IBM Z Decision Support

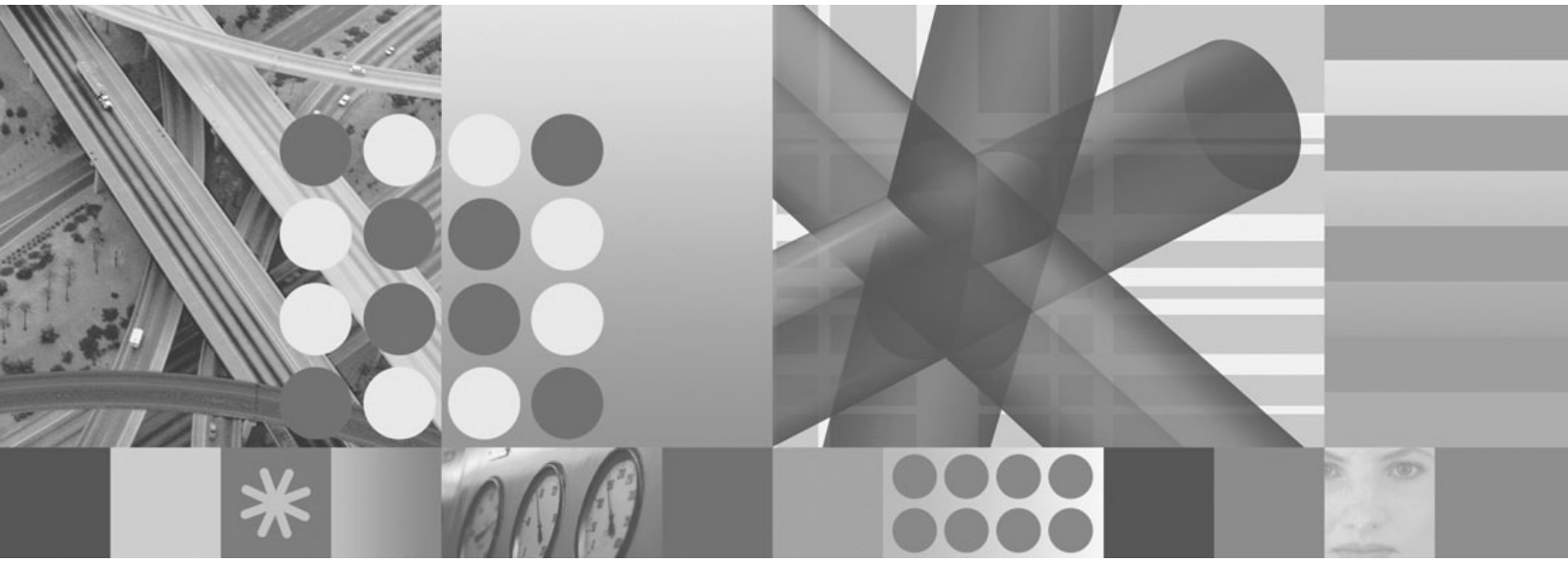
Version 1.9.0

AS/400 System Performance Feature Guide and Reference

SC27-9060

IBM Z Decision Support

Version 1.9.0



AS/400 System Performance Feature Guide and Reference

SC27-9060

Note

Before using this information and the product it supports, read the information in “Notices” on page 135.

Sixteenth Edition (July 2018)

This edition applies to version 1, release 9 of IBM Z Decision Support (program number 5698-B06) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

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Figures

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Tables

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Preface

The *AS/400 System Performance Feature Guide and Reference* describes how to use IBM® Tivoli® Decision Support for z/OS® to collect and report performance data generated by AS/400® systems.

This book:

- Describes performance issues and how they affect the level of services you can offer users.
- Guides you through the process of the selecting, installing and implementing the relevant components.
- Explores performance characteristics shown in Tivoli Decision Support for z/OS reports so that you can analyze the characteristics of your system.

Note: The short form **SP400 feature** is used throughout this book instead of the full title AS/400 System Performance feature.

Who should read this book

The *AS/400 System Performance Feature Guide and Reference* is for:

- Anyone who analyzes or monitors AS/400 performance.
- Anyone responsible for establishing or meeting service level objectives for AS/400 user groups.
- Tivoli Decision Support for z/OS administrators (primarily as a guide to feature installation and as a reference to table and report definitions).
- Users with various backgrounds who are interested in analyzing AS/400 performance data and improving AS/400 performance.

You can use the Tivoli Decision Support for z/OS SP400 feature to monitor AS/400, even if you have little experience with AS/400. However, to make the best use of the SP400 feature to improve performance, you should be familiar with AS/400, the terms that are unique to AS/400, and the terminology associated with database design and performance.

If you are not familiar with AS/400, refer to the *AS/400 System Introduction* and *AS/400 System Concepts*. These manuals describe the basic concepts of AS/400 and introduce you to some AS/400 terminology.

Also, the better you understand the interaction of processor cycles, storage, and I/O, the easier it is to identify performance constraints. The AS/400 product library is the authoritative source for information about understanding and tuning AS/400 performance.

What this book contains

Use this book to help you collect performance data generated on the AS/400 and create the reports supplied with the SP400 feature. This book explains how to create and display Tivoli Decision Support for z/OS reports to both understand and monitor AS/400 performance.

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This book contains the following parts:

- Part 1, "AS/400 System Performance Feature Guide," on page 1 describes the role of the SP400 feature in the Tivoli Decision Support for z/OS environment and contains a description of how to plan for and set up the SP400 feature so that reports and decision support information are available.
- Part 2, "AS/400 System Performance Feature Reference," on page 27 describes the flow of data from OS/400® logs to reports, showing Tivoli Decision Support for z/OS log and record definitions, tables, and reports. It also describes the supplied data tables and lookup tables, including their columns and expressions.
- The Appendixes describe the use and the syntax of the OS/400 commands. It also explains how to obtain support for IBM software products.

  A bibliography, glossary and index follow the appendixes.

Publications

This section lists publications in the Tivoli Decision Support for z/OS library and any other related documents. It also describes how to access Tivoli publications online, how to order Tivoli publications, and how to submit comments on Tivoli publications.

Tivoli Decision Support for z/OS library

The following documents are available in the Tivoli Decision Support for z/OS library:

- *Administration Guide and Reference*, SH19-6816

  Provides information about initializing the Tivoli Decision Support for z/OS database and customizing and administering Tivoli Decision Support for z/OS.
- *AS/400 System Performance Feature Guide and Reference*, SH19-4019

  Provides information for administrators and users about collecting and reporting performance data generated by AS/400 systems.
- *CICS Performance Feature Guide and Reference*, SH19-6820

  Provides information for administrators and users about collecting and reporting performance data generated by Customer Information and Control System (CICS®).
- *Distributed Systems Performance Feature Guide and Reference*, SH19-4018

  Provides information for administrators and users about collecting and reporting performance data generated by operating systems and applications running on a workstation.
- *Guide to Reporting*, SH19-6842

  Provides information for users who display existing reports, for users who create and modify reports, and for administrators who control reporting dialog default functions and capabilities.
- *IMS Performance Feature Guide and Reference*, SH19-6825

  Provides information for administrators and users about collecting and reporting performance data generated by Information Management System (IMS™).
- *Language Guide and Reference*, SH19-6817

  Provides information for administrators, performance analysts, and programmers who are responsible for maintaining system log data and reports.
- *Messages and Problem Determination*, SH19-6902

  Provides information to help operators and system programmers understand, interpret, and respond to Tivoli Decision Support for z/OS messages and codes.

- *Monitoring Agent Guide*, SC23-7968

  Enables administrators and users to view their collected and summarized Tivoli Decision Support for z/OS data from within the Tivoli Enterprise Portal graphical user interface.
- *Network Performance Feature Installation and Administration*, SH19-6901

  Provides information for network analysts or programmers who are responsible for setting up the network reporting environment.
- *Network Performance Feature Reference*, SH19-6822

  Provides reference information for network analysts or programmers who use the Network Performance feature.
- *Network Performance Feature Reports*, SH19-6821

  Provides information for network analysts or programmers who use the Network Performance feature reports.
- *Resource Accounting for z/OS*, SH19-4495

  Provides information for users who want to use Tivoli Decision Support for z/OS to collect and report performance data generated by Accounting Feature for z/OS.
- *System Performance Feature Guide*, SH19-6818

  Provides information for performance analysts and system programmers who are responsible for meeting the service-level objectives established in your organization.
- *System Performance Feature Reference Volume I*, SH19-6819

  Provides information for administrators and users with a variety of backgrounds who want to use Tivoli Decision Support for z/OS to analyze z/OS, z/VM®, zLinux, and their subsystems, performance data.
- *System Performance Feature Reference Volume II*, SH19-4494

  Provides information for administrators and users with a variety of backgrounds who want to use Tivoli Decision Support for z/OS to analyze z/OS, z/VM, zLinux, and their subsystems, performance data.
- *Usage and Accounting Collector User Guide*, SC23-7966

  Provides information about the functions and features of the Usage and Accounting Collector.
- *IBM Online Library z/OS Software Products Collection Kit*, SK3T-4270

  CD containing all z/OS documentation.

Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available, in English only, at the following Web site:

http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

http://www.ibm.com/ibm/terminology

Using LookAt to look up message explanations

LookAt is an online facility that lets you look up explanations for most of the IBM messages you encounter, as well as for some system abends (an abnormal end of a task) and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can use LookAt from the following locations to find IBM message explanations from z/OS elements and features, z/VM, VSE/ESA™, and Clusters for AIX® and Linux®:

- The internet. You can access IBM message explanations directly from the LookAt Web site at:

  http://www.ibm.com/eserver/zseries/zos/bkserv/lookat/
- Your z/OS TSO/E host system. You can install code on your z/OS systems to access IBM message explanations, using LookAt from a TSO/E command line (for example, TSO/E prompt, ISPF, or z/OS UNIX® System Services running OMVS).
- Your Microsoft® Windows® workstation. You can install code to access IBM message explanations on the (SK3T-4269), using LookAt from a Microsoft Windows DOS command line.
- Your wireless handheld device. You can use the LookAt Mobile Edition with a handheld device that has wireless access and an Internet browser (for example, Internet Explorer for Pocket PCs, Blazer, or Eudora for Palm OS, or Opera for Linux handheld devices.) Link to the LookAt Mobile Edition from the LookAt Web site.

You can obtain code to install LookAt on your host system or Microsoft Windows workstation from:

- A CD in the *z/OS Collection*, (SK3T-4269)
- The *z/OS and Software Products DVD Collection*, (SK3T-4271)
- The LookAt Web site (click **Download** and then select the platform, release, collection, and location that suit your needs). More information is available in the LOOKAT.ME files available during the download process.

Accessing publications online

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli software information center by first going to the Tivoli software library at the following Web address:

http://www.ibm.com/software/tivoli/library/

Scroll down and click the **Product manuals** link. In the Tivoli Technical Product Documents Alphabetical Listing window, click the Tivoli Decision Support for z/OS link to access the product library at the Tivoli software information center.

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File ″ Print** window that allows Adobe® Reader to print letter-sized pages on your local paper.

Ordering publications

You can order many Tivoli publications online at the following Web site:
http://www.elink.ibmlink.ibm.com/publications/servlet/pbi.wss

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For additional information, see the Accessibility Appendix in the *Administration Guide and Reference*.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

http://www.ibm.com/software/tivoli/education/

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- Searching knowledge bases: You can search across a large collection of known problems and workarounds, Technotes, and other information.
- Obtaining fixes: You can locate the latest fixes that are already available for your product.
- Contacting IBM Software Support: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

For more information about these three ways of resolving problems, see Appendix C, “Support information,” on page 131.

Conventions used in this book

This guide uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

The following terms are used interchangeably throughout this book:

- MVS, OS/390®, and z/OS.
- VM and z/VM.

Typeface conventions

This guide uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip**, and **Operating system considerations**)
- Column headings in a table
- Keywords and parameters in text

Italic

- Citations (titles of books, diskettes, and CDs)
- Words defined in text
- Emphasis of words (words as words)
- Letters as letters
- New terms in text (except in a definition list)
- Variables and values you must provide

`Monospace`

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

Except for editorial changes, updates to this edition are marked with a vertical bar to the left of the change.

Changes in this edition

There have been some significant changes made to this edition of the manual.

In Part 1, the second chapter has been restructured into two separate chapters, and an extra chapter has been added which is entitled

- Chapter 4, “Using the SP400 feature on the AS/400,” on page 19 which discusses how to use the SP400 feature once it is installed and working.

Also, the planning information from Chapter 2 has been relocated to Chapter 1.

In Part 2, an extra chapter has been added:

- Chapter 8, “SP400 feature commands,” on page 111 which contains the information regarding these commands, which used to be included in Appendix A.

Part 1. AS/400 System Performance Feature Guide

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Chapter 1. Introducing the SP400 feature

IBM Tivoli Decision Support for z/OS collects performance, accounting and configuration data logged by computer systems, then summarizes the data and produces reports. Tivoli Decision Support for z/OS consists of a base product and several optional features that are used in systems management.

Collecting performance data

All IBM operating systems record performance and utilization data into various objects such as files and journal receivers. Generically, these are referred to as log files.

The role of the SP400 feature is to ensure that the operating system is collecting the appropriate data for your purposes, allowing you to extract the relevant information from these log files and then transfer this information to Tivoli Decision Support for z/OS.

Here, the AS/400 data will be merged with some environment data, which is defined in lookup tables on the host, and then aggregated into the Tivoli Decision Support for z/OS tables. These tables provide all the data for the pre-defined or customized reports.

The process of entering and maintaining environment data is called *administration*. Tivoli Decision Support for z/OS provides an administration dialog for maintaining resource information. Refer to the *Administration Guide and Reference*, SH19-6816 for information on how to use the administration dialog.

Figure 1 on page 4 illustrates how data is organized for inclusion within the Tivoli Decision Support for z/OS reports. For a more detailed description, see "SP400 feature general data flow" on page 30.

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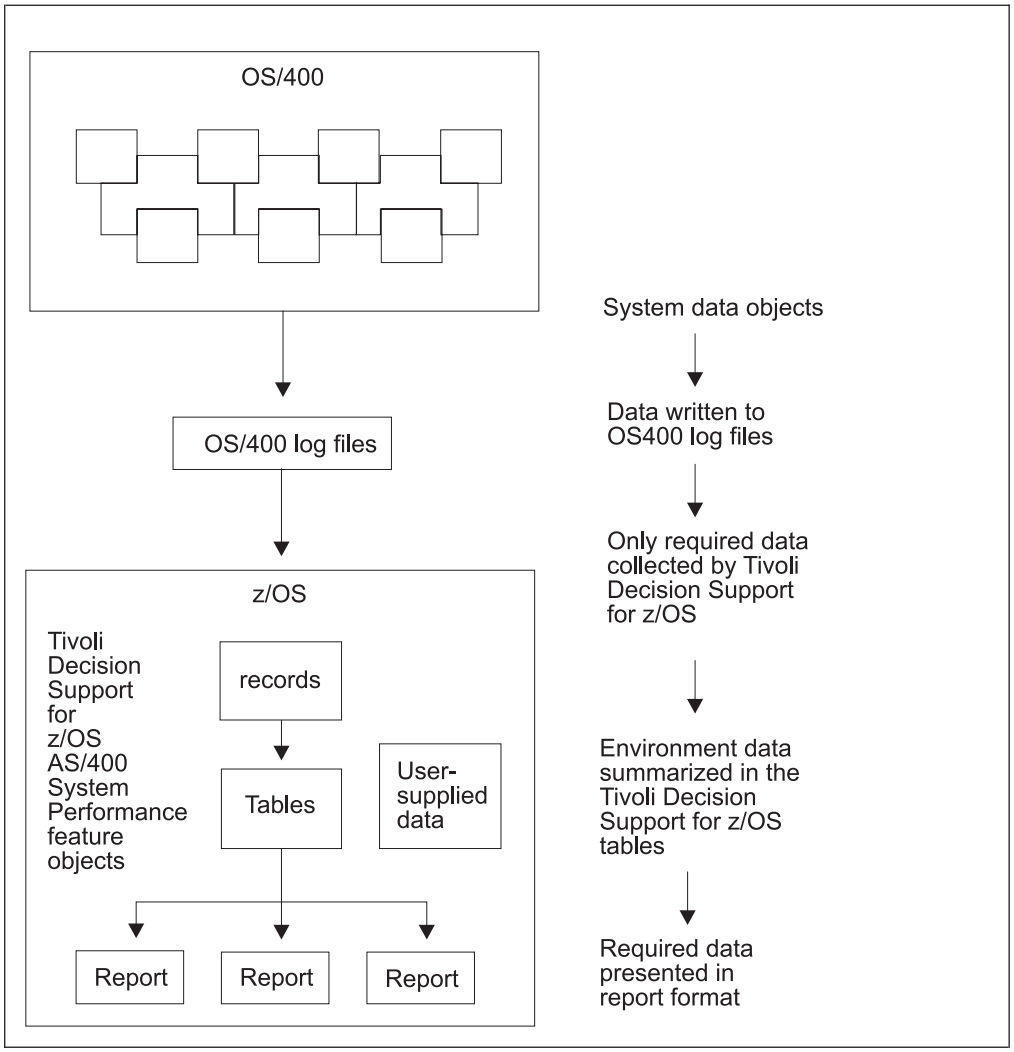

Figure 1. Organizing and presenting system performance data

The reports produced by Tivoli Decision Support for z/OS for the SP400 feature are grouped in the following report groups:

OS400ACT Accounting reports
OS400CON Configuration reports
OS400JOB Job statistics reports
OS400MSG Message reports
OS400PRF Performance reports

These report groups are accessible through the ISPF interface on the z/OS system and reporting can be performed either online or in batch. See "Working with report groups" in the *Guide to Reporting* for more information about this.

For a description of the Tivoli Decision Support for z/OS collection process, refer to the *Administration Guide and Reference*, SH19-6816

Planning the SP400 feature installation process

Use the planning process to prepare for these main customization tasks:

- Customize your AS/400 systems to generate the data required by the components you install.

- Define the environment data, which is held in the lookup tables on the host. This is the only information (besides the input data) that the SP400 feature needs to create reports. Environment data controls the data collection process and provides more information in the reports.

Before installing the SP400 feature, review your requirements as follows:

1. Analyze the users' tasks to determine what data the SP400 feature must gather to help the users accomplish those tasks.
2. Determine which SP400 feature components you must install to meet the users' needs.
3. For each selected component, determine the administration tasks you must perform and make any decisions required by these tasks which will help you customize Tivoli Decision Support for z/OS and the SP400 feature to work efficiently and effectively with your computer system.
4. For each selected component, determine the customization tasks you must perform for the supported products in order to enhance their usability and applicability in your situation.

Finally, the key to successful implementation of Tivoli Decision Support for z/OS is knowing:

- The objectives that you want to achieve.
- The methods to use to collect and analyze the appropriate information in order to produce reports that will help you to achieve your objectives.

Chapter 2. Installing the SP400 feature on the AS/400

This chapter focuses on the specific information to install the SP400 feature on the AS/400. Supplementary information is available in the *Administration Guide and Reference*, SH19-6816 manual.

To install the SP400 feature, complete the following steps:

- "Step 1: Transfer the SP400 feature code to the AS/400"
- "Step 2: Check the AS/400 requirements" on page 8
- "Step 3: Install the SP400 feature code on your AS/400" on page 8

If this is the first time you have installed the SP400 feature then *follow all these steps* to ensure that the SP400 feature installation is complete. If you are modifying your installation of the SP400 feature then you might not need to perform all of these tasks.

Step 1: Transfer the SP400 feature code to the AS/400

1. Create a save file on the AS/400 into which it can receive the DRLLIB library from the host.
   a. On the AS/400 use the CRTSAVF command to create a save file called DRLINST in the QGPL library. For example:

      ```
      CRTSAVF FILE(QGPL/DRLINST)
      ```

   b. Create a job on the host to transfer the SP400 feature code from the SMP-installed target library DRL*vrm*.SDRLA400 to the AS/400. To do this, modify the sample JCL contained in the partitioned data set member DRL*vrm*.SDRLCNTL (DRLJA400) using the following table:

      Note: *vrm* is to be replaced with the Version, Release and Modification level of the software that you are installing. For example, if it is Version 1, Release 8, modification level 1 then the library name is DRL180.SDRLA400 .

      Table 1. Host library members and OS/400 versions

Members	OS versions
DRL5400V	OS/400 V5R1M0 and network transfer
DRL5240V	OS/400 V5R2M0 and network transfer
DRL5240V	OS/400 V5R3M0 or later and network transfer

2. Run the job. This produces a file that contains the save file used to install the SP400 feature on the AS/400.
3. Transfer the file from the z/OS system into the QGPL/DRLINST save file on the AS/400.

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Step 2: Check the AS/400 requirements

Check the following requirements:

- "Disk space requirements."
- "Software requirements."

Disk space requirements

The disk space required by SP400 feature depends upon the size of the databases created when data is captured.

To minimize the use of storage, perform data captures as frequently as possible.

Software requirements

The SP400 feature requires the following programs, or subsequent upward-compatible levels, unless stated otherwise:

- Operating System/400® (OS/400) Version 5 Release 1 (5722-SS1). The AS/400 network must be connected to the z/OS host either through an SNA or a TCP/IP connection.
- IBM Performance Tools for AS/400 (5722-PT1) is recommended to change collection services parameters.

Step 3: Install the SP400 feature code on your AS/400

To install the SP400 feature code on your AS/400:

- "1. Sign on to the AS/400"
- "2. Change the message queue"
- "3. Restore DRLLIB library from DRLINST save file"
- "4. Restore DRLDTA library from DRLDTA save file" on page 10
- "5. Add DRLLIB and DRLDTA libraries to your library list" on page 11
- "6. Installation verification of the SP400 feature" on page 12

1. Sign on to the AS/400

Sign on as the AS/400 security officer, QSECOFR.

2. Change the message queue

Change the message delivery attribute of the QSECOFR message queue to break mode. This will ensure that you don't overlook any messages that are sent to the QSECOFR message queue and will allow you to respond to them at any time. This mode will last until the end of your job or until you change it. For example:

```
CHGMSGQ  MSGQ(QSECOFR)  DLVRY(*BREAK)
```

3. Restore DRLLIB library from DRLINST save file

To restore the DRLLIB library:

1. Enter the RSTLIB command and press F4 to see a choice of valid field options. See Figure 2 on page 9:

```
                        Restore Library (RSTLIB)

Type choices, press Enter.

Saved library  . . . . . > DRLLIB____    Name, *NONSYS, *ALLUSR
Device . . . . . > *SAVF_____    Name, *SAVF
               + for more values  _________
Save file  . . . . . > DRLINST___    Name
  Library  . . . . . >   QGPL______  Name, *LIBL, *CURLIB

                        Additional Parameters

Option . . . . . .   *ALL_         *ALL, *NEW, *OLD, *FREE
Data base member option  . . . .   *MATCH       *MATCH, *ALL, *NEW, *OLD
Date when saved  . . . . . .   ________      Date
Time when saved  . . . . . .   ________      Time
Allow object differences . . . .   *NONE        *NONE, *ALL
Restore to library . . . . . .   *SAVLIB___    Name, *SAVLIB
Auxiliary storage pool ID  . . .   *SAVASP      1-16, *SAVASP
Output . . . . . .   *NONE_        *NONE, *PRINT

F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 2. Restoring SP400 library from save file

2. Fill in the required fields and press Enter.

   The message ″21 objects restored from DRLLIB to DRLLIB.″ is displayed at the bottom of the screen when the command has completed successfully. If this message is not displayed, check for the reason that the restore function failed.

3. Check that all objects in the library have been restored. The following table reports the number of restored objects according to the OS version:

Table 2. Number of restored objects in DRLLIB library

OS versions	Number of restored objects
OS/400 V5R1M0	18
OS/400 V5R2M0	21
OS/400 V5R3M0 or later	21

4. Use the DSPLIB command to display the library. See Figure 3: For example:

   ```
   DSPLIB  LIB(DRLLIB)
   ```

```
Display Library

Library  . . . . . :   DRLLIB          Number of objects  . :   20
Type . . . . . :   PROD           ASP of library . . . :   1
Create authority . . :   *SYSVAL

Type options, press Enter.
  5=Display full attributes   8=Display service attributes

Opt  Object      Type      Attribute   Freed        Size  Text
     DRL601C     *PGM      C            NO         10240
     DRL602A     *PGM      CLP          NO         19456
     DRL602C     *PGM      C            NO          9728
     DRL603A     *PGM      CLP          NO         13824
     DRL603I     *PGM                   NO          2048
     DRL605A     *PGM      CLP          NO          5632
     DRL802I     *PGM                   NO          3072
     DRLMSGF     *MSGF                  NO         14848
     DRLDTA      *FILE     SAVF         NO        153600
     SAVSPDTA    *CMD                   NO          2048  Save SP400 data
     STRSPSRV    *CMD                   NO          1024  Start SP400 server
                                                                More...
F3=Exit   F12=Cancel   F17=Top   F18=Bottom
```

Figure 3. Listing of objects contained in DRLLIB

Note: The number of objects that are displayed will always be one less than the number of objects restored because the number of objects restored includes the library itself. The DSPLIB command only counts the number of objects in the library.

Figure 3 on page 9 shows an example with the first 11 objects restored.

4. Restore DRLDTA library from DRLDTA save file

The DRLDTA library is saved in the DRLDTA save file that is contained in the DRLLIB library. To restore the DRLDTA library:

1. Type the RSTLIB command and then press F4 to see a choice of valid field options. See Figure 4:
2. Fill in the required parameters and press Enter.

```
                          Restore Library (RSTLIB)

Type choices, press Enter.

Saved library  . . . . . > DRLDTA____    Name, *NONSYS, *ALLUSR
Device . . . . . > *SAVF_____    Name, *SAVF
             + for more values  _________
Save file  . . . . . > DRLDTA____    Name
  Library  . . . . . >   DRLLIB____  Name, *LIBL, *CURLIB

                          Additional Parameters

Option . . . . . *ALL_         *ALL, *NEW, *OLD, *FREE
Data base member option  . . . . *MATCH       *MATCH, *ALL, *NEW, *OLD
Date when saved  . . . . . _______     Date
Time when saved  . . . . . _______     Time
Allow object differences . . . . *NONE        *NONE, *ALL
Restore to library . . . . . *SAVLIB___    Name, *SAVLIB
Auxiliary storage pool ID  . . . *SAVASP      1-16, *SAVASP
Output . . . . . *NONE_       *NONE, *PRINT

F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 4. Restoring DRLDTA library from the DRLDTA save file

The message ″11 objects restored from DRLDTA to DRLDTA.″ will be displayed at the bottom of the screen when the command has completed successfully. If this message is not displayed, check for the reason that the restore function failed.

3. Check that all the objects in the library have been restored. The following table reports the number of restored objects according to the OS/version:

Table 3. Number of restored objects in DRLDTA library

Member	OS versions	Number of objects restored
DRL5400V	OS/400 V5R1M0	16
DRL5240V	OS/400 V5R2M0	11
DRL5240V	OS/400 V5R3M0 or later	11

4. Use the DSPLIB command to display the library. See Figure 5 on page 11, which shows an example with the 10 objects restored.

```
Display Library

Library  . . . . . :   DRLDTA          Number of objects  . :   10
Type . . . . . :   PROD           Library ASP number . :   1
Create authority . . :   *SYSVAL         Library ASP device . :   *SYSBAS

Type options, press Enter.
  5=Display full attributes   8=Display service attributes

Opt  Object      Type      Attribute              Size  Text
     DRL602A     *DTAARA                          4096  Data Area for Holding
     DRL610A     *DTAARA                          4096  Data Area for holding
     SAVSPDTA    *DTAARA                          4096  TDS/390 SP400 data ca
     USERDTAARA  *DTAARA                          4096  USER EXIT DATA AREA
     DRLQHST     *USRSPC                         36864  EPDMS SP400 History L
     DRL602A     *USRSPC                         12288  User Space for SP400
     DRL602B     *USRSPC                         12288  USER SPACE FOR CS400
     DRL605A     *USRSPC                          4096  User Space for SP400
     DRL607A     *USRSPC                          4096  User Space for SP400
     DRL610A     *USRSPC                         12288  User Space for SP400

                                                                      Bottom
F3=Exit   F12=Cancel   F17=Top   F18=Bottom
(C) COPYRIGHT IBM CORP. 1980, 2003.
```

Figure 5. Listing of objects contained in the DRLDTA library

5. Add DRLLIB and DRLDTA libraries to your library list

Before a user can use the SP400 feature, these two libraries need to be added to the job's library list. This can be done in three different ways, depending upon your situation:

- If every user requires access to these libraries then they can be added to the system value QUSRLIBL, along with any other libraries. For example:

  ```
  CHGSYSVAL  SYSVAL(QUSRLIBL)  VALUE('DRLLIB DRLDTA ... ...')
  ```

- If individual users require access to these libraries then their user profiles need to specify a Job Description [for example: TIVJOBD] where the initial library list parameter [INLLIBL] contains at least both of these libraries. For example:

  ```
  CRTJOBD JOBD(QGPL/TIVJOBD) INLLIBL(DRLLIBL DRLDTA ... )

  CHGUSRPRF USRPRF(xxxxxxx) JOBD(QGPL/TIVJOBD)
  ```

- A user can make a temporary change to their job's library list by using the ADDLIBLE command and F4 for prompting, as shown in Figure 6. Do the same for the DRLDTA library.

```
                    Add Library List Entry (ADDLIBLE)

Type choices, press Enter.

Library  . . . . . .  DRLLIB____    Name
Library list position:
  List position  . . . . . .  *LAST___     *FIRST, *LAST, *AFTER.
  Reference library  . . . . .  _________   Name









F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 6. Adding DRLLIB to the library list of a job

Note: If you use this option, and then sign off, this temporary modification of the library list will be lost. Hence, when you sign on again the ADDLIBLE commands will need to be re-executed.

6. Installation verification of the SP400 feature

To make sure that the installation was successful:

1. Sign off.
2. Sign on as a user who requires access to the SP400 feature.
3. If you require temporary access to the libraries, then enter the ADDLIBLE commands as shown previously. If not go to the next step.
4. Enter the command: `GO SPMAIN`
5. If the SPMAIN menu is displayed then the installation was successful. If not, then you need to validate all the previous installation steps to ensure that they completed successfully.

Chapter 3. Installing SP400 feature components on the z/OS system

This chapter describes the activities necessary to install the SP400 feature components on the z/OS system.

Step 1: Decide which SP400 feature components to install

Your most critical planning task is determining what information users need from the SP400 feature. For example, users might be interested only in error conditions or in processor capacity. Install only those features that the users need. Otherwise there will be an unwanted impact on performance.

If you require reports from a component that you have not installed, you must install that component and then wait several days or weeks until enough data has been collected to create meaningful reports.

The SP400 feature is divided into five components:

- Accounting
- Configuration
- Job statistics
- Messages
- Performance

At this point, you might find it helpful to examine the predefined reports for each component. For more information, see Chapter 7, "Reports," on page 67. After the Tivoli Decision Support for z/OS base and features have been successfully installed, choose the feature components you want to load. Tivoli Decision Support for z/OS installs the necessary log and record definitions, log procedure, and update definitions to Tivoli Decision Support for z/OS system tables. Tivoli Decision Support for z/OS also installs the predefined tables (described in Chapter 6, "Data tables and lookup tables," on page 43) and reports (described in Chapter 7, "Reports," on page 67).

Each component of the SP400 feature is optional. Use the administration dialog to select which components of the SP400 feature to install. To avoid wasting system resources, install only the SP400 feature components that meet your requirements.

Step 2: Install the SP400 feature components on the Tivoli Decision Support for z/OS system

1. From the Tivoli Decision Support for z/OS Administration window (see Figure 7 on page 14), select Option `2 Components`, and press Enter.

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```
  Other  Utilities  Help
--------------------------------------------------------------------------------
                 Tivoli Decision Support for OS/390 Administration

Select one of the following.  Then press Enter.


              2_  1.  System
                  2.  Components
                  3.  Logs
                  4.  Tables
                  5.  Reports









Command ===> _____________________________________________________________
 F1=Help      F2=Split     F3=Exit      F9=Swap     F10=Actions  F12=Cancel
```

Figure 7. Tivoli Decision Support for z/OS Administration window

The Components window is displayed, see Figure 8:

```
  Components  Other  Help
--------------------------------------------------------------------------------
                                  Components               ROW 1 TO  13 OF 47

Select one or more components. Then press Enter to Open component.

/   Components                                          Status     Date
_   Network Line Utilization Component                  Installed  00-03-19
_   Network NetView FTP Component                       Installed  00-03-19
_   Network NPM Internal Utilization Component          Installed  00-03-19
_   Network NV/SM Internal Utilization Component        Installed  00-03-19
_   Network Problem Component                           Installed  00-03-19
_   Network RTM Response Time Component                 Installed  00-03-19
_   Network Service Component                           Installed  00-03-19
_   DB2 Component                                       Installed  00-03-17
/   OS/400 Accounting Component
_   OS/400 Configuration Component
_   OS/400 Jobs Component
_   OS/400 Messages Component
_   OS/400 Performance Component

Command ===> _____________________________________________________________
 F1=Help      F2=Split     F3=Exit      F5=New       F6=Install   F7=Bkwd
 F8=Fwd       F9=Swap     F10=Actions  F12=Cancel
```

Figure 8. Components window

2. From the Components window, select the components to install (here, the OS/400 accounting component), and press F6. The Installation Options window is displayed:

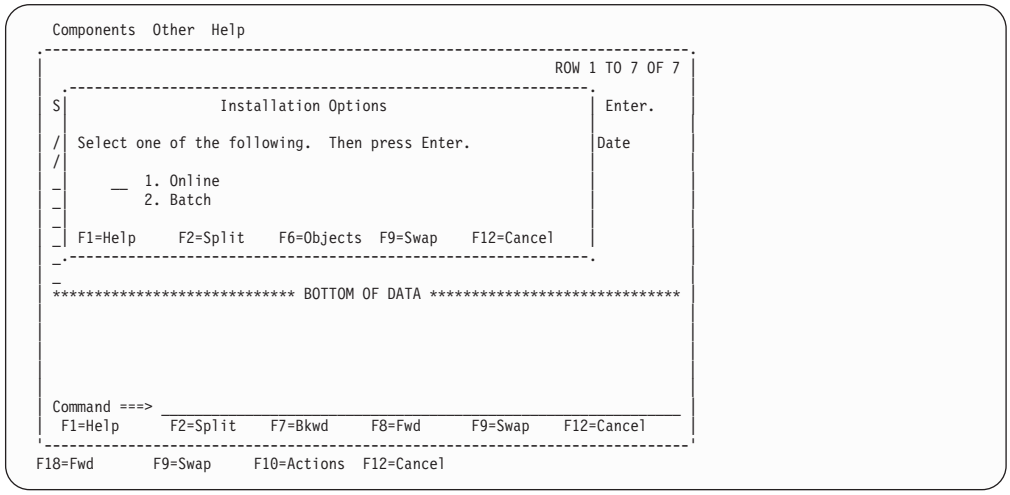

Figure 9. Installation Options window

3. Using the component-installation procedure in the *Administration Guide and Reference*, SH19-6816, decide if the components are to be installed in batch mode or online.

   Batch mode installation results in less output than online installation. In addition, during online installation your terminal will be blocked. Therefore, it is recommended that you install components in batch.

Note: If, when you install the OS/400 Configuration component, the following messages are displayed, you can disregard them:

```
     SQL DELETE FROM &PREFIX.OS400_DASDTYPE                -- PQ06212
         WHERE DEVICE_TYPE = '9332' AND
               DEVICE_MODEL = '400' AND
               MEGABYTE_COUNT = 200;
DSNT404I SQLCODE = 100, NOT FOUND: ROW NOT FOUND FOR FETCH, UPDATE, OR
         DELETE, OR THE RESULT OF A QUERY IS AN EMPTY TABLE
     SQL DELETE FROM &PREFIX.OS400_DASDTYPE                -- PQ06212
         WHERE DEVICE_TYPE = '9332' AND
               DEVICE_MODEL = '600' AND
               MEGABYTE_COUNT = 300;
DSNT404I SQLCODE = 100, NOT FOUND: ROW NOT FOUND FOR FETCH, UPDATE, OR
         DELETE, OR THE RESULT OF A QUERY IS AN EMPTY TABLE
```

Step 3: Update the Tivoli Decision Support for z/OS lookup tables

All components of the SP400 feature include lookup tables, which contain the environment data, that you can modify to control the content of your reports.

