



EPV Graph for z/OS Installation and Customization



Supporting
EPV Graph for z/OS V15

October 2020



All the mentioned trademarks belong to their respective companies.

EPV Technologies contact details:

EPV Technologies
Viale Angelico, 54
00195 Roma
Tel. 06 86210880
Fax. 06 86387461
E-mail: epvtech@epvtech.com
WEB: <http://www.epvtech.com>



Contents

- 1 Overview - 6 -
- 2 Architecture..... - 8 -
- 3 Installation..... - 9 -
 - 3.1 Preparing products and password folders in Windows - 9 -
 - 3.2 Preparing products and password folders in Unix/Linux..... - 9 -
 - 3.3 Verifying the HTML publishing folders - 10 -
- 4 Customization (mandatory)..... - 11 -
- 5 Scheduling..... - 12 -
 - 5.1 Collecting data once a day - 12 -
 - 5.2 Collecting data in continuous mode using EPV agents - 12 -
- 6 Manual Customization (optional) - 13 -
 - 6.1 Customizing the CONFIG.PL parameters - 13 -
 - 6.2 Setting SHIFTS - 13 -
 - 6.3 Assigning a user name to each CEC serial number - 13 -
 - 6.4 Changing the series colors in EPVGRAPH HTML pages..... - 13 -
 - 6.5 Changing the number of days to report daily..... - 13 -
 - 6.6 Setting your country holidays - 14 -
 - 6.7 Modifying batch throughput - 14 -
 - 6.8 Including or excluding systems..... - 14 -
 - 6.9 Assigning user names to Virtual Tape Subsystems - 14 -
 - 6.10 Assigning user names to disk Physical Control Units (PCU)..... - 14 -
 - 6.11 Management of special characters - 14 -
 - 6.12 Excluding menu entries..... - 14 -
 - 6.13 Excluding CICS Transactions - 15 -
 - 6.14 Excluding DDF Transactions..... - 15 -
 - 6.15 Excluding IMS Transactions..... - 15 -
 - 6.16 Assigning EPV Containers..... - 15 -
 - 6.17 Excluding CECS in WLC - 15 -
 - 6.18 Publishing on the IBM HTTP Server on zSeries - 15 -
 - 6.19 Exporting graphs in Microsoft Excel - 16 -
 - 6.20 Help system..... - 16 -
 - 6.21 Customizing the recovery procedure - 16 -
- 7 Using the EPV Customization GUI - 18 -
 - 7.1 ADVANCED customization..... - 18 -
 - 7.2 Customizing the product's parameters..... - 20 -
 - 7.3 Additional customization steps for Unix and Linux systems - 21 -
 - 7.4 EPV online (only when running in Windows systems) - 22 -
- 8 User defined graphs - 24 -
 - 8.1 Preparing input files for the UGE - 24 -
 - 8.2 Preparing the menu structure for the UGE..... - 25 -
 - 8.3 Setting graph parameters..... - 26 -
- 9 Customer support..... - 29 -



Attachment A – Config parameters	- 30 -
Attachment B – User Graph parameters	- 34 -
Related documentation.....	- 36 -



About this manual

This manual is intended to help anyone wanting to install and customize EPV Graph for z/OS V15 in a Windows or Unix/Linux environment.

Changes

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



1 Overview

Enterprise Performance Vision (EPV) **Graph for z/OS**, EPVGRAPH in the following, is a product designed to provide the system manager an immediate and clear vision of company's systems and workload.

EPVGRAPH is integrated with the suite of EPV products, adding graphical functionality which permits intuitive and simple analysis of:

- **Workload activity:** EPVGRAPH provides an immediate vision of the daily and historical CPU utilization; by means of drill down functionality it is possible to navigate from enterprise level to CEC, partition, subsystem down to the single address space level; EPVGRAPH provides information on the CPU utilization in MIPS for GCP and zIIP; GCP graphs allow to instantaneously switch from MIPS to MSU by simply choosing the metric to analyse; CPU and zIIP utilization due to cryptographic activities is also reported;
- **Soft Capping:** EPVGRAPH provides an immediate vision of the daily and historical software capping; by means of drill down functionality it is possible to understand which system has been capped during the day;
- **Memory Utilization:** EPVGRAPH provides an immediate vision of the daily and historical memory utilization; by means of drill down functionality it is possible to understand which service or report classes are using the real memory;
- **Throughput activity;** EPVGRAPH provides the daily and historical productivity in terms of transactions for IMS, CICS, DDF, TSO, MQ, WEBSHERE and Batch, at enterprise and detail level for each workload type and system;
- **WLM Importance:** EPVGRAPH provides a daily vision of the CPU utilization classified by WLM importance. By means of drill down functionality it is possible to navigate from enterprise to CEC and partition level;
- **I/O Activity:** EPVGRAPH provides an immediate vision of the daily and historical disk I/O activity; by means of drill down functionality it is possible to navigate from enterprise level to PCU and system down to the top disks level to analyse I/O throughput and performance;
- **Disk Space:** EPVGRAPH provides an immediate vision of the daily and historical disk space utilization; by means of drill down functionality it is possible to understand which storage groups are using the disk space and how much disk space is still available;
- **Tape Space:** EPVGRAPH provides an immediate vision of the daily and historical tape space utilization; by means of drill down functionality it is possible to understand which pools are using the tape space and how much tape space is still available;
- **WLC:** EPVGRAPH reports the used MSU, calculated as a “4 hours rolling average”, accordingly with the IBM WLC policy. EPVGRAPH allows to analyse the charged MSU by day and partition. Additional graphs are provided to analyse Group Capacity effectiveness and the possibility to reduce WLC costs by exploiting zAAP and zIIP and WLM controls;
- **TFP:** EPVGRAPH reports the used total MSUs by container and LPAR as needed when adopting the Tailored Fit Pricing option;



