR YYYY-MM-DD)	DEFAULT
RPTDATES	RANGE OF REPORTING DATES SEPARATED BY COMMA	
CONFHS	START HOUR FOR CONFIGURATION DATABASE	8
CONFHE	END HOUR FOR CONFIGURATION DATABASE	17
RMFHS	START INTERVAL RMF RESOURCE REPORTING DATE	8
RMFHE	END INTERVAL RMF RESOURCE REPORTING DATE	17
CCHTM	NUMBER OF DAYS TO REPORT CONFIGURATION CHANGES	360
CCRPT	DEFAULT TO REPORT THE CONFIGURATION CHANGES OF LAST CCHTM DAYS OR DATE TO START FROM SPECIFIC DATE	DEFAULT
NAVIGATE	NUMBER OF DAYS TO NAVIGATE IN MAIN HTML PAGE	10
PCTSTAT	NUMBER OF DAYS TO PERFORM PERCENTILE STATISTICS	60
TRENDDAY	NUMBER OF DAYS IN DAY TREND VISION	60
TRENDMON	NUMBER OF MONTHS IN MONTH TREND VISION	25
WLCBALMM	INITIAL MONTH FOR WLC YEARLY BALANCE	1
WLMUNK	THRESHOLD FOR WLM UNKNOWN DELAY PERCENT TO AVOID PERFORMACE INDEX ALERT	90
WLCMONTH	CREATE ONLY CURRENT AND PREVIOUS MONTHLY WLC PAGES. YES, TO RECREATE ALL WLC MONTHLY PAGES	NO



MOBWLM	LOAD MOBILE DATA FROM WLM INSTEAD FROM CICS, IMS, DDF AND MQS ACCOUNTING DATA	YES
MOBPCT	DISCOUNT PERCENTAGE OF MOBILE WORKLOAD	60
MONTHDET	CREATE MONTHLY DETAIL TREND RESOURCE PAGES	0
GRPJBINT	LOAD GROUP JOB DATA: NO = FROM SMF 30 SUBTYPE 5 END JOBS YES = FROM SMF 30 SUBTYPE 2 AND 3 INTERVAL	NO
GRPTREND	ENABLE/DISABLE STATISTICAL CONTROL IN GROUP CONSUMPTION DAILY TREND	NO
TOP STATISTICS		
TOPJOBS	NUMBER OF TOP ADDRESS SPACES EACH HOUR IN WORKLOAD VISION	10
TOPPAG	NUMBER OF TOP PAGING ADDRESS SPACES EACH HOUR IN RESOURCE VISION	10
TOPSTORG	NUMBER OF TOP STORAGE GROUPS EACH MONTH IN RESOURCE TREND MONTH VISION	10
TJOBS	NUMBER OF TOP JOBS IN WORKLOAD VISION	50
JOBCPU	SELECT JOBS IN TOP JOBS CPU VIEWS T = TOTAL CPU TIME INCLUDED ZIIP C = ONLY CPU TIME FOR GCP POOL	T
TCICS	NUMBER OF TOP CICS TRANSACTION IN WORKLOAD VISION	50
TIMS	NUMBER OF TOP IMS TRANSACTION IN WORKLOAD VISION	50
TDDF	NUMBER OF TOP DDF DB2 TRANSACTION IN WORKLOAD VISION	50
TMQS	NUMBER OF TOP DDF MQS TRANSACTION IN WORKLOAD VISION	50
TWEB	NUMBER OF TOP WEB TRANSACTION IN WORKLOAD VISION	50
TTSO	NUMBER OF TOP TSO TRANSACTION IN THROUGHPUT VISION	50
TOPDISK	NUMBER OF TOP DISKS FOR EACH PCUID IN RESOURCE VISION	20
TOPPCT	PERCENTILE VALUE OF TOP CICS AND IMS STATISTICS IN THROUGHPUT VISION	95
TOPOBJ	Percentile value of top CICS and IMS statistics in throughput NUMBER OF TOP OBJECTS IN WORKLOAD VISION	95 50
TOPASWLC	NUMBER OF TOP ADDRESS SPACES TO SHOW IN THE WLC VISION DAILY VIEW	50
TOPDSET	NUMBER OF TOP DATASET TO SHOW FOR EACH DISK IN THE I/O RESOURCE VISION	10
TOPHWMGS	NUMBER MONTHS TO PRESENT IN HARDWARE UTILIZATION MANAGEMENT SUMMARY VIEWS	3
TOPSWMGS	NUMBER OF MONTHS TO PRESENT IN SOFTWARE UTILIZATION MANAGEMENT SUMMARY VIEWS	13
TREND DAY VIEW FILTERS		
RDAYMON	INCLUDE MONDAY IN TREND DAY REPORTS	YES