- If you specify online installation, Tivoli Decision Support for z/OS displays the Lookup Tables window. To edit a lookup table using ISPF edit, select a table and press Enter.
- If you specify batch mode installation, you can edit the lookup tables using the ISPF editor *after* the component is installed. To do this:
  1. Select `2, Tivoli Decision Support for z/OS Administration` from the Tivoli Decision Support for z/OS Primary Menu.
  2. Select `4, Tables`.
  3. Select the lookup table that you want to edit, select the Edit pull-down, and press Enter.
  4. Select `3, ISPF Editor` from the `Edit` pull-down.

The lookup tables that you can customize are:

1. OS400_JOB_ACCTCODE
2. OS400_DASDTYPE
3. OS400_JOBGROUP
4. OS400_DATE_FORMAT

These tables are described in the following sections.

1. Updating OS400_JOB_ACCTCODE

The OS400_JOB_ACCTCODE table is created when you install the SP400 feature Job Statistics component. Default information is provided in the table as a guide to customizing the table for your own use.

You must decide, for example:

- Which account codes are to be used?
- Are account codes to be different for batch and for online jobs types?
- Which account codes should users be allocated?
- Should certain job names carry specific account codes?

A sample of the lookup table contents is given in "OS400_JOB_ACCTCODE" on page 62.

2. Updating OS400_DASDTYPE

The SP400 feature uses the OS400_DASDTYPE table when Performance Component reports are produced.

The table contains information about OS/400 device types, model information, and their capacity (in megabytes).

Note: You must update this table whenever additional devices are installed.

A sample of the lookup table contents is given in "OS400_DASDTYPE" on page 63.

3. Updating OS400_JOBGROUP

All jobs are grouped automatically by the SP400 feature when a job is started. Performance data is collected and categorized on the basis of the job group number.

When the reports "OS/400 Perf CPU & Trans by Job Group, Hourly Trend" and "OS/400 Perf CPU by Job Group, Hourly Trend" are being produced, the SP400 feature uses this lookup table to find a job group name from a job group number.

A sample of the lookup table contents is given in "OS400_JOBGROUP" on page 65.

A description of each of the job group types, together with an example of their use in a performance report, are given in "Explanation of job group types" on page 98.

4. Updating OS400_DATE_FORMAT

The OS400_DATE_FORMAT table is created when you install the SP400 feature Job Statistics component or Accounting component.

You must complete the table if the system date format or the job date format in your AS/400 system is not MDY.

In that instance, you must specify:

- The AS/400 system ID
- The system date format (use the DSPSYSVAL QDATFMT AS/400 command to find the format)
- The job date format (use the DSPJOB, Option 2 to display its Date Format)

After the installation is complete, Tivoli Decision Support for z/OS returns to the Components window, and the Status field indicates that the component is installed.

Step 4: Test the SP400 feature installation

Before starting the daily use of the SP400 feature, run a few tests to check that the installation was successful.

1. Ensure the lookup tables contain appropriate values.
2. Check that the SP400 feature is collecting the correct data on the AS/400.
3. Test the data transfer facility that will be used to move the AS/400 data to the z/OS platform.
4. Ensure the correct data is being used for the creation of reports.

Refer to the *Administration Guide and Reference*, SH19-6816 for the steps involved in testing the component installation.

Step 5: Put the SP400 feature into production

After the tests have verified that the installation was successful, the SP400 feature and its components can be used in production.

Figure 10 shows the daily steps involved in using Tivoli Decision Support for z/OS, as perceived by the z/OS operator:

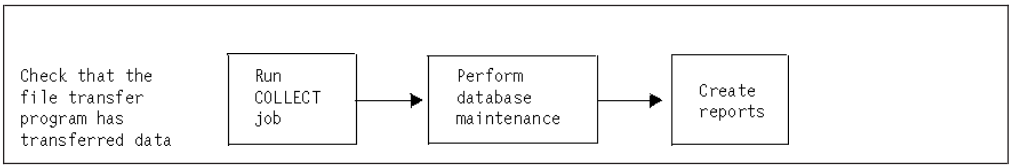

Figure 10. Daily steps involved in using Tivoli Decision Support for z/OS

Reports can be run in batch, after setting batch parameters for each report using the administration dialog.

For detailed information about these steps, refer to the *Administration Guide and Reference*, SH19-6816

Chapter 4. Using the SP400 feature on the AS/400

This chapter contains information pertaining to the following topics:

Description of the OS/400 log files

The OS/400 objects that contain the captured performance data are either physical files in the OS/400 database or journal receivers. Various jobs write data records to these objects on a fixed time interval or when special events occur. That is, they maintain a log of events that pertain to jobs or hardware devices and hence are often referred to as log files.

The contents of these objects are captured (using the Start SP400 Data Capturing command (`STRSP400`)) into up to six files which are then transferred to z/OS. These files must have a format that is acceptable to Tivoli Decision Support for z/OS. To distinguish between data from different systems, the SP400 feature uses a column called SYSTEMID containing the name of the system. However, OS/400 logs do not contain this information. Therefore, the *first record in all log files transferred must be a SOURCE record*, with the following layout:

```
1...+....10...+....20...+....30...+....40...+....50...+....60....+..
SOURCE netname systemid                          logtypeversn timest
```

The fields have the following format:

Table 4. Layout of the SOURCE record.

Starting position	Field length	Value	Description
1	6	SOURCE	The word SOURCE, in capitals.
8	8	netname	The network name of the AS/400.
16	8	systemid	The Current System Name of the AS/400.
50	7	logtype	The OS/400 log type as shown in Table 5 on page 20.
57	6	version	Is the OS/400 version in the form VxRyMz.
63	6	timestamp	Is the time the data is saved in the form hhmmss.

All log files must have fixed length records. For each log file, the following table gives the record length, and the entry required in columns 50-56 of the log file's first record.

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Table 5. Record lengths and logtype entries for OS/400 logs

OS/400 log	Logtype entry (pos. 50-56 of 1st record)	OS/400 version	Record length
QACGJRN	JOURNAL	V5R1 V5R2 V5R3 V5R4 V6R1	539 539 603 539 539
QRZALLF	CONFIG	V5R1 V5R2 V5R3 V5R4 V6R1	330 330 409 409 409
QHST	HISTORY	V5R1 V5R2 V5R3 V5R4 V6R1	142 142 142 142 142
QAPMSYS	PMSY	V5R1 V5R2 V5R3 V5R4 V6R1	3288 3294 3344 3367 3367
QAPMDISK	PMDI	V5R1 V5R2 V5R3 V5R4 V6R1	366 367 373 376 483
QAPMPOOL	PMPO	V5R1 V5R2 V5R3 V5R4 V6R1	95 95 96 96 96

To see how these OS/400 logs are used as the input to the SP400 feature log and record definitions, see "Description of record definitions and logs" on page 31.

Collecting data on the AS/400

In order to include any AS/400 SP400 feature performance data in the z/OS reports, the AS/400 data must be collected and transferred to z/OS. There are three functions that need to be performed in order to collect the relevant information.

Firstly, the SP400 monitor job writes the DRL8003 message to the system history log, as frequently as specified in the Time Interval parameter, and for as long as the job is running. These messages contain the average values of the performance data computed for the time interval, including CPU utilization, auxiliary storage available, I/O, and paging. This information will be used by z/OS to insert or update the data in the tables OS400_PERF_SUM_H and OS400_PERF_SUM_D which are then used to create the performance reports.

Secondly, the Collection Services process must be started so that it can accumulate the relevant information at the required frequency and store it in the AS/400's Performance Tools management collection objects, of type *MGTCOL.

Finally, the relevant performance information must be extracted from these management collection objects and stored in up to six files before they are transferred to z/OS.

The detailed instructions for performing these tasks are listed in the following section.

Start SP400 Monitor

1. Enter the command : `GO SPMAIN`

   The Tivoli Decision Support SP400 Main Menu will be displayed. If not, check the job's library list and ensure the DRLLIB library is present.

```
SPMAIN     Tivoli Decision Support SP400 Main Menu

  Select one of the following:

   1. Start SP400 Monitor
   2. Collection Services
   3. Start SP400 data capturing
   4. Initialize Tape
   5. Save SP400 data


  90. Signoff



Selection or command
  ===> ____________________________________________________________
 ____________________________________________________________________
  F3=Exit    F4=Prompt   F9=Retrieve   F12=Cancel
```

Figure 11. SPMAIN Menu

2. From the SP400 Main Menu, select Option 1, and press Enter.

   The Start SP400 Server (STRSPSRV) window is displayed. Detailed explanations of all the parameters are included in "STRSPSRV (Start SP400 Server) command" on page 114

```
Start SP400 Server (STRSPSRV)

  Type choices, press Enter.
  Time interval  . . . . . .  5_____      Number of minutes
  Job queue  . . . . . . . .  QCTL___     Name
  Library  . . . . . . . . .  *LIBL__     Name, *LIBL, *CURLIB
```

Figure 12. Start SP400 Server (STRSPSRV)

3. To start the SP400 monitor job with the default values for the parameters, press Enter. This job runs in the QCTL subsystem. There is no option to end this job. If you need to terminate the job, use the command `WRKSBSJOB SBS(QCTL)` and select Option 4 alongside the SP400 job in order to end it.

Collection Services

1. To start the Collection Services job, select Option 2 from the SP400 Main Menu, and press Enter.

The Start Collection Services (STRCSSRV) window is displayed. Detailed explanations of all the parameters are included in "STRCSSRV (Start Collections Services) command" on page 113

```
Start Collection Services (STRCSSRV)

  Type choices,  press Enter:

  Collection service activity  . .  *START       *START, *END
  Collection interval (minutes)   . 15          1, 5, 15, 30, 60
  Retention period  . . . . . . . . 24          1-720 hours









                                                                  Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel  F13=How to use this display
F24=More keys
```

Figure 13. Start Collection Services command

2. To accept the default values for the parameters, press Enter. Alternatively, insert values for the collection interval (in minutes) and for and retention period (in hours). When the Enter key is pressed, the QYPSPFRCOL job is submitted to the QSYSNOMAX job queue in the QSYSWRK subsystem. This job creates a management collection object (*MGTCOL) to store the performance data.

   Performance data is collected according to the collection interval parameter in the *MGTCOL object stored in the QPFRDATA (for V5R1M0) or QMPGDATA (for V5R2M0 and above) library. Collection data older than the retention period is deleted.

   These objects are NOT the ones that are transferred to the host for reporting by the Tivoli Decision Support for z/OS. The files that are transferred are created by the Start Data Capturing command (STRSP400), which is described in a following section.

   Additional information pertaining to these parameters is included in Chapter 8.
3. To end Collection Services, select Option 2 from the SP400 Main Menu and change the "Collection service activity" parameter to *END and press Enter. This terminates the QYPSPFRCOL job.

   The Data Capturing process (Option 3 on the SPMAIN menu) can be run without terminating the Collection Services job.

Start SP400 data capturing

1. To start SP400 Data Capturing, select Option 3 from the SP400 Main Menu and press Enter.

   The Start SP400 Data Capturing (STRSP400) window is displayed. Detailed explanations of all the parameters are included in "STRSP400 (Start SP400 data capturing) command" on page 115

```
Start SP400 Data Capturing (STRSP400)

  Type choices,  press Enter:

  Outfile  . . . . . .  DRLQHST      DRLQHST, DRLQACG, DRLQHDW...
  Library  . . . . . .  DRLDTA     Name, *LIBL

                                                                  Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel  F13=How to use this display
F24=More keys
```

Figure 14. Start of data capture of History Log Data

2. The value that is specified for the Outfile parameter determines what information is extracted from the management collection objects and stored in one or more of the six SP400 feature data files. It is these files that will ultimately be transferred to z/OS and their data that will be incorporated into the relevant reports.

   There are four separate values that can be selected for the Outfile parameter, namely DRLQHST, DRLQACG, DRLQHDW, and DRLQPFR. When the cursor is in the Outfile field, these names can be displayed by pressing F4, and detailed information relating to each of these files can be displayed by pressing F13.

   Each value corresponds with one or more files which will be cleared and filled with the newly captured output. Examples of the appropriate parameters for each of these options are shown in the following section.

   - **DRLQHST**

```
Start SP400 Data Capturing (STRSP400)

  Type choices,  press Enter:

  Outfile   . . . . . .  DRLQHST      DRLQHST, DRLQACG, DRLQHDW...
  Library   . . . . . .  DRLDTA     Name, *LIBL
 Time period for log output:
  Start time and date:
  Beginning time  . . . . .  *AVAIL    Time, *AVAIL
  Beginning date  . . . . .  *BEGIN    Date, *BEGIN, *CURRENT
  End time and date:
  Ending time  . . . . . .  *AVAIL    Time, *AVAIL
  Ending time  . . . . . .  *AVAIL    Time, *AVAIL

                                                                  Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel  F13=How to use this display
F24=More keys
```

Figure 15. Set time period parameter for data capturing

The fields under the heading *Time period for log output* contain the start and end times for the data to be captured. Data will be captured from the OS/400 system history log, based on the values specified in the Time period for log output fields. If the defaults are used, the command will capture all the logged message data from the last time that the SP400 Monitor was started up to the present.

The first time that the command is executed using the defaults, data is captured from the beginning of all the history files on the system. When you press Enter, the data is captured and placed in the DRLQHST file. You can then send this data file to z/OS by using the SAVSPDTA command.

- **DRLQACG**

  The parameters for this Outfile option are the same as for the DRLQHST option.

- **DRLQHDW**

  When you select DRLQHDW as the Outfile to capture hardware data, there are no parameters for the start and end time.
- **DRLQPFR**

  When you select DRLQPFR as the Outfile to capture performance data, the output files DRLQSYS, DRLQDSK, and DRLQPOL are produced.

  For example, if you type DRLQPFR and press Enter, the following window is displayed:

```
Start SP400 data capturing (STRSP400)

  Type choices,  press Enter:

   Outfile  . . . . . .  DRLQPFR             DRLQHST, DRLQACG, DRLQHDW..
   Library  . . . . . .  DRLDTA       Name, *LIBL
  Time interval (in minutes) . .  *FROMMGTCOL   *FROMMGTCOL, 1, 5, 15, 30, 60
 Collection type  . . . . . .  *ACTIVE      *ACTIVE, *ALL
 Starting date and time:
   Starting date  . . . . . .  *FROMMGTCOL    Date, *FROMMGTCOL
   Starting time  . . . . . .  _____         Time
 Ending date and time:
   Ending date  . . . . . .  *FROMMGTCOL    Date, *FROMMGTCOL
   Ending time  . . . . . .  _____         Time



                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel  F13=How to use this display
F24=More keys
```

Figure 16. Set parameters to retrieve performance data from collections

Performance data is extracted from the database by running the CRTPFRDTA command on a management collection (*MGTCOL) object. Files and file members will be created as needed, based on the data contained in the management collection object and the information requested on this command. If the files already exist and the requested member exists in any of them, the member will be cleared before the collection is generated.

The time interval parameter specifies the time interval (in minutes) between successive entries in the files. Within the database, these collection intervals are identified by interval number and interval time. Interval numbers begin with 1 and increment with each interval. Interval time is based on the time at the end of the interval synchronized to the clock time (for example, if INTV(15) is specified, intervals can be generated as 01:00:00, 01:15:00, 01:30:00, and 01:45:00).

Select *FROMMGTCOL to use the interval set for the management collection object. The collection type parameter determines whether the CRTPFRDTA command operates on either the active collection, to capture data for the current day starting from 00:00:00, or on all the collections available on the system.

Use the retention period parameter of the STRCSSRV command to control the amount of data you want to manage. You can also specify a starting and ending date and time for collections or use the values as in the management collection object.

Transferring the captured performance data files to z/OS

There are many methods of transferring captured data to z/OS. Some of the options are described in the following section.

Magnetic Tape Transfer

If you have a compatible magnetic tape drive then it is possible to transfer the data files to z/OS by saving them from the AS/400 to tape. This is performed as follows:

1. Select option 4 from the SP400 feature main menu, and press Enter. The following window is displayed:

```
Initialize Tape (INZTAP)

 Type choices, press Enter.

 Tape device  . . . . . . . . . . > TAP01_____    Name
 New volume identifier  . . . . . > *NONE_____    Character value, *NONE
 Tape density . . . . . . . . . . > *DEVTYPE___   *DEVTYPE, *FMT3480...

                                                                      Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
 F24=More keys
```

Figure 17. Initialization of tape for data transfer to Tivoli Decision Support for z/OS

2. On TAP01, (or change this to the name of the device description that coincides with the tape drive that handles z/OS compatible tapes) mount a tape with a density supported by z/OS. The tape must also be valid for this device and for the device you intend to use on z/OS. To display a list of tape densities in AS/400, press F4. Press Enter to initialize this tape.

```
 Specify Value for Parameter DENSITY

Type choice, press Enter.


Tape density . . . . . . . . . . > *DEVTYPE___

  *DEVTYPE
  *FMT3480
  *FMT3490E
  *QIC130
  *QIC525
  *QIC1000
         1600
         3200
         6250
        10000
        16000
        38000
        43200

F3=Exit   F5=Refresh   F12=Cancel   F13=How to use this display   F24=More keys
```