- **IPLS:** EPVGRAPH provides an immediate historical vision of all the IPLS performed; by drill down functionality it is possible to understand in which day of the week and in which time the IPL has been performed;
- **MF Indexes:** EPVGRAPH allows to analyse processor cache effectiveness; the following indexes are automatically calculated and tracked in daily and monthly trends:
 - %L1M, percentage of miss in the Level 1 cache;
 - RNI, Relative Nest Intensity;
 - CPI, cycles per instruction;
 - %PRB, percentage of problem state instructions over total instructions;
 - %PNL, percentage of penalty cycles over total cycles.

All the graphs are produced automatically without the need of any additional component. The product creates all graphs automatically in a standard format and maintains a simple, intuitive, and efficient navigation.

The graphics produced can be used immediately in word processors, spreadsheets, studies, reports, documentation, etc.



2 Architecture

EPVGRAPH is an application designed to add value to the EPV for z/OS product by providing a rich set of standard graphs that are correlated between themselves.

The architecture is composed of three components:

1. The **Data Collection Interface (DCI)** – it reads the EPV databases and prepares a series of text files used as input for the GPE component.
2. The **Graphics Production Engine (GPE)** – it reads the sequential files created by the DCI component and creates graphs.
3. The **User Graphics Engine (UGE)** – it reads user files and definitions and creates personalized user graphs.

The DCI, designed to acquire the data needed for EPVGRAPH, is a series of PERL programs that must be executed after EPV for z/OS has completed loading the data. A series of text files are created and then used as input to the GPE.

Both the GPE and the UGE are written in Perl.

The logical daily flow of the product is the following:

1. Extraction of the necessary data from the EPV for z/OS databases through the DCI;
2. Transfer of the text files produced from the previous step to the system hosting the GPE;
3. Production of the graphs and HTML pages through the GPE;
4. Transfer of the text files produced by the user to the system hosting the UGE (optional).
5. Production of the user graphs and HTML pages through the UGE (optional).



3 Installation

The EPV zParser product is a prerequisite of EPVGRAPH so from here on:

- “*\$EPVPATH*” should be substituted with the path to the EPV home folder created at EPV zParser installation;
- “*\$ProfileName*” should be substituted with the name of the user profile created at EPV zParser installation.

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

To install EPVGRAPH you need to perform the following steps:

1. Preparing products and password folders;
2. Verifying the HTML publishing folders.

3.1 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 EPVGRAPH. Please refer to the EPV zParser documentation.

If for any reason you need to update the EPVGRAPH product, you have to copy the supplied /PRODUCTS/EPVZGRAPH_VXX folder (where XX stays for the version number of the product) from the EPV Installation CD to the *\$EPVPATH/PRODUCTS* folder.

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

3.2 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 EPVGRAPH. Please refer to the EPV zParser documentation.

If for any reason you need to update the EPVGRAPH product, you have to copy the supplied /PRODUCTS/EPVZGRAPH_VXX folder (where XX stays for the version number of the product) from the EPV Installation CD to the *\$EPVPATH/PRODUCTS* folder.

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



WARNING: As discussed in 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/). Please remember that the path where the EPVROOT will be copied must not contain special characters (such as \$,#,*,£ etc..) because they will disrupt EPV processing.

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.

3.3 Verifying the HTML publishing folders

On the system that will host the HTML pages you have to verify that the following folders exist under $\$EPVPATH/USERPROFILE/\$ProfileName/COMMON/HTM$:

- **JAVA** folder containing JavaScript files (“.JS”), style sheets (“.CSS”) and a configuration file (“.TXT”) for the user interface;
- **IMG** folder containing images used by EPV (EPV logo, Microsoft Excel icon, etc.);
- **ZOSGRAPH** folder containing all the HTML pages produced (empty at installation);
- **ZOSTEXT** folder containing all the txt files produced by ZGRAPHLOAD;
- **ZOSGDOC** folder containing all the HTML help pages;
- **UIHTML** folder containing the following HTML pages¹: ABOUT.HTML, CONTRIBUTORS.HTML, FAVOURITES.HTML and HOME.HTML.

The **START.HTML** pages has also to exist under $\$EPVPATH/USERPROFILE/\$ProfileName/COMMON/HTM$.

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

¹ Only the pages relevant for the EPVGRAPH product are mentioned.



4 Customization (mandatory)

EPVGRAPH can be installed in Windows or Unix/Linux environment.

The steps to customize the EPVGRAPH product are different if you performed the EXPRESS or the ADVANCED customization.

If you performed the EXPRESS customization as described in the “EPV Installation and EXPRESS Customization” the EPVGRAPH product is already installed. No other action is required.

If you want to perform the ADVANCED customization using the EPV Customization GUI the steps to execute depend on the environment in which the EPVGRAPH is installed (Windows or Unix/Linux).

If you are on Windows you only need to enter the GUI select \$ProfileName as user profile, choose the EPVGRAPH product and save the user profile. Please refer to Chapter 7 for more details.

If you are on Unix/Linux once you have customized the EPVGRAPH on Windows through the GUI, as described in Chapter 7, you need to move the profile to Unix/Linux. This action is required because the EPV Customization GUI has been designed to run only on a Windows system. Please refer to Chapter 7.3 for more details.



5 Scheduling

Scheduling the EPVGRAPH provided procedures allows you to process data and produce the HTML reports.