RDAYTUE	INCLUDE TUESDAY IN TREND DAY REPORTS	YES
RDAYWED	INCLUDE WEDNESDAY IN TREND DAY REPORTS	YES
RDAYTHU	INCLUDE THURSDAY IN TREND DAY REPORTS	YES
RDAYFRI	INCLUDE FRIDAY IN TREND DAY REPORTS	YES
RDAYSAT	INCLUDE SATURDAY IN TREND DAY REPORTS	NO
RDAYSun	INCLUDE SUNDAY IN TREND DAY REPORTS	NO
RDAYHOL	INCLUDE HOLIDAY IN TREND DAY REPORTS	NO
TREND WEEK AND MONTH VIEW FILTERS		
RMONMON	INCLUDE MONDAY IN TREND MONTH REPORTS	YES
RMONTUE	INCLUDE TUESDAY IN TREND MONTH REPORTS	YES
RMONWED	INCLUDE WEDNESDAY IN TREND MONTH REPORTS	YES
RMONTHU	INCLUDE THURSDAY IN TREND MONTH REPORTS	YES
RMONFRI	INCLUDE FRIDAY IN TREND MONTH REPORTS	YES
RMONSAT	INCLUDE SATURDAY IN TREND MONTH REPORTS	YES
RMONSUN	INCLUDE SUNDAY IN TREND MONTH REPORTS	YES
RMONHOL	INCLUDE HOLIDAY IN TREND MONTH REPORTS	YES
TREND INDEX WEEK AND MONTH VIEW FILTERS		
RINDMON	INCLUDE MONDAY IN TREND RESOURCE MONTH INDEX REPORTS	YES
RINDTUE	INCLUDE TUESDAY IN TREND RESOURCE MONTH INDEX REPORTS	YES
RINDWED	INCLUDE WEDNESDAY IN TREND RESOURCE MONTH INDEX REPORTS	YES
RINDTHU	INCLUDE THURSDAY IN TREND RESOURCE MONTH INDEX REPORTS	YES
RINDFRI	INCLUDE FRIDAY IN TREND RESOURCE MONTH INDEX REPORTS	YES
RINDSAT	INCLUDE SATURDAY IN TREND RESOURCE MONTH INDEX REPORTS	NO
RINDSUN	INCLUDE SUNDAY IN TREND RESOURCE MONTH INDEX REPORTS	NO
RINDHOL	INCLUDE HOLIDAY IN TREND RESOURCE MONTH INDEX REPORTS	NO
VARIOUS		
DBDEC	DECIMAL POINT TO STORE IN EPV DATABASES	3
DEBUG	DEBUG DETAIL LEVEL	2
FMT	NUMBER FORMAT (E/S/U) EUROPE/SWITZERLAND/USA	E
ASMIPS	MINIMUM AMOUNT OF MIPS FOR ADDRESS SPACE TO INCLUDE IN WORKLOAD ADDRESS SPACE DETAIL VIEW	1
ASIORATE	MINIMUM AMOUNT OF IORATE FOR ADDRESS SPACE TO INCLUDE IN WORKLOAD I/O ADDRESS SPACE DETAIL VIEW	1
ASMIPS	MINIMUM AMOUNT OF MIPS FOR ADDRESS SPACE TO	1



	INCLUDE IN WORKLOAD ADDRESS SPACE DETAIL VIEW	
VTSLOCAL	GMT OFFSET TO NORMALIZE VTS DATA TO LOCAL	0
MGSHOURS	RANGE OF HOURS TO INCLUDE IN EPV HARDWARE UTILIZATION, MANAGEMENT SUMMARY REPORTS	9,10,11,12, 15,16
MGSUSER	ITEM NAME TO SHOW IN COMBO BOX TO SELECT USER REPORTS, MANAGEMENT SUMMARY REPORTS	USER
DBCHECK	CREATE HTML PAGES SHOWING EPV DATABASES STATISTICS	NO