Figure 18. Density values

3. When you have initialized the tape, select Option 5 (Save SP400 data) and press Enter. The following window is displayed:

```
Save SP400 data (SAVSPDTA)

Type choices, press Enter.

File . . . . . .   *ALL          *ALL, DRLQHST, DRLQACG...
             + for more values
Library  . . . . . .   DRLDTA        Name, *LIBL, *CURLIB
Delete unused perf. files  . . .   *NO          *NO, *YES
File transfer type . . . . . > *USER        *NJE, *TAPE, *USER



F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 19. SAVSPDTA command window

4. Type the individual names of the files you want to save or specify *ALL, then press Enter to start this function.

   If you select DRLQPFR or *ALL in the `File` field, you will be prompted to complete two additional fields. In the `Member` field, specify either the name of the member you want to save from the AS/400 Performance files, or *SP400 if you want to save all available members.

   In the `Delete unused perf files` field, specify *YES or *NO depending on whether or not you want to save the performance files that were captured but not used.

NJE connection

If you have an NJE connection to z/OS, you can use NJE instead of tape. In this case, specify *NJE in the `File transfer type` field in Figure 19.

User exit program

You can use a user exit program. In this case, specify *USER in the `File transfer type` field in Figure 19.

To use this method:

- You must first create a user exit program and a data area.
- The user program must reside in a library on the library list. It must define the Library and File parameters because it will be called from the SP400 feature with the library and file names of the files you want to transfer.
- The user data area must have the name DRLDTA/USERDTAARA, and the program name must reside in the first 10 characters of the user data area. The first time that the SAVSPDTA command is executed with *USER specified in the `File transfer type`, the command creates the DRLDTA/USERDTAARA data area. You must add the program name to this data area.

Remote job entry

You can use Remote Job Entry (RJE). This method requires some programming work.

TCP/IP File Transfer

If you have TCP/IP Server installed on the z/OS then you can use the AS/400 TCP/IP client to establish a connection to the z/OS and 'PUT' the files to the z/OS system.

Alternatively, the AS/400 can act as a TCP/IP Server in which case, assuming you have the TCP/IP Client software on the z/OS system, you can 'GET' the files from the AS/400.

Part 2. AS/400 System Performance Feature Reference

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Chapter 5. Data flow and Tivoli Decision Support for z/OS objects

This chapter describes:

- The general data flow, starting with the OS/400 logs and ending with the production of Tivoli Decision Support for z/OS reports. Included are descriptions of the SP400 feature record definitions and OS/400 logs.
- The data flow for each SP400 feature component, including the names of OS/400 logs, Tivoli Decision Support for z/OS records, tables, and reports. The SP400 feature components are:
  - Accounting component
  - Configuration component
  - Job statistics component
  - Messages component
  - Performance component

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SP400 feature general data flow

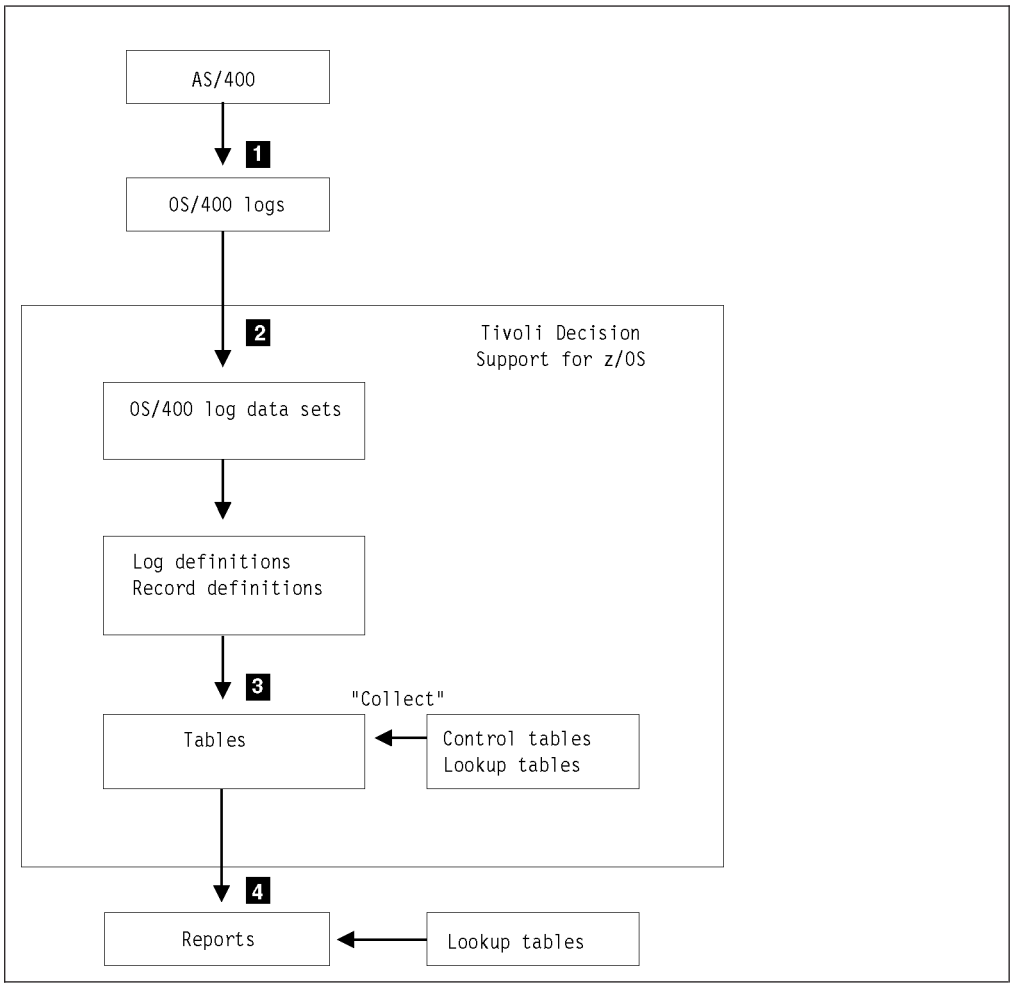

Figure 20. General SP400 feature data flow

The processing steps shown in Figure 20 are:

1. Capture the AS/400 performance data into the OS/400 logs.
2. Transmit the OS/400 logs to Tivoli Decision Support for z/OS.
3. Collect OS/400 log data into Tivoli Decision Support for z/OS tables, using the information from log definitions, record definitions, control tables, and lookup tables.
4. Create reports, using lookup tables.

The following sections describe these steps in more detail.

1. **Capture AS/400 performance data**, Step 1 (shown in Figure 20)

   The AS/400 logs its performance data in six OS/400 logs at times determined by the AS/400 base interval. The logs are:
   - QACGJRN - which is a journal receiver (Object type = *JRNRCV)
   - QARZALLF - which is a physical file (Object type = *FILE)
   - QHST - which are physical files (Object type = *FILE)
   - QAPMSYS- which is a physical file (Object type = *FILE)
   - QAPMDISK- which is a physical file (Object type = *FILE)

- QAPMPOOL- which is a physical file (Object type = *FILE)

These OS/400 logs are used with record definitions to create the information to be entered into Tivoli Decision Support for z/OS tables. The logs and the record definitions that use the logs are described on page 31.

2. **Transmit the OS/400 logs to Tivoli Decision Support for z/OS.**, Step 2

   You can transfer information to z/OS using any of your existing techniques, such as with magnetic tape, Network Job Entry (NJE), Remote Job Entry (RJE) or TCP/IP File Transfer.

3. **Collect OS/400 log data into Tivoli Decision Support for z/OS tables**, Step 3

   In processing each record contained in the OS/400 log, the collect procedure:

   a. Uses a *log procedure* to read the record from the OS/400 log and reformat according to the Tivoli Decision Support for z/OS record definition.

   b. Updates the Tivoli Decision Support for z/OS table with the reformatted record. To do this, the log collector:

      - Uses the log definition and record definitions to update the Tivoli Decision Support for z/OS table with the reformatted record.
      - Uses an *update definition* to decide which reformatted record fields are to be included in which Tivoli Decision Support for z/OS table, including further summarizing into other tables (for example, updating the monthly table OS400_ACCT_JOB_M from the information used for updating the daily table OS400_ACCT_JOB_D).
      - Takes information from *control tables* (for example, the SP400 feature can determine the period in which the measurements were made by looking up the day type information in the SPECIAL_DAY or DAY_OF_WEEK tables).
      - Uses *lookup tables* (which contain user-defined information that defines an organization's operating environment) to add user-defined data to the Tivoli Decision Support for z/OS table record.

   For a description of the COLLECT procedure, see the *Language Guide and Reference*, SH19-6817.

   For a description of the use of control tables, refer to the *Administration Guide and Reference*, SH19-6816

4. **Create reports**, Step 4

   A description of how to create new reports is provided in the *Guide to Reporting*, SH19-6842.

   The reports that are created after installing the SP400 feature are described in Chapter 7, "Reports," on page 67.

Description of record definitions and logs

Table 6 on page 32 shows the following:

- The OS/400 log file that the record definition uses
- The Tivoli Decision Support for z/OS log to which the record belongs
- The Tivoli Decision Support for z/OS record definition and record definition description
- The SP400 feature component to which the log and the record definitions belong

Table 6. Record definitions and logs used by SP400 feature

OS/400 log (see Note 2)	Tivoli Decision Support for z/OS log definition	Tivoli Decision Support for z/OS record definition and description (see Note 1)	SP400 feature component
QACGJRN (journal)	OS400_JOURNAL	OS400_ACCT_JOB (accounting job data)	Accounting
QACGJRN (journal)	OS400_JOURNAL	OS400_ACCT_PRINT (accounting print data)	Accounting
QARZALLF (config.)	OS400_CONFIG	OS400_CONFIG (configuration data)	Configuration
QHST (history)	OS400_HISTORY	OS400_HISTORY_MSG (job history data)	Job statistics, Message, Performance
QAPMSYS (system performance monitor)	OS400_PM_SYS	OS400_PM_SYS (system usage data)	Performance
QAPMDISK (disk performance monitor)	OS400_PM_DISK	OS400_PM_DISK_5 (disk data) V5R1 OS400_PM_DISK_52 (disk data) V5R2	Performance

Notes:

1. The fields contained in each record definition can easily be displayed when you do the following:
   a. Select 2, Tivoli Decision Support for z/OS Administration from the Tivoli Decision Support for z/OS Primary Menu.
   b. Select 3, Logs.
   c. Select the log definition using the previous table, which contains the record definition you require.
   d. Select the record definition you require, and the fields will be displayed.
2. The OS/400 history log is documented in the *AS/400 CL Programmer's Guide* The other OS/400 logs are documented in the *AS/400 Work Management Guide*.

SP400 feature accounting component data flow

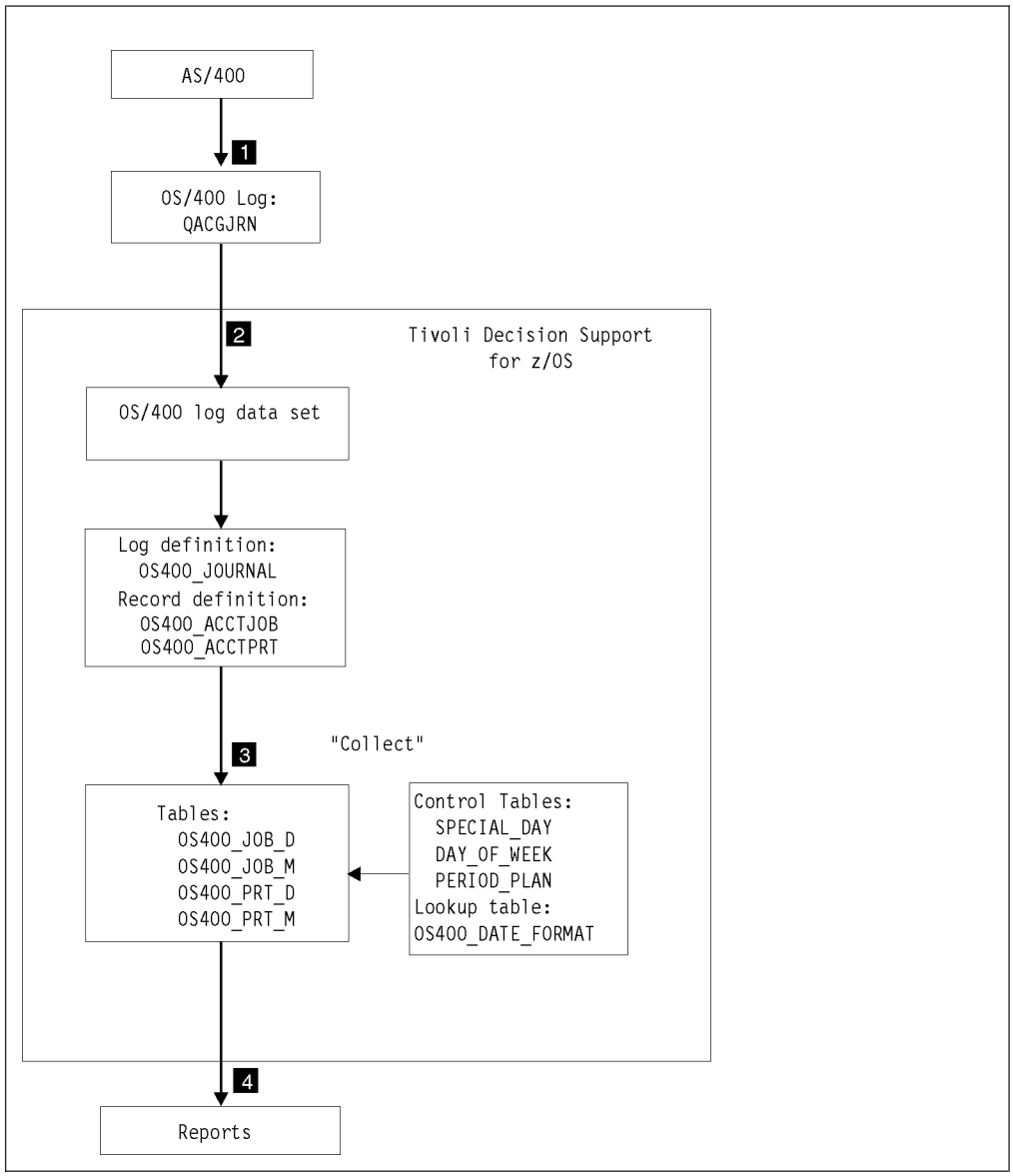

Figure 21. SP400 feature accounting component data flow

The processing steps shown in Figure 21 are:

1. Log OS/400 job and/or printing accounting data.
2. Transmit OS/400 accounting data to Tivoli Decision Support for z/OS.
3. Collect the OS/400 log data into Tivoli Decision Support for z/OS tables, using information from the log definition, record definitions, control tables, and lookup table.
4. Create reports.

Where to look for further information

For details of:	Turn to:
A description of steps 1, 2, 3, and 4	Page 30
A description of the record definitions and OS/400 log	Page 31
OS400_ACCT_JOB_D and OS400_ACCT_JOB_M tables	Page 44
OS400_ACCT_PRINT_D and OS400_ACCT_PRINT_M tables	Page 45
Accounting component reports	Page 69

Note: Control tables are explained in the *Administration Guide and Reference*, SH19-6816.

SP400 feature configuration component data flow

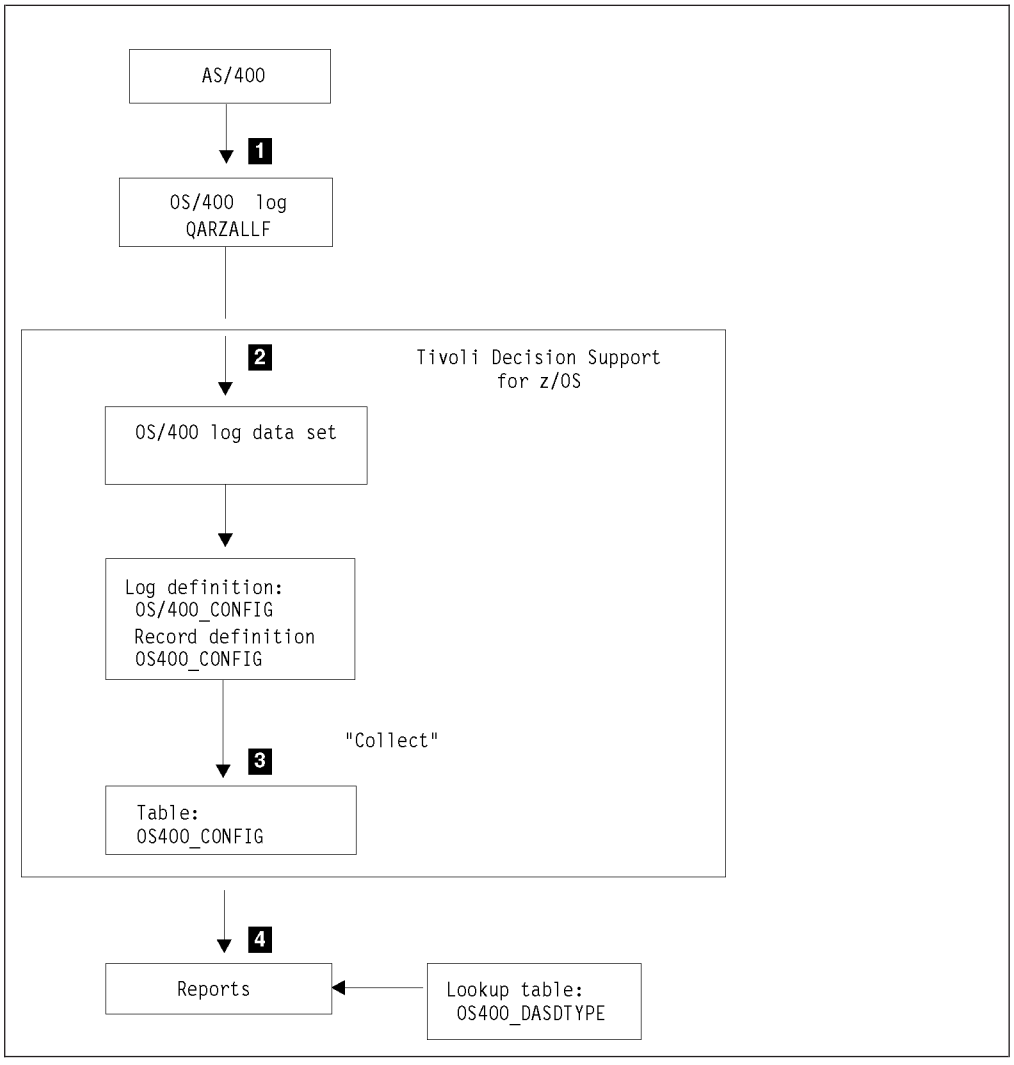

Figure 22. SP400 feature configuration component data flow

The processing steps shown in Figure 22 are:

1 Log OS/400 configuration data.

2 Transmit OS/400 configuration data to Tivoli Decision Support for z/OS.

3 Collect the OS/400 log data into Tivoli Decision Support for z/OS tables, using information from the log definition and record definition.

4 Create reports, using lookup table information.

Where to look for further information

For details of:	Turn to:
A description of steps 1, 2, 3, and 4	Page 30
A description of the record definitions and OS/400 log	Page 31
OS400_CONFIG table	Page 46
OS400_DASDTYPE lookup table	Page 63
Configuration component reports	Page 71

SP400 feature job statistics component data flow

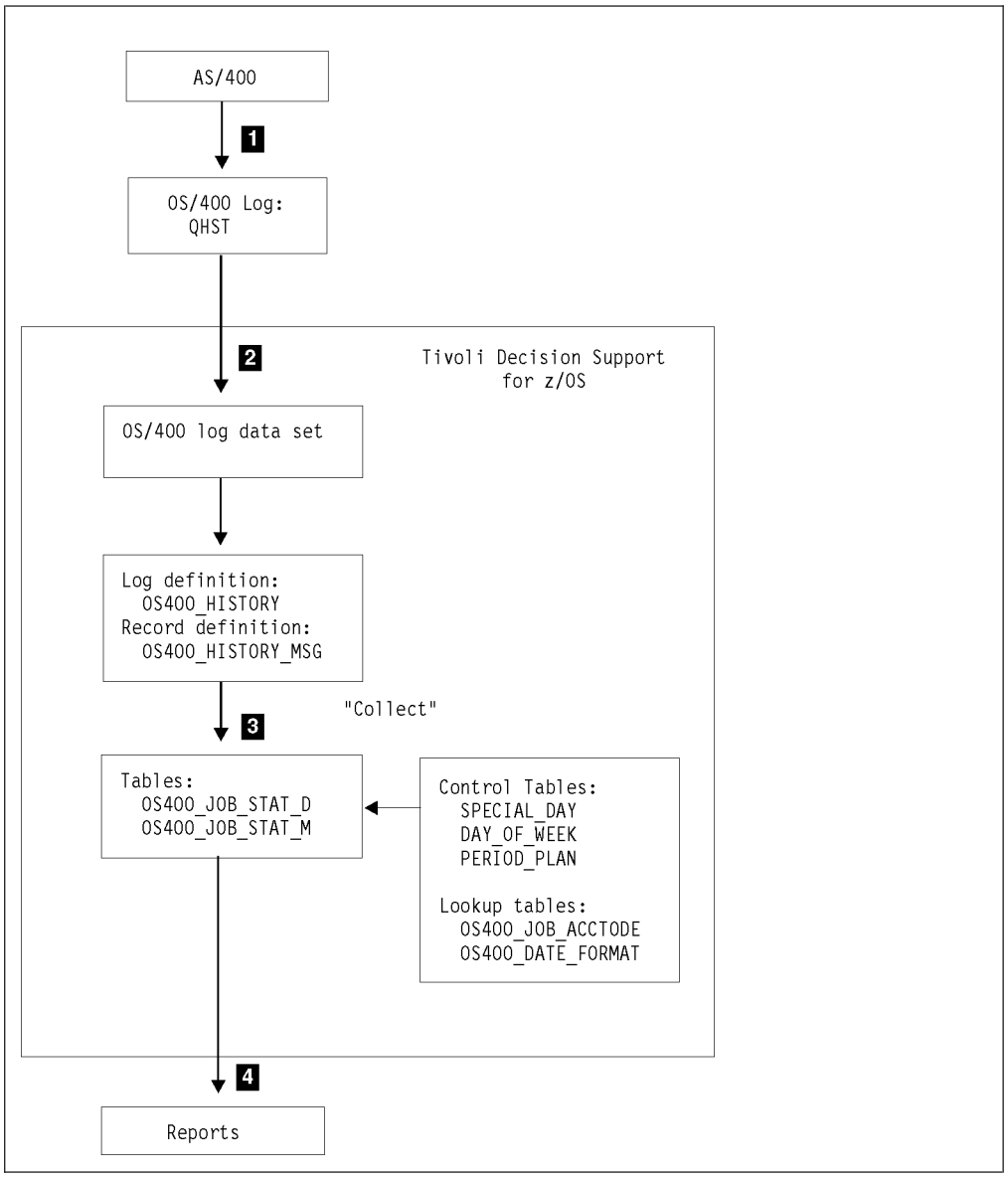

Figure 23. SP400 feature job statistics component data flow

The processing steps shown in Figure 23 are:

1. Log OS/400 job history data.
2. Transmit OS/400 job history data to Tivoli Decision Support for z/OS.
3. Collect the OS/400 log data into Tivoli Decision Support for z/OS tables using information from the log definition, record definition, control tables, and lookup tables.
4. Create reports.

Where to look for further information

For details of:	Turn to:
A description of steps 1, 2, 3, and 4	Page 30
A description of the record definitions and OS/400 log	Page 31
OS400_JOB_STAT_D and OS400_JOB_STAT_M tables	Page 48
OS400_JOB_ACCTCODE lookup table	Page 62
OS400_DATE_FORMAT lookup table	Page 64
Job statistics component reports	Page 75

Note: Control tables are explained in the *Administration Guide and Reference*, SH19-6816.

SP400 feature messages component data flow

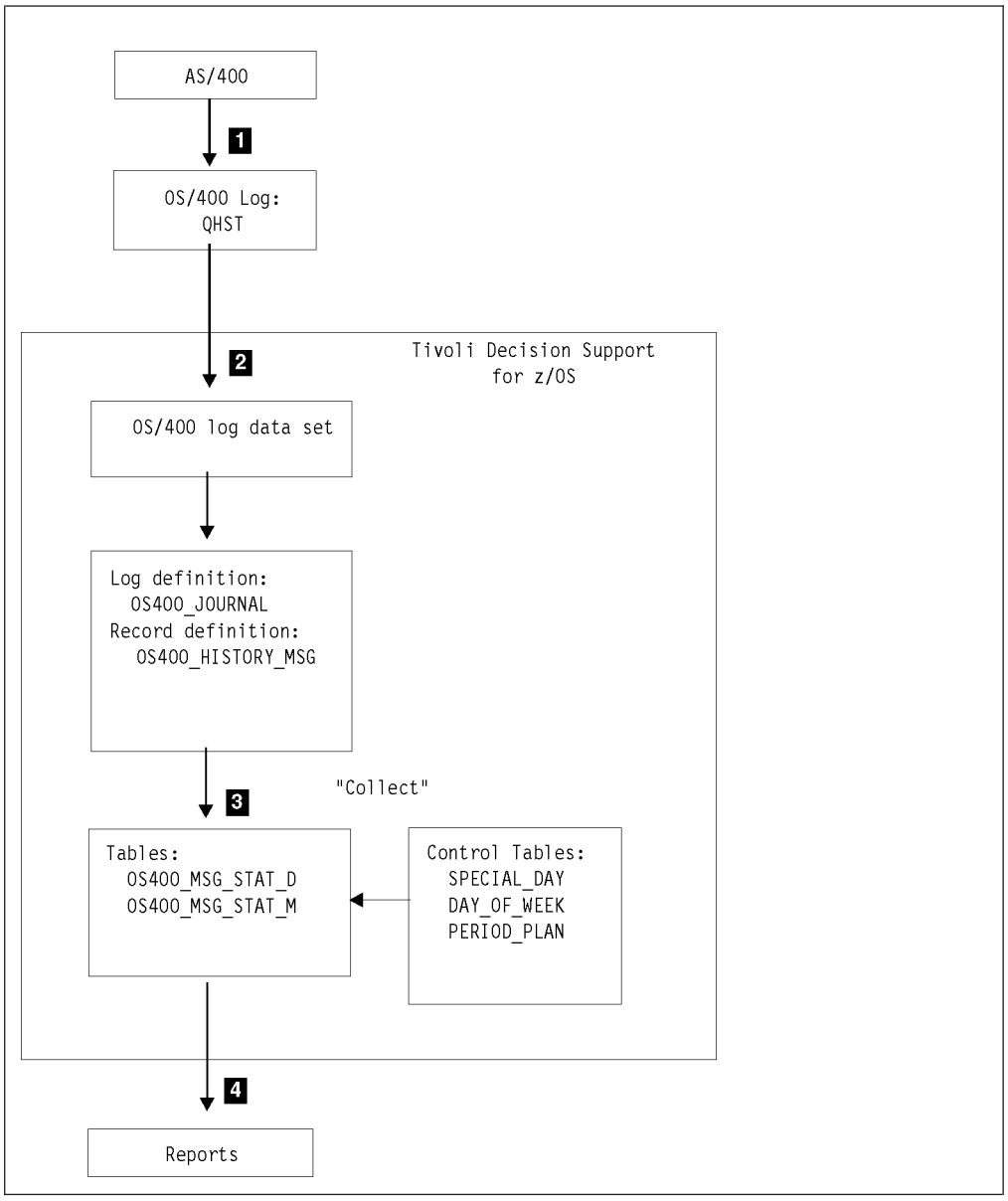

Figure 24. SP400 feature messages component data flow

The processing steps shown in Figure 24 are:

1. Log OS/400 job history data.
2. Transmit OS/400 job history data to Tivoli Decision Support for z/OS.
3. Collect the OS/400 log data into Tivoli Decision Support for z/OS tables, using information from the log definition, record definition, and control tables.
4. Create reports.

Where to look for further information

For details of:	Turn to:
A description of steps 1, 2, 3, and 4	Page 30
A description of the record definitions and OS/400 log	Page 31
OS400_MSG_STAT_D and OS400_MSG_STAT_M tables	Page 48
Messages component reports	Page 82

Note: Control tables are explained in the *Administration Guide and Reference*, SH19-6816.

SP400 feature performance component data flow

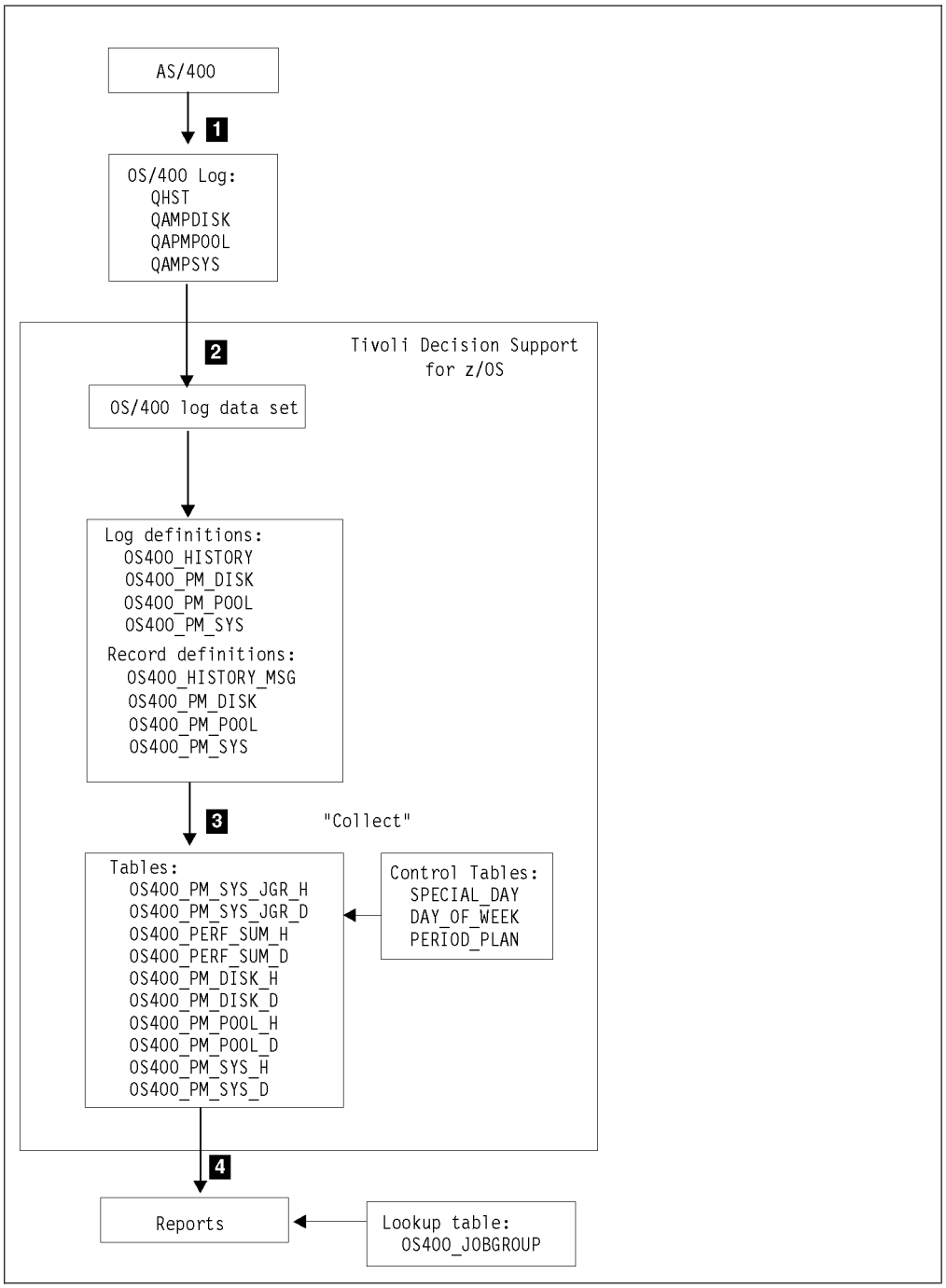

Figure 25. SP400 feature performance component data flow

The processing steps shown in Figure 25 are:

1. Log OS/400 performance data.
2. Transmit OS/400 performance data to Tivoli Decision Support for z/OS.
3. Collect the OS/400 log data into Tivoli Decision Support for z/OS tables, using information from the log definitions, record definitions, and control tables.

4 Create reports, using lookup table information.

Where to look for further information

For details of:	Turn to:
A description of steps 1, 2, 3, and 4	Page 30
A description of the record definitions and OS/400 log	Page 31
OS400_PM_SYS_JGR_H and OS400_PM_SYS_JGR_D tables	Page 59
OS400_PM_SYS_H and OS400_PM_SYS_D tables	Page 54
OS400_PM_DISK_H and OS400_PM_DISK_D tables	Page 50
OS400_PM_POOL_H and OS400_PM_POOL_D tables	Page 52
OS400_PERF_SUM_H and OS400_PERF_SUM_D tables	Page 61
OS400_JOBGROUP lookup table	Page 65
Performance component reports	Page 88

Note: Control tables are explained in the *Administration Guide and Reference*, SH19-6816.

Chapter 6. Data tables and lookup tables

The Tivoli Decision Support for z/OS database is a collection of DB2® tables, where each table contains a fixed number of columns. The number of rows in each table varies with time, because of rows added by the collect function and because of database maintenance.

This chapter describes:

Note: For descriptions of common data tables used by the SP400 feature and other Tivoli Decision Support for z/OS features, refer to the *Administration Guide and Reference*, SH19-6816.

Naming standard for defining SP400 feature table names

The names of SP400 feature tables use this format:

OS400_***prefix_content_suffix***

where:

- ***prefix*** identifies the component (for example, ***PERF*** for the performance component).
- ***content*** is a description (for example, ***DISK*** for the performance component disk statistics).
- ***suffix*** indicates the summarization level of the data in the table (for example, PM_DISK_***D*** for disk performance statistics summarized by day).

  A table name can have these summarization-level suffixes:

  _H The table holds data summarized by **hour** (hourly data).
  _D The table holds data summarized by **day** (daily data).
  _M The table holds data summarized by **month** (monthly data).

  Note: Table names for the configuration component do not contain suffixes.

  Note: The configuration, lookup, and control tables do not have a prefix or suffix.

Table descriptions

Each description of a table includes information about the table, a description of each of the *key columns*, and a description of each of the *data columns*:

- Key columns are marked like this: **K**. They are sorted in the sequence they appear in the table.

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- Data columns follow the last key column and are sorted in alphabetical order with the underscore ignored.

The descriptions of most key columns and data columns contain references to the fields from which they are derived in the record (for example, "From AC_UID"). For an explanation of such fields, refer to the applicable product documentation.

For each component, the columns in the tables are listed in *alphabetical order*, with underscores and suffixes ignored.

Tables with similar contents (that is, tables with the same name but with different suffixes) are described under one heading. For example, the heading "OS400_PM_DISK_H, _D" covers two similar tables: OS400_PM_DISK_H and OS400_PM_DISK_D. Except for the DATE column, the contents of these tables are identical. Differences that exist in the contents of similar tables are explained in the column descriptions.

Tables used by the SP400 feature accounting component

This section describes the following accounting component tables:

- "OS400_ACCT_JOB_D, _M."
- "OS400_ACCT_PRINT_D, _M" on page 45.

OS400_ACCT_JOB_D, _M

These tables contain daily and monthly OS/400 job accounting statistics. They contain data from OS400_ACCT_JOB records.

The default retention periods are:
30 days for OS400_ACCT_JOB_D
765 days for OS400_ACCT_JOB_M

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. For OS400_ACCT_JOB_M, this is the first day of the month.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LOGDATE and LOGTIME as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
USER_NAME	**K**	CHAR(10)	User name. From USERID.
JOB_NAME	**K**	CHAR(10)	Job name. From JOBNAME.
JOB_TYPE	**K**	CHAR(3)	Job type. From JATYPE.
ACCOUNT_CODE	**K**	CHAR(15)	Accounting code. From ACCTCODE.
COMPLETION_CODE	**K**	INTEGER	Job completion code. From JCCDE.
ACTIVE_SECONDS		FLOAT	Total job active time, in seconds. This is the sum of JAACT.
COMM_READ_COUNT		INTEGER	Number of communications read operations. This is the sum of JACMGT.
COMM_WRITE_COUNT		INTEGER	Number of communications write operations. This is the sum of JACMPT.
CPU_SECONDS		FLOAT	Total processor time, in seconds. This is the sum of JACPU.
DB_READ_COUNT		INTEGER	Number of database read operations. This is the sum of JADBGT.

Column name		Data type	Description
DB_UPDATE_COUNT		INTEGER	Number of database update operations. This is the sum of JADBUP.
DB_WRITE_COUNT		INTEGER	Number of database write operations. This is the sum of JADBPT.
ELAPSED_SECONDS		INTEGER	Total elapsed time, in seconds. This is the sum of the interval from JASDTE, JASTME to LOGDATE, LOGTIME.
EXP_CPU		FLOAT	Expanded CPU time used. From JAXCPU.
EXP_SYNC_IO		FLOAT	Expanded synchronous auxiliary I/O operations. From JAXSIO.
EXP_ASYNC_IO		FLOAT	Expanded asynchronous auxiliary I/O operations. From JAXAIO.
EXP_DATABASE_PUTS		FLOAT	Expanded number of database puts. From JAXDBP.
EXP_DATABASE_GETS		FLOAT	Expanded number of database gets. From JAXDBG.
EXP_DATABASE_UD		FLOAT	Expanded number of database updates and deletes. From JAXDBU.
IO_ASYNC_COUNT		INTEGER	Number of synchronous auxiliary I/O operations and database operations. This is the sum of JAAUX.
IO_COUNT		INTEGER	Number of auxiliary I/O. This is the sum of JAAUX.
JOBS		INTEGER	Number of jobs. This is the count of JOBNAME.
PRINT_FILE_COUNT		INTEGER	Number of print files. This is the sum of JAPRTF.
PRINT_LINE_COUNT		INTEGER	Number of print lines. This is the sum of JALINE.
PRINT_PAGE_COUNT		INTEGER	Number of print pages. This is the sum of JAPAGE.
ROUTING_STEPS		INTEGER	Number of routing steps. This is the sum of JARTGS.
SUSPEND_SECONDS		FLOAT	Total job suspend time, in seconds. This is the sum of JASPN.
TRANSACTIONS		INTEGER	Number of transactions. This is the sum of JATRNS.
TRANSACTION_SEC		INTEGER	Total transaction time, in seconds. This is the sum of JATRNT.

OS400_ACCT_PRINT_D, _M

These tables contain daily and monthly OS/400 print accounting statistics. They contain data from OS400_ACCT_PRINT records.

The default retention periods are:
30 days for OS400_ACCT_PRINT_D
365 days for OS400_ACCT_PRINT_M

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LOGDATE. For OS400_ACCT_PRINT_M, this is the first day of the month.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LOGDATE, and LOGTIME as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
USER_NAME	**K**	CHAR(10)	User name. From USERID.
JOB_NAME	**K**	CHAR(10)	Job name. From JOBNAME.
FORM_TYPE	**K**	CHAR(10)	Print form type. From JAFMTP.
ACCOUNT_CODE	**K**	CHAR(15)	Accounting code. From ACCTCODE.
ASP_NAME_DFL		CHAR(10)	ASP name for device file library. From JADFASP.

Column name		Data type	Description
JOBS		INTEGER	Number of jobs. This is the count of JOBNAME.
PRINT_BYTE_COUNT		INTEGER	Number of print bytes. This is the sum of JABYTE.
PRINT_LINE_COUNT		INTEGER	Number of print lines. This is the sum of JATLIN.
PRINT_PAGE_COUNT		INTEGER	Number of print pages. This is the sum of JATPAG.
SPOOLED_FILE_NAME		CHAR(10)	Spooled file name. From JASPFN.
SPOOLED_FILE_JSN		CHAR(8)	Spooled file job system name. From JASPSY.
SPOOLED_FILE_DT		DATE	Spooled file create date. From JASPDT.
SPOOLED_FILE_TM		TIME	Spooled file create time. From JASPTM.

Tables used by the SP400 feature configuration component

This section describes the OS400_CONFIG configuration component table:

OS400_CONFIG

This table provides information about the hardware resources of AS/400 systems. It contains data from the OS400_CONFIG record.

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From DORDAT.
TIME	**K**	TIME	Time when the record was written. From DORTIM.
OS400_SYSTEM_ID	**K**	CHAR(8)	OS/400 system ID. From SYSTEMID.
RESOURCE_NAME	**K**	CHAR(10)	System defined resource name. From DORNAM.
RESOURCE_SERIAL_NO	**K**	CHAR(10)	System defined resource name. From DORNAM.
CARD_POSITION		CHAR(5)	Alternate card position. From DORACP.
COLOR_DISPLAY		CHAR(1)	Color-capable display: 0=No, 1=Yes. From DORCOL.
COMMUN_FUNCTION		CHAR(1)	Communications function: 0=No, 1=Yes. From DOCMNF.
CONFIG_OBJ_NAME		CHAR(10)	Configuration object name. From DOCFGO.
COUPLED_SYS_MODEL		CHAR(3)	Coupled system model. From DOSMDL.
COUPLED_SYS_NAME		CHAR(8)	Coupled system name. From DOSYTM.
COUPLED_SYS_SRL_NO		CHAR(10)	Coupled system serial number. From DOSSRN.
COUPLED_SYS_TYPE		CHAR(4)	Coupled system type. From DOSMTP.
CRYPT_FUNCTION		CHAR(1)	Cryptographic function: 0=No, 1=Yes. From DOCRPF.
CSA_FUNCTION		CHAR(1)	Coupled System Adapter function: 0=No, 1=Yes. From DOCSAF.
FRAME_ID		CHAR(4)	Alternate frame identification. From DORAFI.
KEYBOARD_CODE		CHAR(3)	Keyboard country code. From DORKBD.
LWS_FUNCTION		CHAR(1)	Local Work Station function: 0=No, 1=Yes. From DOLWSF.
MAIN_STRG_CAPACITY		INTEGER	Main storage card capacity in MB. From DORMSZ.
PORT_NUMBER		CHAR(2)	Port number: 00–06. From DORPOR.
PREV_LEVEL_CONFIG		CHAR(10)	Previous level configuration object name. From DOCFGP.
PREV_LEVEL_RESOURCE		CHAR(10)	System-defined previous level resource name. From DOCPAR.
PROC_FEAT_CODE		CHAR(4)	Processor Feature Code. From PRCFCD.

Column name		Data type	Description
PROCESSOR_FUNCTION		CHAR(1)	Processor function: 0=No, 1=Yes. From DOPRCF.
PROGRAMMABLE_WS		CHAR(1)	Programmable workstation: 0=No, 1=Yes. From DORIWS.
RECORD_FORMAT_ID		CHAR(1)	Record format identifier. From DORECF.
RESOURCE_DESCR		CHAR(2)	Resource description. From DORDSC.
RESOURCE_FRAME_ID		CHAR(2)	Resource frame identification. From DORRID.
RESOURCE_LEVEL		CHAR(1)	Resource level. From DORLVL.
RESOURCE_MODEL		CHAR(3)	Resource model number. From DORMOD.
RESOURCE_PART_NO		CHAR(12)	Resource part number. From DORPRT.
RESOURCE_STATUS		CHAR(1)	Resource status. From DORSTS.
RESOURCE_TYPE		CHAR(4)	Resource type. From DORTYP.
RES_CARD_POSITION		CHAR(3)	Resource card position. From DORCSL.
RES_DEV_POSITION		CHAR(4)	Resource device position. From DORDSL.
RES_DIRECT_ADDRESS		CHAR(4)	Resource direct select address. From DORDSA.
RES_EIA_LOCATION		CHAR(2)	Resource EIA location. From DOREIA.
RES_EXTENDED_DESCR		CHAR(2)	Resource extended description. From DOREDS.
RES_UNIT_ADDRESS		CHAR(8)	Resource unit address. From DORUAA.
SCREEN_WIDTH		CHAR(1)	Screen width: 0=Standard, 1=Wide. From DORSWD.
STORAGE_FUNCTION		CHAR(1)	Storage function: 0=Standard, 1=Wide. From DOSTGF.
SWITCH_SETTING		CHAR(2)	Switch setting: 00–06 From DORSWT.
SYSTEM_HW_TYPE		CHAR(4)	System hardware type. From DOSTYP.
SYSTEM_MODEL_NO		CHAR(3)	System model number. From DOSMOD.
SYSTEM_SERIAL_NO		CHAR(10)	System serial number. From DOSSER.
TRANSPORT_TYPE_DEF		CHAR(2)	Transport type definition. From DORTTY.
TRANSP_LOC_FIELD1		CHAR(4)	Transport location field1. From DORTF1.
TRANSP_LOC_FIELD2		CHAR(4)	Transport location field2. From DORTF2.
TRANSP_LOC_FIELD3		CHAR(4)	Transport location field3. From DORTF3.
UNIT_ADDRESS_TYPE		CHAR(2)	Unit Address type. From DORUAT.
UNIT_ADDR_FIELD1		CHAR(4)	Unit Address field1. From DORUA1.
UNIT_ADDR_FIELD2		CHAR(4)	Unit Address field2. From DORUA2.
UNIT_ADDR_FIELD3		CHAR(4)	Unit Address field3. From DORUA3.
UNIT_ADDR_FIELD4		CHAR(4)	Unit Address field4. From DORUA4.
UNIT_ADDR_FIELD5		CHAR(4)	Unit Address field5. From DORUA5.
UNIT_POSITION		CHAR(5)	Alternate unit position. From DORADP.
VERS_RELEASE_MOD		CHAR(6)	Operating system level. From DOSVRM.

Tables used by the SP400 feature job statistics component

This section describes the following job statistics component tables:
OS400_JOB_STAT_D, _M.

OS400_JOB_STAT_D, _M

These tables provides daily and monthly statistics on OS400 jobs. They contain data from CPF1164 messages in the history file.

The default retention periods are:
30 days for OS400_JOB_STAT_D
365 days for OS400_JOB_STAT_M

Column name		Data type	Description
DATE	**K**	DATE	Date when the job ended. From JDEND and JTEND. For OS400_JOB_STAT_M, this is the first day of the month.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, JDEND, and JTEND from the record as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
USER_NAME	**K**	CHAR(10)	User name. From USERID.
JOB_NAME	**K**	CHAR(10)	Job name. From JOBNAME.
JOB_TYPE	**K**	CHAR(3)	Job type. From JOBTYPE.
ACCOUNT_CODE	**K**	CHAR(15)	Accounting code. From ACCOUNT_CODE in the OS400_JOB_ACCTCODE lookup table. This is derived using fields SYSTEMID, USERID, JOBNAME and JOBTYPE from the record as keys. If no match is found, this column is set to?.
COMPLETION_CODE	**K**	INTEGER	Job completion code. From JOBCC.
CPU_SECONDS		INTEGER	Total processor time, in seconds. This is the sum of CPUTIME.
ELAPSED_SECONDS		INTEGER	Total elapsed time, in seconds. This is the sum of the interval from JDSTR,JTSTR to JDEND,JTEND.
IO_COUNT		INTEGER	Total number of auxiliary I/O. This is the sum of JOBIO.
JOBS		INTEGER	Total number of jobs. This is the count of MSGID.
RESPONSE_SECONDS		INTEGER	Total response time, in seconds. This is the sum of JOBRT.
ROUTING_STEPS		INTEGER	Total number of routing steps. This is the sum of JOBRSTP.
TRANSACTIONS		INTEGER	Total number of transactions. This is the sum of JOBTR.

Tables use by the SP400 feature messages component

This section describes the following message component tables:

- "OS400_MSG_STAT_D, _M."
- "OS400_MSG_STAT_DV, _MV" on page 49.

OS400_MSG_STAT_D, _M

These tables contain daily and monthly message statistics from the history file. They contain data from messages in the history file.

The default retention periods are:
30 days for OS400_MSG_STAT_D
365 days for OS400_MSG_STAT_M

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LOGCENTURY and LOGDATE. For OS400_MSG_STAT_M, this is the first day of the month.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LOGCENTURY, LOGDATE and LOGTIME from the record as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
USER_NAME	**K**	CHAR(10)	User name. From USERID.
JOB_NAME	**K**	CHAR(10)	Job name. From JOBNAME.
MESSAGE_ID	**K**	CHAR(7)	Message identification. From MSGID.
MESSAGE_TYPE	**K**	CHAR(2)	Message type. From MSGTYPE.
MESSAGE_SEVERITY	**K**	CHAR(2)	Severity code. From SEVERITY.
MESSAGE_FILE	**K**	CHAR(10)	Name of message file. From MSGFILE.
DATA_BYTE_COUNT		INTEGER	Total number of bytes for data. This is the sum of MSGDATA.
LINE_COUNT		INTEGER	Total number of message lines. Calculated as the sum of (MSGTEXT+MSGDATA+132+132)/132.
MESSAGE_COUNT		INTEGER	Total number of messages. This is the count of MSGID.
TEXT_BYTE_COUNT		INTEGER	Total number of bytes for text. This is the sum of MSGTEXT.

OS400_MSG_STAT_DV, _MV

These views provide daily and monthly message statistics from the history file. They are based upon the OS400_MSG_STAT_D, _M tables.

The default retention periods are:
30 days for OS400_MSG_STAT_DV
365 days for OS400_MSG_STAT_MV

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LOGCENTURY and LOGDATE. For OS400_MSG_STAT_MV, this is the first day of the month.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LOGCENTURY, LOGDATE and LOGTIME from the record as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
DATA_BYTE_COUNT		INTEGER	Total number of bytes for data. This is the sum of MSGDATA.
LINE_COUNT		INTEGER	Total number of message lines. Calculated as the sum of (MSGTEXT+MSGDATA+132+132)/132.
MESSAGE_COUNT		INTEGER	Total number of messages. This is the count of MSGID.
TEXT_BYTE_COUNT		INTEGER	Total number of bytes for text. This is the sum of MSGTEXT.

Tables used by the SP400 feature performance component

This section describes the following performance component tables:

- "OS400_PM_DISK_H, _D."
- "OS400_PM_POOL_H, _D" on page 52.
- "OS400_PM_SYS_H, _D" on page 54.
- "OS400_PM_SYS_JGR_H, _D" on page 59.
- "OS400_PERF_SUM_H, _D" on page 61.

OS400_PM_DISK_H, _D

These tables contain hourly and daily disk performance statistics. They contain data from the performance data file QAPMDISK.

The default retention periods are:
30 days for OS400_PM_DISK_H
365 days for OS400_PM_DISK_D

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LDATE.
TIME	**K**	TIME	Time when the record was written (OS400_PM_DISK_H only). From LTIME.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LDATE, and LTIME from the record as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
IOP_ADDRESS	**K**	CHAR(2)	IOP address. From DIOPID.
DISKARM_NUMBER	**K**	CHAR(4)	Disk arm number. From DSARM.
ACCESS_RATE_AVG		FLOAT	Average arm access rate in I/O per second. Calculated as the average of (DSRDS+DSWRTS)/INTSEC.
ACCESS_RATE_MAX		FLOAT	Maximum arm access rate in I/O per second. Calculated as the maximum of (DSRDS+DSWRTS)/INTSEC.
ARM_NOTBUSY_CNT		INTEGER	Sum of times that arm was not busy. This is the sum of DSNBSY.
ARM_UTIL_AVG		FLOAT	Average arm utilization%. Calculated as the average of 100*(DSSMPL-DSNBSY)/DSSMPL.
ARM_UTIL_MAX		FLOAT	Maximum arm utilization%. Calculated as the maximum of 100*(DSSMPL-DSNBSY)/DSSMPL.
AVAILABLE_SPACE_MB		FLOAT	Average of drive available space in megabytes. Calculated as the average of DSAVL/1048576.
BACK_DIR_READ_CNT		INTEGER	Total number of device read operations on compression directory structures not immediately required to complete host commands. It is 0 for non-compressed units. Calculated as the sum of DSBGDR.
BACK_DIR_WRT_CNT		INTEGER	Total number of device write operations on compression directory structures not immediately required to complete host commands. It is 0 for non-compressed units. Calculated as the sum of DSBGDW.

Column name		Data type	Description
BACK_SWEEPS_CNT		INTEGER	Total number of times a 1 MB compression group was required to be swept not immediately required to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSBGS.
BFR_OVERRUN_CNT		INTEGER	Sum of buffer overruns. This is the sum of DSBUFO.
BFR_UNDERRUN_CNT		INTEGER	Sum of buffer underruns. This is the sum of DSBUFU.
BLOCK_READ_COUNT		INTEGER	Number of blocks read. This is the sum of DSBLKR.
BLOCK_WRITE_COUNT		INTEGER	Number of blocks written. This is the sum of DSBLKW.
COMP_UNIT_IND		CHAR(1)	Compressed unit indicator. It is 1 if the disk data is compressed, 0 if the disk data is not compressed. From DSCOMP.
CNTRL_RD_CACHE		INTEGER	Total number of times that the data requested by the read operation was obtained from a controller read cache. It is 0 when the extended cache simulator is not enabled. Calculated as the sum of DSCERC.
DISK_TYPE		CHAR(4)	Disk drive type. From DSTYPE.
DRIVE_CAPACITY_MB		FLOAT	Average of drive capacity in megabytes. Calculated as the average of DSCAP/1048576.
FOR_DIR_READ_CNT		INTEGER	Total number of device read operations on compression directory structures needed to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSFGDR.
FOR_DIR_WRT_CNT		INTEGER	Total number of device write operations on compression directory structures needed to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSFGDW.
FOR_EXC_READ_CNT		INTEGER	Total number of additional read operations on compression exception area needed to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSFGRE.
FOR_EXC_WRT_CNT		INTEGER	Total number of additional write operations on compression exception area needed to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSFGWE.
FOR_SWEEPS_CNT		INTEGER	Total number of times a 1 MB compression group was required to be swept to complete host system commands. It is 0 for non-compressed units. Calculated as the sum of DSFGS.
IOP_UTIL_AVG		FLOAT	Average IOP utilization%. Calculated as the average of 100 * (INTSEC-DSIDLC*DSIDLT / 100000000) / INTSEC.
IOP_UTIL_MAX		FLOAT	Maximum IOP utilization%. Calculated as the maximum of 100 * (INTSEC-DSIDLC*DSIDLT / 100000000) / INTSEC.
LOG_BLOCK_ALL_CNT		INTEGER	Total number of logical blocks contained in allocated compression groups. It is 0 for non-compressed units. Calculated as the sum of DLSBA.
LOG_BLOCK_WRT_CNT		INTEGER	Total number of logical blocks written in the device user data area. It is 0 for non-compressed units. Calculated as the sum of DLSBW.
MEASURED_SEC		INTEGER	Interval time, in seconds. This is the sum of INTSEC.
PERM_STOR_AVAIL_MB		FLOAT	Average of permanent storage available in megabytes. Calculated as the average of DSPAVL/1048576.
PERM_STOR_CAP_MB		FLOAT	Average of permanent storage capacity in megabytes. Calculated as the average of DSPCAP/1048576.

Column name		Data type	Description
PHYS_BLOCK_ALL_CNT		INTEGER	Total number of physical blocks reserved in the device data area for DASD extents. It is 0 for non-compressed units. Calculated as the sum of DLPBA.
PHYS_BLOCK_CPR_CNT		INTEGER	Total number of physical blocks used for compression overhead, that is, compression directory structures and other reserved areas. It is 0 for non-compressed units. Calculated as the sum of DSPBCO.
PHYS_BLOCK_USE_CNT		INTEGER	Total number of physical blocks reserved in the device user data area. It is 0 for non-compressed units. Calculated as the sum of DSPBU.
QUEUE_ELEMENT_CNT		INTEGER	Total queue elements. This is the sum of DSQUEL.
QUEUE_LENGTH_AVG		FLOAT	Average queue length. Calculated as the average of DSQUEL/DSSMPL.
QUEUE_LENGTH_MAX		FLOAT	Maximum queue length. Calculated as the maximum of DSQUEL/DSSMPL.
READ_DATA_CMD_CNT		INTEGER	Sum of read data commands. This is the sum of DSRDS.
SAMPLES		INTEGER	Number of intervals. This is the count of INTNUM.
SAMPLES_2PERSEC		INTEGER	Sum of samples taken at 2 per second. This is the sum of DSSMPL.
SEARCH_STRCMD_CNT		INTEGER	Number of search string commands. This is the sum of DSSCAN.
SEEK_EQ_0_CNT		INTEGER	Total number of zero seeks. This is the sum of DSSK6.
SEEK_GT_1_12_CNT		INTEGER	Total number of seeks arm traveled > 1/12 and < 1/6 on disk. This is the sum of DSSK4.
SEEK_GT_1_3_CNT		INTEGER	Total number of seeks arm traveled > 1/3 and < 2/3 on disk. This is the sum of DSSK2.
SEEK_GT_1_6_CNT		INTEGER	Total number of seeks arm traveled > 1/6 and < 1/3 on disk. This is the sum of DSSK3.
SEEK_GT_2_3_CNT		INTEGER	Total number of seeks arm traveled > 2/3 on disk. This is the sum of DSSK1.
SEEK_LT_1_12_CNT		INTEGER	Total number of seeks arm traveled < 1/12 on disk. This is the sum of DSSK5.
SERVICE_TIME_AVG		FLOAT	Average arm service time in seconds. Calculated as the average of ((DSSMPL-DSNBSY)/DSSMPL) / ((DSRDS+DSWRTS)/ INTSEC).
SERVICE_TIME_MAX		FLOAT	Maximum arm service time in seconds. Calculated as the maximum of ((DSSMPL-DSNBSY)/DSSMPL) / ((DSRDS+DSWRTS)/INTSEC).
WRITE_DATA_CMD_CNT		INTEGER	Sum of write data commands. This is the sum of DSWRTS.

OS400_PM_POOL_H, _D

These tables provide hourly and daily storage pool performance statistics. They contain data from the performance data file QAPMPOOL.

The default retention periods are:
30 days for OS400_PM_POOL_H
365 days for OS400_PM_POOL_D

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LDATE.
TIME	**K**	TIME	Time when the record was written (for OS400_PM_POOL_H only). From LTIME.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LDATE and LTIME from the record as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
POOL_NUMBER	**K**	CHAR(2)	Pool number. From PONBR.
ACT_INEL_RTE_MAX		FLOAT	Maximum active to ineligible transitions rate. Calculated as the maximum of POAI/INTSEC.
ACT_INEL_SUM		INTEGER	Sum of active to ineligible transitions. From POAI.
ACT_LVL_SET_AVG		FLOAT	Average activity level setting. This is the average of POACTL.
ACT_LVL_SET_MAX		INTEGER	Maximum activity level setting. This is the maximum of POACTL.
ACT_LVL_SET_MIN		INTEGER	Minimum activity level setting. This is the minimum of POACTL.
ACT_WAIT_RTE_MAX		FLOAT	Maximum active to wait transitions rate. Calculated as the maximum of POAW/INTSEC.
ACT_WAIT_SUM		INTEGER	Sum of active to wait transitions. This is the sum of POAW.
DB_FAULTRTE_MAX		FLOAT	Maximum database fault rate. Calculated as the maximum of PODBF/INTSEC.
DB_FAULT_SUM		INTEGER	Sum of database faults. This is the sum of PODBF.
DBPG_READRTE_MAX		FLOAT	Maximum database page read rate. Calculated as the maximum of PODBPG/INTSEC.
DBPG_READ_SUM		INTEGER	Sum of database pages read. This is the sum of PODBPG.
MEASURED_SEC		INTEGER	Total interval seconds. This is the sum of INTSEC.
NDB_FAULTRTE_MAX		FLOAT	Maximum non-database fault rate. Calculated as the maximum of PONDBF/INTSEC.
NDB_FAULT_SUM		INTEGER	Sum of non-database faults. This is the sum of PONDBF.
NDBPG_READRTE_MAX		FLOAT	Maximum non-database page read rate. Calculated as the maximum of PONDPG/INTSEC.
NDBPG_READ_SUM		INTEGER	Sum of non-database pages read. This is the sum of PONDPG.
POOL_SIZE_AVG		FLOAT	Average pool size, in kilobytes. This is the average of POSIZ.
POOL_SIZE_MAX		INTEGER	Maximum pool size, in kilobytes. This is the maximum of POSIZ.
POOL_SIZE_MIN		INTEGER	Minimum pool size, in kilobytes. This is the minimum of POSIZ.
POOL_SIZE_RSV_AVG		FLOAT	Average reserved pool size, in kilobytes. This is the average of PORES.
POOL_SIZE_RSV_MAX		INTEGER	Maximum reserved pool size, in kilobytes. This is the maximum of PORES.
POOL_SIZE_RSV_MIN		INTEGER	Minimum reserved pool size, in kilobytes. This is the minimum of PORES.
SAMPLES		INTEGER	Total number of intervals. This is the count of INTNUM.
WAIT_INEL_RTE_MAX		FLOAT	Maximum wait to ineligible transitions rate. Calculated as the maximum of POWI/INTSEC.
WAIT_INEL_SUM		INTEGER	Sum of wait to ineligible transitions. This is the sum of POWI.

OS400_PM_SYS_H, _D

These tables contain hourly and daily OS/400 system performance statistics. They contain data from OS400_PM_SYS records in the OS/400 system performance monitor.

The default retention periods are:
30 days for OS400_PM_SYS_H
365 days for OS400_PM_SYS_D

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LDATE
TIME	**K**	TIME	Time when the record was written (for OS400_PM_SYS_H only). From LTIME.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LDATE, and LTIME as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	OS/400 system ID. From SYSTEMID
AGMPG_FAULT_CNT		INTEGER	Number of access group member page faults. This is the sum of SYAPGF.
ASYNCH_LOCK_CNT		INTEGER	Number of asynchronous lock conflicts. This is the sum of SYASYL.
AUTH_LOOKUP_CNT		INTEGER	Number of authority lookups. This is the sum of SYAUTH.
BND_WRT_INTSYS		INTEGER	Bundle writes to internal system journals. This is the sum of SYJOBD.
BND_WRT_USRJRN		INTEGER	Bundle writes to user-created journals. This is the sum of SYJOBJ.
BUSY_EXC_CNT		INTEGER	Number of busy exceptions. This is the sum of SYBSYC.
CHANNEL_BUSY_CNT		INTEGER	Number of channel busy occurrences. This is the sum of SYCHNB.
CPUH_MILLISEC		INTEGER	Number of microseconds of processor time used by microcode or system jobs, or both. This is the sum of SHCPU.
CPUH_UTIL_MAX_PCT		FLOAT	Maximum SHCPU utilization, in percent. Calculated as the maximum of SHCPU/INTSEC/10.
CPU1_MILLISEC		INTEGER	Processor time used by CPU1, in milliseconds. This is the sum of SYSCPU.
CPU1_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU utilization, in percent. Calculated as the maximum of SYSCPU/INTSEC/10.
CPU2_MILLISEC		INTEGER	Processor time used by CPU2, in milliseconds. This is the sum of SYSCPU2.
CPU2_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU2 utilization, in percent. Calculated as the maximum of SYSCPU2/INTSEC/10.
CPU3_MILLISEC		INTEGER	Processor time used by CPU3, in milliseconds. This is the sum of SYSCPU3.
CPU3_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU3 utilization, in percent. Calculated as the maximum of SYSCPU3/INTSEC/10.
CPU4_MILLISEC		INTEGER	Processor time used by CPU4, in milliseconds. This is the sum of SYSCPU4.
CPU4_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU4 utilization, in percent. Calculated as the maximum of SYSCPU4/INTSEC/10.

Column name		Data type	Description
CPU5_MILLISEC		INTEGER	Processor time used by CPU5, in milliseconds. This is the sum of SYSCPU5.)
CPU5_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU5 utilization, in percent. Calculated as the maximum of SYSCPU5/INTSEC/10.
CPU6_MILLISEC		INTEGER	Processor time used by CPU6, in milliseconds. This is the sum of SYSCPU6.
CPU6_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU6 utilization, in percent. Calculated as the maximum of SYSCPU6/INTSEC/10.
CPU7_MILLISEC		INTEGER	Processor time used by CPU7, in milliseconds. This is the sum of SYSCPU7.
CPU7_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU7 utilization, in percent. Calculated as the maximum of SYSCPU7/INTSEC/10.
CPU8_MILLISEC		INTEGER	Processor time used by CPU8, in milliseconds. This is the sum of SYSCPU8.
CPU8_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU8 utilization, in percent. Calculated as the maximum of SYSCPU8/INTSEC/10.
CPU9_MILLISEC		INTEGER	Processor time used by CPU9, in milliseconds. This is the sum of SYSCPU9.
CPU9_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU9 utilization, in percent. Calculated as the maximum of SYSCPU9/INTSEC/10.
CPU10_MILLISEC		INTEGER	Processor time used by CPU10, in milliseconds. This is the sum of SYSCPU10.
CPU10_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU10 utilization, in percent. Calculated as the maximum of SYSCPU10/INTSEC/10.
CPU11_MILLISEC		INTEGER	Processor time used by CPU11, in milliseconds. This is the sum of SYSCPU11.
CPU11_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU11 utilization, in percent. Calculated as the maximum of SYSCPU11/INTSEC/10.
CPU12_MILLISEC		INTEGER	Processor time used by CPU12, in milliseconds. This is the sum of SYSCPU12.
CPU12_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU12 utilization, in percent. Calculated as the maximum of SYSCPU12/INTSEC/10.
CPU13_MILLISEC		INTEGER	Processor time used by CPU13, in milliseconds. This is the sum of SYSCPU13.
CPU13_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU13 utilization, in percent. Calculated as the maximum of SYSCPU13/INTSEC/10.
CPU14_MILLISEC		INTEGER	Processor time used by CPU14, in milliseconds. This is the sum of SYSCPU14.
CPU14_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU14 utilization, in percent. Calculated as the maximum of SYSCPU14/INTSEC/10.
CPU15_MILLISEC		INTEGER	Processor time used by CPU15, in milliseconds. This is the sum of SYSCPU15.
CPU15_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU15 utilization, in percent. Calculated as the maximum of SYSCPU15/INTSEC/10.
CPU16_MILLISEC		INTEGER	Processor time used by CPU16, in milliseconds. This is the sum of SYSCPU16.
CPU16_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU16 utilization, in percent. Calculated as the maximum of SYSCPU16/INTSEC/10.

Column name		Data type	Description
CPU17_MILLISEC		INTEGER	Processor time used by CPU17, in milliseconds. This is the sum of SYSCPU17.
CPU17_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU17 utilization, in percent. Calculated as the maximum of SYSCPU17/INTSEC/10.
CPU18_MILLISEC		INTEGER	Processor time used by CPU18, in milliseconds. This is the sum of SYSCPU18.
CPU18_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU18 utilization, in percent. Calculated as the maximum of SYSCPU18/INTSEC/10.
CPU19_MILLISEC		INTEGER	Processor time used by CPU19, in milliseconds. This is the sum of SYSCPU19.
CPU19_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU19 utilization, in percent. Calculated as the maximum of SYSCPU19/INTSEC/10.
CPU20_MILLISEC		INTEGER	Processor time used by CPU20, in milliseconds. This is the sum of SYSCPU20.
CPU20_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU20 utilization, in percent. Calculated as the maximum of SYSCPU20/INTSEC/10.
CPU21_MILLISEC		INTEGER	Processor time used by CPU21, in milliseconds. This is the sum of SYSCPU21.
CPU21_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU21 utilization, in percent. Calculated as the maximum of SYSCPU21/INTSEC/10.
CPU22_MILLISEC		INTEGER	Processor time used by CPU22, in milliseconds. This is the sum of SYSCPU22.
CPU22_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU22 utilization, in percent. Calculated as the maximum of SYSCPU22/INTSEC/10.
CPU23_MILLISEC		INTEGER	Processor time used by CPU23, in milliseconds. This is the sum of SYSCPU23.
CPU23_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU23 utilization, in percent. Calculated as the maximum of SYSCPU23/INTSEC/10.
CPU24_MILLISEC		INTEGER	Processor time used by CPU24, in milliseconds. This is the sum of SYSCPU24.
CPU24_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU24 utilization, in percent. Calculated as the maximum of SYSCPU24/INTSEC/10.
CPU25_MILLISEC		INTEGER	Processor time used by CPU25, in milliseconds. This is the sum of SYSCPU25.
CPU25_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU25 utilization, in percent. Calculated as the maximum of SYSCPU25/INTSEC/10.
CPU26_MILLISEC		INTEGER	Processor time used by CPU26, in milliseconds. This is the sum of SYSCPU26.
CPU26_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU26 utilization, in percent. Calculated as the maximum of SYSCPU26/INTSEC/10.
CPU27_MILLISEC		INTEGER	Processor time used by CPU27, in milliseconds. This is the sum of SYSCPU27.
CPU27_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU27 utilization, in percent. Calculated as the maximum of SYSCPU27/INTSEC/10.
CPU28_MILLISEC		INTEGER	Processor time used by CPU28, in milliseconds. This is the sum of SYSCPU28.
CPU28_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU28 utilization, in percent. Calculated as the maximum of SYSCPU28/INTSEC/10.

Column name		Data type	Description
CPU29_MILLISEC		INTEGER	Processor time used by CPU29, in milliseconds. This is the sum of SYSCPU29.
CPU29_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU29 utilization, in percent. Calculated as the maximum of SYSCPU29/INTSEC/10.
CPU30_MILLISEC		INTEGER	Processor time used by CPU30, in milliseconds. This is the sum of SYSCPU30.
CPU30_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU30 utilization, in percent. Calculated as the maximum of SYSCPU30/INTSEC/10.
CPU31_MILLISEC		INTEGER	Processor time used by CPU31, in milliseconds. This is the sum of SYSCPU31.
CPU31_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU31 utilization, in percent. Calculated as the maximum of SYSCPU31/INTSEC/10.
CPU32_MILLISEC		INTEGER	Processor time used by CPU32, in milliseconds. This is the sum of SYSCPU32.
CPU32_UTIL_MAX_PCT		FLOAT	Maximum SYSCPU32 utilization, in percent. Calculated as the maximum of SYSCPU32/INTSEC/10.
DB_CPU_MSEC		FLOAT	Database CPU time in milliseconds. New with DSD/EWL support. Calculated as the sum of SYSDBC.
DECDATA_EXC_CNT		INTEGER	Number of decimal data exceptions. This is the sum of SYDECD.
DIRPG_FAULT_CNT		INTEGER	Number of directory page faults. This is the sum of SYDPGF.
DISK_UTIL_MAX		INTEGER	Sum of maximum disk utilization. This is the sum of SMXDU.
EADDR_LOFL_EXC_CNT		INTEGER	Number of effective address length overflow exceptions. This is the sum of SYEAOL.
EADDR_OFL_EXC_CNT		INTEGER	Number of effective address overflow exceptions. This is the sum of SYEAOT.
EXCEPTION_CNT		INTEGER	Number of exceptions. This is the sum of SYEXPN.
EXP_ACC_PATH_JRN		INTEGER	Exposed access paths currently being journalized by the system. This is the sum of STJOJY.
EXP_ACC_PATH_NOJRN		INTEGER	Exposed access paths currently not being journalized. This is the sum of STJOJN.
FALSE_TRAP_CNT		INTEGER	False traps, that is, the number of space address computations that required extra processing. It is the sum of SYHFTS.
IND_REBLD_CNT		INTEGER	Number of index rebuilds system wide. This is the sum of SYIXRB.
INTER_FEAT_MSEC		FLOAT	Time used on interactive feature. New with the support of interactive counters. Calculated as the sum of SYIFUS.
INT_THRS_EXCD_MSEC		FLOAT	Time used on exceeding the interactive threshold. New with the support of interactive counters. Calculated as the sum of SYIFTE.
JRNDEP_SYSJRN_TOT		INTEGER	Journal deposits resulting from system-journaled objects–total. This is the sum of SYJOID.
JRNDEP_SYS_TO_USR		INTEGER	Journal deposits resulting from system-journaled objects to user-created journals. This is the sum of SYJOJP.
JRNDEP_USRJRN		INTEGER	Journal deposits resulting from user-journaled objects. This is the sum of SYJOXD.
MCPG_FAULT_CNT		INTEGER	Number of microcode page faults. This is the sum of SYMPGF.

Column name		Data type	Description
MEASURED_SEC		INTEGER	Total measurement time, in seconds. This is the sum of INTSEC.
MPOOL_PG_CNT		INTEGER	Number of machine pool paging operations. This is the sum of SMPLP.
MPOOL_PG_MAX_CNT		INTEGER	Number of user pool paging operations for pool with highest paging. This is the sum of SMUPL.
MRT_MAX_SEC		INTEGER	Number of seconds spent at MRTMAX by all multi-requesting terminals. This is the sum of SMMMT.
MRT_REQ_CNT		INTEGER	Number of requests routed to a multi-requesting terminal. This is the sum of SMMME.
MTASK_READ_CNT		INTEGER	Number of microtask read operations. This is the sum of SYMCTR.
MTASK_WRITE_CNT		INTEGER	Number of microtask write operations. This is the sum of SYMCTW.
OPEN_SYST_CNT		INTEGER	Number of full opens system wide. This is the sum of SYFOPN.
PERM_TRANS_BLOCK		INTEGER	Number of 512-byte blocks of permanent data transferred from main storage. This is the sum of SYPRMW.
REDUND_TRANS_BLOCK		INTEGER	Number of 512-byte blocks of redundancy data transferred from main storage. This is the sum of SYXSRW.
SAMPLES		INTEGER	Total number of measurement intervals. This is the count of INTNUM.
SEC_WRKLD_CPU_MSEC		FLOAT	Secondary workload CPU in milliseconds. New with DSD/EWL support. Calculated as the sum of SYSSWC.
SEIZE_WAIT_EXC_CNT		INTEGER	Number of seize wait exceptions. This is the sum of SYSEZC.
SEIZE_WAIT_TIME		INTEGER	Seize/Wait time in milliseconds. This is the sum of SYSZWT.
SIZE_EXC_CNT		INTEGER	Number of size exceptions. This is the sum of SYSIZC.
STPJRN_OP_USR		INTEGER	Stop journal operations initiated by user. This is the sum of SYJOXP.
STRJRN_OP_USR		INTEGER	Start journal operations initiated by user. This is the sum of SYJOXR.
STPJRN_OP_SYS		INTEGER	Stop journal operations initiated by system. This is the sum of SYJOIP.
STRJRN_OP_SYS		INTEGER	Start journal operations initiated by system. This is the sum of SYJOIR.
SYNCH_LOCK_CNT		INTEGER	Number of synchronous lock conflicts. This is the sum of SYSYNL.
SYSAUX_AVAIL_MB		FLOAT	Number of megabytes of available system auxiliary storage pools space available. Calculated as the average of SYSASP/1048576.
SYS_EST_AP_REC_JRN		INTEGER	System-estimated access path recovery time exposure in milliseconds if no access paths were being journaled by the system. This is the sum of SYJOND.
SYS_EST_AP_RECOV		INTEGER	System-estimated access path recovery time exposure in milliseconds. This is the sum of SYJOSE.
SYS_MAN_AP_TADJ		INTEGER	System-managed access path tuning adjustments. This is the sum of SYJORT.

Column name		Data type	Description
TRAN_RTM1_CNT		INTEGER	Number of transactions in the 1st RTM bracket. This is the sum of SYLRT1.
TRAN_RTM2_CNT		INTEGER	Number of transactions in the 2nd RTM bracket. This is the sum of SYLRT2.
TRAN_RTM3_CNT		INTEGER	Number of transactions in the 3rd RTM bracket. This is the sum of SYLRT3.
TRAN_RTM4_CNT		INTEGER	Number of transactions in the 4th RTM bracket. This is the sum of SYLRT4.
TRAN_RTM5_CNT		INTEGER	Number of transactions in the 5th RTM bracket. This is the sum of SYLRT5.
TR_EAO_EXCEPT_CNT		INTEGER	Teraspace EAO exceptions, that is, the number of tolerated crossings of a 16 MB boundary within any teraspace. It is the sum of SYHEAO.
TR_FALSE_TRAP_CNT		INTEGER	False traps addressing teraspace, that is, the number of teraspace address computations that required extra processing. It is the sum of SYHFTH.
VERIFY_COUNT		INTEGER	Number of verifies. This is the sum of SYVFYC.

OS400_PM_SYS_JGR_H, _D

These tables provides hourly and daily OS/400 system performance statistics for job groups. They contain data from OS400_PM_SYS records in the OS/400 system performance monitor.

The default retention periods are:
30 days for OS400_PM_SYS_JGR_H
365 days for OS400_PM_SYS_JGR_D

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LDATE.
TIME	**K**	TIME	Time when the record was written (for OS400_PM_SYS_JGR_H only). From LTIME.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using fields SYSTEMID, LDATE, and LTIME as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	OS/400 system ID. From SYSTEMID.
JOB_GROUP_NUMBER	**K**	INTEGER	Job group number. From SECTNUM(GRP).
BIN_OFL_CNT		INTEGER	Number of binary overflows. This is the sum of OBIN.
COMM_READ_COUNT		INTEGER	Number of communications reads. This is the sum of CMGT.
COMM_WRITE_COUNT		INTEGER	Number of communications writes. This is the sum of CMPT.
CPU_MILLISEC		INTEGER	Total processing unit time in milliseconds. This is the sum of CPU.
CPU_UTIL_MAX_PCT		FLOAT	Maximum processor utilization in percent. Calculated as the maximum of CPU/INTSEC/10.
DB_ASREAD_CNT		INTEGER	Number of asynchronous database reads. This is the sum of ADBR.
DB_ASWRITE_CNT		INTEGER	Number of asynchronous database writes. This is the sum of ADBW.
DB_LOG_READ_COUNT		INTEGER	Number of logical database reads. This is the sum of LDBR.

Column name		Data type	Description
DB_LOG_WRITE_COUNT		INTEGER	Number of logical database writes. This is the sum of LDBW.
DB_MISC_OPER_COUNT		INTEGER	Number of miscellaneous database operations. This is the sum of LDBU.
DBNDB_PS_WRITE_CNT		INTEGER	Number of physical synchronous database and non-database writes. This is the sum of PWRT.
DB_PS_READ_COUNT		INTEGER	Number of physical synchronous database reads. This is the sum of PDBR.
DB_SWRITE_CNT		INTEGER	Number of synchronous database writes. This is the sum of DBW.
DECIMAL_OFL_CNT		INTEGER	Number of decimal overflows. This is the sum of ODEC.
EADDR_OFL_EXC_CNT		INTEGER	Number of effective address overflow exceptions. This is the sum of EAO.
EFS_REG_FILE_READS		INTEGER	Enhanced file system regular file reads. This is the sum of XRFR.
EFS_REG_FILE_WRTES		INTEGER	Enhanced file system regular file writes. This is the sum of XRFW.
EFS_SYM_DIR_READS		INTEGER	Enhanced file system directory reads. This is the sum of XDYR.
EFS_SYM_DR_LC_HITS		INTEGER	Enhanced file system directory lookup cache hits. This is the sum of DLCH.
EFS_SYM_DR_LC_MISS		INTEGER	Enhanced file system directory lookup cache misses. This is the sum of DLCM.
EFS_SYM_LINK_READS		INTEGER	Enhanced file system symbolic link reads. This is the sum of XSLR.
FLP_OFL_CNT		INTEGER	Number of floating point overflows. This is the sum of OFLP.
IO_CHECKSUM_CNT		INTEGER	Number of checksum I/Os. This is the sum of CS.
IO_WAIT_COUNT		INTEGER	Number of waits for asynchronous I/O operations. This is the sum of WIO.
JOB_END_COUNT		INTEGER	Number of ended jobs. This is the sum of JBTERM.
JOBS		INTEGER	Total number of jobs. This is the sum of JBCT.
JOB_START_COUNT		INTEGER	Number of started jobs. This is the sum of JBNEW.
MEASURED_SEC		INTEGER	Total measurement time in seconds. This is the sum of INTSEC.
NBD_PS_READ_COUNT		INTEGER	Number of physical synchronous non-database reads. This is the sum of PNDB.
NDB_ASREAD_CNT		INTEGER	Number of asynchronous non-database reads. This is the sum of ANDR.
NDB_ASWRITE_CNT		INTEGER	Number of asynchronous non-database writes. This is the sum of ANDW.
NDB_SWRITE_CNT		INTEGER	Number of synchronous non-database writes. This is the sum of NDW.
PAGE_FAULT_AUX_CNT		INTEGER	Number of page faults on an address currently part of an auxiliary I/O operation. This is the sum of IPF.
PAGE_FAULT_CNT		INTEGER	Number of program access group (PAG) faults. This is the sum of PAGF.
PRINT_LINE_COUNT		INTEGER	Number of print lines. This is the sum of PRTL.
PRINT_PAGE_COUNT		INTEGER	Number of print pages. This is the sum of PRTP.

Column name		Data type	Description
REROUTE_WAIT_MS		INTEGER	Total time a job waited during rerouting in milliseconds. This is the sum of RRTT.
SAMPLES		INTEGER	Total number of measurement intervals. This is the sum of INTNUM.
SEIZE_WAIT_TIME		INTEGER	Seize/wait time in milliseconds. This is the sum of SZWT.
SOCKET_BS_REC_CNT		INTEGER	Number of socket bytes received. This is the sum of SKBR.
SOCKET_BS_SENT_CNT		INTEGER	Number of socket bytes sent. This is the sum of SKBS.
SOCKET_RECS_CNT		INTEGER	Number of socket receives. This is the sum of SKRC.
SOCKET_SENDS_CNT		INTEGER	Number of socket sends. This is the sum of SKSC.
SUSPEND_MILLISEC		INTEGER	Total job suspend time in milliseconds. This is the sum of SPDT.
TRAN_MILLISEC		INTEGER	Total transaction time in milliseconds. This is the sum of TRNT.
TRAN_PNO_COUNT		INTEGER	Number of DYNAMIC PURGE(*NO) transactions. This is the sum of PRG.
TRAN_PYES_COUNT		INTEGER	Number of PURGE(*YES) transactions. This is the sum of BRG.
TRAN_RATE_MAX		FLOAT	Maximum number of transactions per second. Calculated as the maximum of TRNT/INTSEC.
TRAN_RESP_MAX_SEC		FLOAT	Maximum transaction response time in seconds. Calculated as the maximum of TRNT/TRNS.
TRANSACTIONS		INTEGER	Number of transactions. This is the sum of TRNS.
WRITE_PERM_CNT		INTEGER	Number of permanent writes. This is the sum of PW.

OS400_PERF_SUM_H, _D

These tables provide hourly and daily summary performance statistics. They contain data from DRL8003 messages in the history file.

The default retention periods are:
30 days for OS400_PERF_SUM_H
365 days for OS400_PERF_SUM_D

Column name		Data type	Description
DATE	**K**	DATE	Date when the record was written. From LOGDATE.
TIME	**K**	TIME	Time when the record was written (for OS400_PERF_SUM_H only). Calculated from LOGTIME and MINT.
PERIOD_NAME	**K**	CHAR(8)	Name of the period. This is derived using the field SYSTEMID and calculations from the fields LOGDATE, LOGTIME and MINT as parameters in the PERIOD function.
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. From SYSTEMID.
AUX_STOR_AVAIL_MB		FLOAT	Average of available auxiliary storage, in megabytes. This is the average of AAUX.
AUX_STOR_MB		FLOAT	Average of total auxiliary storage, in megabytes. This is the average of TAUX.
CPU_PCT_MAX		FLOAT	Maximum processor time used, in percent. Calculated as the maximum of 100*CPUU/MINT.
CPU_SECONDS		INTEGER	Total processor time used, in seconds. This is the sum of CPUU.
IO_COUNT		INTEGER	Sum of I/Os. This is the sum of IOS.
IO_MAX_RATE		FLOAT	Maximum I/O rate. Calculated as the maximum of IOS/MINT.

Column name		Data type	Description
JOB_COUNT		INTEGER	Sum of jobs. This is the sum of TJOBS.
MEASURED_SEC		INTEGER	Total measurement time, in seconds. This is the sum of MSINT
PAGE_COUNT		INTEGER	Sum of pages. This is the sum of PAGES.
PAGE_MAX_RATE		FLOAT	Maximum page rate. Calculated as the maximum of PAGES/MINT.
SAMPLES		INTEGER	Total number of measurement intervals. This is the count of MSGID.

SP400 feature lookup tables

This section describes the following lookup tables specific to the SP400 feature:

- "OS400_JOB_ACCTCODE."
- "OS400_DASDTYPE" on page 63.
- "OS400_JOBGROUP" on page 65.

For descriptions of common lookup tables used by the SP400 feature and other Tivoli Decision Support for z/OS features, refer to the *Administration Guide and Reference*, SH19-6816.

OS400_JOB_ACCTCODE

This lookup table is used in the SP400 feature job statistics component and contains account code information. It converts system identification, user name, job name and job type to an accounting code.

Column name		Data type	Description
OS400_SYSTEM_ID	**K**	CHAR(8)	System identification. This field can contain global search characters.
USER_NAME	**K**	CHAR(10)	User name. This field can contain global search characters.
JOB_NAME	**K**	CHAR(10)	Job name. This field can contain global search characters.
JOB_TYPE	**K**	CHAR(3)	Job type. This field can contain global search characters.
ACCOUNT_CODE		CHAR(15)	Accounting code to be assigned to job

Example of table contents