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

5.1 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, which is located in the *\$EPVPATH/USERPROFILE/\$Profilename/COMMON/PROCS* folder.

Inside that procedure you should find (or add if missing) a CALL to NIGHTBATCH.BAT. NIGHTBATCH.BAT calls the NIGHTBATCH_ZGRAPH.BAT procedure which is located in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/PROCS* folder.

You can schedule this procedure to run daily at a specific hour using the standard task scheduler provided by Windows, Unix and Linux environments or you can start it manually during the day.

5.2 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 automatically run by the POSTZPARSER.BAT procedure, created during the EPV zParser installation.

This procedure 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_ZGRAPH.BAT procedure.

This procedure is located in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/PROCS* folder.



6 Manual Customization (optional)

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

WARNING: Before customizing the userexit specified below you must copy the userexit from *\$EPVPATH/PRODUCTS/EPVZGRAPH_V15* to *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/USEREXIT*

6.1 Customizing the CONFIG.PL parameters

You can go into the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/CONFIG.PL* file and customize all the parameters and thresholds as desired.

You'll find a detailed description of each parameter and threshold in attachment A.

6.2 Setting SHIFTS

All Trend graphs provide a line for each different time shift. The member named **SHIFT.PL** located in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/USEREXIT* library 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** member before loading new data.

6.3 Assigning a user name to each CEC serial number

You can assign a user name to each CEC serial number by customizing the **UEXGCEC.PL** file provided in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/USEREXIT* folder. The settings take place during the EPV HTML phase.

6.4 Changing the series colors in EPVGRAPH HTML pages

You can change the order of the series colors in the EPVGRAPH HTML pages by customizing the **var zBarColors** variable provided in the *EPV_CONFIG_V15.PL* TXT file in the *\$EPVPATH/USERPROFILE/\$Profilename/COMMON/HTM/JAVA* folder.

You can also fix a specific colour for a specific element by customizing the **var zItemColor** variable.

6.5 Changing the number of days to report daily

By default EPVGRAPH creates daily reports for the last two days.

If you want to change this behavior you have to customize the **RPTDATES.PL** file provided in the *\$EPVPATH/USERPROFILE/\$Profilename/EPVZGRAPH/USEREXIT* folder.



6.6 Setting your country holidays

To set your country holidays (e.g: Eeaster, Christmas) you have to customize the **UEXHOLY.PL** file provided in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` library. In the array `@HOLIDAYS` you have to put all the country holidays, while in the array `@EVENT` you have to put the days you want to consider as holidays.

6.7 Modifying batch throughput

By default EPVGRPAH selects only the job batch assigned to the JOB workload when creating the throughput graphs; to modify the workload you can customize the **UEXJOBWK.PL** file provided in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder.

6.8 Including or excluding systems

To include or exclude some systems from EPVGRAPH you have to customize the **UEXSYS.PL** file in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder.

6.9 Assigning user names to Virtual Tape Subsystems

You can assign user names to Virtual Tape Subsystems by customizing the **UEXTAPE.PL** file provided in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder. The settings take place during the EPV HTML phase.

6.10 Assigning user names to disk Physical Control Units (PCU)

You can assign user names to disk PCUs by customizing the **UEXPCU.PL** file provided in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder. The settings take place during the EPV HTML phase.

6.11 Management of special characters

By default EPVGRAPH changes automatically the special characters (as: \$, @, %, &, #, (,), etc..) found in the txt files of the ZOSTEXT folder with the underscore sign (_).

In order to change this behaviour and to choose which character has to substitute them it is necessary to customize the **UEXCHAR.PL** file provided in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder. The settings take place during the EPV HTML phase.

6.12 Excluding menu entries

To exclude some entry from the EPVGRAPH menu you have to customize the **GMENU.PL** file in the `$EPVPATH/USERPROFILE/$Profilename/EPVZGRAPH/USEREXIT` folder.



In addition you need to customize the \$GMENU parameter located inside the CONFIG.PL file to 'YES'.

6.13 Excluding CICS Transactions

To exclude some CICS transactions from the average elapsed time graphs in the throughput, you have to customize the **UEXCICEL.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZGRAPH/USEREXIT* folder.

6.14 Excluding DDF Transactions

To exclude some DDF transactions from the average elapsed time graphs in the throughput you have to customize the **UEXDDFEL.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZGRAPH/USEREXIT* folder.

6.15 Excluding IMS Transactions

To exclude some IMS transactions from the average elapsed time graphs in the throughput you have to customize the **UEXIMSEL.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZGRAPH/USEREXIT* folder.

6.16 Assigning EPV Containers

To assign a specific container to one or more systems showed in the TFP html reports you have to customize the **UEXLPCNT.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZGRAPH/USEREXIT* folder.

6.17 Excluding CECS in WLC

To exclude a specific CEC from the WLC vision you have to customize the **UEXWLC.PL** file in the *\$EPVPATH/USERPROFILE/\$ProfileName/EPVZGRAPH/USEREXIT* folder.

6.18 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 ZOSGDOC 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 command²:

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.

6.19 Exporting graphs in Microsoft Excel

It is possible to load an EPVGRAPH table to a Microsoft Excel spreadsheet.

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

6.20 Help system

A standard EPV help system has been added to EPV Graph for z/OS.

The help system can be accessed by clicking the help icon on the top-right side of the graph.

All the HTML help pages are located inside the ZOSGDOC folder.

6.21 Customizing the recovery procedure

By default EPV Graph for z/OS creates the daily reports for the last two days.

