EPV for WMQ Plus
Installation and Customization

IT Costs
Under Control

Supporting
EPV for WMQ V2 Plus

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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

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About this manual

This manual is intended to help anyone wanting to install and customize EPV for WMQ Plus V2.

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 **P**erformance **V**ision (EPV) for Websphere MQ on z/OS (WMQ) is a product designed to provide performance analysts a complete vision of their companies WMQ subsystems and workloads.

EPV allows quick identification of anomalies, performance problems and abnormal resource consumptions.

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

EPV for WMQ uses standard metrics available in the z/OS environments, and is designed to use mainly SMF data, optimizing the loading procedures and avoiding data redundancy.

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

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

All tables located in the HTML pages can be exported to a Microsoft Excel spreadsheet by a simple click.

2 Product components

The product components are :

- **EPV for WMQ Exceptions** provides a complete vision of the most important hardware and software threshold violations which help locate problems and anomalies immediately. The default thresholds fit well for most installations.

- **EPV for WMQ Critical Events** provides a general vision of the most important critical events of WMQ environments, including buffer pools, coupling facility structures and Share Message Data Set (SMDS) events.

- **EPV for WMQ Configuration** provides a general vision of the hardware and software configuration of WMQ environments, including buffer pools, page set and CF structures size and most important parameter settings.

- **EPV for WMQ System AS** provides a complete vision of CPU and memory used by WMQ subsystem address spaces.

- **EPV for WMQ Resources** provides detailed information about log activity, buffer pools usage and effectiveness, CF structures and SMDS activity allowing to analyse all the important correlated metrics.

- **EPV for WMQ Workload** gives a detailed vision of your throughput and CPU consumptions for each thread typology. Starting from a queue-sharing group vision, each connection type or WMQ subsystems can be analyzed in detail. In addition the top consumers are also reported for each hour.

- **EPV for WMQ Trends** provides productivity and resource consumptions daily, weekly and monthly trends. By means of these views it's possible to understand your resources usage and workloads growth and their impact on your systems.

3 Architecture

EPV for WMQ is a Perl application based on three tiers:

- Data Load Interface;
- Correlation and Aggregation Engine;
- HTML Pages Production Engine.

EPV for WMQ provides a free light version of the EPV Parser for SMF (Parser) product to read SMF data and store the necessary fields in a SQL database which will form 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's composed by simple Perl exits that extract meaningful data and store it in a transit database.
These exits represent a gateway from the environment to the product; there's an exit for each kind of data to load, and more others for general purposes.
The EPV for WMQ detail database by default contains the last 3 days data, and is designed to avoid data loss, data duplication, and -more importantly- to avoid the risk of producing the wrong statistics which can be caused by non synchronized SMF intervals.
The EPV for WMQ detail database can be avoided and processing resources can be saved if enough days are maintained in a detailed SMF database.

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, weekly and monthly trends for a desired period
- Perform the statistical analysis to spot statistical values outside the normal distribution
- Choose which and how many days to include in the statistics

The HTML pages produced by EPV for WMQ are supported by most common Web servers and can be used by the majority of browsers in the market.

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

4 Preliminary settings and verifications

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

4.1 Hardware and Software requirements

The following table summarizes EPV for WMQ 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	2
Memory	4 Gb RAM
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 Database: MySQL Server ver. 5.0 or higher. Microsoft MS SQL Server 2005 SP4 or higher. External tools: Java Runtime Environment ver. 1.4.02 or higher.

Figure 1

4.2 SMF Input records

EPV for WMQ requires the following SMF records:

SOURCE	RECORD TYPE	SUBTYPE	DESCRIPTION
SMF	30	2, 3	Address Space
SMF	70		CPU
SMF	74	4	Coupling Facility Structure
SMF	115	1,2	WMQ Statistics
SMF	116	0	WMQ Accounting

These data are mandatory. Without it EPV will not produce any usable output.

To produce SMF 115 subtype 1 and 2 the WMQ Statistic Trace, Class 1, has to be activated.
To produce SMF 116 subtype 0 the WMQ Accounting Trace, Class 1, has to be activated.

Using only the mandatory data will result in a subset of the EPV for WMQ views and analysis.
So you are strongly advised to provide the following additional input data:

- Record 115 subtype 5, 6 and 7, by activating WMQ Statistic Trace, Class 3[1];
- QMGR parameter settings, by running a JCL that executes specific IBM WMQ commands; this information must be gathered daily from each subsystem.[2]

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 library:

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

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

- INTERVAL(SMF,SYNC).

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

4.4 RMF and WMQ records synchronization

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 library:

- SYNCH(SMF).

It's also very important you synchronise WMQ SMF records; to do that you must set to zero the time interval specified by the STATIME parameter provided in CSQ6SYSP.

[1] Class 3 is only available for WMQ V7.1 and above.
[2] You have to customize and run the JEPVPARM sample JCL provided in the product library..

5 Installation

Warning: if you performed the EXPRESS customization as described in the "EPV Plus V11 Installation and EXPRESS Customization" the EPV for WMQ Plus product is already installed. No other action is required.

To install EPV for WMQ you need to perform the following steps:

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

5.1 DBMS Installation

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

5.2 Preparing products and password folders in Windows

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

If for any reason you need to update the EPV for WMQ product, in Windows systems you have to copy the supplied /PRODUCTS/EPVWMQ_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 *"$$$path*" 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. $$$path=/EPVROOT).

If you need to update the license key please copy the LICENSE_EPVWMQ.EPV file in the $$$path/PASSWORD folder.

5.3 Preparing products and password folders in Unix/Linux

In Unix/Linux systems you have to copy the supplied /PASSWORD, /PRODUCTS, /SETUP, /TOOLS, /DOCUMENTS, /USERPROFILE, /PERL_MODULES folders and all the included subfolders, from the EPV Installation CD to a freely chosen position but the last folder has to be EPVROOT (e.g. /home/epv/EPVROOT).

From here on the *"$$$path*" variable should be substituted with the path where the installation software was copied.

WARNING: If you want to create a profile by using 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 freely chosen position in a Windows system.

All the provided passwords (included in EPV_LICENSES_WINDOWS.ZIP) have to be copied in the PASSWORD folder. These passwords 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 *$$$path*[3]:

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

The following HTML pages have also to exist under *$$$path*: **START.HTML**, **HOME.HTML**, **ABOUT.HTML**, **CONTRIBUTORS.HTML**, **EPVQTREE.HTML**, **QRESEARCH.HTML**, **QRESI.HTML** and **QRESO.HTML**.