```
OS400_SYSTEM_ID    USER_NAME    JOB_NAME    JOB_TYPE    ACCOUNT_CODE
---------------    ---------    --------    --------    ---------------
S44A0061           LENNART         %           %        100000000000000
S44A0061           ALMOS           %           %        100000000000000
S44A0061           RAYNER          %           %        400000000000000
S44A0061           DAVIS           %           B        400000000000000
S44A0061           DAVIS           %           I        406600000000000
%                  %               %           %        999999999999999
```

These six table entries are explained as follows:

1. The user LENNART is given the account code 100000000000000 for all job names and all job types in the system S44A0061
2. The user ALMOS is also given the account code 100000000000000 for all job names and all job types in the system S44A0061
3. The user RAYNER is given the account code 400000000000000 for all job names and all job types in the system S44A0061

4. The user DAVIS is given the account code 400000000000000 for all job names with job type B in the system S44A0061
5. The user DAVIS is given the account code 406600000000000 for all job names with job type I in the system S44A0061
6. The default account code 999999999999999 is given for all other jobs in all other systems.

OS400_DASDTYPE

This lookup table is used in the SP400 feature configuration component to calculate DASD capacity for a device type and model.

Column name		Data type	Description
DEVICE_TYPE	**K**	CHAR(4)	Device type
DEVICE_MODEL	**K**	CHAR(3)	Device model
MEGABYTE_COUNT		INTEGER	Number of megabytes per actuator

Example of table contents

```
DEVICE_TYPE     DEVICE_MODEL     MEGABYTE_COUNT
-----------     ------------     --------------
2800            001               320
2801                              988
2802                             1031
6100                              315
6102                              320
6103                              400
6104                              988
6105                              320
6107                              400
6109                              988
6601                             1031
6602                             1031
6602            050              1031
6602            070              1031
6603                             1967
6603            050              1967
6603            070              1967
6605                             1031
6605            050              1031
6605            070              1031
6606                             1967
6606            030              1967
6606            050              1967
6606            070              1967
6607                             4194
6607            050              4194
6607            070              4194
6713                             8589
6713            050              8589
6713            070              8589
6906                             8589
6906            050              8589
6906            070              8589
6907                             8589
6907            050              8589
6907            070              8589
9332            400               400
9332            600               600
9335                              855
9335            B01               427
9336            010               471
9336            020               857
```

```
9336            025              857
9337            010              542
9337            015              542
9337            020              970
9337            021              970
9337            025              970
9337            040             1967
9337            041             1967
9337            110              542
9337            115              542
9337            120              970
9337            125              970
9337            140             1967
9337            210              542
9337            212              542
9337            215              542
9337            217              542
9337            220              970
9337            221              970
9337            222              970
9337            225              970
9337            227              970
9337            240             1967
9337            241             1967
9337            242             1967
9337            420              970
9337            422              970
9337            440             1967
9337            442             1967
9337            480             4194
9337            482             4194
9337            540             1967
9337            542             1967
9337            580             4194
9337            582             4194
9337            590             8589
9337            592             8589
```

OS400_DATE_FORMAT

This lookup table is used in the SP400 feature job statistics component and accounting component. It defines the format of the job start and job completion message dates in the QHST file (QDATFMT column) and the format of the date for the journal entry that is generated in the QACGJRN file (DATFMT column).

Column name		Data type	Description
SYSTEMID	**K**	CHAR(8)	AS/400 system ID
QDATFMT		CHAR(3)	System date format
DATFMT		CHAR(3)	Job date format

Example of table contents

```
SYSTEMID     QDATFMT     DATFMT
--------     -------     ------
S44A0061     YMD         DMY
S4415996     DMY         MDY
S4440400     JUL         JUL
```

OS400_JOBGROUP

This lookup table is used in the SP400 feature performance component, and converts job group number to job group name.

Column name		Data type	Description
JOB_GROUP_NUMBER	**K**	INTEGER	Job group number
JOB_GROUP_NAME		CHAR(6)	Job group name

Example of table contents