In cases you have activated the Recovery procedure in the EPV for z/OS product (see the EPV for z/OS Installation and Customization manual) and you want to create the daily Graph HTML pages older than two days without the need to modify manually the CONFIG.PL parameters (\$RPTEPVS, \$RPTEPVE), you have to check the **\$RECOVERY** parameter in the CONFIG.PL member.

The **\$RECOVERY** parameter which activates the Recovery procedure has to be set to YES (DEFAULT: NO).

The recovery procedure dynamically changes the above CONFIG.PL parameters internally in the program to permit the creation of the html pages without modifying the original CONFIG.PL parameters (\$RPTEPVS, \$RPTEPVE).

² IBM-1047 has to be eventually substituted with the DefaultFsCp value set in httpd.conf (if different from IBM-1047).



WARNING: The Recovery procedure doesn't change any of the trend configuration parameters. In order to maintain the recovered data in the HTML trend reports you have to verify that the trend parameters in the CONFIG.PL member cover the period you want to maintain.



7 Using the EPV Customization GUI

The EPV Customization GUI has been designed to run on a Windows system; if you want to run EPVGRAPH on Unix/Linux once you have customized the EPVGRAPH on Windows you need to move the profile to Unix/Linux. In this case additional customization steps are required (see Chapter 7.3).

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

7.1 ADVANCED customization

You will get the windows in Figure 1 where you have the possibility to choose the customization mode.

To proceed with the ADVANCED customization you have to select ADVANCED (for the EXPRESS customization please refer to the “EPV Installation and EXPRESS Customization in Windows” manual).