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

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

6 Manual Customization (mandatory)

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

Warning: if you performed the EXPRESS customization please refer to the "EPV Plus V11 Installation and EXPRESS Customization" manual

6.1 Customizing the DBs

All the procedures you need in order to customize the WMQ DBs are placed under the TOOLS/WMQ 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 following sequence:

- WMQ_DBdrop.BAT;
- WMQ_DBcreate.BAT;
- WMQ_StoredProc.BAT.

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

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

6.2 Customizing the SETTING.PL parameters

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

6.3 Verify the MIPS table

EPV for WMQ version 2 contains more different MIPS tables than in the past. They are named MIPSLTxx.PL, MIPSATxx.PL, MIPSPTxx.PL, MIPSARxx.PL, MIPSLRxx.PL, MIPSHRxx.PL and MIPSPRxx.PL, where xx is the z/OS level (e.g. xx=19 means z/OS version 1.9) and they are based on IBM LSPR benchmarks.
The **MIPSLTxx** tables contain the low iorate (LoIO) estimated MIPS (for the IBM hardware models 2064 and higher only).
The **MIPSATxx** tables contain the estimated average MIPS (for all the IBM machines).
The **MIPSPTxx** tables contain the Performance Capacity Index (PCI) estimated MIPS (it is currently available only for z/OS 1.9 benchmarks).

The **MIPSARxx** tables contain the average Relative Nest Intensity (RNI) estimated MIPS (for z/OS 1.11 and 1.13; xx should be 11 or 13 in this case).
The **MIPSLRxx** tables contain the low Relative Nest Intensity (RNI) estimated MIPS (for z/OS 1.11 and 1.13; xx should be 11 or 13 in this case).
The **MIPSHRxx** tables contain the high Relative Nest Intensity (RNI) estimated MIPS (for z/OS 1.11 and 1.13; xx should be 11 or 13 in this case).
The **MIPSPRxx** tables contain the Performance Capacity Index (PCI) estimated MIPS (for z/OS 1.11 and 1.13; xx should be 11 or 13 in this case).

EPV for WMQ uses the TABMIPS.PL file; by default it contains the values in the MIPSAR13 table. If you want to use other values you can copy any of the above tables in TABMIPS.PL[4].

Customers **CAN MODIFY** TABMIPS table values but they **SHOULD NOT** modify the MIPSLTxx, MIPSATxx, MIPSPTxx, MIPSARxx, MIPSLRxx, MIPSHRxx and MIPSPRxx tables.

EPV for WMQ uses two different automatic algorithms to set the machine capacity for general purpose processors (CPU pool). The used algorithm depends on the value assigned to the EPVMIPS CONFIG parameter. By default the CPU capacity is taken directly from the TABMIPS table without considering the MP effect added by specialty processors (zAAP and zIIP). 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.
EPV always estimates the capacity for zAAP and zIIP taking into consideration the MP effect introduced by both general purpose and specialty processors.

However, MIPS tables and EPV for WMQ estimates have to be considered as "average" values because they do not take into consideration the number of active LPARs and their configuration. We strongly advice customers to use the IBM zPCR tool in order to get good estimates.
This is the reason why three exits (UEXMIPS, UEXAMIPS, UEXIMIPS) are also provided in the USEREXIT directory allowing customers to set their trusted MIPS values (possibly estimated using zPCR) for CPU, AAP and IIP pools capacity.

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

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

7 Scheduling

Scheduling the EPV for WMQ provided procedures (manually or automatically) allows you to process data and produce the HTML reports daily.
All the .BAT procedures mentioned here are available as .sh to allow EPV for WMQ to run on Unix/Linux systems.

7.1 Collecting data once a day

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

In order to add the EPV for WMQ in the daily schedule you have to modify the NIGHTBATCH.BAT procedure located in the *$$$path*/USERPROFILE/*$Profilename*/COMMON/EPVZPARSER/AGENT/PROCS folder.
Inside that procedure you should find (or add if missing) a CALL to the NIGHTBATCH_WMQ.BAT procedure also located under the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/PROCS folder.

7.2 Collecting data in continuous mode using EPV agents

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

Inside that procedure you should find (or add if missing) a CALL to the NIGHTBATCH_WMQ.BAT procedure also located under the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/PROCS folder.

8 Manual Customization (optional)

In the following are listed some optional steps to fit specific user needs.
Attachment A provides a short description of all the EPV parameters, their default values and their meanings.

8.1 Customizing the CONFIG parameters

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

8.2 Loading SMF data for a subset of WMQ subsystem

To comply with your EPV license, you may need to load SMF data only for some WMQ subsystems. In that case you should put the list of the WMQ subsystems you want to analyze in the **UWMQLIST.PL** file located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory or using the EPV Installation GUI.
This setting takes effect during the EPV loading phase.

8.3 Setting of Queue-Sharing Group for WMQ subsystem

EPV permits to analyze the WMQ coupling facility structure metrics and to group some workload and resource information by queue-sharing group. In order to do that you should assign the appropriate queue-sharing group to each WMQ subsystem in the **UEXGROUP** member located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT. This setting takes effect during the EPV loading and HTML phases.

8.4 Thresholds and Exceptions customization

EPV for WMQ 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 located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/ directory or using the EPV Installation GUI.

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 subsystem or for a particular hour of the day.
This is the reason why advanced thresholds have been introduced in EPV for WMQ . The current implementation is based on a specific exit associated to each threshold. By changing the sample exit provided, customers can set as many different threshold values as needed for each controlled metric.
The name of all these user exits follows this naming convention: **T *exception name***.
Each user exit contains an example of IF statements with all the criteria variables which can be used to modify the threshold value.
Attachment B provides 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 two different exception groups are defined: HTML and SUBSYS.
For each defined group except for the HTML group a text file is produced, (groupname.txt), containing a list of the exceptions associated with that specific group.

Through the **AGROUPS.PL** file located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory, you can define as many groups as you need and assign exceptions (using an ALERT code) to groups.
Customizing the **AFILTERS.PL** file located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory you can exclude alerts or hours you do not want to consider: for example, you could consider warnings coming from the TEST environment not worth to generate exceptions.

8.5 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 these user exits follows this naming convention: **UESxxxxx** where **xxxxx** are the last five characters of each statistical exception name.
Each member contains an example IF statement with all the criteria variables which can be used to eliminate the incorrect value.
Attachment C contains the name of all the statistical exceptions controlled by EPV and the name of each user exit with a short description.

8.6 Setting SHIFTS

All Trend reports provide HTML tables for different shifts. The file named **SHIFT.PL** located in the *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory 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 installation to the new installation.
EPV for WMQ summarizes the shifts when producing the HTML pages.