```
JOB_GROUP_NUMBER     JOB_GROUP_NAME
----------------     --------------
1                    A-DDM
2                    A-PCS
3                    A-PTT
4                    B-MRT
5                    B-S/36
6                    B-COMM
7                    B-AUTO
8                    B-BTCH
9                    A-INT
10                   B-CPF
```

You can find an explanation of the job groups, and see how these job groups are used in the performance component, by referring to the report “OS/400 Perf CPU by Job Group, Hourly Trend” on page 97.

Chapter 7. Reports

The reporting function produces reports based on the data in the Tivoli Decision Support for z/OS database. Reports can show data from tables or from views. You can request reports online or by submitting batch jobs. Typically, you use online reporting for reports that you use once, and batch reporting for regularly required reports.

This chapter describes:

- "Report format and general information"

  This topic describes the format of the names used to define each report, and how source tables, attributes, and variables are used.
- "Reports in the accounting component" on page 69
- "Reports in the configuration component" on page 71
- "Reports in the job statistics component" on page 75
- "Reports in the messages component" on page 82
- "Reports in the performance component" on page 88

Report format and general information

Tivoli Decision Support for z/OS presents reports in tables or graphs. All reports have the same basic report layout. This section describes the elements that are common among Tivoli Decision Support for z/OS feature reports:

- Report ID
- Report group
- Source
- Attributes
- Variables

Report ID

Tivoli Decision Support for z/OS assigns each report a unique identifier. The SP400 feature uses the following format for report IDs:

OS400*yxx*

where:

y Can be one of the following:

A	The accounting component
C	The configuration component
J	The job statistics component
M	The messages component
P	The performance component

xx A sequential number identifying the report.

Examples:

OS400A01
OS400P11

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Report group

Tivoli Decision Support for z/OS uses several predefined report groups. For SP400 feature, each component has one group. The five SP400 feature report groups are given on page 4.

Source tables

Each report contains information from one or more source tables. The report descriptions in this chapter list source tables. Refer to these tables to learn where certain data originates.

Attributes

Each report has certain attributes associated with it. Use these attributes as *keywords* to search for specific reports in the dialogs.

You can specify any number of attributes for a report, but these attributes are always present for predefined reports:

- The area to which the report belongs (for example, AS400)
- The task that the report supports:

Performance	Performance control task
Service	Service-level planning task
Capacity	Capacity planning task
Security	Security control task
Configuration	Configuration management discipline
Operation	Operations management discipline
Change	Change management discipline
Problem	Problem management discipline

You can also specify these attributes, when appropriate:

- Resource types, such as storage or processor time
- Performance issues, such as availability or response
- Presentation forms, such as detail, overview, or trend
- Time resolutions, such as hourly, daily, or monthly

Variables

Each report has variables associated with it. You specify the values for these variables when you generate the report using the reporting dialog.

Note: When you specify a date for a monthly report, specify the first day of the month. Otherwise, there is no match in the data table.

Note: If a character variable has only numeric characters, enclose it in single quotation marks, otherwise it will not match the data. For example, if you have a system ID of 1234, specify it as '1234' in the Variables window.

Reports in the accounting component

This section describes the following accounting component reports:

- "OS/400 Acct Job Accounting, Monthly Overview."
- "OS/400 Acct Print Accounting, Monthly Overview" on page 70.

The data flow for the accounting component (including the names of OS/400 logs, Tivoli Decision Support for z/OS records and tables) is given in "SP400 feature accounting component data flow" on page 33.

OS/400 Acct Job Accounting, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 26) provides monthly overview information about how much of the resources each user and department has used, summarized by account code. The report can be used as a guide for charging users and departments for the system resources they have used, and is produced by period name (for example, PRIME or NIGHT).

This information identifies the report:

Report ID OS400A01

Report group OS/400 Accounting Component Reports

Source table OS400_ACCT_JOB_M (described on page 44)

Attributes OS400, Acct, Accounting, Job, Monthly, Overview,

Variables Month, Period name, OS400 system ID

OS/400 Acct Job Accounting, Monthly Overview
System: 'S44A0001'
Month: '2006-03-01' Period: 'PRIME'

Account code	User name	Jobs (count)	CPU time (hours)	I/O (1000s)
	AURELL	34	0.46	15
	CHRISTIN	312	0.43	240
	FAXADMIN	62	0.16	1
	IBM	18	0.05	2
	JAN400	11	0.25	2
	JIVE	74	0.07	2
	LENNART	48	0.09	2
	QPGMR	12	0.03	1
	QSECOFR	21	0.12	14
	QSNADS	19	0.04	1
	QSYSOPR	80	0.28	9
	QUSER	21	0.02	1
	SVEN	62	0.24	4
	Total	774	2.24	294
*SYS	QSNADS	32	0.11	5
	QSPLJOB	56	0.21	12
	Total	88	0.32	17
	Total	862	2.56	311

Tivoli Decision Support for z/OS Report: OS400A01

Figure 26. Example of OS/400 Acct Job Accounting, Monthly Overview

The report contains this information:

Account code	The accounting code.
User name	The user name.
Jobs (count)	The number of jobs.
CPU time (hours)	The total processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.
I/O (1000s)	The total number of auxiliary I/Os, in thousands. This is calculated as SUM(IO_COUNT)/1000.

OS/400 Acct Print Accounting, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 27) provides monthly overview information about how much of the printing resources each user and department has used. The report is produced by period name (for example, PRIME or NIGHT), and can be used as a guide for charging users and departments for the printing resources they have used.

This information identifies the report:

Report ID	OS400A02
Report group	OS/400 Accounting Component Reports
Source table	OS400_ACCT_PRINT_M (described on page 45)
Attributes	OS400, Acct, Accounting, Print, Monthly, Overview
Variables	Month, Period name, OS400 system ID

OS/400 Acct Print Accounting, Monthly Overview
System: 'S44A0001'
Month: '2006-03-01' Period: 'PRIME'

Account code	User name	Form type	Jobs (count)	Print lines (count)	Print pages (count)
	CHRISTIN	*STD	47	4520	248
	FAXADMIN	*STD	2	157	5
	JIVE	*STD	1	17	1
		Total	50	4694	254
NI3	CPOPGMR	*STD	1	12	1
		Total	1	12	1
		Total	51	4706	255

Tivoli Decision Support for z/OS Report: OS400A02

Figure 27. Example of OS/400 Acct Print Accounting, Monthly Overview

The report contains this information:

Account code	The accounting code.
User name	The user name.
Form type	The print form type.
Jobs (count)	The number of jobs.
Print lines (count)	The number of print lines.
Print pages (count)	The number of print pages.

Reports in the configuration component

This section describes the following configuration component reports:

- "OS/400 Config all devices, Overview."
- "OS/400 Config DASD Capacity Overview" on page 72.
- "OS/400 Config Main Storage Overview" on page 73.
- "OS/400 Config Device Count Type/Model, Overview" on page 74.
- "OS/400 Config Device for Specific Type, Overview" on page 75.

The data flow for the configuration component (including the names of OS/400 logs, Tivoli Decision Support for z/OS records, and tables) is given in "SP400 feature configuration component data flow" on page 34.

OS/400 Config all devices, Overview

For a specific OS/400 system in the network, this report (see Figure 28 on page 72) provides overview information about the hardware resources the system uses.

The following information identifies the report:

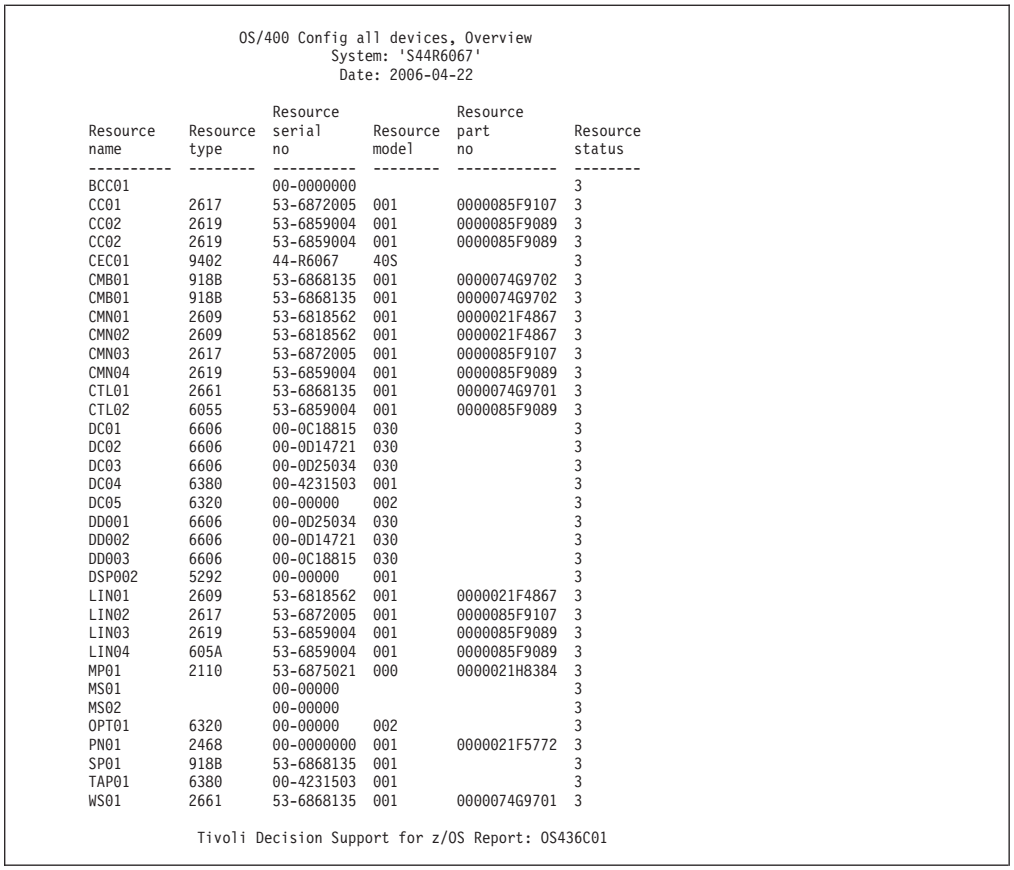
Report ID OS436C01

Report group OS/400 Configuration Component Reports

Source OS400_CONFIG (described on page 46)

Attributes OS400, Configuration, HW, Hardware, Device, Overview

Variables Date, OS/400 system ID



OS/400 Config all devices, Overview
System: 'S44R6067'
Date: 2006-04-22

Resource name	Resource type	Resource serial no	Resource model	Resource part no	Resource status
BCC01		00-0000000			3
CC01	2617	53-6872005	001	0000085F9107	3
CC02	2619	53-6859004	001	0000085F9089	3
CC02	2619	53-6859004	001	0000085F9089	3
CEC01	9402	44-R6067	40S		3
CMB01	918B	53-6868135	001	0000074G9702	3
CMB01	918B	53-6868135	001	0000074G9702	3
CMN01	2609	53-6818562	001	0000021F4867	3
CMN02	2609	53-6818562	001	0000021F4867	3
CMN03	2617	53-6872005	001	0000085F9107	3
CMN04	2619	53-6859004	001	0000085F9089	3
CTL01	2661	53-6868135	001	0000074G9701	3
CTL02	6055	53-6859004	001	0000085F9089	3
DC01	6606	00-0C18815	030		3
DC02	6606	00-0D14721	030		3
DC03	6606	00-0D25034	030		3
DC04	6380	00-4231503	001		3
DC05	6320	00-00000	002		3
DD001	6606	00-0D25034	030		3
DD002	6606	00-0D14721	030		3
DD003	6606	00-0C18815	030		3
DSP002	5292	00-00000	001		3
LIN01	2609	53-6818562	001	0000021F4867	3
LIN02	2617	53-6872005	001	0000085F9107	3
LIN03	2619	53-6859004	001	0000085F9089	3
LIN04	605A	53-6859004	001	0000085F9089	3
MP01	2110	53-6875021	000	0000021H8384	3
MS01		00-00000			3
MS02		00-00000			3
OPT01	6320	00-00000	002		3
PN01	2468	00-0000000	001	0000021F5772	3
SP01	918B	53-6868135	001		3
TAP01	6380	00-4231503	001		3
WS01	2661	53-6868135	001	0000074G9701	3

Tivoli Decision Support for z/OS Report: OS436C01

Figure 28. Example of OS/400 Config all Devices, Overview

The report contains the following information:

Resource Name The resource name.

Resource Type The resource type.

Resource Serial number The resource serial number.

Resource Model The resource model.

Resource Part number The resource part number.

Resource Status The resource status.

OS/400 Config DASD Capacity Overview

For each OS/400 system in the network, this report (see Figure 29 on page 73) provides overview information about the disk devices the system contains. You might use this report when considering disk device changes (replacing, removing, or adding capacity).

The following information identifies the report:

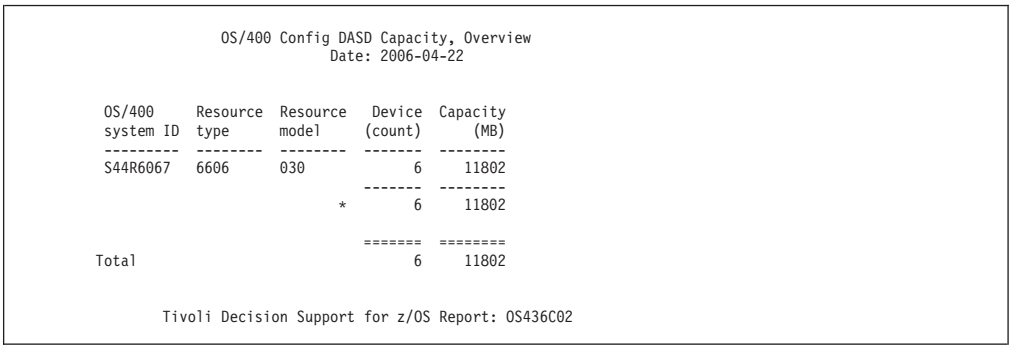
Report ID OS436C02

Report group OS/400 Configuration Component Reports

Source tables OS400_CONFIG (described on page 46) and OS400_DASDTYPE (described on page 63)

Attributes OS400, Configuration, HW, Hardware, Disk, DASD, Overview

Variables Date



```
                    OS/400 Config DASD Capacity, Overview
                                 Date: 2006-04-22


 OS/400     Resource  Resource   Device  Capacity
 system ID  type      model     (count)     (MB)
 ---------  --------  --------  -------  --------
 S44R6067   6606      030             6     11802
                                -------  --------
                              *       6     11802

                                =======  ========
Total                                   6     11802


        Tivoli Decision Support for z/OS Report: OS436C02
```

Figure 29. Example of OS/400 Config DASD Capacity, Overview

The report contains the following information:

OS/400 system ID The system identification.

Resource Type The resource type.

Resource Model The resource model.

Device (count) The number of devices.

Capacity (MB) The sum of drive capacity, in MB.

OS/400 Config Main Storage Overview

For each OS/400 system in the network, this report (see Figure 30) provides overview information about the main storage the system contains. The report also contains the total main storage of all OS/400 systems. You might use this report to control the currently available main storage and, therefore, the number of concurrently active jobs that can run on each OS/400 system.

The following information identifies the report:

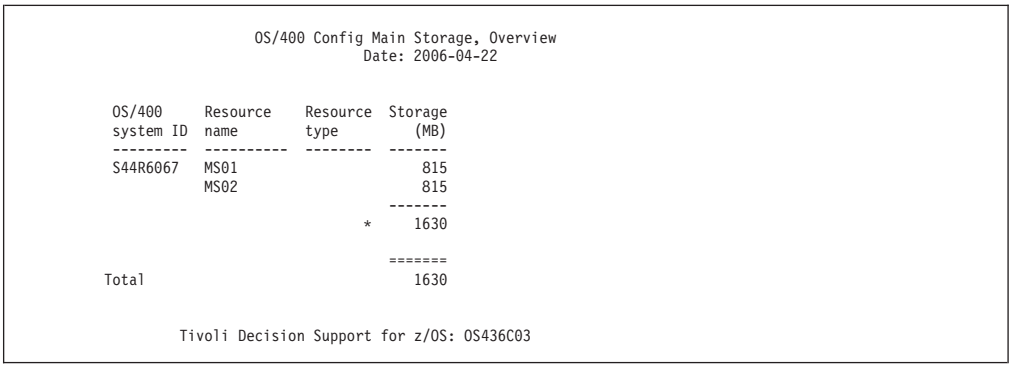
Report ID OS436C03

Report group OS/400 Configuration Component Reports

Source table OS400_CONFIG (described on page 46)

Attributes OS400, Configuration, HW, Hardware, Storage, Overview

Variables Date



```
                   OS/400 Config Main Storage, Overview
                                Date: 2006-04-22


 OS/400     Resource    Resource  Storage
 system ID  name        type        (MB)
 ---------  ----------  --------  -------
 S44R6067   MS01                    815
            MS02                    815
                                  -------
                                *    1630

                                  =======
Total                                1630


        Tivoli Decision Support for z/OS: OS436C03
```

Figure 30. Example of OS/400 Config Main Storage, Overview

The report contains the following information:

OS/400 system ID The system identification.

Resource Name The resource name.

Resource Type The resource type.

Storage (MB) The number of megabytes of main storage.

OS/400 Config Device Count Type/Model, Overview

For each OS/400 system in the network, this report (see Figure 31) provides overview information about their resource types (resource models and number of hardware devices). Detailed information about each resource type is provided in the report OS/400 Config Device for Specific Type, Overview, which contains an example of resource type 2619).

The following information identifies the report:

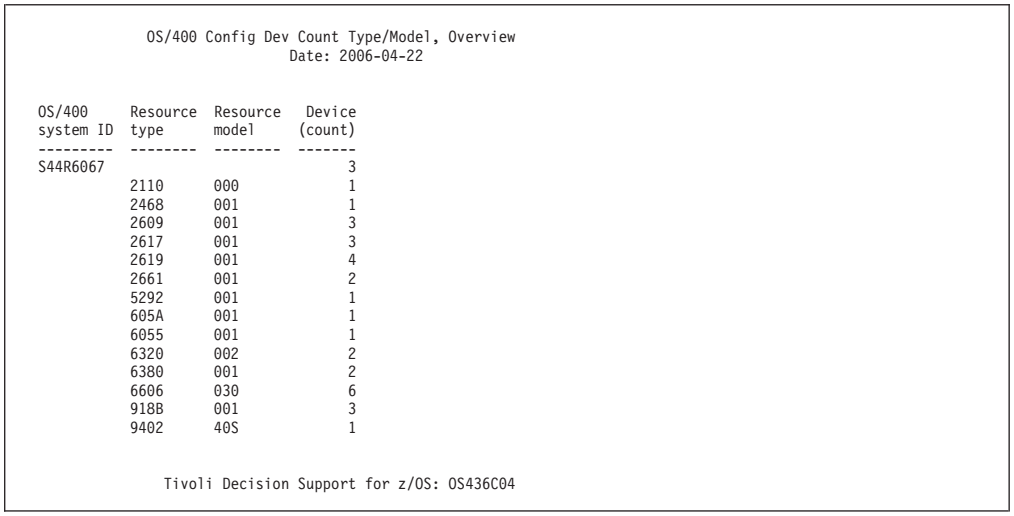
Report ID OS436C04

Report group OS/400 Configuration Component Reports

Source table OS400_CONFIG (described on page 46)

Attributes OS400, Configuration, HW, Hardware, Device, Overview

Variables Date



OS/400 Config Dev Count Type/Model, Overview
Date: 2006-04-22

OS/400 system ID	Resource type	Resource model	Device (count)
S44R6067			3
	2110	000	1
	2468	001	1
	2609	001	3
	2617	001	3
	2619	001	4
	2661	001	2
	5292	001	1
	605A	001	1
	6055	001	1
	6320	002	2
	6380	001	2
	6606	030	6
	918B	001	3
	9402	40S	1

Tivoli Decision Support for z/OS: OS436C04

Figure 31. Example of OS/400 Config Device Count Type/Model, Overview

The report contains the following information:

OS/400 system ID The system identification.

Resource Type The resource type.

Resource Model The resource model

Device (count) The number of devices.

OS/400 Config Device for Specific Type, Overview

For a specific OS/400 system in the network, this report (see Figure 32) provides overview information about the hardware resources that are contained within a resource type.

The following information identifies the report:

Report ID OS436C05

Report group OS/400 Configuration Component Reports

Source table OS400_CONFIG (described on page 46)

Attributes OS400, Configuration, HW, Hardware, Device, Overview

Variables Date, OS400 system ID, Resource type

```
            OS/400 Config Dev for Specific Type, Overview
                System: 'S44R6067'  Resource type: '2619'
                             Date: 2006-04-22


             Version            Prev      System     Config    Prev
| Resource   release  Resource  resource  serial     obj       level
| name       mod      level     level     no         name      config
| ---------  -------- --------  --------  ---------- --------  ------
| CC02       V3R6M0   1         BUS01     44-R6067
| CC02       V3R6M0   1         BUS01     44-R6067
| CMN04      V3R6M0   3         LIN03     44-R6067   TRLINE
| LIN03      V3R6M0   2         CC02      44-R6067
|
|
|               Tivoli Decision Support for z/OS: OS436C05
```

Figure 32. Example of OS/400 Config Device for Specific Type, Overview

The report contains the following information:

Resource Name The resource name.

Version Release Modification The version, release, and modification of the OS/400 system.

Resource Level The resource level.

Previous Resource Level The system-defined previous level resource name.

System Serial Number The serial number of the system.

Configuration Object Name The configuration object name.

Previous Level Configuration The previous level configuration object name.

Reports in the job statistics component

This section describes the following job statistics component reports:

- "OS/400 Job Statistics by User, Monthly Overview" on page 76.
- "OS/400 Job CPU Usage by User, Monthly Overview" on page 77.
- "OS/400 Job Statistics All Systems, Daily Trend" on page 77.
- "OS/400 Job Statistics all Systems, Monthly Trend" on page 78.
- "OS/400 Job Statistics for a User, Monthly Overview" on page 79.
- "OS/400 Job Type Statistics, Monthly Overview" on page 80.
- "OS/400 Job Acct from History Log, Monthly Overview" on page 81.

The data flow for the job statistics component (including the names of OS/400 logs, Tivoli Decision Support for z/OS records and tables) is given in "SP400 feature job statistics component data flow" on page 36.

If the SP400 feature accounting component is not installed, these reports can also guide you in deciding how much to charge users for the resources they have used.

OS/400 Job Statistics by User, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 33) provides monthly overview information about how much of the resources each user has used. The report is summarized by user name and produced by period name (for example, PRIME or NIGHT). A graphical representation of this report's "user name" and "CPU time" information is provided in "OS/400 Job CPU Usage by User, Monthly Overview" on page 77.

This information identifies the report:

Report ID OS400J01

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Attributes OS400, Job, User, Monthly, Overview

Variables Month, Period name, OS400 system id,

OS/400 Job Statistics by User, Monthly Overview
System: 'S44A0001'
Month: '2006-03-01' Period: 'PRIME'

User name	Jobs (count)	Elapsed time (hours)	CPU time (hours)	I/O (1000s)	Trans (count)
AURELL	9	77.3	0.33	99	2836
LENNART	2	1.9	0.00	1	0
QPGMR	6	0.2	0.03	11	0
QSECOFR	1	8.5	0.11	39	723
Total	18	87.8	0.48	150	3559

Tivoli Decision Support for z/OS Report: OS400J01

Figure 33. Example of OS/400 Job Statistics by User, Monthly Overview

The report contains this information:

User name The user name.

Jobs (count) The number of jobs.

Elapsed time (hour) The total elapsed time. This is calculated as SUM(ELAPSED_SECONDS)/3600.

CPU time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (1000s) The total number of auxiliary I/O, in thousands. This is calculated as SUM(IO_COUNT)/1000.

Trans (count) The number of transactions.

OS/400 Job CPU Usage by User, Monthly Overview

For a specific OS/400 system in the network, this graphical display (see Figure 34) shows the processor utilization by a user, during a given month. The display is produced by period name (for example, PRIME or NIGHT). The information used in this display is also included in the report "OS/400 Job Statistics by User, Monthly Overview" on page 76.

This information identifies the report:

Report ID OS400J02

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Chart format DRLG4J02

Attributes OS400, Job, User, CPU, Monthly, Overview

Variables Month, Period name, OS400 system ID, MAXROWS

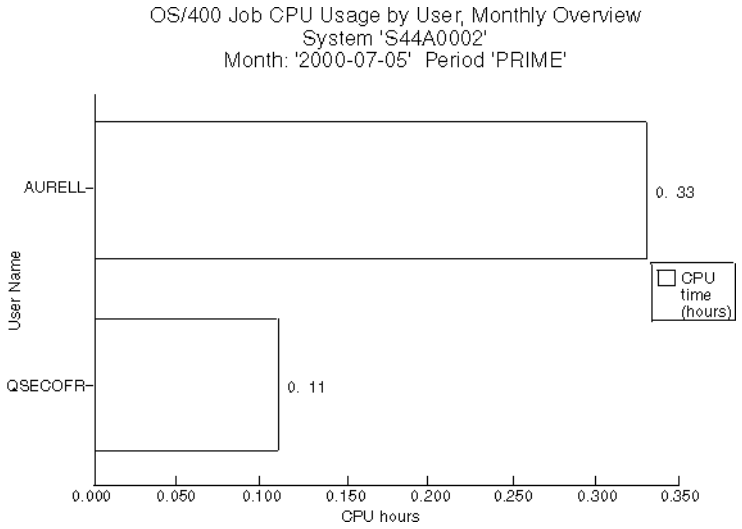


Figure 34. Example of OS/400 Job CPU Usage by User, Monthly Overview

The report contains this information:

User name The user name.

CPU Time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

OS/400 Job Statistics All Systems, Daily Trend

For each OS/400 system in the network, this report (see Figure 35 on page 78) provides daily trend information about how much of the system resources are being used. The report is produced by period name (for example, PRIME or NIGHT). You might use the report (for example) to determine when batch jobs can be scheduled. The same information over a *monthly* trend period, is provided in "OS/400 Job Statistics all Systems, Monthly Trend" on page 78.

This information identifies the report:

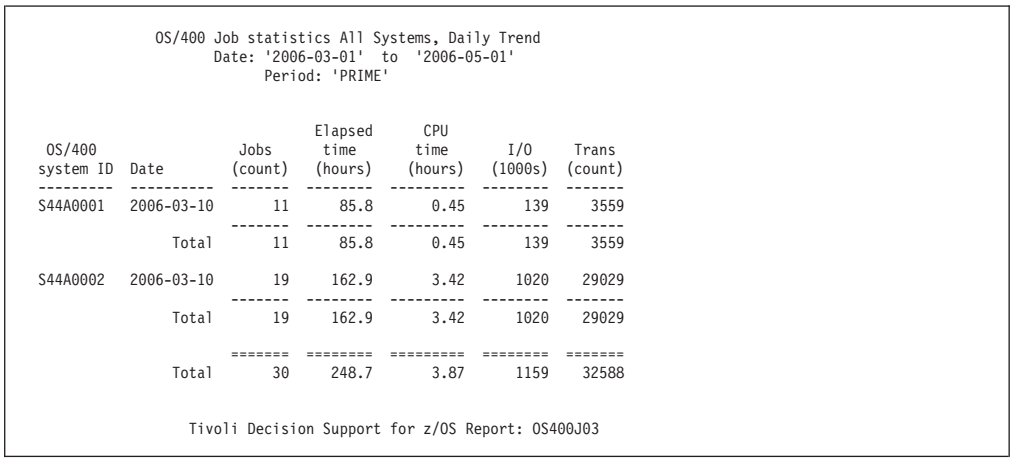
Report ID OS400J03

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_D (described on page 48)

Attributes OS400, Job, Daily, Trend

Variables From date, To date, Period name



OS/400 Job statistics All Systems, Daily Trend
Date: '2006-03-01' to '2006-05-01'
Period: 'PRIME'

OS/400 system ID	Date	Jobs (count)	Elapsed time (hours)	CPU time (hours)	I/O (1000s)	Trans (count)
S44A0001	2006-03-10	11	85.8	0.45	139	3559
	Total	11	85.8	0.45	139	3559
S44A0002	2006-03-10	19	162.9	3.42	1020	29029
	Total	19	162.9	3.42	1020	29029
	Total	30	248.7	3.87	1159	32588

Tivoli Decision Support for z/OS Report: OS400J03

Figure 35. Example of OS/400 Job Statistics all Systems, Daily Trend

The report contains this information:

Date The date.

Jobs (count) The number of jobs.

Elapsed time (hour) The elapsed time, in hours. This is calculated as SUM(ELAPSED_SECONDS)/3600.

CPU time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (1000s) The total number of auxiliary I/Os, in thousands. This is calculated as SUM(IO_COUNT)/1000.

Trans (count) The number of transactions.

OS/400 Job Statistics all Systems, Monthly Trend

For each OS/400 system in the network, this report (see Figure 36 on page 79) provides monthly trend information about how much of the system resources are being used. The report is summarized by OS/400 system. and is produced by period name (for example, PRIME or NIGHT). You might use the report to anticipate potential resource constraints (for example, if processor usage is increasing over the time-period). The same information over a *daily* trend period is provided in "OS/400 Job Statistics All Systems, Daily Trend" on page 77.

This information identifies the report:

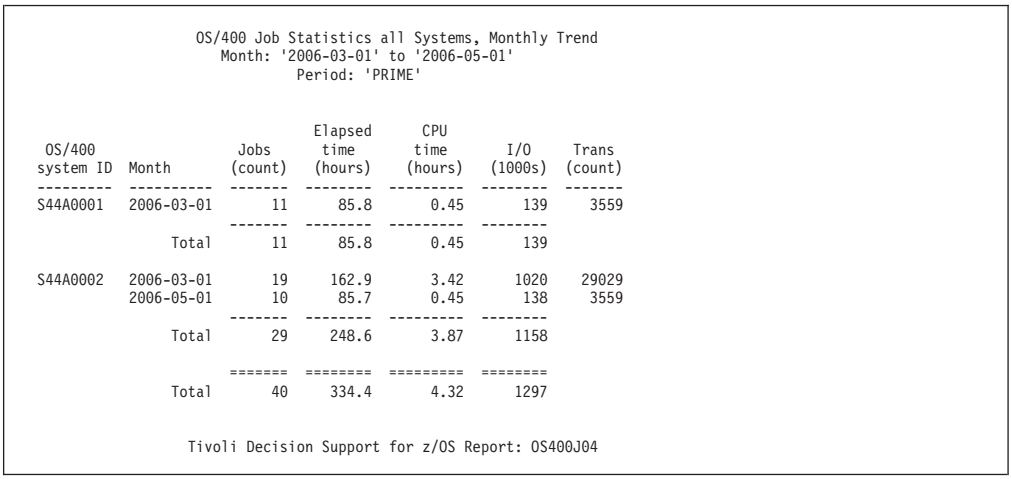
Report ID OS400J04

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Attributes OS400, Job, Monthly, Trend

Variables From month, To month, Period name



OS/400 Job Statistics all Systems, Monthly Trend
Month: '2006-03-01' to '2006-05-01'
Period: 'PRIME'

OS/400 system ID	Month	Jobs (count)	Elapsed time (hours)	CPU time (hours)	I/O (1000s)	Trans (count)
S44A0001	2006-03-01	11	85.8	0.45	139	3559
	Total	11	85.8	0.45	139	
S44A0002	2006-03-01	19	162.9	3.42	1020	29029
	2006-05-01	10	85.7	0.45	138	3559
	Total	29	248.6	3.87	1158	
	Total	40	334.4	4.32	1297	

Tivoli Decision Support for z/OS Report: OS400J04

Figure 36. Example of OS/400 Job Statistics all Systems, Monthly Trend

The report contains this information:

OS/400 system ID The system identification.

Month The month.

Jobs (count) The number of jobs.

Elapsed time (hour) The elapsed time, in hours. This is calculated as SUM(ELAPSED_SECONDS)/3600.

CPU time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (1000s) The total number of auxiliary I/O, in thousands. This is calculated as SUM(IO_COUNT)/1000.

OS/400 Job Statistics for a User, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 37 on page 80) provides monthly overview information about how much of the system resources a specific user has used. The report is produced by period name (for example, PRIME or NIGHT).

This information identifies the report:

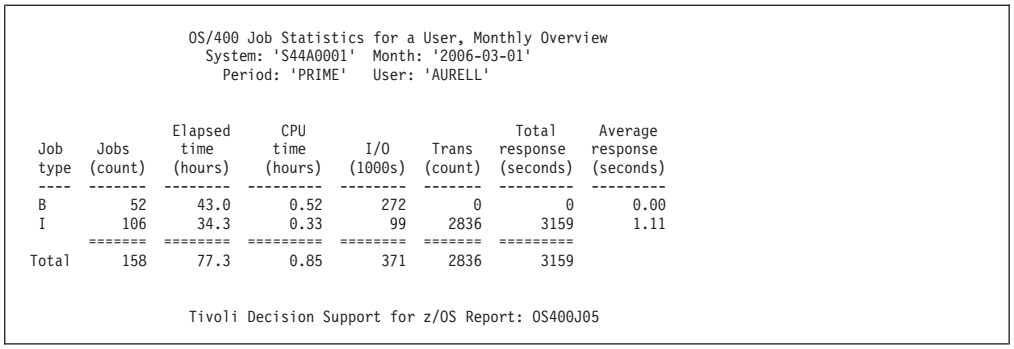
Report ID OS400J05

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Attributes OS400, Job, User, Type, Monthly, Overview

Variables Month, Period name, OS400 system id, User name



OS/400 Job Statistics for a User, Monthly Overview
System: 'S44A0001' Month: '2006-03-01'
Period: 'PRIME' User: 'AURELL'

Job type	Jobs (count)	Elapsed time (hours)	CPU time (hours)	I/O (1000s)	Trans (count)	Total response (seconds)	Average response (seconds)
B	52	43.0	0.52	272	0	0	0.00
I	106	34.3	0.33	99	2836	3159	1.11
Total	158	77.3	0.85	371	2836	3159	

Tivoli Decision Support for z/OS Report: OS400J05

Figure 37. Example of OS/400 Jobs Statistics for a User, Monthly Overview

The report contains this information:

Job Type The job type.

Jobs (count) The number of jobs.

Elapsed time (hour) The elapsed time, in hours. This is calculated as SUM(ELAPSED_SECONDS)/3600.

CPU time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (1000s) The total number of auxiliary I/Os, in thousands. This is calculated as SUM(IO_COUNT)/1000.

Trans (count) The number of transactions.

Total resp (seconds) The total response time, in seconds.

Average resp (seconds) The average response time, in seconds. This is calculated as SUM(RESPONSE_SECONDS)/ SUM(TRANSACTIONS).

OS/400 Job Type Statistics, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 38 on page 81) provides monthly overview information about how much resources have been used. The report is produced by period name (for example, PRIME or NIGHT). You might use this report to determine if resources can be re-allocated between processing types batch and online (by increasing or decreasing the main storage pool for a processing type).

This information identifies the report:

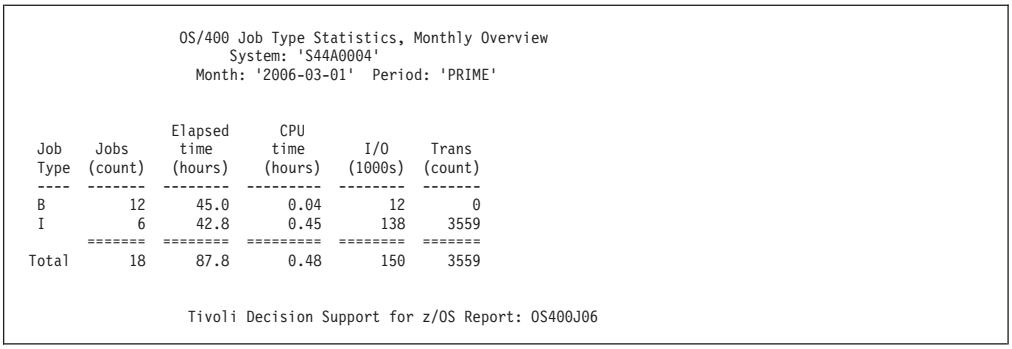
Report ID OS400J06

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Attributes OS400, Job, Type, Monthly, Overview

Variables Month, Period name, OS400 system ID



OS/400 Job Type Statistics, Monthly Overview
System: 'S44A0004'
Month: '2006-03-01' Period: 'PRIME'

Job Type	Jobs (count)	Elapsed time (hours)	CPU time (hours)	I/O (1000s)	Trans (count)
B	12	45.0	0.04	12	0
I	6	42.8	0.45	138	3559
Total	18	87.8	0.48	150	3559

Tivoli Decision Support for z/OS Report: OS400J06

Figure 38. Example of OS/400 Job Type Statistics, Monthly Overview

The report contains this information:

Job Type The job type.

Jobs (count) The number of jobs.

Elapsed time (hours) The elapsed time, in hours. This is calculated as SUM(ELAPSED_SECONDS)/3600.

CPU time (hours) The processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (1000s) The total number of auxiliary I/Os, in thousands. This is calculated as SUM(IO_COUNT)/1000.

Trans (count) The number of transactions.

OS/400 Job Acct from History Log, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 39 on page 82) provides monthly overview information about how much resources have been used by each account code. The report is produced by period name (for example, PRIME or NIGHT).

This information identifies the report:

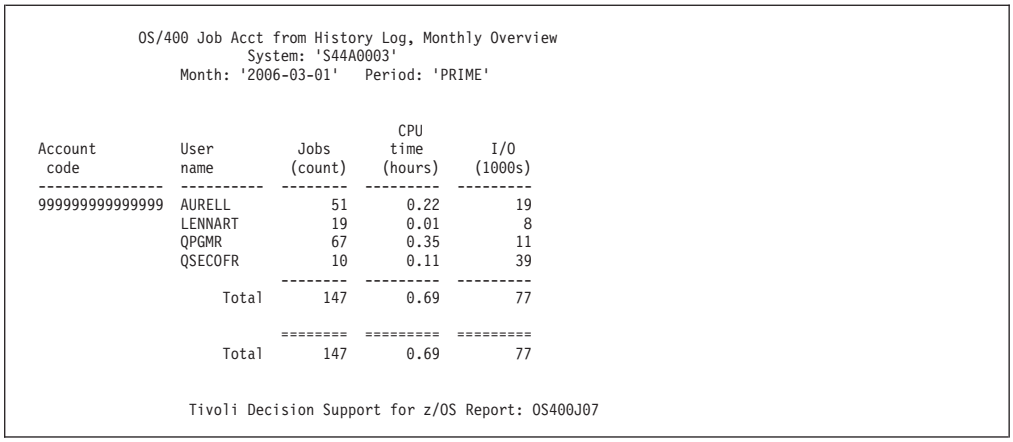
Report ID OS400J07

Report group OS/400 Job Statistics Reports

Source table OS400_JOB_STAT_M (described on page 48)

Attributes OS400, Acct, Accounting, Job, Monthly, Overview

Variables Month, Period name, OS400 system ID