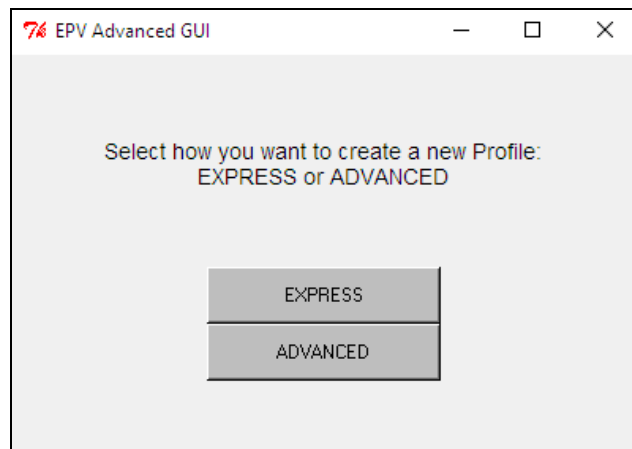


Figure 1

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

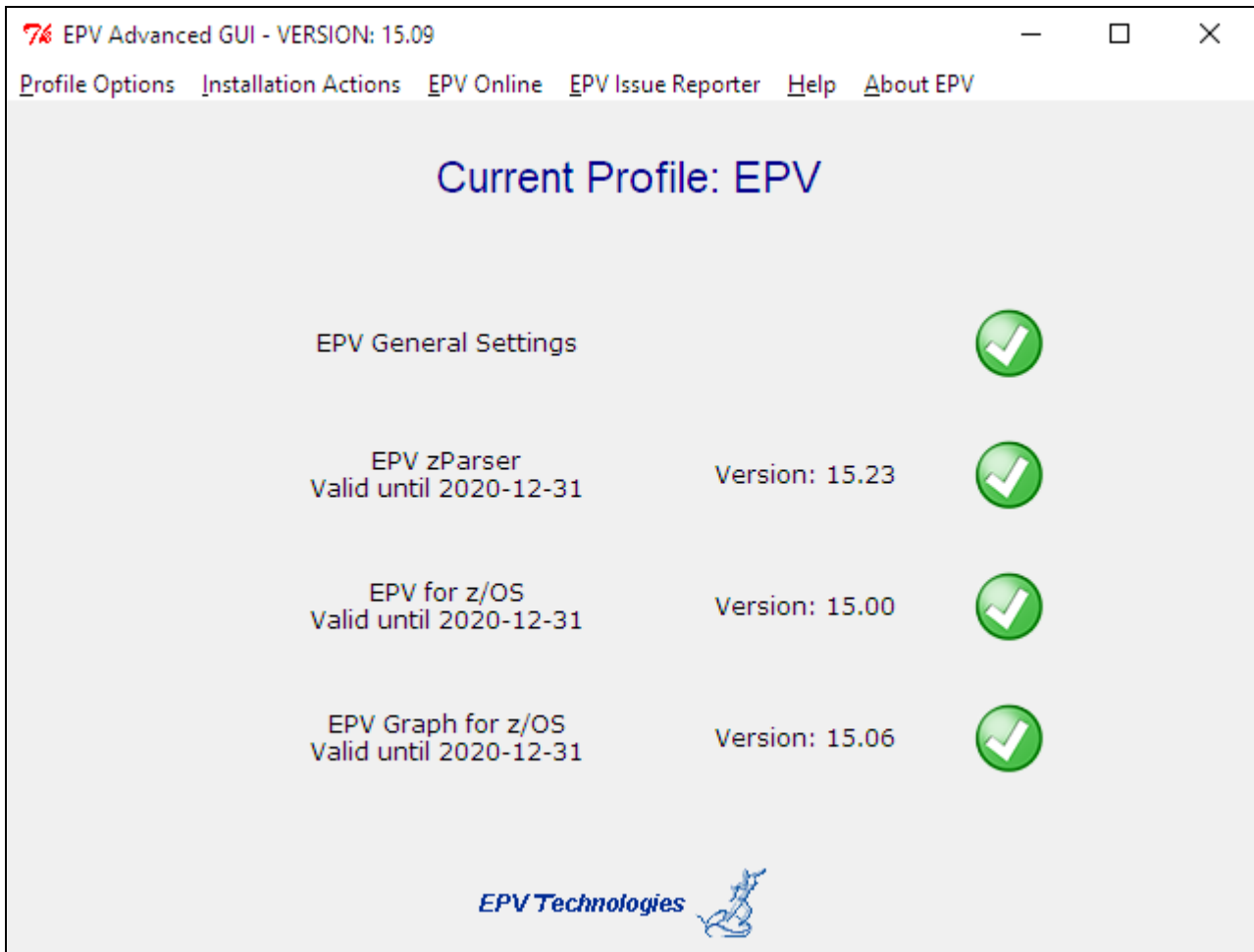


Figure 2

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



7.2 Customizing the product's parameters

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

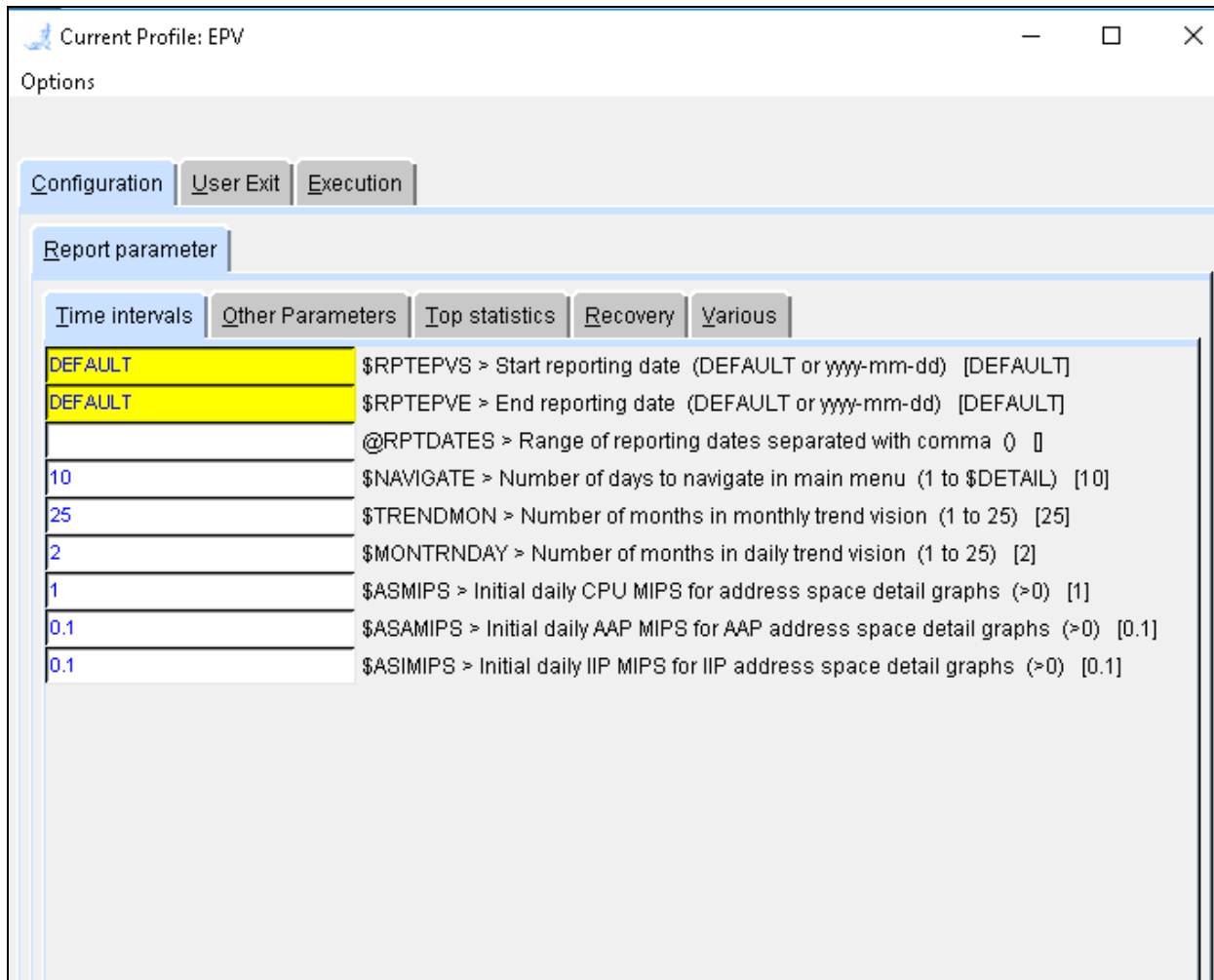


Figure 3

Through this panel you can customize all the parameters needed by EPVGRAPH, change the default settings for the user exits and so on. For a detailed description of all the parameters managed by this utility please see the Attachment A at the end of this manual.

Finally save the customizations you have done by clicking on the 'Options' menu and choosing the 'Save' option; it will close the panel and bring you again to the main window.



7.3 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 '{}' \`**



7.4 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 6).