8.7 Assigning the Area variable to QMGR parameter

The **PARMAREA** member in your *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory contains the identification logic to automatically assign an Area for each QMGR parameter. You can modify this logic adding your specific settings.
The AREA variable must not be longer than 15 characters.

8.8 Assigning a system name to QMGR parameter data

EPV collect these data using *sysname*. If *sysid* is different from *sysname* you can assign the correct *sysid* by customizing the **UEXSYSID** member in your *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory. This setting takes effect during the EPV HTML phase.

8.9 Exclusion of queue from configuration views

You can exclude non important queues from configuration views by customizing the **UEXQUEUE** member in your *$$$path*/USERPROFILE/*$Profilename*/EPVWMQ/USEREXIT directory. This setting takes effect during the EPV HTML phase.

8.10 Publishing on the IBM HTTP Server on zSeries

To publish the EPV for WMQ 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 WMQDOC directory in binary mode. (VA MESSO?)
d) Transfer the following files in the JAVA directory in binary mode:

*.JS
*.CSS

Transfer all the other files in ascii mode using the following quote command[5]:

quote site sbdataconn=(IBM-1047,ISO8859-1)

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

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

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

.

8.11 Exporting reports in Microsoft Excel

It is possible to load an EPV for WMQ view or an entire EPV for WMQ page 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 in order to allow ActiveX execution, or better insert the EPV for WMQ website in the list of the trusted sites and enable ActiveX execution only for that list.

The advanced export option permits users to save the view or entire page in an existing spreadsheet and perform the execution of an automatic macro. The following steps need to be performed :

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

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

If you cannot modify the security of your browser, EPV for WMQ allows you to use two different export functionalities.
If you right click on a table cell you will get the standard browser menu and the users will be able to use the Export to Excel function available in latest IE versions[6]. In this case the view exported to a Microsoft Excel spread sheet appears without the standard EPV format.

Another way allows you to export the entire page without using ActiveX. In this case the user should follow these instructions:
a) **Copy and open an Excel template:** on the installation CD you can find the EPV_EXPORT Excel file located inside the QHTM\TOOLS directory. Copy this file to your PC and open it.
b) **Get the html page URI:** clicking on the right mouse button, you should select the GET PAGE URI item; this function opens a new HTML page that shows the URI you want to export.

Export page: you should copy the HTML page URI and paste that in the input box that appears in the above Excel template.

8.12 Customizing the user interface

EPV for WMQ pages are produced following HTML standards. It is possible to customize the appearance of pages (font, colours, etc.); for a detailed description of the available styles see the "EPV 11 - User Interface".

8.13 Customizing the SORT feature

EPV for WMQ allows you to sort each report inside the HTML pages; to avoid performance problem when you activates this feature, EPV for WMQ provides two variables inside the **EPV_CONFIG.TXT** file[7] in the JAVA directory (see Chapter 5.4). The **SORTMIN** and **SORTMAX** variables allow you to sort only the tables with a number of records in that range. Moreover to correctly sort 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

[6] Similar function can be obtained using other browsers through add-on and plugins.
[7] For a detailed description of the content of this file, see the "EPV 11 - User Interface".

to the **FMT** parameter in the **CONFIG.PL** file located in the $$$*path*/USERPROFILE/*$Profilename*/EPVWMQ directory.

8.14 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.

8.15 Automatic deletion of old pages in the Windows environment

The deletion of old EPV HTML pages can be performed by a program named **RemoveOldFile.exe** that runs in the WINDOWS environments[8]. This program must be scheduled daily on the server hosting the EPV HTML pages; it will automatically delete directories and pages older than a user defined number of days.
This program can be found on the installation CD under *$$$path/*TOOLS and must be customized to fit your needs.

[8] If the HTML pages are published in z/OS (USS), UNIX or Linux, a user function based on the rm command should be implemented.