```
            OS/400 Job Acct from History Log, Monthly Overview
                        System: 'S44A0003'
                  Month: '2006-03-01'   Period: 'PRIME'


                                                CPU
Account          User          Jobs          time         I/O
 code            name         (count)       (hours)     (1000s)
---------------  ----------  --------  ---------  ---------
999999999999999  AURELL            51       0.22          19
                 LENNART           19       0.01           8
                 QPGMR             67       0.35          11
                 QSECOFR           10       0.11          39
                              --------  ---------  ---------
                      Total       147       0.69          77

                             ========  =========  =========
                      Total       147       0.69          77


                  Tivoli Decision Support for z/OS Report: OS400J07
```

Figure 39. Example of OS/400 Job Acct from History Log, Monthly Overview

The report contains this information:

Account code The accounting code, taken from the account code lookup table.

User name The user name.

Jobs (count) The number of jobs.

CPU time (hours) The total processor time, in hours. This is calculated as SUM(CPU_SECONDS)/3600.

I/O (count) The total number of auxiliary I/O, in thousands. This is calculated as SUM(IO_COUNT)/1000.

Reports in the messages component

This section describes the following messages component reports:

- "OS/400 Messages All Systems, Monthly Overview."
- "OS/400 Messages Most Frequent, Daily Overview" on page 83.
- "OS/400 Messages Most Frequent, Monthly Overview" on page 84.
- "OS/400 Messages by Severity. Codes, Monthly Overview" on page 85.
- "OS/400 Messages for a User, Monthly Overview" on page 86.
- "OS/400 Messages by Type, Monthly Overview" on page 87.
- "OS/400 Messages by User Name, Monthly Overview" on page 87.

The data flow for the messages component (including the names of OS/400 logs, Tivoli Decision Support for z/OS records and tables) is given in "SP400 feature messages component data flow" on page 38.

OS/400 Messages All Systems, Monthly Overview

For each OS/400 system in the network, this report (see Figure 40 on page 83) provides monthly overview information about the messages generated. The report is produced by period name (for example, PRIME or NIGHT). Although mainly reference information is given here, you may also use the report to check the amount of data being generated into the OS/400 history log.

This information identifies the report:

Report ID OS400M01

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_M (described on page 48)

Attributes OS400, Message, Monthly, Overview

Variables From month, To month, Period name

```
                OS/400 Messages all Systems, Monthly Overview
                     Month: '2006-03-01' to '2006-05-01'
                          Period: 'PRIME'


 OS/400                   Messages    Lines     Text bytes  Data bytes
system ID  Month           (count)   (/message)  (/message)  (/message)
---------  ----------  ----------  ----------  ----------  ----------
S44A0001   2006-03-01          77        2.79       94.01       81.29
                       ----------  ----------  ----------  ----------
         Total/average         77        2.79       94.01       81.29

S44A0002   2006-03-01          77        2.87       98.61       92.49
           2006-05-01          68        2.72       94.19       71.51
                       ----------  ----------  ----------  ----------
         Total/average        145        2.80       96.40       82.00

                      ==========  ==========  ==========  ==========
         Total/average        222        2.79       95.60       81.76


                Tivoli Decision Support for z/OS Report: OS400M01
```

Figure 40. Example of OS/400 Messages All Systems, Monthly Overview

The report contains this information:

OS/400 system ID
The system identification.

Month The month.

Messages (count)
The number of messages.

Lines (/message)
The number of print lines per message. This is calculated as SUM(LINE_COUNT)/SUM(MESSAGE_COUNT).

Text bytes (/message)
The number of bytes of text per message. This is calculated as SUM(TEXT_BYTE_COUNT)/SUM(MESSAGE_COUNT).

Data bytes (/message)
The number of bytes of data per message. This is calculated as SUM(DATA_BYTE_COUNT)/SUM(MESSAGE_COUNT).

OS/400 Messages Most Frequent, Daily Overview

For a specific OS/400 system in the network, this report (see Figure 41 on page 84) provides daily overview information about the messages generated. The report is produced by period name (for example, PRIME or NIGHT). You may use this report to identify potential problems within an application, since the message ID allows you to differentiate between errors caused by software applications, operational errors, and so on. A monthly summary of the information in this report is provided in "OS/400 Messages Most Frequent, Monthly Overview" on page 84.

This information identifies the report:

Report ID OS400M02

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_D (described on page 48)

Attributes OS400, Message, Daily, Overview

Variables Date, Period name, OS400 system id, Maxrows

```
              OS/400 Messages Most Frequent, Daily Overview
                        System: 'S44A0001'
                   Date: '2006-10-13'  Period: 'PRIME'

Message   Message     Messages    Messages
 file       ID        (count)       (%)
--------  --------  ----------  ----------
AMOMSGF   AMO8001           24       31.17
QCPFMSG   CPF8B41           15       19.48
QCPFMSG   CPF1164           11       14.29
QCPFMSG   CPF590A            5        6.49
QCPFMSG   CPF4058            4        5.19
QCPFMSG   CPA4067            3        3.90
QCPFMSG   CPC3722            3        3.90
QCPFMSG   CPF1124            2        2.60
QCPFMSG   CPF2758            2        2.60
QCPFMSG   CPF1269            2        2.60


                Tivoli Decision Support for z/OS Report: OS400M02
```

Figure 41. Example of OS/400 Messages Most Frequent, Daily Overview

The report contains this information:

Date The date.

Message file The name of the message file.

Message ID The message identification.

Messages (count) The number of messages.

Messages (%) The percentage occurrence of a message.

OS/400 Messages Most Frequent, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 42 on page 85) provides monthly overview information about the messages generated. The report is produced by period name (for example, PRIME or NIGHT). You can use this report to identify potential problems within an application since the message ID allows you to differentiate between errors caused by software applications, operational errors, and so on. For a daily summary of some of the information in this report, see "OS/400 Messages Most Frequent, Daily Overview" on page 83.

This information identifies the report:

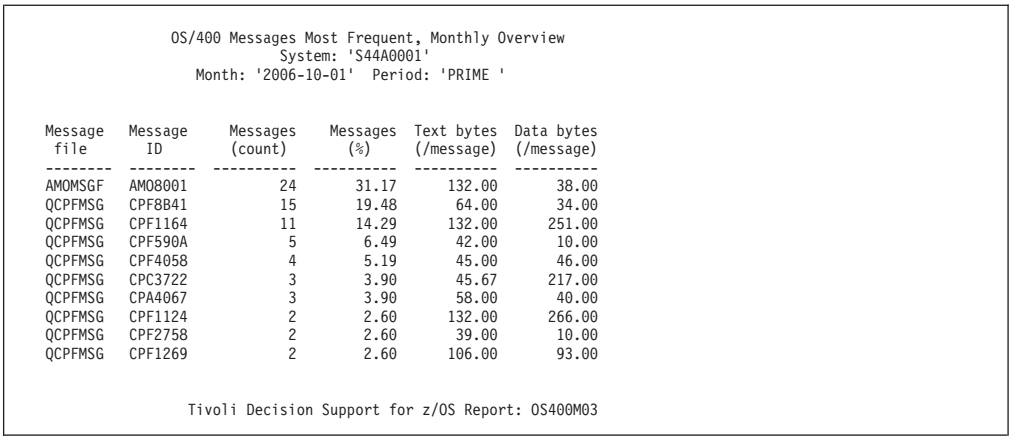
Report ID OS400M03

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_M (described on page 48)

Attributes OS400, Message, Monthly, Overview

Variables Month, Period name, OS400 system id, Maxrows



OS/400 Messages Most Frequent, Monthly Overview
System: 'S44A0001'
Month: '2006-10-01' Period: 'PRIME '

Message file	Message ID	Messages (count)	Messages (%)	Text bytes (/message)	Data bytes (/message)
AMOMSGF	AMO8001	24	31.17	132.00	38.00
QCPFMSG	CPF8B41	15	19.48	64.00	34.00
QCPFMSG	CPF1164	11	14.29	132.00	251.00
QCPFMSG	CPF590A	5	6.49	42.00	10.00
QCPFMSG	CPF4058	4	5.19	45.00	46.00
QCPFMSG	CPC3722	3	3.90	45.67	217.00
QCPFMSG	CPA4067	3	3.90	58.00	40.00
QCPFMSG	CPF1124	2	2.60	132.00	266.00
QCPFMSG	CPF2758	2	2.60	39.00	10.00
QCPFMSG	CPF1269	2	2.60	106.00	93.00

Tivoli Decision Support for z/OS Report: OS400M03

Figure 42. Example of OS/400 Messages Most Frequent, Monthly Overview

The report contains this information:

Message file The name of the message file.

Message ID The message identification.

Messages (count)
The number of messages.

Messages (%) The percentage occurrence of a message.

Text bytes (/message)
The number of bytes of text per message. This is calculated as SUM(TEXT_BYTE_COUNT)/SUM(MESSAGE_COUNT).

Data bytes (/message)
The number of bytes of data per message. This is calculated as SUM(DATA_BYTE_COUNT)/SUM(MESSAGE_COUNT).

OS/400 Messages by Severity. Codes, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 43 on page 86) provides monthly overview information about the severity codes of messages generated. The report is produced by period name (for example, PRIME or NIGHT). You can use this report and change the message filter to reduce the numbers of low severity messages that are sent to users.

This information identifies the report:

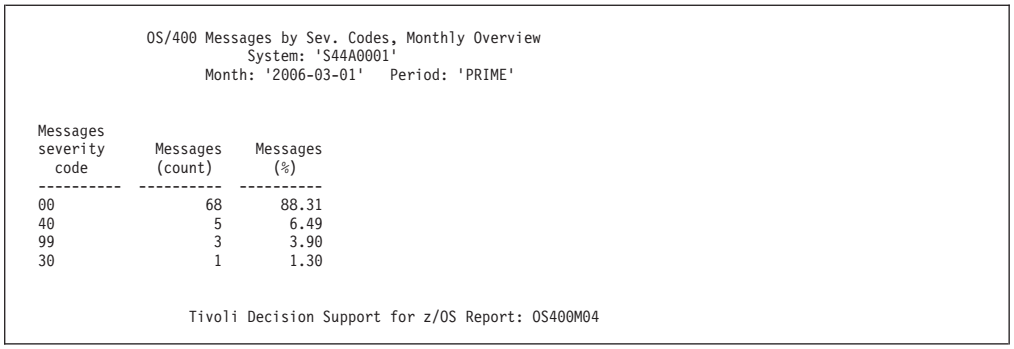
Report ID OS400M04

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_M (described on page 48)

Attributes OS400, Message, Code, Monthly, Overview

Variables Month, Period name, OS400 system ID



```
            OS/400 Messages by Sev. Codes, Monthly Overview
                        System: 'S44A0001'
                    Month: '2006-03-01'   Period: 'PRIME'


Messages
severity      Messages    Messages
  code        (count)       (%)
----------  ----------  ----------
00                  68       88.31
40                   5        6.49
99                   3        3.90
30                   1        1.30


                Tivoli Decision Support for z/OS Report: OS400M04
```

Figure 43. Example of OS/400 Messages by Sev. Codes, Monthly Overview

The report contains this information:

Messages severity code The message severity code.

Messages (count) The number of messages.

Messages (%) The percentage occurrence of a message.

OS/400 Messages for a User, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 44) provides monthly overview information about the messages generated for a system user. The report is produced by period name (for example, PRIME or NIGHT). You can use this report to identify problems caused by a user. The message ID allows you to differentiate between errors caused by software applications, operational errors, and so on.

This information identifies the report:

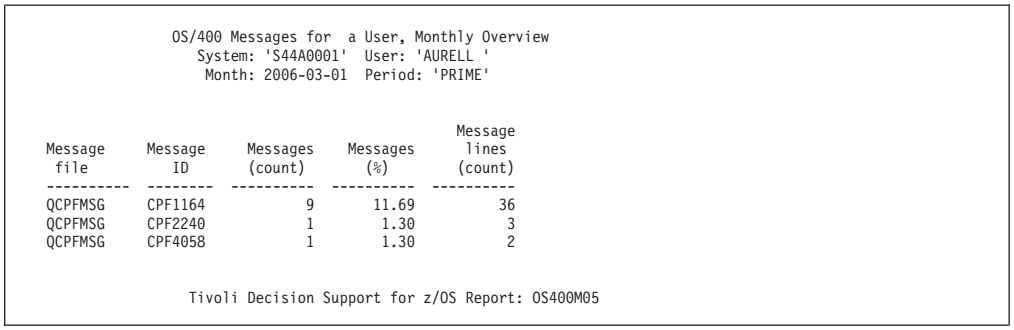
Report ID OS400M05

Report group OS/400 Messages Component Reports

Source tables OS400_MSG_STAT_M, OS400_MSG_STAT_MV (View) (described on pages 48 and 49 respectively)

Attributes OS400, Message, User, Monthly, Overview

Variables Month, Period name, OS400 system id, User, Maxrows



```
              OS/400 Messages for  a User, Monthly Overview
                 System: 'S44A0001'  User: 'AURELL '
                  Month: 2006-03-01  Period: 'PRIME'


                                                        Message
Message     Message     Messages    Messages      Message lines
 file          ID       (count)       (%)          (count)
----------  --------  ----------  ----------  ----------
QCPFMSG     CPF1164            9       11.69          36
QCPFMSG     CPF2240            1        1.30           3
QCPFMSG     CPF4058            1        1.30           2


                Tivoli Decision Support for z/OS Report: OS400M05
```

Figure 44. Example of OS/400 Messages for a User, Monthly Overview

The report contains this information:

Message file The name of the message file.

Message ID The message identification.

Messages (count) The number of messages with the message ID.

Messages (%) The percentage of messages in the message file with the message ID.

Message lines (count) The number of message lines.

OS/400 Messages by Type, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 45) provides monthly overview information about the message types generated. The report is produced by period name (for example, PRIME or NIGHT). You can use this report, for example, to check if the system operator is spending too much time replying to inquiry messages.

This information identifies the report:

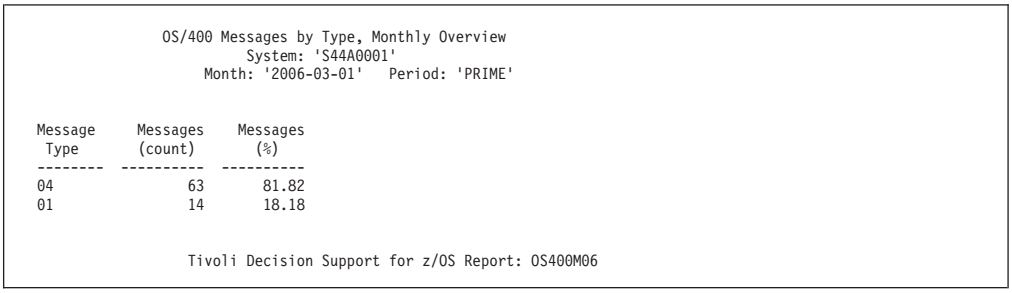
Report ID OS400M06

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_M (described on page 48)

Attributes OS400, Message, Type, Monthly, Overview

Variables Month, Period name, OS400 system ID



OS/400 Messages by Type, Monthly Overview
System: 'S44A0001'
Month: '2006-03-01' Period: 'PRIME'

Message Type	Messages (count)	Messages (%)
04	63	81.82
01	14	18.18

Tivoli Decision Support for z/OS Report: OS400M06

Figure 45. Example of OS/400 Messages by Type, Monthly Overview

The report contains this information:

Message type The message type.

Messages (count) The number of messages.

Messages (%) The percentage of messages with the message type.

OS/400 Messages by User Name, Monthly Overview

For a specific OS/400 system in the network, this report (see Figure 46 on page 88) provides monthly overview information about the messages generated by the system users. The report is produced by period name (for example, PRIME or NIGHT). You can use this report to identify problems caused by certain users (together with the information from "OS/400 Messages for a User, Monthly Overview" on page 86.

This information identifies the report:

Report ID OS400M07

Report group OS/400 Messages Component Reports

Source table OS400_MSG_STAT_M (described on page 48)

Attributes OS400, Message, User, Monthly, Overview

Variables Month, Period name, OS400 system id, Maxrows

```
              OS/400 Messages by User Name, Monthly Overview
                          System: 'S44A0001'
                     Month: '2006-03-01'  Period: 'PRIME'

                                                 Message
User           Messages    Messages      lines
name           (count)       (%)        (count)
----------  ----------  ----------  ----------
QSYS               28       36.36          60
SMAO400            24       31.17          72
AURELL             11       14.29          41
QSECOFR            10       12.99          25
LENNART             4        5.19          17


                  Tivoli Decision Support for z/OS Report: OS400M07
```

Figure 46. Example of OS/400 Messages by User Name, Monthly Overview

The report contains this information:

User name The user name.

Messages (count) The number of messages.

Messages (%) The percentage occurrence of the message type.

Message lines (count) The number of message lines for this user.

Reports in the performance component

This section describes the following performance component reports:

- "OS/400 Perf CPU and RTM Statistics, Hourly Trend."
- "OS/400 Perf Exception and Lock Stat, Hourly Trend" on page 90.
- "OS/400 Perf Disk I/O Statistics, Hourly Trend" on page 91.
- "OS/400 Perf Disk Capacity Statistics, Hourly Trend" on page 93.
- "OS/400 Perf Disk Arm Movements, Hourly Trend" on page 94.
- "OS/400 Perf CPU and Trans by Job Group, Hourly Trend" on page 96.
- "OS/400 Perf CPU by Job Group, Hourly Trend" on page 97.
- "OS/400 Perf Paging Statistics, Hourly Trend" on page 99.
- "OS/400 Perf Storage Pool & Act Level, Hourly Trend" on page 100.
- "OS/400 Perf Transition Statistics, Hourly Trend" on page 101.
- "OS/400 Perf Max & Avg CPU Usage, Hourly Trend" on page 103.
- "OS/400 Perf CPU Usage all Systems, Daily Overview" on page 104.
- "OS/400 Perf Summary all Systems, Daily Overview" on page 105.
- "OS/400 Perf Summary for a System, Daily Trend" on page 106.
- "OS/400 Perf Summary for a System, Hourly Trend" on page 107.

The data flow for the performance component (including the names of OS/400 logs, Tivoli Decision Support for z/OS records and tables) is given in "SP400 feature performance component data flow" on page 40.

OS/400 Perf CPU and RTM Statistics, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 47 on page 89) provides hourly trend information about the average and maximum percentage

processor time used, and the percentage of transactions falling within five response time (RTM) brackets. You can use the report to determine the times of peak processor load, and (for interactive processing) how response time varies during the hourly periods, and how many users have bad response times.

```
            OS/400 Perf CPU and RTM Statistics, Hourly Trend
                System: 'S44A0001'  Date: 2006-05-12


                                                    Trans Trans Trans Trans Trans
      CPU1  CPU1  CPU2  CPU2  CPUH  CPUH  1st   2nd   3rd   4th   5th
      avg   max   avg   max   avg   max   RTM   RTM   RTM   RTM   RTM
Hour  (%)   (%)   (%)   (%)   (%)   (%)   (%)   (%)   (%)   (%)   (%)
---- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
   9  25.5  59.2   0.0   0.0   3.3   5.8  78.1   9.5   4.5   1.5   6.5
  10  29.1  42.5   0.0   0.0   5.1   8.2  72.7   6.7   2.9   1.4  16.3
  11  22.8  40.2   0.0   0.0   5.3  10.2  66.5   2.7   7.6   4.3  18.9
  12  14.0  31.8   0.0   0.0   2.0   4.2  69.6   0.9   4.5   2.7  22.3
  13   6.8  12.4   0.0   0.0   1.5   3.7   0.0   0.0   0.0   0.0   0.0
  14   9.6  22.1   0.0   0.0   2.3   9.5   0.0   0.0   0.0   0.0   0.0
  15  27.1  58.9   0.0   0.0   4.6  12.2  57.1  21.4   7.1   7.1   7.1