Attachment B – Base and EXCEPTIONS thresholds

BASE THRESHOLD	ADVANCED THRESHOLD USER EXIT	DESCRIPTION	DEFAULT VALUE
ABTRCIC	TABTRCIC	MAXIMUM NUMBER OF CPU SECONDS FOR CICS TRANSACTION IN ABEND	600
ABTRIMS	TABTRIMS	MAXIMUM NUMBER OF CPU SECONDS FOR IMS TRANSACTION IN ABEND	600
CECAVA	TCECAVA	PERCENT OF CEC AVAILABLE	5
CECELIP	TCECELIP	CPU TIME IN SECONDS USED BY IIP ELIGIBLE WORKLOAD	1800
CFASYTM	TCFASYTM	COUPLING FACILITY ASYNCHRONOUS TIME IN MICROSECONDS	500
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
CFPABSY	TCFPABSY	COUPLING FACILITY PERCENT PATH BUSY	10
CFSTATM	TCFSTATM	COUPLING FACILITY STRUCTURE ASYNCHRONOUS TIME IN MICROSECONDS	500
CFSTSTM	TCFSTSTM	COUPLING FACILITY STRUCTURE SYNCHRONOUS TIME IN MICROSECONDS	30
CFSYNTM	TCFSYNTM	COUPLING FACILITY SYNCHRONOUS TIME IN MICROSECONDS	30
CFXDIRR	TCFXDIRR	COUPLING FACILITY STRUCTURE PERCENT OF DIRECTORY ENTRIES	1



		RECLAIMS USED	
CHANUSE	TCHANUSE	PERCENT OF CHANNEL PROCESSOR UTILIZATION	50
CHPEXC	TCHPEXC	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 RECORD	70
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	TCPUBUSY	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
CPUWKU	TCPUWKU	CPU WORK OF UNITS	2
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
IIPWKSU	TIIPWKSU	IIP WORK OF UNITS	2
INRDY	TINRDY	LIMIT FOR NUMBER OF INREADY	999



		TASKS. THE LIMIT IS CALCULATED BY MULTIPLYING THE NUMBER OF LOGICAL CPUS BY THE DEFAULT INRDY VALUE	
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
IPTRCIC	TIPTRCIC	MAXIMUM NUMBER OF IIP CPU SECONDS FOR CICS TRANSACTION	900
IPTRDDF	TIPTRDDF	MAXIMUM NUMBER OF IIP CPU SECONDS FOR DDF TRANSACTION	900
IPTRIMS	TIPTRIMS	MAXIMUM NUMBER OF IIP CPU SECONDS FOR IMS TRANSACTION	900
JOBABND	TJOBABND	GCP+ZIIP CPU TIME IN SECONDS FOR JOBS IN ABEND	600
MINSDAYS		MINIMUM NUMBER OF DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS FOR TREND DAY ANALYSIS	30
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



PLXPIHI	TPLXPIHI	SYSPLEX PERFORMANCE INDEX VALUE	1.2
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
SOFTCAP	TSOFTCAP	PERCENT OF ACTUAL SOFTWARE CAPPING	101
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	TUICTHR	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
STDCICAA	UESCICAA	ABNORMAL CICS APPLID AVG CPU TIME
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
STDGP1AC	UESGP1AC	ABNORMAL GROUP1 TOTAL CPU TIME
STDGP2AC	UESGP2AC	ABNORMAL GROUP2 TOTAL CPU TIME
STDIMSAA	UESIMSAA	ABNORMAL IMS REGION AVG CPU TIME
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
STDSYSDI	UESSYSDI	ABNORMAL SYSTEM DISK I/O
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



STDWKLDI	UESWKLDI	ABNORMAL WORKLOAD DISK I/O
STDWKLEX	UESWKLEX	ABNORMAL WORKLOAD DISK EXCPS
STDWKLIP	UESWKLIP	ABNORMAL WORKLOAD IIP
STDWKLSU	UESWKLSU	ABNORMAL WORKLOAD SERVICE UNIT
STDWKLTP	UESWKLTP	ABNORMAL WORKLOAD TAPE EXCPS
STDWKSDI	UESWKSDI	ABNORMAL SYSTEM WORKLOAD DISK I/O
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



Attachment E – VTS JCL

Cut and paste this JCL in your library, and do the following customizations:

- CHANGE *vtunit* to the esoteric name corresponding to the VTS
- CHANGE *vtspref* to INPUT and OUTPUT file prefix
- CHANGE *vtssid* to a meaningful VTS id
- SET S and E variable in the REXX exec; by default yesterday data will be collected

```
//STEPDEL EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE 'vtspref.VTSCOMM'
DELETE 'vtspref.vtssid.BVIRU'
/*
//STEP01 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT1 DD DATA,DLM=EE
/* REXX */
TRACE 'O'
/** USER PARAMETERS *****/
/** S = SUBTRACT FROM TODAY TO GET REPORT START DATE */
/** E = SUBTRACT FROM TODAY TO GET REPORT END DATE */
/** *****/
S=1
E=1
/** *****/
/** LEAP YEAR CHECK */
/** *****/
YYGG=365
LEAPYEAR = 0
YYCK = DATE()
YEAR = SUBSTR(YYCK,8,4)-1
IF YEAR // 4 = 0 THEN LEAPYEAR = 1
IF YEAR // 100 = 0 THEN LEAPYEAR = 0
IF YEAR // 400 = 0 THEN LEAPYEAR = 1
IF LEAPYEAR = 1 THEN YYGG=366
/** *****/
DS = DATE('J')-S
DSCK = SUBSTR(DS,3,3)
IF DSCK > YYGG ! DSCK = 0 THEN DD1=YYGG+1-S
ELSE DD1=SUBSTR(DS,3,3)
DE = DATE('J')-E
DECK = SUBSTR(DE,3,3)
IF DECK > YYGG ! DECK = 0 THEN DD2=YYGG+1-S
ELSE DD2=SUBSTR(DE,3,3)
R.1='VTS BULK VOLUME DATA REQUEST'
R.2='HISTORICAL STATISTICS FOR' DD1-'DD2
"EXECIO * DISKW OUTCMD (STEM R. FINIS"
IF RC <> 0 THEN EXIT 8
```




```
EXIT 0
EE
//*
//SYSUT2 DD DSN=&&PDS(BVIR),UNIT=SYSDA,
// DISP=(NEW,PASS,DELETE),
// SPACE=(TRK,(1,1,1)),
// DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB,DSORG=PO)
//*
//STEP02 EXEC PGM=IRXJCL,PARM='BVIR'
//SYSEXEC DD DSN=&&PDS,DISP=(OLD,DELETE,DELETE)
//SYSTSPRT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//OUTCMD DD DISP=(,PASS),DSN=vtspref.OUTCMD,
// SPACE=(TRK,(1,1)),
// DCB=(LRECL=80,BLKSIZE=3120,RECFM=FB)
//SYSTSIN DD DUMMY
/*
//VTSCOMM EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//SYSUT2 DD DSN=vtspref.VTSCOMM,
// LABEL=(1,SL),DISP=(,CATLG),
// UNIT=vtsunit,DCB=(RECFM=F,BLKSIZE=80,LRECL=80,TRTCH=NOCOMP)
//SYSUT1 DD DISP=(OLD,PASS),DSN=vtspref.OUTCMD
/*
//SELVTS EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=vtspref.VTSCOMM,DISP=SHR,
// DCB=(RECFM=U,BLKSIZE=24000)
//SYSUT2 DD DSN=vtspref.DATA,
// SPACE=(CYL,(10,5)),DISP=(,PASS),
// UNIT=SYSDA,DCB=(RECFM=U,BLKSIZE=24000)
//SYSIN DD DUMMY
/*
//FROMU2VB EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=vtspref.DATA,DISP=(OLD,PASS)
//SYSUT2 DD DSN=vtspref.BVIR,DISP=(,PASS),
// DCB=(RECFM=VB,LRECL=32756,BLKSIZE=32760),
// UNIT=SYSDA,SPACE=(CYL,(10,5))
//SYSIN DD DUMMY
/*
//FINAL EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=vtspref.BVIR,DISP=(OLD,PASS),
// DCB=(RECFM=U,BLKSIZE=32760)
//SYSUT2 DD DSN=vtspref.vtsid.BVIRU,DISP=(,CATLG),
// DCB=(RECFM=U,BLKSIZE=32760),
// UNIT=SYSDA,SPACE=(CYL,(10,5))
//SYSIN DD DUMMY
```



Related documentation

The following manuals complement the information provided in this manual:

- *EPV zParser V15 Installation and Customization*
- *EPV for z/OS V15 Database Layout*
- *EPV for z/OS V15 Release Notes*
- *EPV for z/OS V15 List of Views*
- *EPV for z/OS V15 Preparing Input for a Demo*
- *EPV for z/OS V15 Refresh Mode*
- *EPV for z/OS V15 Getting Started*
- *EPV V15 User Interface*
- *EPV V15 Operations Guide*
- *EPV V15 Messages and Codes*