9 Using the EPV Customization GUI

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

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

9.1 ADVANCED customization

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

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

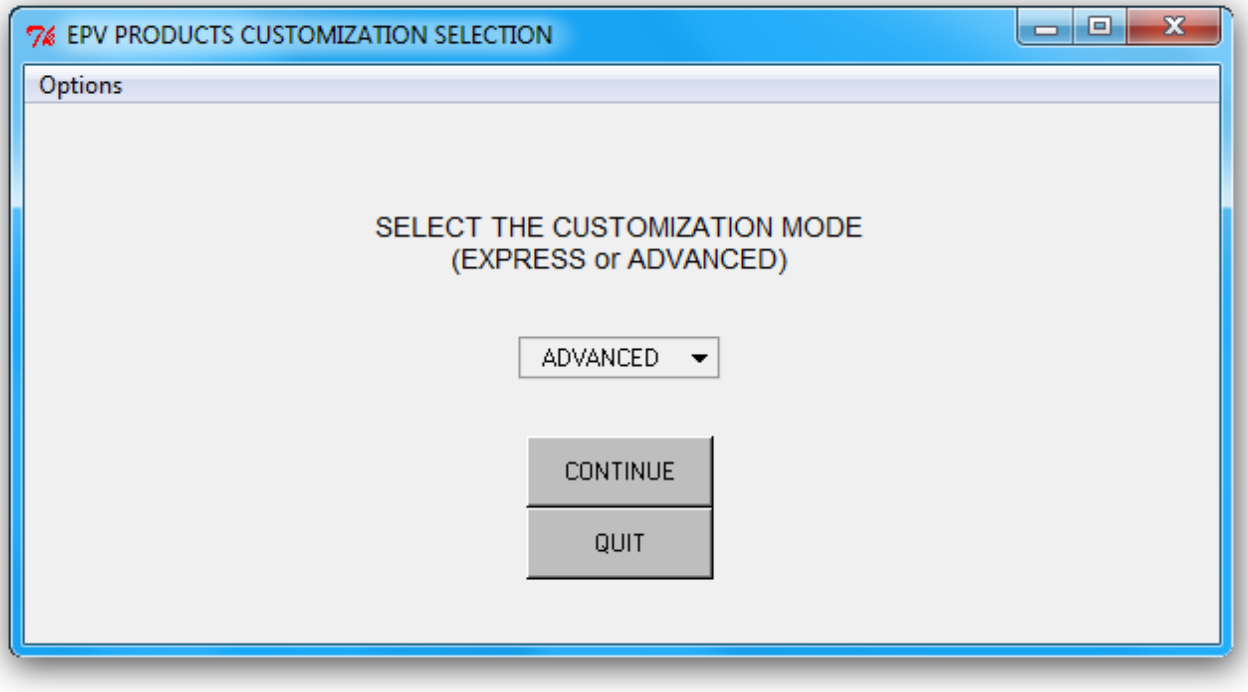

Figure 2

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

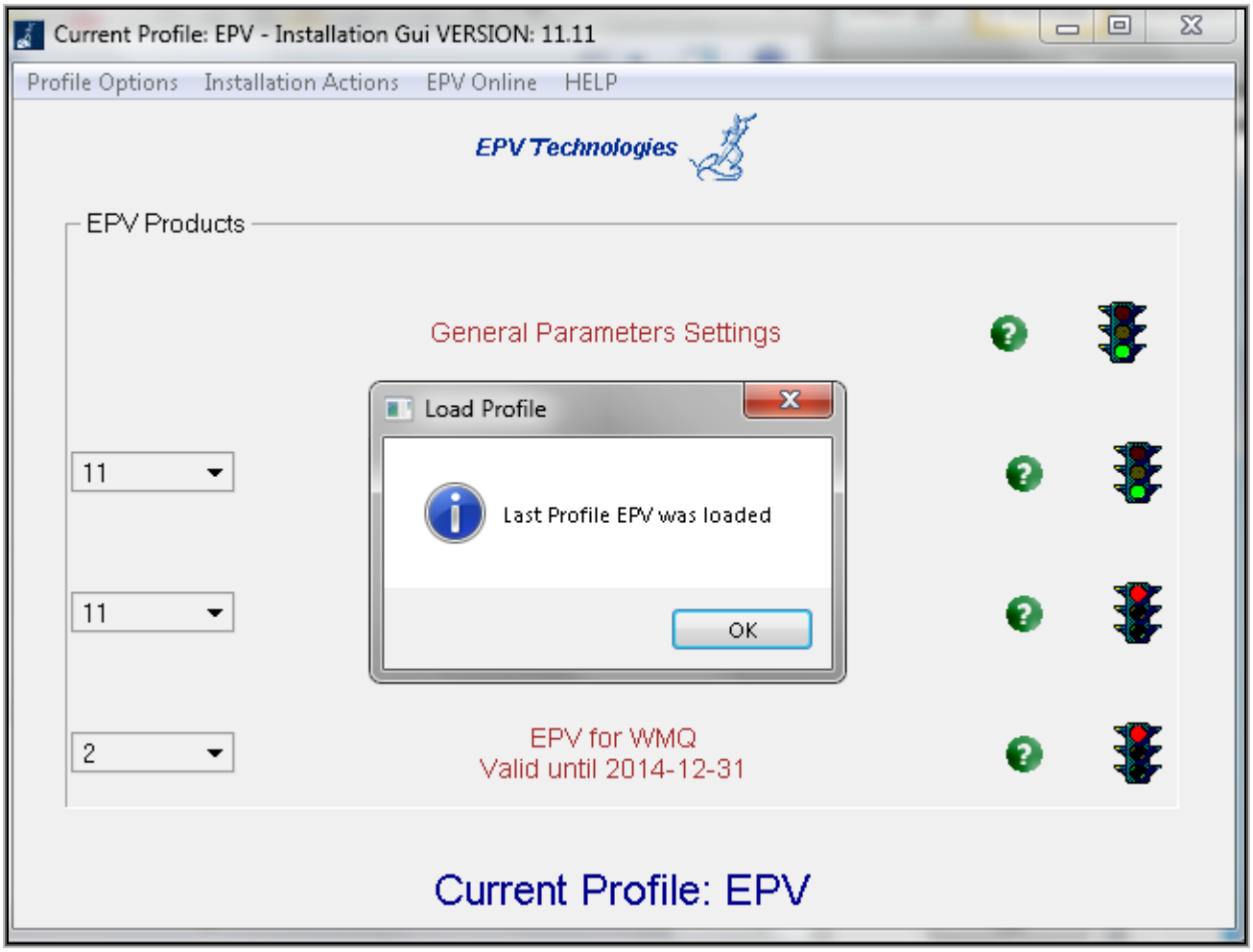

Figure 3

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

9.2 Customizing the DBs

After selecting the user profile you have click on “General Parameters Settings” and Save the settings.
Then click on the “EPV for WMQ” product, choose the name of the DBs or leave the default.
Save and Return.