                  Tivoli Decision Support for z/OS Report: OS400P01
```

Figure 47. Example of OS/400 Perf CPU and RTM Statistics, Hourly Trend

This information identifies the report:

Report ID OS400P01

Report group OS/400 Performance Component Reports

Source table OS400_PM_SYS_H (described on page 54)

Attributes OS400, Performance, CPU, Utilization, Usage, Hourly, Trend

Variables Date, OS400 system ID

The report contains this information:

Hour The hour.

CPU1 avg (%) The average percentage CPU1. This is calculated as CPU1_MILLISEC/MEASURED_SEC/10.

CPU1 max (%) The maximum percentage CPU1.

CPU2 avg (%) The average percentage CPU2. This is calculated as CPU2_MILLISEC/MEASURED_SEC/10.

CPU2 max (%) The maximum percentage CPU2.

CPUH avg (%) The average percentage CPUH. This is calculated as CPUH_MILLISEC/MEASURED_SEC/10.

CPUH max (%) The maximum percentage CPUH.

Trans 1st RTM (%) The percentage of transactions in the first RTM bracket. This is calculated as TRAN_RTM1_CNT*100/(TRAN_RTM1_CNT + TRAN_RTM2_CNT + TRAN_RTM3_CNT + TRAN_RTM4_CNT + TRAN_RTM5_CNT).

Trans 2nd RTM (%) The percentage of transactions in the second RTM bracket. This is calculated as TRAN_RTM2_CNT*100/ (TRAN_RTM1_CNT + TRAN_RTM2_CNT + TRAN_RTM3_CNT + TRAN_RTM4_CNT + TRAN_RTM5_CNT).

Trans 3rd RTM (%) The percentage of transactions in the third RTM bracket. This is calculated as TRAN_RTM3_CNT*100/ (TRAN_RTM1_CNT + TRAN_RTM2_CNT + TRAN_RTM3_CNT + TRAN_RTM4_CNT + TRAN_RTM5_CNT).

Trans 4th RTM (%) The percentage of transactions in the fourth RTM bracket. This is calculated as TRAN_RTM4_CNT*100/ (TRAN_RTM1_CNT + TRAN_RTM2_CNT + TRAN_RTM3_CNT + TRAN_RTM4_CNT + TRAN_RTM5_CNT).

Trans 5th RTM (%) The percentage of transactions in the fifth RTM bracket. This is calculated as TRAN_RTM5_CNT*100/ (TRAN_RTM1_CNT + TRAN_RTM2_CNT + TRAN_RTM3_CNT + TRAN_RTM4_CNT + TRAN_RTM5_CNT).

OS/400 Perf Exception and Lock Stat, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 48) provides hourly trend information about exceptions and locks on the system.

This information identifies the report:

Report ID OS400P02

Report group OS/400 Performance Component Reports

Source table OS400_PM_SYS_H (described on page 54)

Attributes OS400, Performance, Exception, Lock, Hourly, Trend

Variables Date, OS400 system ID

OS/400 Perf Exception and Lock Stat, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	EXPNR (/sec)	EAOLR (/sec)	EAOTR (/sec)	BSYCR (/sec)	SEZCR (/sec)	SIZCR (/sec)	ASYLR (/sec)	SYNLR (/sec)
16	0.58	0.02	0.07	0.35	0.02	0.00	0.00	0.01
17	0.58	0.03	0.16	0.08	0.01	0.00	0.00	0.01
18	0.38	0.04	0.20	0.06	0.01	0.00	0.00	0.00

Tivoli Decision Support for z/OS Report: OS400P02

Figure 48. Example of OS/400 Perf Exception and Lock Stat, Hourly Trend

The report contains this information:

Hour The hour.

EXPNR (/second) The number of exceptions, per second. This is calculated as EXCEPTION_CNT/MEASURED_SEC.

EAOLR (/second) The number of effective address length overflow exceptions, per second. This is calculated as EADDR_LOFL_EXC_CNT/MEASURED_SEC.

EAOTR (/second)	The number of effective address overflow exceptions, per second. This is calculated as EADDR_OFL_EXC_CNT/MEASURED_SEC.
BSYCR (/second)	The number of busy exceptions, per second. This is calculated as BUSY_EXC_CNT/MEASURED_SEC.
SEZCR (/second)	The number of seize wait exceptions, per second. This is calculated as SEIZE_WAIT_EXC_CNT/ MEASURED_SEC.
SIZCR (/second)	The number of size exceptions, per second. This is calculated as SIZE_EXC_CNT/MEASURED_SEC.
ASYLR (/second)	The number of asynchronous lock conflicts, per second. This is calculated as ASYNCH_LOCK_CNT/MEASURED_SEC.
SYNLR (/second)	The number of synchronous lock conflicts, per second. This is calculated as SYNCH_LOCK_CNT/ MEASURED_SEC.

OS/400 Perf Disk I/O Statistics, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 49 on page 92) provides hourly trend information about disk arm utilization. For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

Report ID	OS400P03
Report group	OS/400 Performance Component Reports
Source table	OS400_PM_DISK_H (described on page 50)
Attributes	OS400, Performance, Disk, DASD, I/O, Hourly, Trend
Variables	Date, OS400 system ID

OS/400 Perf Disk I/O Statistics, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	IOP address	Disk arm number	Avg access (/sec)	Max access (/sec)	Avg service time (sec)	Max service time (sec)	Avg diskarm util (%)	Max diskarm util (%)	Avg queue length (count)	Max queue length (count)	Avg IOP util (%)	Max IOP util (%)
9	02	0001	0.5	1.1	0.035	0.055	1.5	3.2	0.0	0.0	5.0	7.2
	02	0002	1.4	3.1	0.029	0.056	3.5	8.0	0.0	0.1	6.9	13.9
	02	0003	2.3	5.6	0.029	0.035	6.6	17.0	0.1	0.2	11.9	26.1
	02	0004	1.6	3.8	0.023	0.033	4.1	10.1	0.0	0.1	6.9	13.9
	02	0005	2.0	4.2	0.027	0.031	5.4	11.7	0.1	0.2	9.3	16.8
	02	0006	1.5	3.0	0.029	0.042	3.9	6.9	0.0	0.1	5.0	7.2
	02	0007	1.9	4.8	0.032	0.045	6.8	16.1	0.1	0.2	11.9	26.1
	02	0008	1.9	4.5	0.022	0.028	4.3	10.4	0.0	0.1	9.3	16.8
												*
10	02	0001	0.6	1.3	0.035	0.056	2.1	5.1	0.0	0.1	6.3	15.4
	02	0002	2.2	4.0	0.027	0.034	5.7	11.5	0.1	0.1	9.0	12.1
	02	0003	3.1	6.9	0.030	0.039	9.5	20.5	0.1	0.2	16.3	28.5
	02	0004	1.8	3.0	0.028	0.038	5.2	8.7	0.1	0.1	9.0	12.1
	02	0005	1.8	2.7	0.028	0.038	5.1	9.5	0.1	0.1	9.5	14.6
	02	0006	1.9	5.7	0.025	0.032	4.9	13.8	0.1	0.2	6.3	15.5
	02	0007	2.6	4.3	0.033	0.041	8.4	13.0	0.1	0.2	16.3	28.5
	02	0008	2.0	3.2	0.025	0.033	5.2	9.8	0.1	0.1	9.5	14.6
												*
11	02	0001	0.3	0.6	0.028	0.056	0.8	1.5	0.0	0.0	4.3	8.2
	02	0002	1.3	3.2	0.027	0.037	3.4	8.3	0.0	0.1	6.2	12.3
	02	0003	1.9	4.2	0.029	0.035	5.8	14.4	0.1	0.2	11.2	24.6
	02	0004	1.4	2.9	0.024	0.043	3.2	7.2	0.0	0.1	6.2	12.3
	02	0005	2.1	4.6	0.027	0.034	5.8	12.6	0.1	0.2	10.3	23.6
	02	0006	1.3	3.1	0.025	0.043	3.4	8.0	0.0	0.1	4.3	8.3
	02	0007	1.9	4.2	0.030	0.042	6.3	13.8	0.1	0.1	11.2	24.6
	02	0008	2.3	5.7	0.027	0.039	6.4	17.2	0.1	0.2	10.3	23.6
												*

Tivoli Decision Support for z/OS Report: OS400P03

Figure 49. Example of OS/400 Perf Disk I/O Statistics, Hourly Trend

The report contains this information:

Hour The hour.

IOP address The IOP address.

Disk arm number The disk arm number.

Average access (/second) The average access time, per second. This is calculated as (READ_DATA_CMD_CNT+WRITE_DATA_CMD_CNT)/MEASURED_SEC.

Maximum access (/second) The maximum access time, in seconds.

Average service time (seconds) The average service time, in seconds. This is calculated as ((SAMPLES_2PERSEC - ARM_NOTBUSY_CNT)/ SAMPLES_2PERSEC) / ((READ_DATA_CMD_CNT + WRITE_DATA_CMD_CNT) / MEASURED_SEC).

Maximum service time (seconds) The maximum service time, in seconds.

Average diskarm util (%) The average percentage disk arm utilization. This is calculated as (100*(SAMPLES_2PERSEC - ARM_NOTBUSY_CNT)/ SAMPLES_2PERSEC).

Maximum diskarm util (%) The maximum percentage disk arm utilization.

Average queue length (count) The average queue length. This is calculated as (QUEUE_ELEMENT_CNT/SAMPLES_2PERSEC).

Maximum queue length (count)
The maximum queue length.

Average IOP util (%) The average percentage IOP utilization. This is calculated as (100*(MEASURED_SEC-((PROC_IDLELOOP_CNT/ SAMPLES* PROC_IDLELOOP_HMS)/100000000)/ MEASURED_SEC).

Maximum IOP util (%) The maximum percentage IOP utilization.

OS/400 Perf Disk Capacity Statistics, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 50 on page 94) provides hourly trend information about the amount of data on each disk. Normally, disk drive capacity will not vary (since disks are not usually added or removed during the day). However the available space will change as the result of files being restored or deleted.

This information identifies the report:

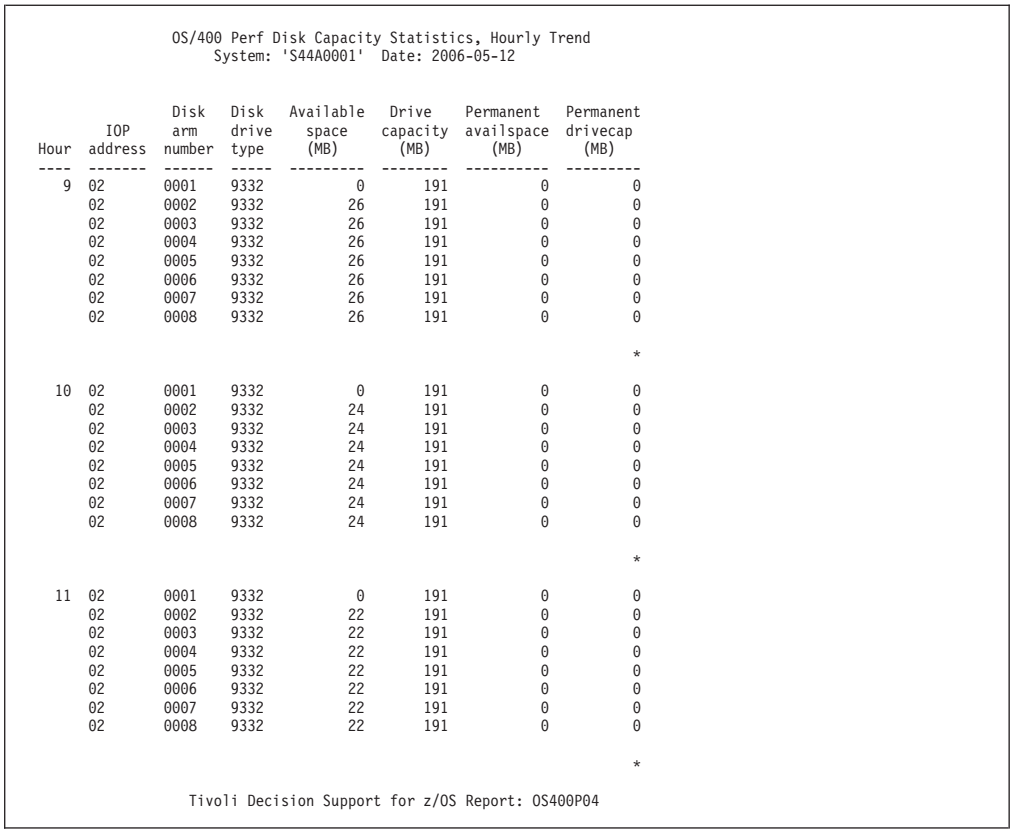
Report ID OS400P04

Report group OS/400 Performance Component Reports

Source table OS400_PM_DISK_H (described on page 50)

Attributes OS400, Performance, Disk, DASD, Usage, Hourly, Trend

Variables Date, OS400 system ID



OS/400 Perf Disk Capacity Statistics, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	IOP address	Disk arm number	Disk drive type	Available space (MB)	Drive capacity (MB)	Permanent availspace (MB)	Permanent drivecap (MB)
9	02	0001	9332	0	191	0	0
	02	0002	9332	26	191	0	0
	02	0003	9332	26	191	0	0
	02	0004	9332	26	191	0	0
	02	0005	9332	26	191	0	0
	02	0006	9332	26	191	0	0
	02	0007	9332	26	191	0	0
	02	0008	9332	26	191	0	0
							*
10	02	0001	9332	0	191	0	0
	02	0002	9332	24	191	0	0
	02	0003	9332	24	191	0	0
	02	0004	9332	24	191	0	0
	02	0005	9332	24	191	0	0
	02	0006	9332	24	191	0	0
	02	0007	9332	24	191	0	0
	02	0008	9332	24	191	0	0
							*
11	02	0001	9332	0	191	0	0
	02	0002	9332	22	191	0	0
	02	0003	9332	22	191	0	0
	02	0004	9332	22	191	0	0
	02	0005	9332	22	191	0	0
	02	0006	9332	22	191	0	0
	02	0007	9332	22	191	0	0
	02	0008	9332	22	191	0	0
							*

Tivoli Decision Support for z/OS Report: OS400P04

Figure 50. Example of OS/400 Perf Disk Capacity Statistics, Hourly Trend

The report contains this information:

Hour The hour.

IOP address The IOP address.

Disk arm number The disk arm number.

Disk drive type The disk drive type.

Available space (MB) The drive available space, in megabytes. This is calculated as AVAILABLE_SPACE_MB/SAMPLES.

Drive capacity (MB) The drive capacity, in megabytes. This is calculated as DRIVE_CAPACITY_MB/SAMPLES.

Permanent availspace (MB) The permanent storage available, in megabytes. This is calculated as PERM_STOR_AVAIL_MB/SAMPLES.

Permanent drivecap (MB) The permanent storage capacity, in megabytes. This is calculated as PERM_STOR_CAP_MB/SAMPLES.

OS/400 Perf Disk Arm Movements, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 51 on page 95) provides hourly trend information about the seek (disk arm) movements, total seeks, and the average seek service time. The disk arm movements are divided into six categories of seek movements: from zero seek movement, to seek movements greater than two-thirds of the disk space. For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

Report ID OS400P05

Report group OS/400 Performance Component Reports

Source table OS400_PM_DISK_H (described on page 50)

Attributes OS400, Performance, Disk, DASD, Hourly, Trend

Variables Date, OS400 system ID

OS/400 Perf DISK Arm Movements, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	Disk arm number	Disk drive type	Zero seek (%)	Seeks <1/12 (%)	Seeks < 1/6 (%)	Seeks < 1/3 (%)	Seeks < 2/3 (%)	Seeks > 2/3 (%)	Seeks (count)	Average service time (seconds)
16	0001	2800	13	27	13	9	13	24	1753	0.023
	0002	2800	20	27	12	19	22	0	1126	0.020
	0003	2800	16	29	20	15	20	0	1019	0.020
	0004	2800	13	31	13	18	24	0	961	0.018
										*
17	0001	2800	20	25	12	6	19	18	12600	0.020
	0002	2800	22	25	11	18	24	0	9826	0.020
	0003	2800	19	27	16	20	18	0	9997	0.019
	0004	2800	17	28	14	17	24	0	9668	0.015
										*
18	0001	2800	18	27	12	6	16	21	8445	0.020
	0002	2800	21	27	11	18	22	0	6680	0.019
	0003	2800	22	25	15	21	17	0	7386	0.018
	0004	2800	21	26	14	16	23	0	7390	0.017
										*

Tivoli Decision Support for z/OS Report: OS400P05

Figure 51. Example of OS/400 Perf Disk Arm Movements, Hourly Trend

The report contains this information:

Hour The hour.

Disk arm number
The disk arm number.

Disk drive type
The disk drive type.

Zero seeks (%)
The percentage of zero seeks. This is calculated as SEEK_EQ_0_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+SEEK_LT_1_12_CNT+SEEK_EQ_0_CNT).

Seeks <1/12 (%)
The percentage of seeks less than 1/12. This is calculated as SEEK_LT_1_12_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+ SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+ SEEK_LT_1_12_CNT+SEEK_EQ_0_CNT).

Seeks < 1/6 (%)
The percentage of seeks less than 1/6. This is calculated as SEEK_LT_1_6_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+ SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+SEEK_LT_1_12_CNT+ SEEK_EQ_0_CNT).

Seeks < 1/3 (%)
The percentage of seeks less than 1/3. This is calculated as SEEK_LT_1_3_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+ SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+SEEK_LT_1_12_CNT+ SEEK_EQ_0_CNT).

Seeks < 2/3 (%)
The percentage of seeks less than 2/3. This is calculated as SEEK_LT_2_3_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+ SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+SEEK_LT_1_12_CNT+ SEEK_EQ_0_CNT).

Seeks > 2/3 (%)
The percentage of seeks greater than 2/3. This is calculated as SEEK_GT_2_3_CNT*100/(SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+ SEEK_GT_1_6_CNT + SEEK_GT_1_12_CNT+SEEK_LT_1_12_CNT+ SEEK_EQ_0_CNT).

Seeks (count)
The total number of seeks. (SEEK_GT_2_3_CNT+SEEK_GT_1_3_CNT+SEEK_GT_1_6_CNT+ SEEK_GT_1_12_CNT + SEEK_LT_1_12_CNT+SEEK_EQ_0_CNT).

OS/400 Perf CPU and Trans by Job Group, Hourly Trend

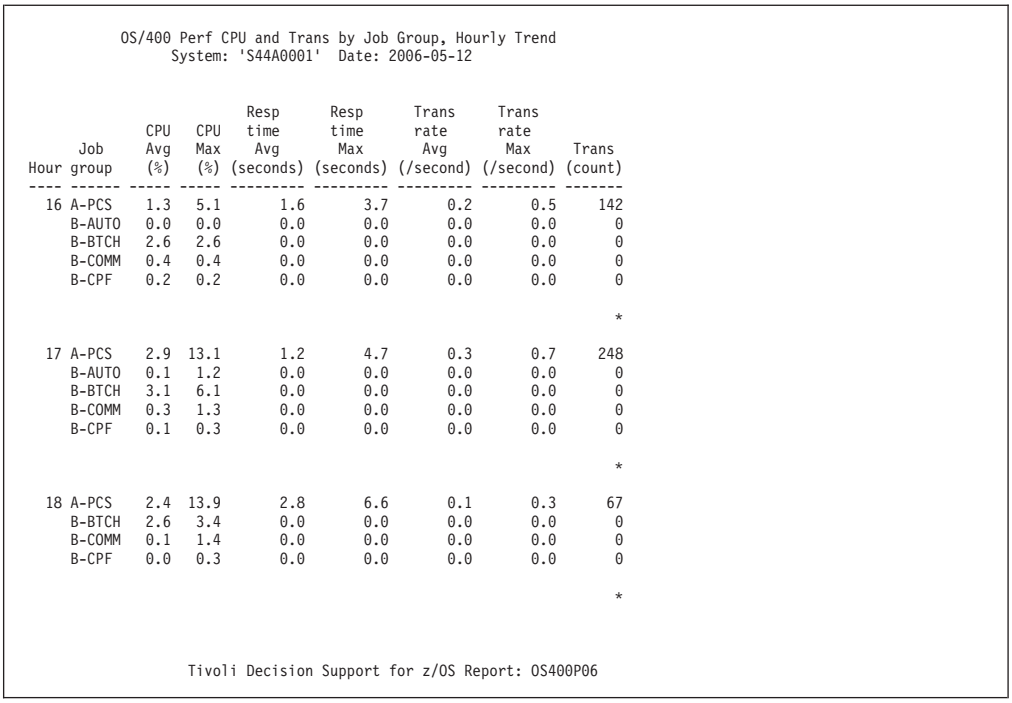
For a specific OS/400 system in the network, this report (see Figure 52 on page 97) provides the following hourly trend information about job groups on the OS/400 system:

- Processor utilization
- Average and maximum response times
- Average and maximum transaction rates
- Total number of transactions

The information shows how the system is being used, and what type of jobs are being run over a specified time period. A graphical representation of the processor utilization for job groups, together with an explanation of job group types, are given in "OS/400 Perf CPU by Job Group, Hourly Trend" on page 97.

This information identifies the report:

Report ID	OS400P06
Report group	OS/400 Performance Component Reports
Source tables	OS400_PM_SYS_JGR_H, OS400_JOBGROUP (described on pages 59, and 65 respectively)
Attributes	OS400, Performance, CPU, Transaction, Hourly, Trend
Variables	Date, OS400 system ID



OS/400 Perf CPU and Trans by Job Group, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	Job group	CPU Avg (%)	CPU Max (%)	Resp time Avg (seconds)	Resp time Max (seconds)	Trans rate Avg (/second)	Trans rate Max (/second)	Trans (count)
16	A-PCS	1.3	5.1	1.6	3.7	0.2	0.5	142
	B-AUTO	0.0	0.0	0.0	0.0	0.0	0.0	0
	B-BTCH	2.6	2.6	0.0	0.0	0.0	0.0	0
	B-COMM	0.4	0.4	0.0	0.0	0.0	0.0	0
	B-CPF	0.2	0.2	0.0	0.0	0.0	0.0	0
								*
17	A-PCS	2.9	13.1	1.2	4.7	0.3	0.7	248
	B-AUTO	0.1	1.2	0.0	0.0	0.0	0.0	0
	B-BTCH	3.1	6.1	0.0	0.0	0.0	0.0	0
	B-COMM	0.3	1.3	0.0	0.0	0.0	0.0	0
	B-CPF	0.1	0.3	0.0	0.0	0.0	0.0	0
								*
18	A-PCS	2.4	13.9	2.8	6.6	0.1	0.3	67
	B-BTCH	2.6	3.4	0.0	0.0	0.0	0.0	0
	B-COMM	0.1	1.4	0.0	0.0	0.0	0.0	0
	B-CPF	0.0	0.3	0.0	0.0	0.0	0.0	0
								*

Tivoli Decision Support for z/OS Report: OS400P06

Figure 52. Example of OS/400 Perf CPU and Trans by Job Group, Hourly Trend

The report contains this information:

Hour The hour.

Job group The job group.

CPU Avg (%) The average processor time used, as a percentage. This is calculated as CPU.MILLISEC/ MEASURED.SEC/10.

CPU Max (%) The maximum processor time used, as a percentage.

Resp time Avg (seconds) The average response time, in seconds. This is calculated as TRAN.MILLISEC/TRANSACTIONS.

Resp time Max (seconds) The maximum response time, in seconds.

Trans rate Avg (/second) The average transaction rate, in seconds. This is calculated as TRANSACTIONS/MEASURED.SEC.

Trans rate Max (/second) The maximum number of transaction per seconds.

Trans (count) The number of transactions.

OS/400 Perf CPU by Job Group, Hourly Trend

For a specific OS/400 system in the network, this graphical display (see Figure 53 on page 98) shows the processor utilization by job group, over a specified time period. The information used in this display is also included in the report "OS/400 Perf CPU and Trans by Job Group, Hourly Trend" on page 96.

This information identifies the report:

Report ID OS400P07

Report group OS/400 Performance Component Reports

Source tables	OS400_PM_SYS_JGR_H, OS400_JOBGROUP (described on pages 59, and 65 respectively)
Chart format	DRLG4P07
Attributes	OS400, Performance, CPU, Utilization, Hourly, Trend
Variables	Date, OS400 system ID

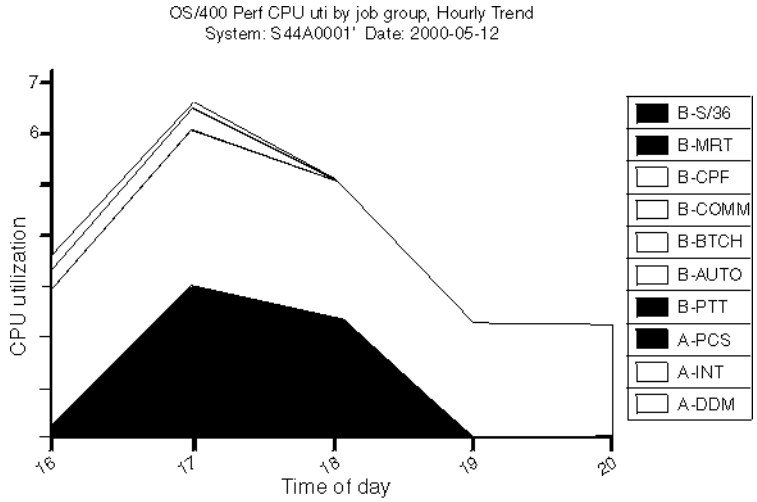


Figure 53. Example of OS/400 Perf CPU by Job Group, Hourly Trend

The report contains this information:

Hour	The hour.
CPU Avg (%)	The average percentage processor time used. This is calculated as (CPU.MILLISEC/ MEASURED.SEC/10).
Job group	The job group.

Explanation of job group types

Jobs are assigned to one of the job groups under the following circumstances:

B-S/36	A System/36™ job runs on the AS/400.
B-MRT	A *multiple terminal request* job is run.
B-CPF	A *control program facility* job (one that is "owned" by the OS/400 system) is run.
B-COMM	A session is started between a workstation and an AS/400.
B-BTCH	An OS/400 batch job is submitted.
B-AUTO	A job is automatically started by a action on the system (for example, an IPL).
A-PCS	A workstation supported function is started (for example, terminal emulation, shared folder, or virtual printer).
A-INT	An interactive session is started.
A-DDM	A *distributed data management* job is started.
A-PTT	A passthrough target job is started.

OS/400 Perf Paging Statistics, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 54) provides hourly trend information about the system paging. For each of the five main storage pools (operating system, base, interactive, batch, and spool), information is given about:

- Total number of faults
- Database and non-database fault rates (maximum and average)
- Database and non-database paging rates (maximum and average)

For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

Report ID OS400P08

Report group OS/400 Performance Component Reports

Source table OS400_PM_POOL_H (described on page 52)

Attributes OS400, Performance, Page, Paging, Hourly, Trend

Variables Date, OS400 system ID

OS/400 Perf Paging Statistics, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	Pool nbr	Faults (/second)	Maximum db faults (/second)	Average db faults (/second)	Maximum nondb faults (/second)	Average nondb faults (/second)	Maximum db pg reads (/second)	Average db pg reads (/second)	Maximum nondb pg reads (/second)	Average nondb pg reads (/second)
16	01	3.2	0.0	0.0	3.2	3.2	0.0	0.0	7.6	7.6
	02	7.2	0.5	0.5	6.7	6.7	0.9	0.9	29.0	29.0
	03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
	05	0.9	0.0	0.0	0.9	0.9	0.1	0.1	6.0	6.0
										*
17	01	0.9	0.0	0.0	2.3	0.9	0.0	0.0	5.6	2.7
	02	4.5	1.2	0.8	5.7	3.7	2.5	1.3	27.8	14.3
	03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	04	1.5	0.2	0.0	4.9	1.4	2.7	0.4	29.8	7.2
	05	1.1	0.3	0.0	8.0	1.0	1.0	0.1	40.5	5.4
										*
18	01	0.6	0.0	0.0	2.6	0.6	0.0	0.0	5.9	1.5
	02	4.0	1.5	0.8	9.5	3.2	3.0	1.2	41.1	13.2
	03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	04	1.1	0.2	0.0	5.5	1.0	1.4	0.2	34.2	6.2
	05	0.1	0.0	0.0	0.5	0.1	0.0	0.0	2.6	0.3
										*

Tivoli Decision Support for z/OS Report: OS400P08

Figure 54. Example of OS/400 Perf Paging Statistics, Hourly Trend

The report contains this information:

Hour The hour.

Pool nbr The pool number.

Faults (/second)
The number of database faults, per second. This is calculated as DB_FAULT_SUM+NDB_FAULT_SUM/MEASURED_SEC.

Maximum db faults (/second)
The maximum number of database faults, per second.

Average db faults (/second)
The average number of database faults, per second. This is calculated as DB_FAULT_SUM/MEASURED_SEC.

Maximum nondb faults (/second)
The maximum number of non-database faults, per second.

Average nondb faults (/second)
The average number of non-database faults, per second. This is calculated as NDB_FAULT_SUM/MEASURED_SEC.

Maximum db pg reads (/second)
The maximum database page read rate, per second.

Average db pg reads (/second)
The average database page read rate, per second. This is calculated as DBPG_READ_SUM/MEASURED_SEC.

Maximum nondb pg reads (/second)
The maximum non-database page read rate, per second.

Average nondb pg reads (/second)
The average non-database page read rate, per second. This is calculated as NDBPG_READ_SUM/MEASURED_SEC.

OS/400 Perf Storage Pool & Act Level, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 55 on page 101) provides hourly trend information about the OS/400 storage pools. For each of the five main storage pools (operating system, base, interactive, batch, and spool), information is given about:

- Activity levels (maximum, average, minimum)
- Pool sizes (maximum, average, minimum)
- Reserved pool sizes (maximum, average, minimum)

For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

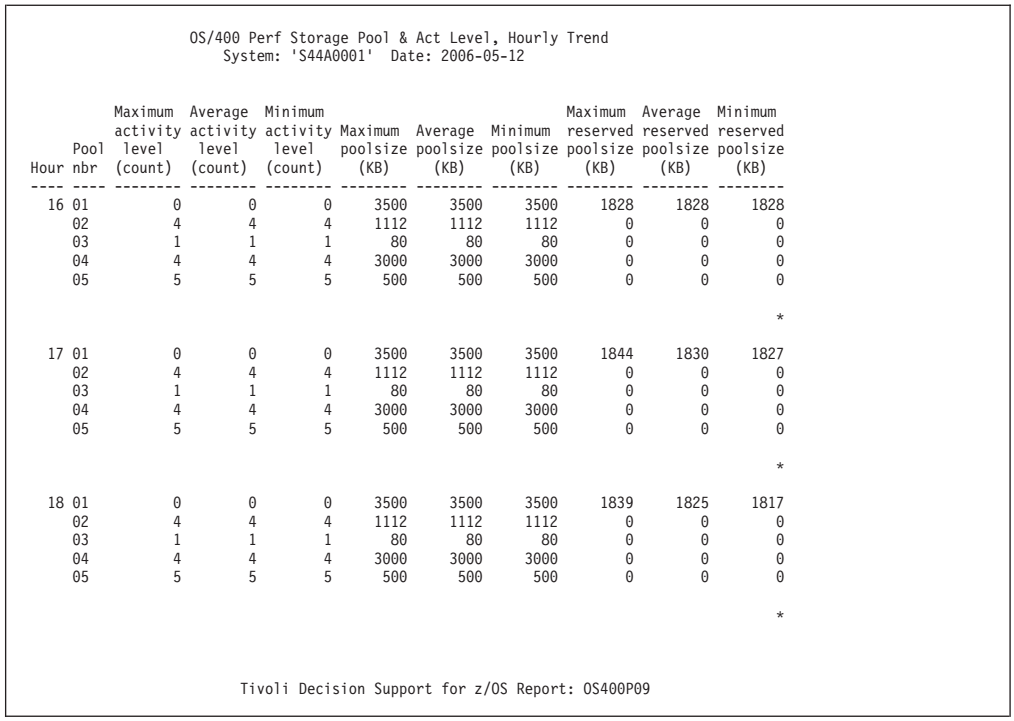
Report ID OS400P09

Report group OS/400 Performance Component Reports

Source table OS400_PM_POOL_H (described on page 52)

Attributes OS400, Performance, Storage, Hourly, Trend

Variables Date, OS400 system ID



OS/400 Perf Storage Pool & Act Level, Hourly Trend
System: 'S44A0001' Date: 2006-05-12

Hour	Pool nbr	Maximum activity level (count)	Average activity level (count)	Minimum activity level (count)	Maximum poolsize (KB)	Average poolsize (KB)	Minimum poolsize (KB)	Maximum reserved poolsize (KB)	Average reserved poolsize (KB)	Minimum reserved poolsize (KB)
16	01	0	0	0	3500	3500	3500	1828	1828	1828
	02	4	4	4	1112	1112	1112	0	0	0
	03	1	1	1	80	80	80	0	0	0
	04	4	4	4	3000	3000	3000	0	0	0
	05	5	5	5	500	500	500	0	0	0
										*
17	01	0	0	0	3500	3500	3500	1844	1830	1827
	02	4	4	4	1112	1112	1112	0	0	0
	03	1	1	1	80	80	80	0	0	0
	04	4	4	4	3000	3000	3000	0	0	0
	05	5	5	5	500	500	500	0	0	0
										*
18	01	0	0	0	3500	3500	3500	1839	1825	1817
	02	4	4	4	1112	1112	1112	0	0	0
	03	1	1	1	80	80	80	0	0	0
	04	4	4	4	3000	3000	3000	0	0	0
	05	5	5	5	500	500	500	0	0	0
										*

Tivoli Decision Support for z/OS Report: OS400P09

Figure 55. Example of OS/400 Perf Storage Pool & Act Level, Hourly Trend

The report contains this information:

Hour The hour.

Pool nbr The pool number.

Maximum activity level (count)
The number of maximum activity levels.

Average activity level (count) The average number of maximum activity levels. This is calculated as ACT_LVL_SET_SUM/SAMPLES.

Minimum activity level (count)
The number of minimum activity levels.

Maximum poolsize (KB) The maximum pool size, in kilobytes.

Average poolsize (KB) The average pool size, in kilobytes. This is calculated as POOL_SIZE_SUM/SAMPLES.

Minimum poolsize (KB) The minimum pool size, in kilobytes.

Maximum reserved poolsize (KB)
The maximum reserved pool size, in kilobytes.

Average reserved poolsize (KB)
The average reserved pool size, in kilobytes. This is calculated as POOL_SIZE_RSV_SUM/SAMPLES.

Minimum reserved poolsize (KB)
The minimum reserved pool size, in kilobytes.

OS/400 Perf Transition Statistics, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 56 on page 102) provides hourly trend information about the activity that is taking place

within each OS/400 storage pool. For each of the five main storage pools (operating system, base, interactive, batch, and spool), information is given about:

- Active-to-Wait (maximum and average)
- Wait-to-Ineligible (maximum and average)
- Active-to-Ineligible (maximum and average)

For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

Report ID OS400P10

Report group OS/400 Performance Component Reports

Source table OS400_PM_POOL_H (described on page 52)

Attributes OS400, Performance, Transition, Hourly, Trend

Variables Date, OS400 system ID

```
                OS/400 Perf Transition Statistics, Hourly Trend
                  System: 'S44A0001'  Date: 2006-05-12


                Maximum    Average    Maximum    Average    Maximum    Average
      Pool      A to W     A to W     W to I     W to I     A to I     A to I
Hour  nbr    (/second)  (/second)  (/second)  (/second)  (/second)  (/second)
---- ----  ---------  ---------  ---------  ---------  ---------  ---------
  16  01          0.1        0.1        0.0        0.0        0.0        0.0
      02          3.4        1.2        0.3        0.1        0.2        0.1
      03          0.0        0.0        0.0        0.0        0.0        0.0
      04          0.0        0.0        0.0        0.0        0.0        0.0
      05          2.0        1.0        0.2        0.1        0.0        0.0

                                                                          *

  17  01          0.2        0.1        0.0        0.0        0.0        0.0
      02          3.5        1.3        0.2        0.1        0.3        0.2
      03          0.0        0.0        0.0        0.0        0.0        0.0
      04          0.2        0.1        0.0        0.0        0.0        0.0
      05          1.0        0.9        0.0        0.0        0.0        0.0

                                                                          *

  18  01          2.1        1.1        0.1        0.1        0.5        0.2
      02          2.2        1.1        0.1        0.1        0.2        0.1
      03          0.0        0.0        0.0        0.0        0.0        0.0
      04          0.1        0.0        0.0        0.0        0.0        0.0
      05          1.0        0.9        0.0        0.0        0.0        0.0

                                                                          *


                    Tivoli Decision Support for z/OS Report: OS400P10
```

Figure 56. Example of OS/400 Perf Transition Statistics, Hourly Trend

The report contains this information:

Hour The hour.

Pool nbr The pool number.

Maximum A to W (/second) The maximum active-to-wait transitions rate, in seconds.

Average A to W (/second) The average active-to-wait transitions rate, in seconds. This is calculated as ACT_WAIT_SUM/ MEASURED_SEC.

Maximum W to I (/second) The maximum wait-to-ineligible transitions rate, in seconds.

Average W to I (/second)	The average wait-to-ineligible transitions rate, in seconds. This is calculated as WAIT_INEL_SUM/ MEASURED_SEC.
Maximum A to I (/second)	The maximum active-to-ineligible transition rate, in seconds.
Average A to I (/second)	The average active-to-ineligible transition rate, in seconds. This is calculated as ACT_INEL_SUM/ MEASURED_SEC.

OS/400 Perf Max & Avg CPU Usage, Hourly Trend

For a specific OS/400 system in the network, this graphical representation (see Figure 57) shows the hourly trend of processor utilization, over a specified time period. A graphical display of average processor usage for all OS/400 systems in the network, is given in "OS/400 Perf CPU Usage all Systems, Daily Overview" on page 104.

This information identifies the report:

Report ID	OS400P11
Report group	OS/400 Performance Component Reports
Source table	OS400_PERF_SUM_H (described on page 61)
Chart format	DRLG4P11
Attributes	OS400, Performance, CPU, Utilization, Hourly, Trend
Variables	Date, OS400 system ID

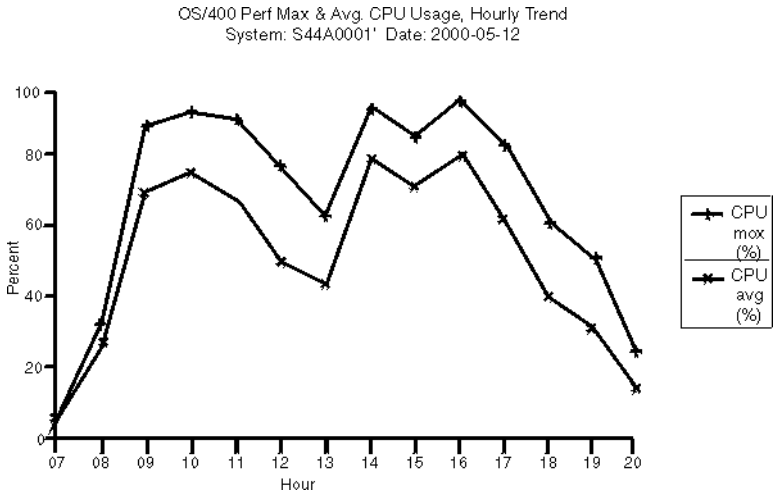


Figure 57. Example of OS/400 Perf Max & Avg CPU Usage, Hourly Trend

The report contains this information:

Hour	The hour.
CPU Avg (%)	The average percentage processor usage. This is calculated as 100*CPU_SECONDS/ MEASURED_SEC.

CPU Max (%) The maximum percentage processor usage. This is calculated as 100*SAMPLES*CPU_SECONDS_MAX/ MEASURED_SEC.

OS/400 Perf CPU Usage all Systems, Daily Overview

For all OS/400 systems in the network, this graphical representation (see Figure 58) shows a daily overview of average processor utilization. Such information is useful as an entry point when investigating system performance. The display is produced by period name (for example, PRIME or NIGHT). If you require an hourly graphical display of the processor utilization for a specific OS/400 system, you can proceed to the report "OS/400 Perf Max & Avg CPU Usage, Hourly Trend" on page 103.

This information identifies the report:

Report ID OS400P12

Report group OS/400 Performance Component Reports

Source table OS400_PERF_SUM_D (described on page 61)

Chart format DRLG4P12

Attributes OS400, Performance, CPU, Utilization, Daily, Overview

Variables Date, Period name

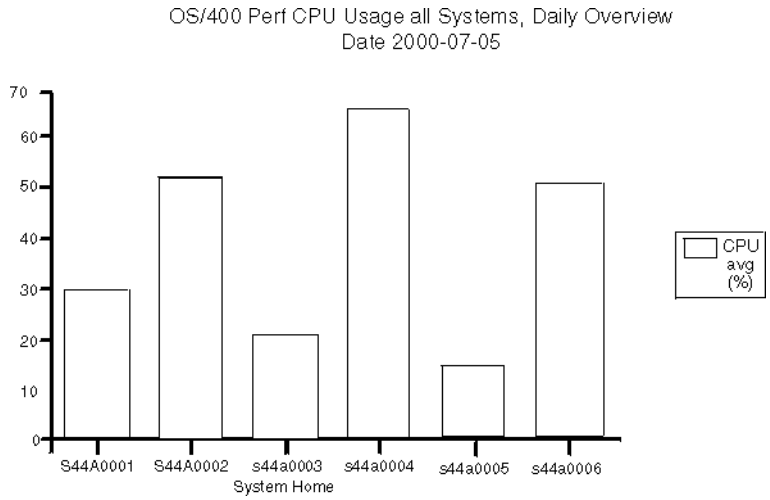


Figure 58. Example of OS/400 Perf CPU Usage all Systems, Daily Overview

The report contains this information:

OS/400 system ID The system identification.

CPU Avg (%) The average percentage processor usage. This is calculated as 100*CPU_SECONDS/ MEASURED_SEC.

OS/400 Perf Summary all Systems, Daily Overview

For each OS/400 system in the network, this report (see Figure 59) provides daily overview information about:

- Processor usage (average and maximum)
- The number of I/Os (average and maximum)
- The amount of paging per second (average and maximum)
- The average number of jobs
- The total auxiliary storage used
- The percentage of auxiliary storage used

The report is produced by period name (for example, PRIME or NIGHT). For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*. If you require more detail about a specific OS/400 system, you can proceed to the report "OS/400 Perf Summary for a System, Daily Trend" on page 106.

This information identifies the report:

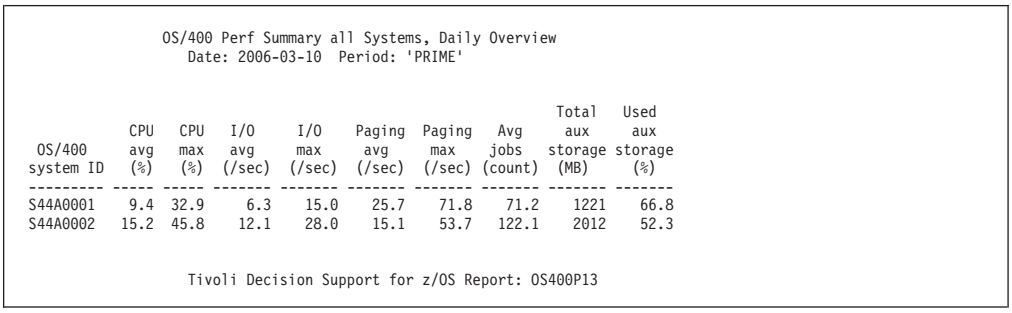
Report ID OS400P13

Report group OS/400 Performance Component Reports

Source table OS400_PERF_SUM_D (described on page 61)

Attributes OS400, Performance, Summary, Daily, Overview

Variables Date, Period name



OS/400 Perf Summary all Systems, Daily Overview
Date: 2006-03-10 Period: 'PRIME'

OS/400 system ID	CPU avg (%)	CPU max (%)	I/O avg (/sec)	I/O max (/sec)	Paging avg (/sec)	Paging max (/sec)	Avg jobs (count)	Total aux storage (MB)	Used aux storage (%)
S44A0001	9.4	32.9	6.3	15.0	25.7	71.8	71.2	1221	66.8
S44A0002	15.2	45.8	12.1	28.0	15.1	53.7	122.1	2012	52.3

Tivoli Decision Support for z/OS Report: OS400P13

Figure 59. Example of OS/400 Perf Summary all Systems, Daily Overview

The report contains this information:

OS/400 system ID
The system identification.

CPU Avg (%) The average percentage processor usage. This is calculated as 100*CPU_SECONDS/MEASURED_SEC.

CPU Max (%) The maximum percentage processor usage. This is calculated as 100*SAMPLES*CPU_SECONDS_MAX/MEASURED_SEC.

I/O Avg (/second)
The average number of I/O, per second. This is calculated as IO_COUNT/MEASURED_SEC.

I/O Max (/second)
The maximum number of I/O, per second. This is calculated as SAMPLES*IO_COUNT_MAX/MEASURED_SEC.

Paging Avg (/second)
The average number of pages per second. This is calculated as PAGE_COUNT/MEASURED_SEC.

Paging Max (/second)
The maximum number of pages per second. This is calculated as SAMPLES*PAGE_COUNT_MAX/MEASURED_SEC.

Avg Jobs (count)
The average number of jobs. This is calculated as JOB_COUNT/SAMPLES.

Total AIX storage (MB)
The total auxiliary storage, in megabytes. This is calculated as AUX_STOR_MB/SAMPLES.

Used AIX storage (%)
The total used auxiliary storage, in megabytes. This is calculated as (100*(AUX_STOR_MB-AUX_STOR_ AVAIL_MB)/SAMPLES)/(AUX_STOR_MB/SAMPLES).

OS/400 Perf Summary for a System, Daily Trend

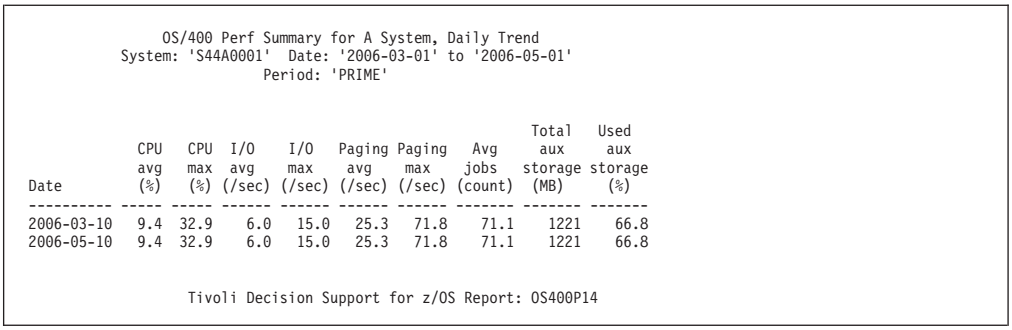
For a specific OS/400 system in the network, this report (see Figure 60 on page 107) provides daily trend information about:

- Processor usage (average and maximum)
- The number of I/Os (average and maximum)
- The amount of paging per second (average and maximum)
- The average number of jobs
- The total auxiliary storage used
- The percentage of auxiliary storage used

The report is produced by period name (for example, PRIME or NIGHT). For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*. If you require hourly trend information about a specific OS/400 system, you can proceed to the report "OS/400 Perf Summary for a System, Hourly Trend" on page 107.

This information identifies the report:

Report ID	OS400P14
Report group	OS/400 Performance Component Reports
Source table	OS400_PERF_SUM_D (described on page 61)
Attributes	OS400, Performance, Summary, Daily, Trend
Variables	From date, To date, Period name, OS400 system ID



OS/400 Perf Summary for A System, Daily Trend
System: 'S44A0001' Date: '2006-03-01' to '2006-05-01'
Period: 'PRIME'

Date	CPU avg (%)	CPU max (%)	I/O avg (/sec)	I/O max (/sec)	Paging avg (/sec)	Paging max (/sec)	Avg jobs (count)	Total aux storage (MB)	Used aux storage (%)
2006-03-10	9.4	32.9	6.0	15.0	25.3	71.8	71.1	1221	66.8
2006-05-10	9.4	32.9	6.0	15.0	25.3	71.8	71.1	1221	66.8

Tivoli Decision Support for z/OS Report: OS400P14

Figure 60. Example of OS/400 Perf Summary for a System, Daily Trend

The report contains this information:

CPU Avg (%) The average percentage processor usage. This is calculated as 100*CPU_SECONDS/MEASURED_SEC.

CPU Max (%) The maximum percentage processor usage. This is calculated as 100*SAMPLES*CPU_SECONDS_MAX/MEASURED_SEC.

I/O Avg (/second)
The average number of I/O, per second. This is calculated as IO_COUNT/MEASURED_SEC.

I/O Max (/second)
The maximum number of I/O, per second. This is calculated as SAMPLES*IO_COUNT_MAX/MEASURED_SEC.

Paging Avg (/second)
The average number of pages per second. This is calculated as PAGE_COUNT/MEASURED_SEC.

Paging Max (/second)
The maximum number of pages per second. This is calculated as SAMPLES*PAGE_COUNT_MAX/MEASURED_SEC.

Avg Jobs (count)
The average number of jobs. This is calculated as JOB_COUNT/SAMPLES.

Total Aux storage (MB)
The total auxiliary storage, in megabytes. This is calculated as AUX_STOR_MB/SAMPLES.

Used Aux storage (%)
The total used auxiliary storage, in megabytes. This is calculated as (100*(AUX_STOR_MB-AUX_STOR_
AVAIL_MB)/SAMPLES)/(AUX_STOR_MB/SAMPLES).

OS/400 Perf Summary for a System, Hourly Trend

For a specific OS/400 system in the network, this report (see Figure 61 on page 108) provides hourly trend information about:

- Processor usage (average and maximum)
- The number of I/Os (average and maximum)
- The amount of paging per second (average and maximum)
- The average number of jobs
- The total auxiliary storage used
- The percentage of auxiliary storage used

The report is produced by period name (for example, PRIME or NIGHT). For guidelines on how to interpret this information, refer to the *AS/400 Performance Tools/400 Guide*.

This information identifies the report:

Report ID OS400P15

Report group OS/400 Performance Component Reports

Source table OS400_PERF_SUM_H (described on page 61)

Attributes OS400, Performance, Summary, Hourly, Trend

Variables Date, OS400 system ID

OS/400 Perf Summary for a System, Hourly Trend
System: 'S44A0001' Date: '2006-03-10'

Hour	CPU Avg (%)	CPU Max (%)	I/O Avg (/sec)	I/O Max (/sec)	Paging Avg (/sec)	Paging Max (/sec)	Avg Jobs (count)	Total Aux storage (MB)	Used Aux storage (%)
14	13.0	13.1	6.7	6.7	27.3	27.3	72.0	1221	67.2
15	14.9	32.9	9.1	15.0	38.8	71.8	72.4	1221	67.0
16	3.6	8.2	3.4	12.2	12.6	43.0	70.0	1221	66.6
17	0.6	2.0	0.4	3.2	1.5	11.8	64.0	1221	66.4
18	0.4	0.8	0.1	0.5	0.5	2.2	64.0	1221	66.4
19	0.4	1.0	0.1	0.6	0.4	2.3	64.0	1221	66.4
20	0.4	0.8	0.1	0.5	0.3	2.2	64.0	1221	66.4
21	0.4	1.0	0.1	0.5	0.4	2.3	64.0	1221	66.4
22	6.5	30.8	5.2	25.6	20.2	98.3	64.1	1221	66.7

Tivoli Decision Support for z/OS Report: OS400P15

Figure 61. Example of OS/400 Perf Summary for a System, Hourly Trend

The report contains this information:

Hour The hour.

CPU Avg (%) The average percentage processor usage. This is calculated as 100*CPU_SECONDS/MEASURED_SEC.

CPU Max (%) The maximum percentage processor usage. This is calculated as 100*SAMPLES*CPU_SECONDS_MAX/ MEASURED_SEC.

I/O Avg (/second)
The average number of I/O, per second. This is calculated as IO_COUNT/MEASURED_SEC.

I/O Max (/second)
The maximum number of I/O, per second. This is calculated as SAMPLES*IO_COUNT_MAX/MEASURED_SEC.

Paging Avg (/second)
The average number of pages per second. This is calculated as PAGE_COUNT/MEASURED_SEC.

Paging Max (/second)
The maximum number of pages per second. This is calculated as SAMPLES*PAGE_COUNT_MAX/MEASURED_SEC.

Avg Jobs (count)
The average number of jobs. This is calculated as JOB_COUNT/SAMPLES.

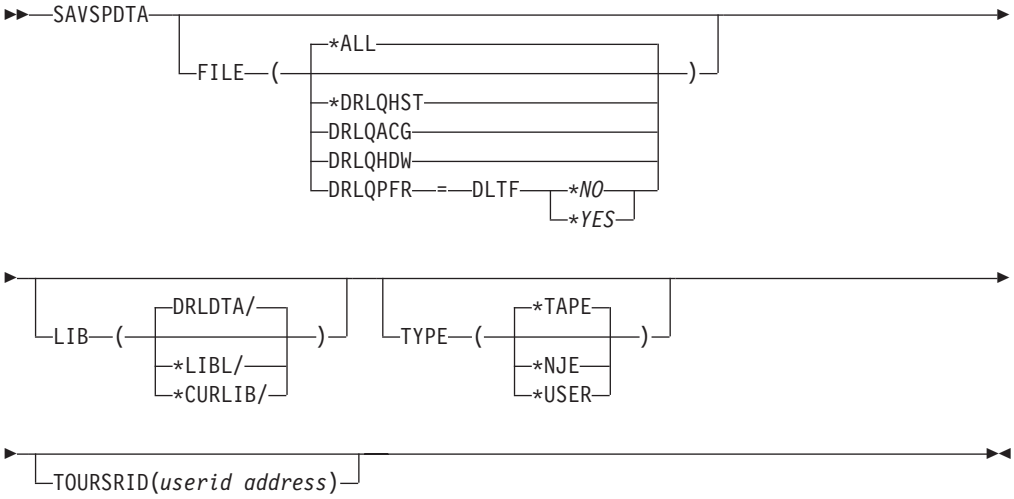
Total Aux storage (MB)
The total auxiliary storage, in megabytes. This is calculated as AUX_STOR_MB/SAMPLES.

Used Aux storage (%)
The total used auxiliary storage, in megabytes. This is calculated as (100*(AUX_STOR_MB-AUX_STOR_AVAIL_ MB)/SAMPLES)/(AUX_STOR_MB/SAMPLES).

Chapter 8. SP400 feature commands

The following commands can be used with Tivoli Decision Support for z/OS. Instructions on how to interpret the syntax of these commands can be found in "How to read syntax diagrams" on page 123.

SAVSPDTA (Save SP400 Data) command



Note: All parameters preceding **MBR** can be specified in positional form.

Purpose

The Save SP400 Data (SAVSPDTA) command saves the data captured with the Start SP400 Data Capturing (STRSP400) command and provides the file transfer of this data from the AS/400 system to the z/OS host system, where the data collecting will take place.

Optional Parameters

FILE Specifies the data to be saved and transferred.

***ALL** The following database files in the library specified in the LIB parameter will be saved and will be candidates for the file transfer: DRLQHST, DRLQACG, DRLQHDW, DRLQSYS, DRLQDSK, and DRLQPOL.

DRLQHST The DRLQHST database file, filled in with history logged data captured with the STRSP400 FILE(DRLQHST) command, is selected for the file transfer.

DRLQACG The DRLQACG database file, filled in with job accounting data captured with the STRSP400 FILE(DRLQACG) command, is selected for the file transfer.

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DRLQHDW The DRLQHDW database file, filled in with system resource data captured with the STRSP400 FILE(DRLQHDW) command, is selected for the file transfer.

DRLQPFR The DRLQSYS, DRLQDSK, and DRLQPOL database files are saved with the contents of the QAPMSYS, QAPMDISK, and QAPMPOOL system-supplied database files captured with the STRSP400 FILE(DRLQPFR) command, and are candidates for the file transfer.

DLTF DRLQPFR has an additional parameter, DLTF (delete performance files). The default value is *NO, which means that the unused performance files are not deleted from the data library. If you specify a value of *YES, the unused performance files are deleted from the data library.

LIB Specifies the library containing the files being saved and transferred. It has to be the same library where the files have been captured with the STRSP400 command.

DRLDTA The DRLDTA library, delivered with the product, is searched for the files being saved and transferred.

***LIBL** All libraries in the job's library list are searched until the first match is found.

***CURLIB** The current library for the job is searched.

library-name Specify the name of the library to be searched.

TYPE Specifies the file transfer method to transfer the saved files to the z/OS host side.

***TAPE** The saved files are transferred to tape.

***NJE** The saved files are transferred through Network Job Entry. The selected database files will be sent to the TSO user at the host site specified in the TOUSRID parameter.

***USER** The saved files are sent with a file transfer method other than *TAPE or *NJE. When you use the *USER value, you must have created a user exit program and a data area. The user exit program must reside in a library of the library list. It must define two parameters: LIBRARY and FILE, since it will be called from the SP400 feature with the different qualified file names selected for transferring. The user data area must have the name DRLDTA/USERDTAARA and the program name must reside in the first 10 characters of the user data area. However, executing the SAVSPDTA command the first time with *USER will create the DRLDTA/USERDTAARA. Since it is blank, the program name must be added.

TOUSRID

This parameter is only prompted when *NJE is selected for TYPE parameter. Specify the Userid and Address of the TSO user to which The data is being sent.

Examples

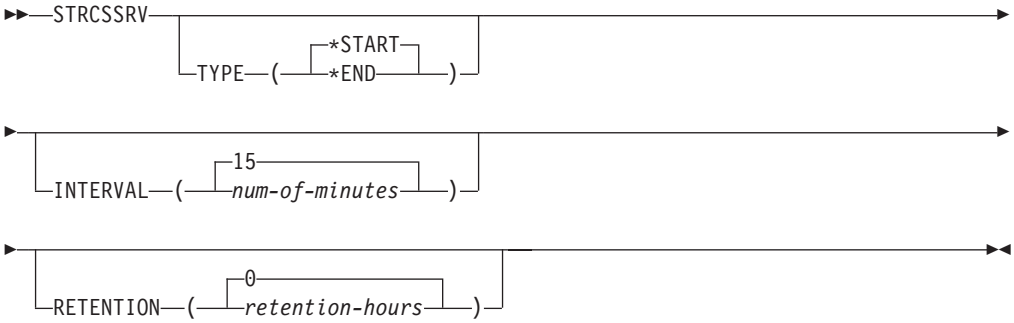
```
SAVSPDTA FILE(DRLQPFR) TYPE(*NJE) TOUSRID(user-id system-name)
```

This command saves the performance files captured with the STRSP400 FILE(DRLQPFR) command into the database files DRLQSYS, DRLQDSK, and DRLQPOL in the DRLDTA library delivered with the product. The command then sends them through the network to the TSO user *user-id* at *system-name*.