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 as they appear in the menu (see Figure 4):

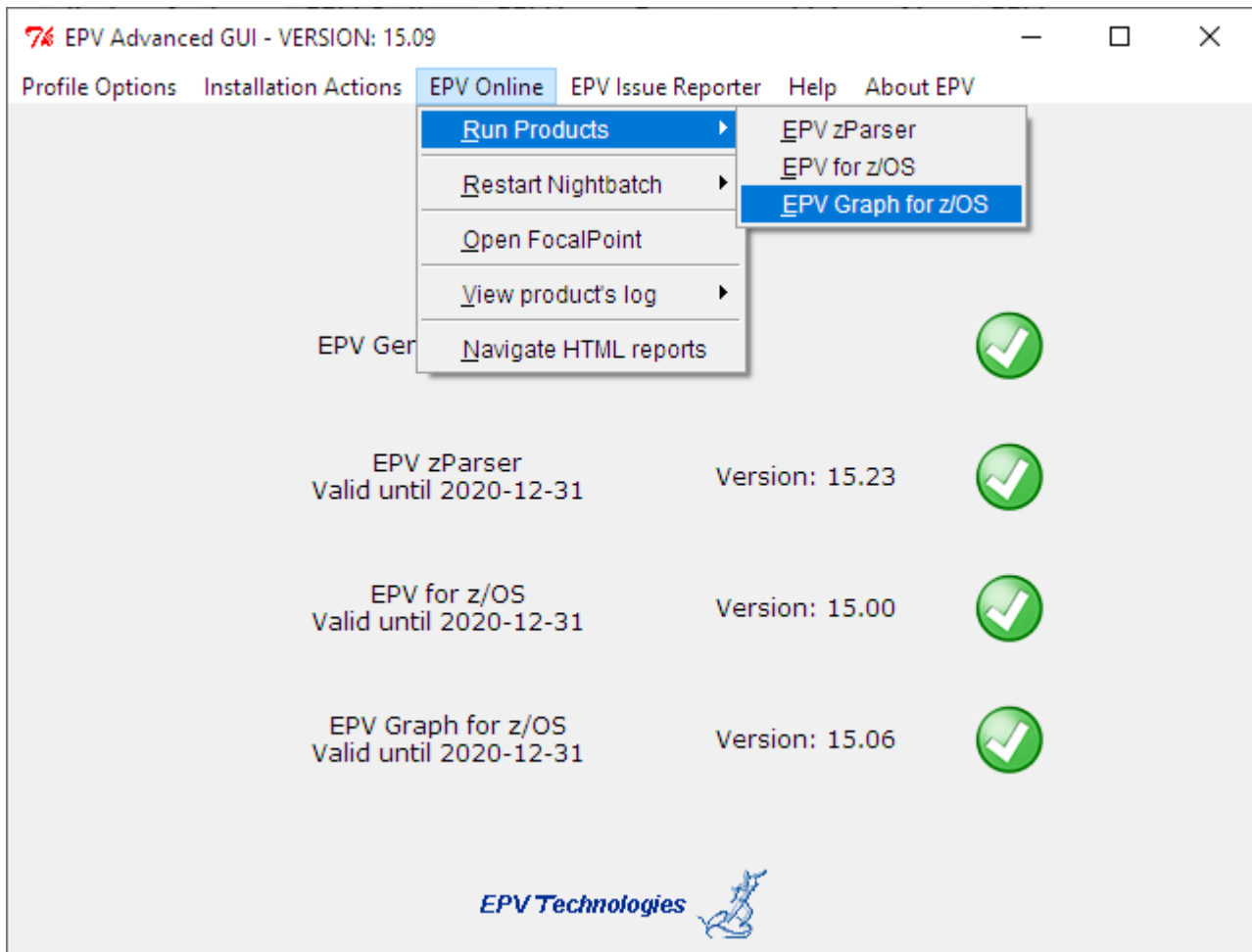


Figure 4

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 EPV Products.



This feature is very useful to perform spot loading of old data or to produce HTML reports for old dates without changing the user profile settings.



8 User defined graphs

In order to automatically create user graphs you have to perform the following steps:

- Preparing input files for the UGE
- Preparing the menu structure for the UGE
- Setting graph parameters

8.1 Preparing input files for the UGE

Two kind of data are allowed: sequential text files or .sql files, which will be the input of the **ZUSERGRAPH.exe** program.

The sequential text files must be created by the user and must contain the following fields:

- **Interval:** The value plotted on the X axis.
- **Value:** The value plotted on the Y axis
- **Series:** The series value

Warning: We suggest using the tab character as column separator.

Example:

<i># Interval</i>	<i>Value</i>	<i>Series</i>
0	15.5	LPAR1
1	17.0	LPAR1
....
23	10.0	LPAR1
0	12.01	LPAR2
1	28.2	LPAR2
...
23	15.81	LPAR2

Figure 5

Warning: The user is responsible that all the interval periods are the same for all the series of data. As an example, for a monthly year trend file, all the systems must have 12 entries. One for each month. For non-existing periods the user can provide null values.



Also the .sql files must be created by the user and must contain simple query as the following:

```
SELECT HOUR,MIPS,CEC FROM $DB.$TABLE WHERE XXX;
```

8.2 Preparing the menu structure for the UGE

Once created, the input files have to be transferred to the following folder:

```
$$path/USERPROFILE/$ProfileName/COMMON/HTM/ZOSTEXT/USERLIB/INPUT.
```

Each file in this folder will originate an entry in the first level of the EPVGRAPH User defined menu having the same name as the file.

In order to see the entry in the main HTML menu the \$USERGRAPH parameter located inside the CONFIG.PL file has to be customized to 'Y'.

The user can also create additional subfolders under **USERLIB/INPUT**. These subfolders will automatically generate additional levels in the User defined menu.

Each level of the EPVGRAPH menu will show an entry for each file name included in the folder.