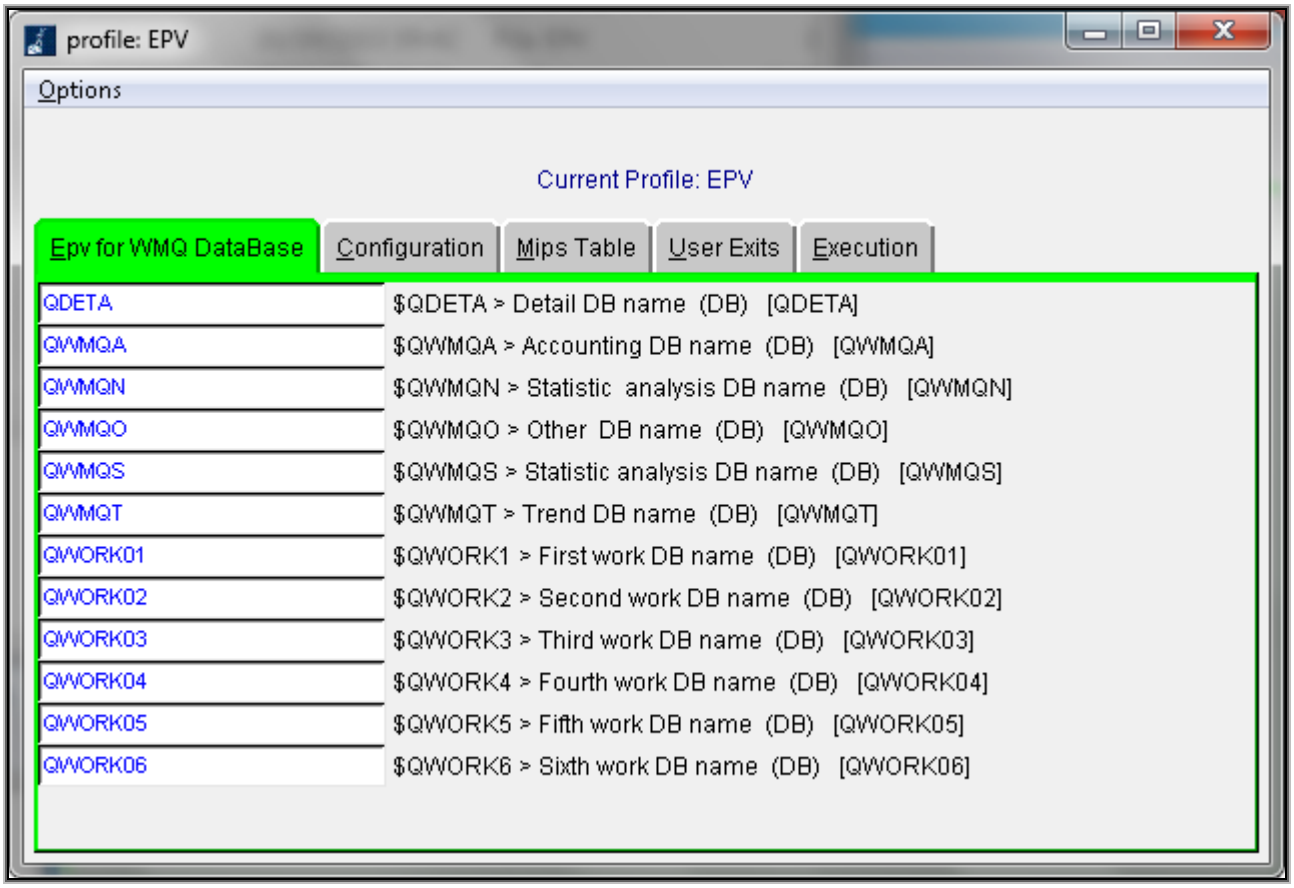

Figure 4

Then you have to run the “Create DataBases and Install Stored Procs” options (in this order) provided under the Installation actions menu on the top of the window, as shown in the image below, to create the databases needed by the EPV for WMQ product:

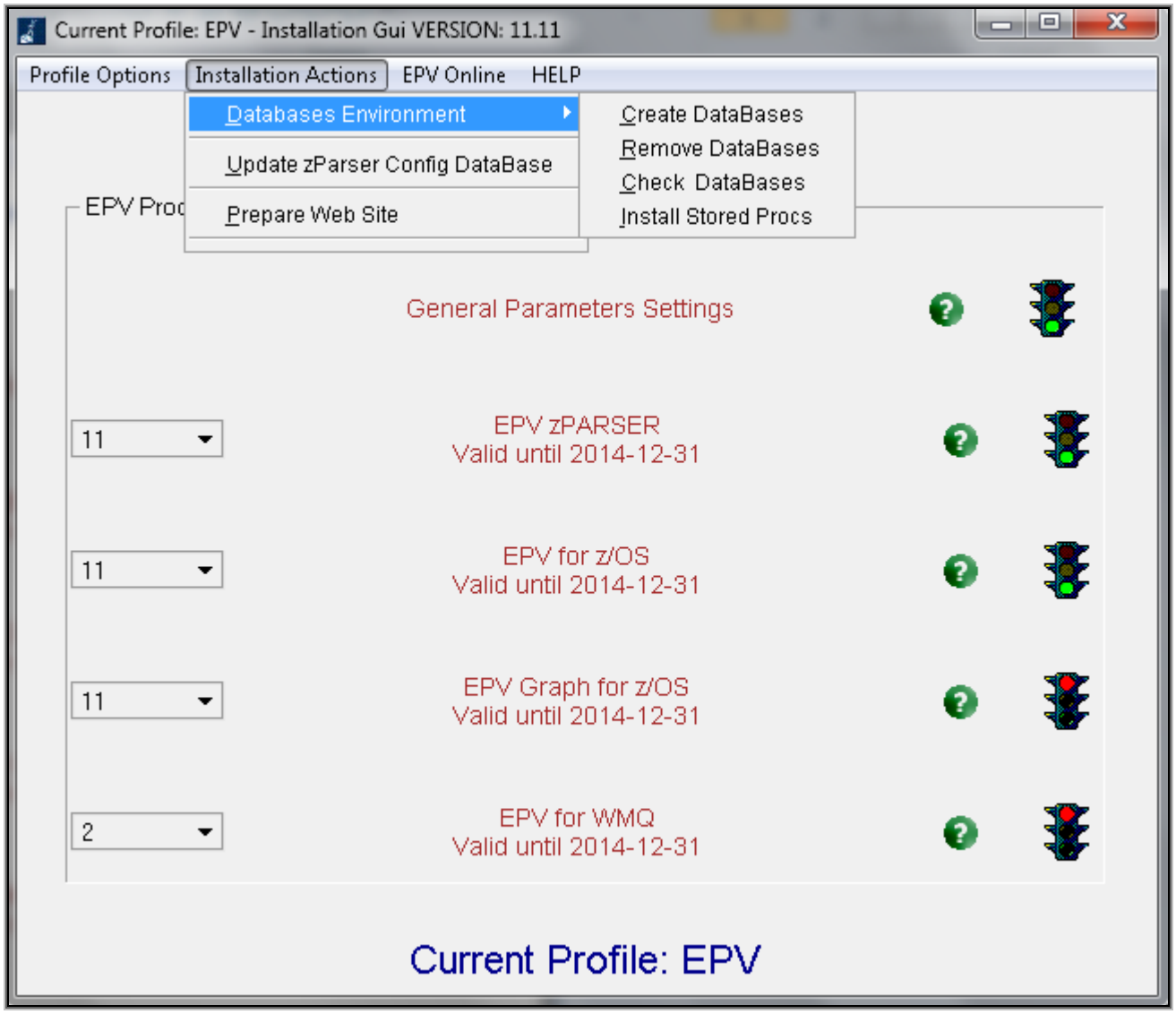

Figure 6

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

9.3 Customizing the product's parameters

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

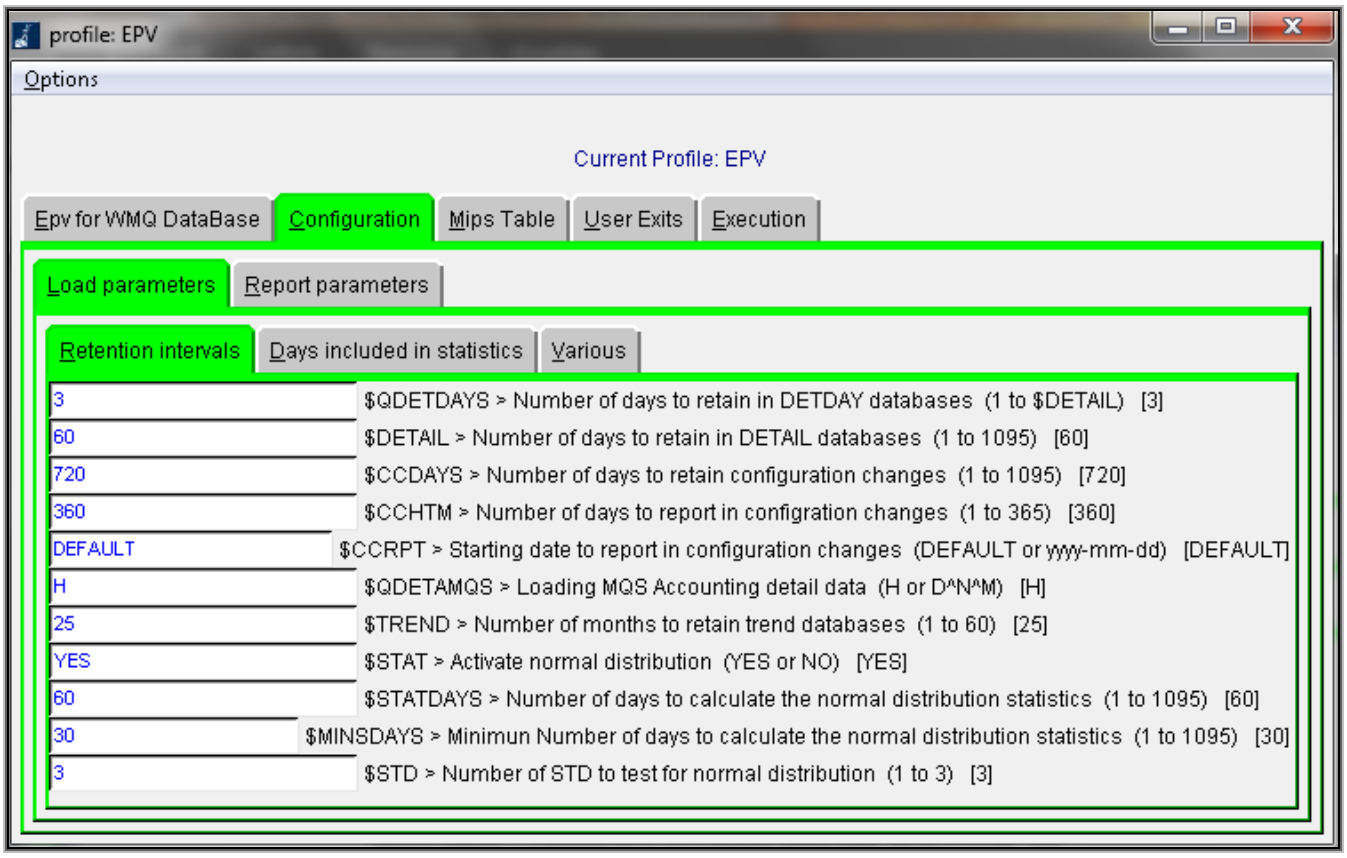

Figure 7

Through this panel you can customize all the parameters needed by EPV for WMQ, 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 and C 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.

9.4 Additional customization steps for UNIX and Linux systems

After you moved your 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 excluding EPVROOT (e.g.: $EPVPATH=/home/epv/) by inserting the following command:

export EPVPATH=/home/epv/

in your .bashrc script or in the shell script that initializes the user shell used to run EPV products procedures;

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 on all the profile folder (*$$$path*/USERPROFILE)*:* **find . -type f -name '*.sh' -exec dos2unix '{}'** \;

d) allocate the DBs (il runall fat t no solo I db del parser?) by executing the RUNALL.sh script, located in /$$$path/EPVROOT/TOOLS/PARSER/MYSQL_PROCS/UNIX, providing MySQL user name and password (e.g. ./RUNALL.sh youruser yourpassword).

9.5 EPV online (only when running in Windows systems)

The EPV online menu permits you to load data, create reports and view all the log files interactively. You should run the phases in the same order in which they appear in the menu.

