

Preface

In 1994, IBM began delivering the *Workload Manager* as a part of the new MVS/ESA SP5.1 operating system release. The Workload Manager provides a radical departure from earlier IBM operating system software.

- With earlier IBM system software, performance objectives were achieved by providing MVS with specific parameters which provided either direct control or general guidance to MVS in how system resources were to be used by workloads. The controls were *resource oriented*, in that users provided MVS with detailed values which MVS used as its control mechanism. Installation personnel were responsible for associating detailed controls with specific workloads (for example, users could provide CPU dispatching priorities, memory constraints, multiprogramming level constraints. etc.).
- With the Workload Manager, users are no longer in direct control of system resources and how those resources are allocated to workloads. Rather, MVS attempts to allocate or re-allocate system resources to meet **performance goals** as specified by users. Installation personnel provide MVS with end-user goals (e.g., average transaction response)

The Workload Manager is a new concept and new software. Consequently, there will be an industry-wide "learning curve" as installations gain experience using the Workload Manager to meet performance goals.

The WLM Component of CPEXpert can help reduce the learning curve by (1) automatically analyzing how well the Workload Manager meets performance goals, (2) analyzing performance data to detect when performance goals are not achieved, (3) identifying the reasons performance goals were not achieved, and (4) suggesting alternatives to improve performance.

Additionally, the WLM Component can help reduce the learning curve by providing comprehensive documentation about Workload Manager concepts, algorithms, and operational features.

For those performance analysts who have a good grasp of Workload Manager concepts, constraints, and analysis techniques, the WLM Component can **significantly** help reduce the time required to perform daily analysis of system performance. This is because the WLM Component reports and analyzes periods when *service classes fail to achieve their performance goals*. Since only problem situations are reported by the WLM Component, performance analysts can focus on these problems and not waste time analyzing other areas.

How to use this manual

This document describes how to use the WLM Component of CPEXpert to analyze major constraints to improved performance of your computer system. The manual is organized into two volumes, consisting of four sections and one appendix.

Section 1 (contained in Volume 1) provides an introduction to the WLM Component. This section is organized into four chapters. Most of this section can be reviewed for general information.

Chapter 1 provides a brief overview of IBM's Workload Manager.

Chapter 2 provides an overview of the WLM Component of CPEXpert.

Chapter 3 describes the sources of data used by the WLM Component to analyze performance of your system.

Chapter 4 describes the performance data bases which CPEXpert can use to analyze performance.

Section 2 (contained in Volume 1) describes how to provide guidance variables to the WLM Component using the prefix.CPEXPERT.SOURCE(WLMGUIDE) PDS member. The instructions in this chapter will be important when you install the WLM Component and at any time the guidance variables need to be changed. This section is organized into two chapters.

Chapter 1 describes how to specify data selection and results presentation guidance variables. The instructions in this chapter will be important if you wish to select specific measurement periods for analysis, select or exclude service classes, or to alter the default way in which the WLM Component presents results.

Chapter 2 describes how to specify threshold control variables to guide the WLM Component in its analysis of system performance. The instructions in this chapter will be important if you wish to alter the defaults provided with the WLM Component.

Section 3 (contained in Volume 1) describes how to use the WLM Component to analyze performance. The instructions in this section will be followed each time you execute the WLM Component. This section is organized into two chapters.

Chapter 1 provides detailed instructions on executing the WLMCPE Module to analyze the performance of your system. The instructions in this chapter will be important each time that the WLM Component is executed.

Chapter 2 contains a checklist for executing the WLM Component.

Section 4 (contained in Volume 1) discusses considerations for analyzing the Workload Manager. This section will be important to understand how the Workload Manager operates and how the results from CPEXpert should be evaluated. This section is organized into five chapters.

Chapter 1 presents an overview of the Workload Manager concepts.

Chapter 2 describes how the performance of subsystem transactions (i.e., CICS transactions or IMS transactions) is managed by the Workload Manager, and discusses the performance information available from subsystems.

Chapter 3 discusses some performance implications of the internal logic of the Workload Manager.

Chapter 4 describes the performance data which are used by CPEXpert to analyze system performance from the perspective of the Workload Manager.

Chapter 5 highlights some of the factors that must be considered when analyzing performance based upon workload data collected and recorded by RMF.

Appendix A contains a detailed description of each rule that results in a finding based upon the WLM Component analyzing performance of your system. You may wish to briefly review the rules in this appendix to appreciate the problems that are encountered in different installations. However, it is not necessary to read all of the rules. It is necessary only to read the rules that are identified by the reports produced from the WLMCPE Module based on an analysis of performance at **your** installation. Appendix A is split between Volume 1 and Volume 2.

Appendix A (Volume 1) contains findings related to the service policy in effect and related to general system findings.

Appendix A (Volume 2) contains specific findings related to the analysis CPEXpert performs if CPEXpert detected that a service class did not meet its performance goal.

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