In the following example two files have been created in the /CPU_UTILIZATION subfolder:

- \$EPVPATH/USERPROFILE/\$ProfileName/COMMON/HTM/ZOSTEXT/USERLIB/INPUT/CPU_UTILIZATION/CPUD.TXT
- \$EPVPATH/USERPROFILE/\$ProfileName/COMMON/HTM/ZOSTEXT/USERLIB/INPUT/CPU_UTILIZATION/CPUM.TXT

Figure 6 shows an example of the menu structure resulting from that.

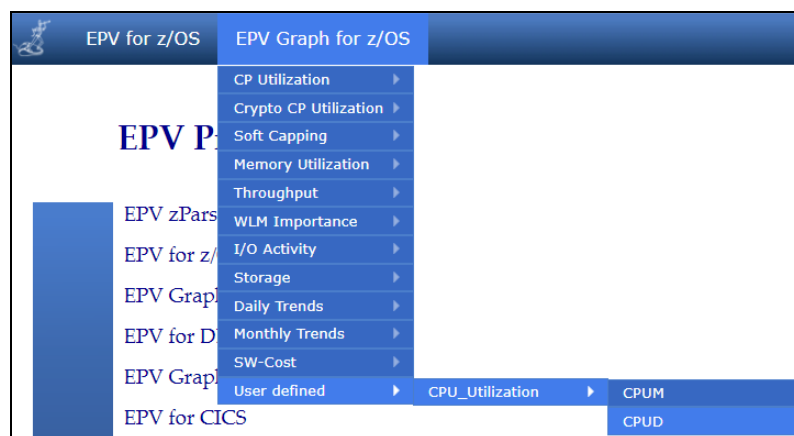


Figure 6



8.3 Setting graph parameters

The UGE produces the user graphs based on the definitions you set in the EPV USER GRAPH GUI. In order to customize the definitions of the user graph you need to run the ZUSERGRAPHGUI.exe located in the EPVROOT/PRODUCTS/EPVZGRAPH_V15 folder.

An example of the **EPV USER GRAPH GUI** is provided in the following figure.

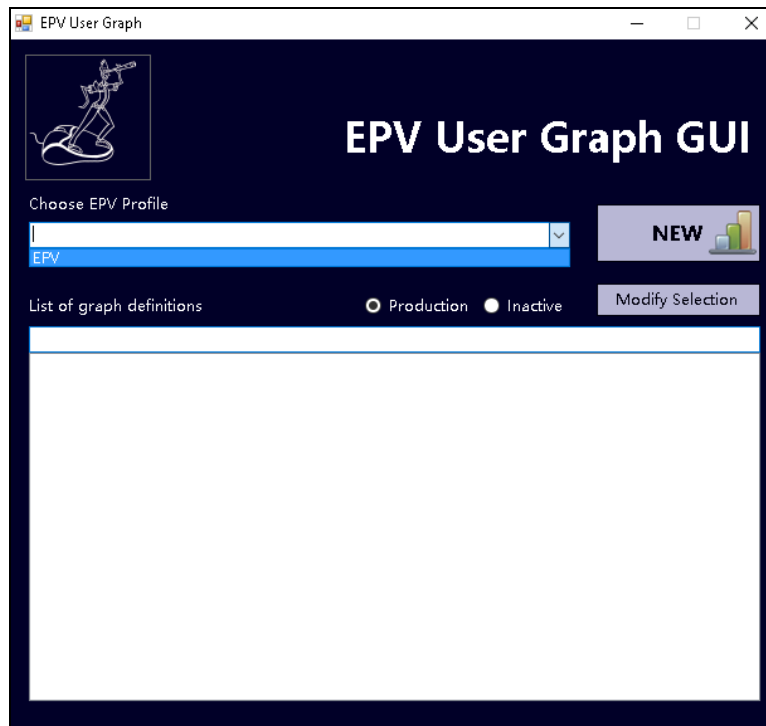


Figure 7

The first step to customize the definitions of the graph is to choose the EPV profile and click on the 'NEW' button as shown in **Figure 7**.

In this way a new panel will be displayed (see **Figure 8**).



Define new graph

1 - Choose Graph Input

Text file SQL Script

<HTMLDIR>\ZOSTEXT\USERLIB\INPUT

Browse Edit SQL script

Dat Name

content:

2 - Compile the Form

Table Only

Field Separator tab (\t) *

Series

First Row # *

Column # *

Label *

Type *

X Axis

Column # *

Label *

Type *

Y Axis

Column # *

Label *

Type *

Report Title

Graph Title

Table Title

Graph Type *

Reference lines (series names) comma separated

Reverse Table

Date Format

Delta Days

3 - Save the Project

In Production

SAVE Preview

Figure 8

The mandatory steps to customize the graph are:

1) Choose the input file and define a DAT name:

By clicking on the 'Browse' button it is possible to choose the input data file which must be a sequential txt file or a .sql file.

Then you need to write a Dat Name of your choice.

2) Compile the form:

All the parameters signed with the asterisk are mandatory.

Please refer to **Attachment B** to have a detail description of the parameters.

3) Save the project³:

In order to save the project, you need to flag the voice 'in Production' and to click on the 'SAVE' button.

In this way a .dat file (defined at point 1) containing all the definitions will be automatically created in the EPVROOT/USERPROFILE/\$Profile/COMMON/HTM/ZOSTEXT/USERLIB/DAT folder.

³ If you are interested in saving the project but you don't want to create the graph you only need to click on the 'SAVE' button without flag the 'in production' option.



Once you run the ZUSERGRAPH.exe program the graph will be created.