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

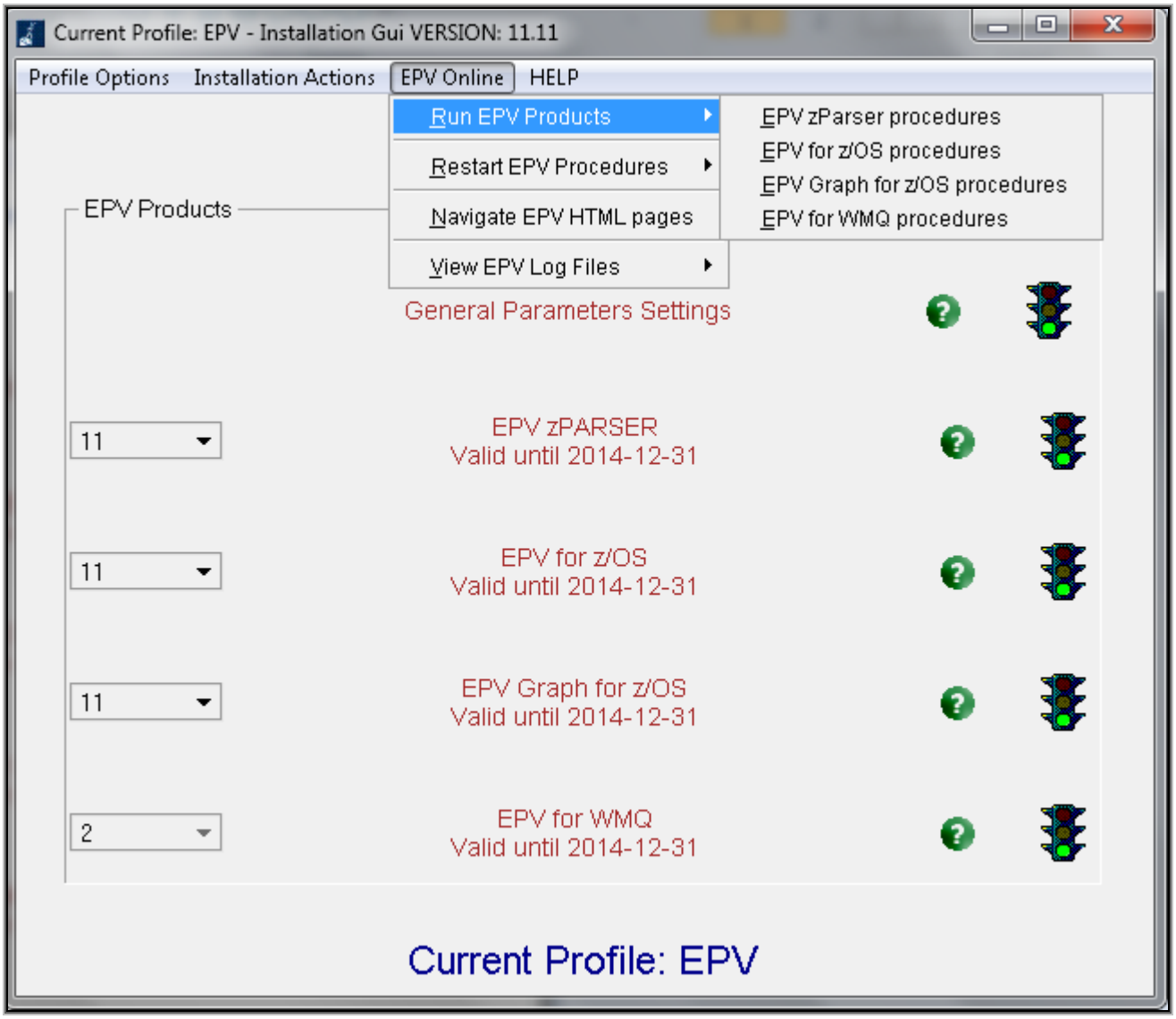

Figure 8

For each step a dedicated window will be opened. From this window it is possible to check the return code of each step performed and view the relative detail log created by the EPV Plus Products.

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

10 Customer support

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

epv.support@epvtech.com

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

epv.info@epvtech.com

Attachment A – CONFIGURATION parameters

PARAMETER	DESCRIPTION	DEFAULT VALUE
CCDAYS	NUMBER OF DAYS TO MAINTAIN CONFIGURATION CHANGES	720
CCHTM	NUMBER OF DAYS TO REPORT IN CONFIGURATION CHANGES	360
CCRPT	PERMITS TO CHOOSE THE STARTING DATE SINCE CONFIGURATION CHANGES WILL BE REPORTED	DEFAULT
DBCHECK	CREATE HTML PAGES SHOWING EPV DATABASES STATISTICS	NO
DETAIL	NUMBER OF DAYS TO RETAIN IN QWMQA, QWMQN, QWMQO AND QWMQS DATABASE	60
EPVMIPS	ESTIMATE GCP POWER CAPACITY. THE DEFAULT VALUE WILL NOT TAKE INTO CONSIDERATION THE MP EFFECT CAUSED BY SPECIAL ENGINES	DEFAULT
FMT	FORMAT OF NUMERIC OUTPUT EUROPEAN/USA/SWISS	E
FMTDATED	FORMAT OF TREND DAILY DATE	YYYYMMDD
FMTDATEM	FORMAT OF TREND MONTHLY DATE	YYYYMM
LOADSMF	FORCE OLD DATA IN EPV (FORCE / DEFAULT) THE DEFAULT VALUE WILL NOT FORCE OLD DATA IN THE EPV DATABASE	DEFAULT
NAVIGATE	NUMBER OF DATES TO NAVIGATE IN MAIN MENU	10
QDETAMQS	LOAD MQS ACCOUNTING DETAIL DATA: N = NO MQS DATA D = DETAIL MQS DATA IN QDETA DB M = SUMMARIZED MQS DATA IN QDETA DB H = MQS DATA WITHOUT QDETA DB	H
QDETDAYS	NUMBER OF DAYS TO RETAIN IN QDETA DATABASE	3
QHTMDIR	PREFIX NAME TO WRITE HTML PAGES	EPV
RPTEPVE	ENDING REPORTING DATE THE DEFAULT VALUE IS ALWAYS YESTERDAY. THIS CAN BE MODIFIED IN THE QCONFIG MEMBER	DEFAULT
RPTEPVS	STARTING REPORTING DATE THE DEFAULT VALUE IS ALWAYS YESTERDAY.	DEFAULT

	THIS CAN BE MODIFIED IN THE QCONFIG MEMBER	
STAT	ACTIVATE NORMAL DISTRIBUTION ANALYSIS FOR TREND DAY ANALYSIS	YES
TOPTRAN	NUMBER OF TOP TRANSACTION TO SHOW IN THE WORKLOAD VISION REPORT	10
TREND	NUMBER OF MONTHS TO RETAIN IN QWMQT TREND DATABASE	25
TRENDDAY	NUMBER OF REPORTED DAYS IN TREND DAY VISION	60
TRENDMON	NUMBER OF REPORTED MONTHS IN TREND MONTH AND WEEK VISION	25
	DAY STATISTICS FILTERS	
MONDAY	INCLUDE MONDAYS IN STATISTICAL ANALYSIS	YES
TUEDAY	INCLUDE TUESDAYS IN STATISTICAL ANALYSIS	YES
WEDDAY	INCLUDE WEDNESDAYS IN STATISTICAL ANALYSIS	YES
THUDAY	INCLUDE THURSDAYS IN STATISTICAL ANALYSIS	YES
FRIDAY	INCLUDE FRIDAYS IN STATISTICAL ANALYSIS	YES
SATDAY	INCLUDE SATURDAYS IN STATISTICAL ANALYSIS	NO
SUNDAY	INCLUDE SUNDAYS IN STATISTICAL ANALYSIS	NO
HOLIDAY	INCLUDE HOLIDAYS IN STATISTICAL ANALYSIS	NO
	TREND DAY REPORT FILTERS	
RDAYMON	INCLUDE MONDAYS IN REPORTS	YES
RDAYTUE	INCLUDE TUESDAYS IN REPORTS	YES
RDAYWED	INCLUDE WEDNESDAYS IN REPORTS	YES
RDAYTHU	INCLUDE THURSDAYS IN REPORTS	YES
RDAYFRI	INCLUDE FRIDAYS IN REPORTS	YES
RDAYSAT	INCLUDE SATURDAYS IN REPORTS	NO
RDAYSUN	INCLUDE SUNDAYS IN REPORTS	NO
RDAYHOL	INCLUDE HOLIDAYS IN REPORTS	NO
	TREND WEEK AND MONTH REPORT FILTERS	
RMONMON	INCLUDE MONDAYS IN REPORTS	YES
RMONTUE	INCLUDE TUESDAYS IN REPORTS	YES
RMONWED	INCLUDE WEDNESDAYS IN REPORTS	YES
RMONTHU	INCLUDE THURSDAYS IN REPORTS	YES
RMONFRI	INCLUDE FRIDAYS IN REPORTS	YES
RMONSAT	INCLUDE SATURDAYS IN REPORTS	YES

RMONSUN	INCLUDE SUNDAYS IN REPORTS	YES
RMONHOL	INCLUDE HOLIDAYS IN REPORTS	YES

Attachment B – Base and EXCEPTIONS thresholds

BASE THRESHOLD	ADVANCED THRESHOLD USER EXIT	DESCRIPTION	OP(*)	DEFAULT VALUE
ABNDSOS	TABNDSOS	NUMBER OF ABENDS DUE TO SHORT ON STORAGE	>	0
ARCHREA	TARCHREA	NUMBER OF LOG ARCHIVE READ EVENTS	>	0
ARCHWAI	TARCHWAI	NUMBER OF WAIT LOG ARCHIVE EVENTS	>	0
ASYNDWT	TSYNDWT	NUMBER OF BUFFER POOL ASYNCHRONOUS WRITE THRESHOLD EVENTS	>	0
BPHIRA	TBPHIRA	PERCENT OF BUFFER POOL HIT RATIO	<	80
CFSTATM	TCFSTATM	WMQ COUPLING FACILITY STRUCTURE ASYNCHRONOUS TIME IN MICROSECONDS	>	500
CFSTFUL	TCFSTFUL	NUMBER OF TIMES WHEN WMQ COUPLING FACILITY STRUCTURE IS FULL	>	0
CFSMFUL	TCFSMFUL	NUMBER OF TIMES WHEN WMQ COUPLING FACILITY SMDS IS FULL	>	0
CFSMNBU	TCFSMNBU	NUMBER OF TIMES WHEN WMQ COUPLING FACILITY SMDS HAS NO BUFFER	>	0
CFSTSTM	TCFSTATM	WMQ COUPLING FACILITY STRUCTURE SYNCHRONOUS TIME IN MICROSECONDS	>	30
CONTSOS	TCONTSOS	NUMBER OF STORAGE CONTRACTIONS DUE TO SHORT ON STORAGE	>	0
CPCHIN	TCPCHIN	CHIN ADDRESS SPACE CPU TIME IN SECONDS	>	900
CPLOGLO	TCPLOGLO	NUMBER OF CHECKPOINTS BY HITTING THE LOGLOAD PARAMETER	>	10
CPMSTR	TCPMSTR	MSTR ADDRESS SPACE CPU TIME IN SECONDS	>	900
CRITSOS	TCRITSOS	NUMBER OF CRITICAL	>	0

		CONDITIONS DUE TO SHORT ON STORAGE		
CUSCHIN	TCUSCHIN	CUSHION IN MB OF VIRTUAL MEMORY BELOW 2 GB FOR CHIN A.S.	<	100
CUSMSTR	TCUSMSTR	CUSHION IN MB OF VIRTUAL MEMORY BELOW 2 GB FOR MSTR A.S.	<	100
HCBPSTL	THCBPSTL	NUMBER OF BUFFER POOL HASH CHAIN MODIFIED DURING STEALING EVENTS	>	0
LAMNDLY	TLAMNDLY	NUMBER OF WAIT FOR LOOK-AHEAD TAPE MOUNT EVENTS	>	0
LOGBUPA	TLOGBUPA	NUMBER OF LOG OUTPUT BUFFER PAGED IN EVENTS	>	0
LOGBUWA	TLOGBUWA	NUMBER OF WAIT LOG BUFFER EVENTS	>	0
MINSDAYS		NUMBER OF MINIMUM DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS		30
MQBPHIR	TMQBPHIR	PERCENT OF BUFFER POOL HIT RATIO AT SUBSYSTEM LEVEL	<	70
PAGCHIN	TPAGCHIN	PAGE FAULT RATE FOR CHIN A.S.	>	10
PAGMSTR	TPAGMSTR	PAGE FAULT RATE FOR MSTR A.S.	>	10
STATDAYS		NUMBER OF DAYS TO CALCULATE NORMAL DISTRIBUTION STATISTICS FOR TREND DAY ANALYSIS		60
STD		NUMBER OF STANDARD DEVIATIONS TO TEST NORMAL DISTRIBUTION FOR TREND DAY ANALYSIS		3
SYNDMCT	TSYNDMCT	NUMBER OF BUFFER POOL SYNCHRONOUS WRITE THRESHOLD EVENTS	>	0
SYNNBUF	TSYNNBUF	NUMBER OF BUFFER POOL SYNCHRONOUS WRITE PAGE SET FOR NO FREE BUFFER EVENTS	>	0

(*) Logical operator

Attachment C – Statistical User Exits

ALERTS NAME	USER EXIT NAME	DESCRIPTION
STDADRCP	UESADRCP	ABNORMAL WMQ SUBSYSTEM CPU USAGE
STDADRIP	UESADRIP	ABNORMAL WMQ SUBSYSTEM IIP USAGE
STDCHIVS	UESCHIVS	ABNORMAL WMQ SUBSYSTEM CHIN VIRTUAL STORAGE AVAILABLE
STDLOGMW	UESLOGMW	ABNORMAL WMQ SUBSYSTEM MB LOG WRITES
STDLOGRE	UESLOGRE	ABNORMAL WMQ SUBSYSTEM TOTAL LOG READS
STDMQIRQ	UESMQIRQ	ABNORMAL WMQ SUBSYSTEM TOTAL MQI ACTIVITY
STDMSTRS	UESMSTRS	ABNORMAL WMQ SUBSYSTEM MSTR REAL STORAGE USED
STDMSTVS	UESMSTVS	ABNORMAL WMQ SUBSYSTEM MSTR VIRTUAL STORAGE AVAILABLE
STDSMBPH	UESSMBPH	ABNORMAL WMQ SUBSYSTEM BUFFER POOL HIT RATIO
STDSMBPR	UESSMBPR	ABNORMAL WMQ SUBSYSTEM BUFFER POOL READ RATE
STDSMBPU	UESSMBPU	ABNORMAL WMQ SUBSYSTEM BUFFER POOL USAGE
STDSTBPH	UESSTBPH	ABNORMAL WMQ SUBSYSTEM BUFFER POOL HIT RATIO FOR EACH BUFFER POOL
STDSTBPR	UESSTBPR	ABNORMAL WMQ SUBSYSTEM BUFFER POOL READ RATE FOR EACH BUFFER POOL
STDSTBPU	UESSTBPU	ABNORMAL WMQ SUBSYSTEM BUFFER POOL USAGE FOR EACH BUFFER POOL
STDWKREQ	UESWKREQ	ABNORMAL WMQ SUBSYSTEM TOTAL REQUESTS
STDWKTCP	UESWKREQ	ABNORMAL WMQ SUBSYSTEM TOTAL CPU USAGE

Related documentation

The following manuals complement the information provided in this manual:

- *EPV for WMQ V2 List of Views*
- *EPV for WMQ V2 Release Notes*
- *EPV for WMQ V2 Preparing Input for a Demo*
- *EPV for WMQ V2 DataBase Layout*
- *EPV V11 User Interface*