In case you need to run the ZUSERGRAPH program on Linux/Unix you need to copy the whole USERLIB folder from your Windows installation to your Unix profile (\$EPVPATH/USERPROFILE/\$Profile/COMMON/HTM/ZOSTEXT/) and then you can run the ZUSERGRAPH.PL program.

WARNING: If you want to see the preview of your graph before create it you have to simply click on the 'PREVIEW' button of the EPV USER GRAPH GUI. In this way the PREVIEW.HTML page containing the preview of your graph will be automatically opened.



9 Customer support

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

epv.support@epvtech.com

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

epv.info@epvtech.com



Attachment A – Config parameters

PARAM	LABEL	RANGE	DEFAULT
\$ALLIPLS	Set to 1 if you want to generate all monthly IPLS graphs	0 to 1	0
\$ASAAPDET	set to Y if you want to prod the Address Space AAP Detail graphs	Y, N	N
\$ASAMIPS	Initial daily AAP MIPS for AAP address space detail graphs	>0	0,1
\$ASCPUDET	set to Y if you want the Address Space CPU Detail graphs	Y, N	N
\$ASIIPDET	set to Y if you want the Address Space IIP Detail graphs	Y, N	N
\$ASIMIPS	Initial daily IIP MIPS for IIP address space detail graphs	>0	0,1
\$ASMIPS	Initial daily CPU MIPS for address space detail graphs	>0	1
\$CPUMETRIC	Set to MIPS or MSU in order to choose the default metric to show in the CPU Utilization and WLM Importance graphs	MIPS, MSU	MIPS



\$DEBUG	EPV debug detail level	0 to 3	2
\$DSKTOPSG	Maximum number of top storage groups in disk graphs	1 to 20	10
\$FMT	Number format for Europe (E), Usa (U) and Switzerland (S)	E, U, S	E
\$GMAPPTOP	Maximum number of top application objects in throughput graphs	1 to 20	10
\$GMENU	Enable/Disable entries in the main menu	Y, N	N
\$GMT	Normalize local time to a specific GMT offset	Y, N	N
\$GMTFPTOP	Maximum number of top system objects in TFP graphs		
\$GMTOFF	GMT offset to normalize to (only used if \$GMT = Y)	-12 to 12	0
\$GMTOP	Maximum number of top address spaces, service class and report class in the graphs	1 to 20	5
\$GMTOPIN	Range of hours for top address spaces, service class and report class in the graphs	0 to 23	9,10,11,12,15,16



\$LPARSYS	Set to Y if you want to see the system name in the legend of the CPU/IIP/AAP by LPAR views	Y, N	N
\$LPARVIEW	Set to YES in order to have the view of the LPAR in the CP trend graphs independent from the hosting CEC	YES, NO	NO
\$MAXRPTDAYS	Maximum number of reporting days	1 to 30	2
\$MONTHDET	Enable/Disable the last graph level in monthly trend graphs of Throughput, Disk and Tape	Y, N	N
\$MONTRNDAY	Number of months in daily trend vision	1 to 25	2
\$NAVIGATE	Number of days to navigate in main menu	1 to \$DETAIL	10
\$RECOVERY	Enable/Disable Recovery mode	Y, N	N
\$RPTEPVE	End reporting date	DEFAULT (today) or yyyy-mm-dd	DEFAULT (today)
\$RPTEPVS	Start reporting date	DEFAULT (yesterday) or yyyy-mm-dd	DEFAULT (yesterday)



\$RUNMODE	Set the NIGHTBATCH run mode (CHKERR:check errors logs when starts, FORCE: Ignore error logs)	CHKERR, FORCE	FORCE
\$SSTHRDET	Set to Y if you want the Throughput detail graphs	Y, N	N
\$TAPTOPOL	Maximum number of top pools in tape graphs	1 to 20	10
\$STOPDISK	Maximum number of top disk in I/O activity tables	1 to 50	10
\$TRENDMON	Number of months in monthly trend vision	1 to 25	25
\$USERGRAPH	Enable/Disable the user graph entry in the html menu	Y, N	N
\$USERGRAPH_SORT	Sort the user graphs reports by creation date (D) or in alphabetical order (A)	D, A	A
\$WIMPDET	Minimum level of WLM importance to plot	1 to 6	6
\$ZGRAPH_MAX_TASK	Number of EPV tasks to run in parallel mode	1 to 6	2
@RPTDATES	Range of reporting dates separated by comma	n/a	n/a



Attachment B – User Graph parameters

PARAM	LABEL
Table Only	Flag this option in order to create a table and not a graph
First Row	The number of the row of the input file from which your data start
Column	The number of the column which represents the X axis/Y axis/Series
Label	It is the label that will be showed in the graph for the X axis/Y axis/Series
Type	The data type of the X axis/Y axis/Series. (FLOAT or CHAR or INT)
Report Title	Name of the Report
Graph Title	Name of the Graph
Table Title	Name of the table
Graph Type	Type of graph to create. (BARS or STACKED BARS or LINES or AREA)
Reference Lines	It has to be a value of the series that has to represent a fixed value in the graph represented by a line



Reverse Table	It Inverts the disposition of the X axis and Y axis in the table but not in the graph
Date Format	The date format that you want to use in the name of your input data file. It can be: YYYY-MM-DD or YYYY-MM or YYYY
Delta Days	Number of days backward (starting from today) from which you want to create the graph. The default value is 0 and represents today.



Related documentation

The following manuals complement the information provided in this manual:

- *EPV Graph for z/OS V15 List of Graphs*
- *EPV Graph for z/OS V15 Release Notes*
- *EPV V15 User Interface*