```
SAVSPDTA FILE(DRLQHST) LIB(MYLIB) DEV(TAP01)
```

This command transfers the DRLQHST database file of the MYLIB library, captured with the STRSP400 FILE(DRLQHST) command, to the tape TAP01. The database file can later be transferred from tape to the host z/OS system, where the collecting will take place.

STRCSSRV (Start Collections Services) command



Purpose

The Start Collection Services (STRCSSRV) command starts and ends Collection Services to create collections of performance data.

Optional Parameters

TYPE Determines the action to perform. Possible values are:

***START** Runs QYPSCSCA and QYPSSTRC APIs to change the*PFR system collector attribute and Start *PFR collector by using information from the INTERVAL and RETENTION parameters.

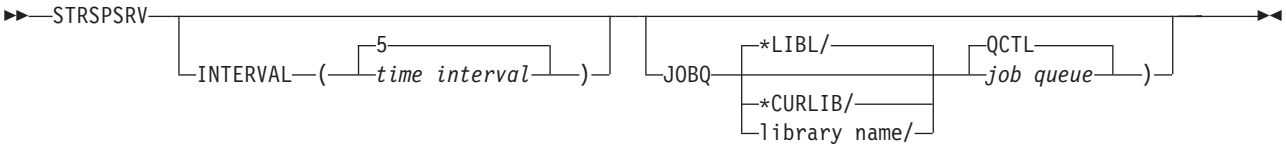
***END** Runs QYPSENDC API and ends *PFR collector.

INTERVAL This parameter is only prompted for the *START value of the TYPE parameter. It is specified in minutes and can be 1, 5, 15, 30, or 60. The default value is 15 minutes.

RETENTION This parameter is only prompted for the *START value of the TYPE parameter. The retention period is used to determine how long the collection data is to exist. Collection data older than the retention period is deleted. The retention period is specified in hours. You can specify a value from 1 to 720, or the following special value:

0 Permanent.

STRSPSRV (Start SP400 Server) command



Note: You can specify all the parameters in positional form.

Purpose

The Start SP400 Server (STRSPSRV) command is used to start the SP400 monitoring job. The SP400 job sends the DRL8003 message to the system history log. The DRL8003 message includes performance information on the system, such as CPU utilization, auxiliary storage available, I/O, and paging.

Optional Parameters

INTERVAL Specifies the time interval, in minutes, between two consecutive retrievals of performance data and, therefore, two consecutive sendings of the message DRL8003. Performance data is computed as the average values for the specified time interval.

- **5** A time interval of 5 minutes is assumed by default.
- *time-interval* Specify an integer between 1 to 3600.

JOBQ Specifies the job queue to which the SP400 server job is submitted. The name of the job queue can be qualified by one of the following library values:

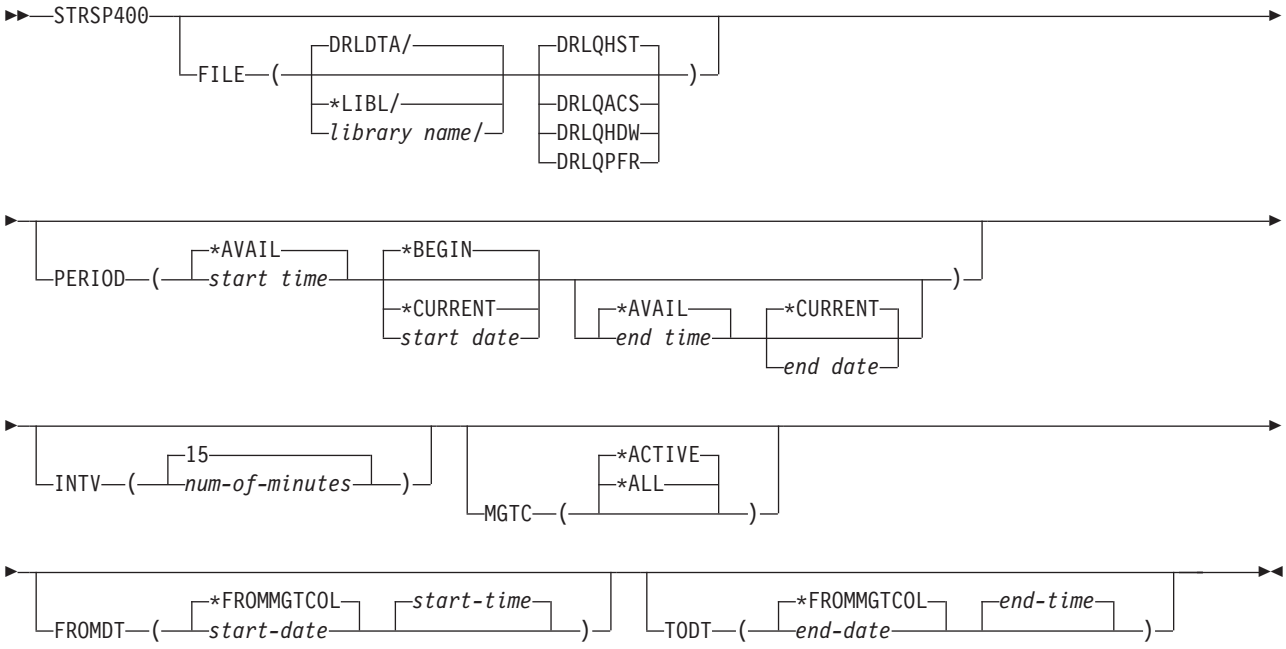
- ***LIBL** All libraries in the job's library list are searched until the first match is found.
- ***CURLIB** The current library for the job is searched.
- *library-name* Specify the name of the library to be searched.
- **QCTL** The job queue to which the SP400 job is submitted by default.
- *job-queue* Specify the name of the job queue to which you want the SP400 job to be submitted.

Example

```
STRSPSRV INTERVAL(10) JOBQ(*LIBL/QCTL)
```

This command starts the SP400 monitoring job in the QCTL job queue of the first matching library in the job's library list. The SP400 job retrieves performance data from the system and computes average values for the time interval of 10 minutes. The DRL8003 message is sent every 10 minutes to the system history log.

STRSP400 (Start SP400 data capturing) command



Note: All parameters preceding **INTV** can be specified in positional form.

Purpose

The Start SP400 Data Capturing (STRSP400) command starts the data capturing process. The way in which the STRSP400 command works depends on the value selected for FILE parameter. See the FILE parameter for an explanation.

Optional Parameters

FILE Specifies the qualified name of the physical file that will contain the data being captured (except for FILE(DRLQPFR)). The physical files need to be already existing. Note that if you select the default library DRLDTA, you will have those physical files delivered with the product.

The name of the file can be qualified by one of the following library values:

DRLDTA
The DRLDTA library, delivered with the product, is searched.

***LIBL**
All libraries in the job's library list are searched until the first match is found.

library-name
Specify the name of the library to be searched.

DRLQHST
Leave the default value DRLQHST, to capture data from the system history log. DRLQHST file is cleaned up and filled in with the output of capturing.

DRLQACG
Select DRLQACG to capture data from the Job Accounting journal receivers. DRLQACG file is cleaned up and filled in with the output of capturing.

DRLQHDW
Select DRLQHDW to capture System Resource data. The DRLQHDW file is cleaned up and filled in with the output of capturing. Note that when selecting the DRLQHDW value you are not prompted to select any other parameter values.

DRLQPFR
Select DRLQPFR to start the performance monitoring job and capture performance data into system-supplied database files (such as QAPMSYS, QAPMDISK, QAPMPOOL) in the library specified with the LIB parameter. Note that STRSP400 FILE(DRLQPFR) only starts the performance monitoring job and produces system-supplied database files. Later you are allowed to capture such performance data into the physical files DRLQSYS, DRLQDSK, DRLQPOL by using the Save SP400 Data (SAVSPDTA) command. Unlike the other choices, no physical file DRLQPFR is produced.

PERIOD This parameter is only prompted for DRLQHST and DRLQACG values of the FILE parameter. It specifies the time period covered by the logged message data, if FILE(DRLQHST), or by the Job Accounting data, if FILE(DRLQACG), being captured. The values that can be coded for this parameter are specified as a list of three elements, the last of which is a list of two elements. If PERIOD is not specified, the following values are assumed:

```
PERIOD((*AVAIL *BEGIN (*AVAIL *CURRENT)))
```

Note that if the defaults are used, the command will go back to the last time it was run and start there to capture data to the present. The first time the command is executed with the defaults, data will be collected from the beginning of all of the history files if FILE(DRLQHST), or from the beginning of all of the Job Accounting journal receivers if FILE(DRLQACG).

Element 1: Starting Time
One of the following is used to specify the starting time at which or after which the history data must have been logged or the accounting data must have been journaled. Entries logged or journaled before the specified time and date are not captured.

The logged or journaled data that is available starting from the specified starting date and since the last time this command was run is captured. The first time this command is run the data that is available since the specified starting date is captured.

starting-time
Specify the starting time on the specified starting date that indicates the logged or journaled data to start to be captured. The time is specified in 24-hour format with or without a time separator as follows:

- With a time separator, specify a string of 5 or 8 digits where the time separator separates the hours, minutes and seconds.

If this command is entered from the command line, the string must be enclosed in apostrophes. If a time separator other than the separator specified for your job is used, this command fails.

- Without a time separator, specify a string of 4 or 6 digits (hhmm or hhmmss) where hh = hours, mm = minutes and ss = seconds. Valid values for hh range from 00 through 23. Valid values for mm and ss range from 00 through 59.

Element 2: Starting Date

One of the following is used to specify the starting date on which or after which the history data must have been logged or the accounting data must have been journaled. Entries logged or journaled before the specified date are not captured.

***BEGIN**

The logged or journaled data that is available since the last date this command was ran is captured. The first time the capture is ran the data that is available since the beginning of all of the history files, if FILE(DRLQHST), or the beginning of all of the Job Accounting journal receivers, if FILE(DRLQACG), is captured.

***CURRENT**

The logged or journaled data for the current day and between the specified starting and ending times is captured.

start-date

Specify the date that indicates the logged or journaled data to start to be captured. The date must be entered in the format specified by the system values QDATFMT and, if separators are used, QDATSEP.

Element 3: Ending Time

One of the following is used to specify the ending time before which, or at which, the history data must have been logged or the accounting data must have been journaled. Entries logged or journaled after the specified time and date are not captured.

***AVAIL**

The logged or journaled data that is available until the specified ending date is captured.

ending-time

Specify the ending time for the specified ending date that determines the time by which the data has to be captured. See "starting-time" of Element 1 for the time format.

Element 4: Ending Date

One of the following is used to specify the ending date before which or on which the history data must have been logged or the accounting data must have been journaled. Entries logged or journaled after the specified date are not captured.

***CURRENT**

The current day is the last day for which the data is captured.

ending-date

Specify the ending date by which logged or journaled data has to be captured. See "starting-date" of Element 2 for the date format.

INTV This parameter is only prompted for the DRLQPFR value of the FILE parameter. It specifies the time interval, in minutes, between each collection of system performance data.

15 Performance data is collected every 15 minutes by default.

number-of-minutes
Specify a collection interval value between 5 and 60 minutes. This value must be a multiple of 5.

MGTC This parameter is only prompted for the DRLQPFR value of the FILE parameter. It specifies the management collect objects to be processed into database files.

***ALL** All the available management objects are processed.

***ACTIVE** Only the active management object is processed.

FROMDT This parameter is only prompted for the DRLQPFR value of the FILE parameter. It specifies the starting date and time of the performance data in the management collection object that will be used to create the performance database files. This time, combined with the interval value, determines the date and time for each database interval.

Element 1 Starting Date

FROMMGTCOL
The starting date and time is the date and time when the management collection object was created.

starting-date
Specify the starting date for which collection data is generated. The date must be entered in the format specified by the system QDATFMT and, if separators are used, QDATSEP.

Element 2: Starting Time

starting-time
Specify the starting time on the specified starting date for generating the database intervals.

If the starting date is specified and the starting time is not, the starting time defaults as follows:
- If the starting date specifies the first day of the collection, the starting time is set to the start time of the collection.
- If the starting date does not specify the first day of the collection, the starting time is set to midnight (00:00:00).

TODT Specifies the starting date and time of the last performance data in the management collection object that will be used to create the performance database files.

Element 1 Ending Date

FROMMGTCOL
The ending date and time is the date and time when the management collection object was created.

ending-date
Specify the starting date for which collection data is generated. The date must be entered in the format specified by the system QDATFMT and, if separators are used, QDATSEP.

Element 2: Ending Time

ending-time

Specify the ending time on the specified starting time for generating the database intervals.

If the ending date is specified and the ending time is not, the ending time defaults as follows:

- If the ending date specifies the first day of the collection, the ending time is set to the start time of the collection.
- If the ending date does not specify the first day of the collection, the ending time is set to 23:59:59).

Examples

```
STRSP400 PERIOD((000000 990101))
```

This command captures data from the history logged data available from the midnight of 1999 January 1st until the current date and time. The data is captured into the DRLQHST physical file of the DRLDTA library.

```
STRSP400 FILE(DRLQPFR) LIB(MYLIB) HOUR(0) MIN(30)
```

This command starts the Performance Monitor job. It will run for 30 minutes and will produce database files with system-supplied names, such as QAPMSYS, QAPMDISK, and QAPMPOOL, into the MYLIB library. Members with names Qyydddhhmm will be created into these files every 15 minutes.

Part 3. Appendixes

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Appendix A. OS/400 system commands

This Appendix explains how to read and understand the syntax diagrams that are used to describe the OS/400 commands. The same syntax has been used to describe the SP400 feature commands.

How to read syntax diagrams

This chapter uses syntax diagrams to illustrate the required syntax of commands and statements. This section describes how to use these diagrams.

Reading syntax diagrams

The syntax diagrams start with double arrowheads on the left (►►) and move along the main line until you end with two arrowheads facing each other (►◄). To use a syntax diagram, follow any path from left to right. When you reach the end of a line, go to the beginning of the next line, if there is one. For whatever path you choose, code every item that is on the path. All spaces, commas, and other characters are significant.

Abbreviating keywords

In a syntax diagram, keywords are all or partly in uppercase. Where an abbreviation is possible, the abbreviation is shown in uppercase and the rest of the keyword is shown in lowercase. Variable values that you provide are shown in *italics*.

The previous diagram shows that you can code the SEND command in either of the following ways:

```
SE 'message text'
SEND 'message text'
```

Parameters

The following are types of parameters used in syntax diagrams:

Parameter	Description
Required	Required parameters are displayed on the main path.
Optional	Optional parameters are displayed below the main path.
Default	Default parameters are displayed above the main path.

Parameters are classified as keywords or variables. Keywords are displayed in uppercase letters and can be typed in uppercase or lowercase. For example, a command is a keyword.

Variables are italicized, are displayed in lowercase letters, and represent names or values you supply. For example, a file name is a variable.

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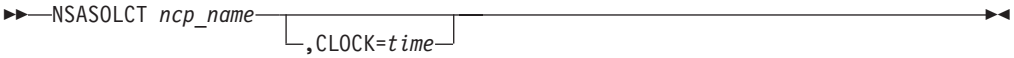
In the following example, NSASOLCT is a command, the variable parameter is *ncp_name*, the keyword is CLOCK, and CLOCK's variable is *time*. You replace the variables with your own values.



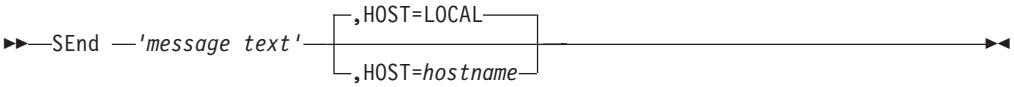
Required parameters

A stack of parameters with the first parameter on the main path means that you must choose only one from the stack.

In the following example, the required parameters are LU, GROUP, CDRM, or APPL.

Default and optional parameters

Items shown above the main line are defaults. Items shown below the main line are optional.



The previous diagram shows that if you do not specify a host, HOST=LOCAL is used. To send a message to a different host, for example NYC, code the SEND command as follows:

```
SEND 'message text',HOST=NYC
```

Repeating parameters

Items that can be repeated are shown as follows:

The previous diagram shows that the following are all valid ways of coding the CRITERIA statement:

```
CRITERIA
CRITERIA 'expression'
CRITERIA 'expression1','expression2'
CRITERIA 'expression1','expression2','expression3'
CRITERIA 'expression1','expression2','expression3','expression4'
```

and so on.

Reading fragments

Syntax diagrams can contain fragments. A fragment is indicated by vertical bars with the name of the fragment between the bars. The fragment comes after the main diagram, as shown in the following example.

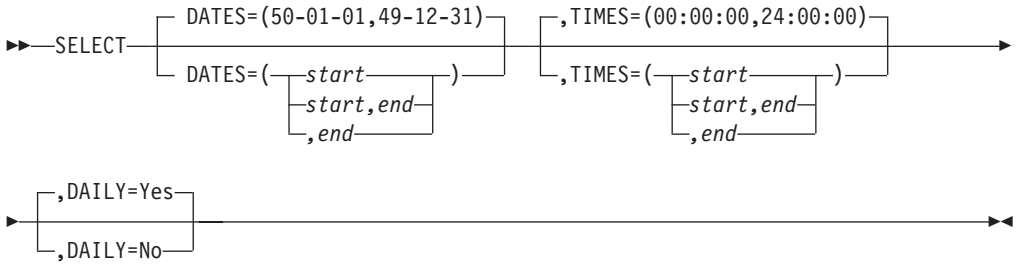
Route:

The previous diagram shows that the following are all valid ways of coding the SEND command:

```
SE 'message text'
SE 'message text',ROUTE=GLOBAL
SE 'message text',ROUTE=ALL
SE 'message text',ROUTE=CONSOLE
SE 'message text',ROUTE=EXTERNAL
```

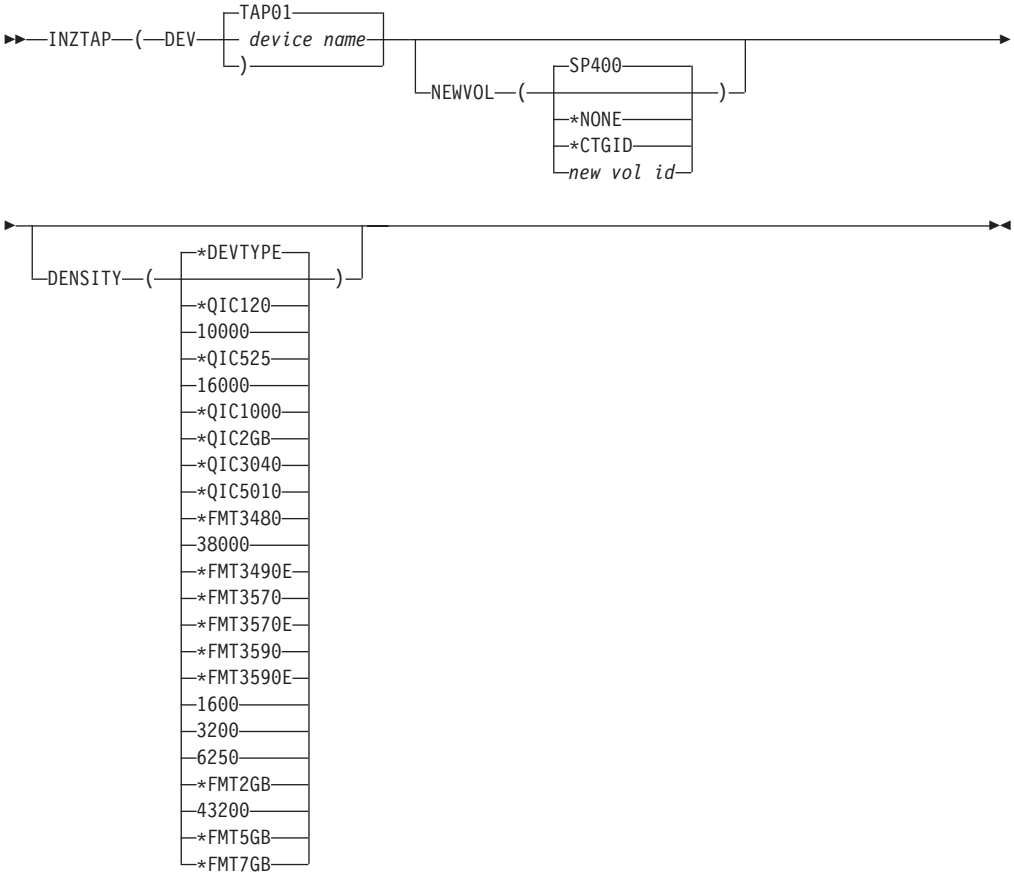
Long syntax diagrams

When more than one row is needed for a syntax diagram, the continued line ends with a single arrowhead (►) and following line begins with a single arrowhead (►), as shown in the following example.



Appendix B. INZTAP (Initialize Tape) command

Note: This information is supplied for reference purposes only. If you require the latest information regarding the INZTAP command, then refer to the Control Language Topics in the Programming section of the online version of the iSeries® Information Center. Ensure that you access the version of the manual that is compatible with your version of the OS/400 operating system.



Note: All parameters preceding **DENSITY** can be specified in positional form.

Purpose

The Initialize Tape (INZTAP) command prepares magnetic tapes for later use of saving captured data, by means of the Save Collection Services Data (SAVSPDTA) command. This command is used to write volume labels on standard-labeled magnetic tapes so the tape device support can do standard-label processing. Unlabeled tapes must also be initialized by this command or by a similar process on another system before these tapes can be used on the AS/400 system.

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Required parameter

DEV Specifies the name of the device in which the volume being initialized is placed. TAP01 has been set as default value.

Optional Parameters

NEWVOL

Specifies the volume identifier for a tape being initialized for use as a standard labeled tape.

SP400 This is the default value.

***NONE** The tape is initialized for use as an unlabeled tape. Only tape marks are used to indicate the beginning and the end of the volume itself.

***CTGID** The tape is initialized as a standard labeled tape. The new logical volume identifier is the same as the external identifier of the tape cartridge. Each tape within a library device must have a unique external identifier.

new-volume-identifier

Specify no more than 6 characters to identify the new volume. The identifier must contain only alphanumeric characters (A through Z, $, #, @, and 0 through 9), and cannot have a prefix or contain blanks.

DENSITY

Specifies the recording format in which to write the data on the tape.

***DEVTYPE** The data that is written on the tape volume is based on the type of tape unit being used.

Tape Device Default Density

2440	6250
3422	6250
3430	6250
3480	*FMT3480
3490E	*FMT3490E
3570-BXX	*FMT3570
3570-CXX	*FMT3570E
3590	*FMT3590
6335	*QIC3040
6341	*QIC120
6342	*QIC525
6343	*QIC1000
6344	*QIC2GB
6346	*QIC120
6347	*QIC525
6348	*QIC1000
6349	*QIC2GB
6366	*QIC120
6368	*QIC1000
6369	*QIC2GB
6378	*QIC525
6379	*QIC1000
6380	*QIC2GB
6385	*QIC5010
6390	*FMT7GB
7208-002	*FMT2GB
7208-012	*FMT5GB

```
7208-222    *FMT7GB
9346        *QIC120
9347        3200
9348        6250
```

1600 The data density on this tape volume is 1,600 bits per inch. This density is used for 1/2 inch reel tapes.

3200 The data density on this tape volume is 3,200 bits per inch. This density is used for 1/2 inch reel tapes on devices that support this density.

6250 The data density on this tape volume is 6,250 bits per inch. This density is used for 1/2 inch reel tapes on devices that support this density.

***FMT3480** The format of this tape is FMT3480. The data density on this tape volume is formatted to support a 3480 device. This density is used for 1/2 inch cartridge tapes.

***FMT3490E** The format of this tape is FMT3490E. The data density on this tape volume is formatted to support a 3490E device. This density is used for 1/2 inch cartridge tapes.

***FMT3570** The format of this tape is FMT3570. The data format is written on the tape volume with a 3570-BXX device.

***FMT3570E** The format of this tape is FMT3570E. The data format is written on the tape volume with a 3570-CXX device.

***FMT3590** The format of this tape is FMT3590. The data format is written on the tape volume with a 3590 device. This density is used for 1/2 inch cartridge tapes.

***QIC120** The format of this tape is QIC120. This density is used for 1/4 inch cartridge tapes that can hold 120 megabyte of data.

***QIC525** The format of this tape is QIC525. This density is used for 1/4 inch cartridge tapes that can hold 525 megabytes of data.

***QIC1000** The format of this tape is QIC1000. This density is used for 1/4 inch cartridge tapes that can hold 1200 megabytes of data.

***QIC2GB** The format of this tape is QIC2GB, which is used for 1/4 inch cartridge tapes that can hold 2.5 gigabytes of data.

***QIC3040** The format of this tape is QIC3040, which is used for 1/4 inch cartridge tapes that can hold 840 megabytes of data.

***QIC5010** The format of this tape is QIC5010, which is used for 1/4 inch cartridge tapes that can hold 13.5 gigabytes of data.

***FMT2GB** The format of this tape is FMT2GB, which is used for 8 millimeter cartridge tapes that can hold 2 gigabytes of data.

***FMT5GB** The format of this tape is FMT5GB, which is used for 8 millimeter cartridge tapes that can hold 5 gigabytes of data.

***FMT7GB** The format of this tape is FMT7GB, which is used for 8 millimeter cartridge tapes that can hold 7 gigabytes of data.

Example

```
INZTAP DEV(TAP01) NEWVOL(SP400) DENSITY(*DEVTYPE)
```

This command initializes the volume on the tape device named TAP01 with new volume identifier SP400 with a density based on the device type.

Appendix C. Support information

If you have a problem with your IBM software, you want to resolve it quickly. This section describes the following options for obtaining support for IBM software products:

- "Searching knowledge bases"
- "Obtaining fixes"
- "Receiving weekly support updates" on page 132
- "Contacting IBM Software Support" on page 133

Searching knowledge bases

You can search the available knowledge bases to determine whether your problem was already encountered and is already documented.

Searching the information center

IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, and reference information.

Searching the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem.

To search multiple Internet resources for your product, use the **Web search** topic in your information center. In the navigation frame, click **Troubleshooting and support** ▸ **Searching knowledge bases** and select **Web search**. From this topic, you can search a variety of resources, including the following:

- IBM technotes
- IBM downloads
- IBM developerWorks®
- Forums and newsgroups
- Google

Obtaining fixes

A product fix might be available to resolve your problem. To determine what fixes are available for your IBM software product, follow these steps:

1. Go to the IBM Software Support Web site at http://www.ibm.com/software/support/.
2. Click **Downloads and drivers** in the **Support topics** section.
3. Select the **Software** category.
4. Select a product in the **Sub-category** list.
5. In the **Find downloads and drivers by product** section, select one software category from the **Category** list.
6. Select one product from the **Sub-category** list.

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7. Type more search terms in the **Search within results** if you want to refine your search.
8. Click **Search**.
9. From the list of downloads returned by your search, click the name of a fix to read the description of the fix and to optionally download the fix.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at http://techsupport.services.ibm.com/guides/handbook.html.

Receiving weekly support updates

To receive weekly e-mail notifications about fixes and other software support news, follow these steps:

1. Go to the IBM Software Support Web site at http://www.ibm.com/support/us/.
2. Click **My support** in the upper right corner of the page.
3. If you have already registered for **My support**, sign in and skip to the next step. If you have not registered, click **register now**. Complete the registration form using your e-mail address as your IBM ID and click **Submit**.
4. Click **Edit profile**.
5. In the **Products** list, select **Software**. A second list is displayed.
6. In the second list, select a product segment, for example, **Application servers**. A third list is displayed.
7. In the third list, select a product sub-segment, for example, **Distributed Application & Web Servers**. A list of applicable products is displayed.
8. Select the products for which you want to receive updates, for example, **IBM HTTP Server** and **WebSphere® Application Server**.
9. Click **Add products**.
10. After selecting all products that are of interest to you, click **Subscribe to email** on the **Edit profile** tab.
11. Select **Please send these documents by weekly email**.
12. Update your e-mail address as needed.
13. In the **Documents** list, select **Software**.
14. Select the types of documents that you want to receive information about.
15. Click **Update**.

If you experience problems with the **My support** feature, you can obtain help in one of the following ways:

Online
Send an e-mail message to erchelp@ca.ibm.com, describing your problem.

By phone
Call 1-800-IBM-4You (1-800-426-4968).

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2 and WebSphere products that run on Windows, or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:

  Online

  Go to the Passport Advantage Web site at http://www.lotus.com/services/passport.nsf/ WebDocs/Passport_Advantage_Home and click **How to Enroll**.

  By phone

  For the phone number to call in your country, go to the IBM Software Support Web site at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.
- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at https://techsupport.services.ibm.com/ssr/login.
- For customers with IBMLink™, CATIA, Linux, S/390®, iSeries, pSeries®, zSeries®, and other support agreements, go to the IBM Support Line Web site at http://www.ibm.com/services/us/index.wss/so/its/a1000030/dt006.
- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage Web site at http://www.ibm.com/servers/eserver/techsupport.html.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the *IBM Software Support Handbook* on the Web at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region for phone numbers of people who provide support for your location.

To contact IBM Software support, follow these steps:

1. "Determining the business impact"
2. "Describing problems and gathering information" on page 134
3. "Submitting problems" on page 134

Determining the business impact

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

Severity 1
The problem has a *critical* business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

Severity 2
The problem has a *significant* business impact. The program is usable, but it is severely limited.

Severity 3
The problem has *some* business impact. The program is usable, but less significant features (not critical to operations) are unavailable.

Severity 4
The problem has *minimal* business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.

Describing problems and gathering information

When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

Submitting problems

You can submit your problem to IBM Software Support in one of two ways:

Online
Click **Submit and track problems** on the IBM Software Support site at http://www.ibm.com/software/support/probsub.html. Type your information into the appropriate problem submission form.

By phone
For the phone number to call in your country, go to the contacts page of the *IBM Software Support Handbook* at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Software Support Web site daily, so that other users who experience the same problem can benefit from the same resolution.

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Additional manuals can be obtained from the IBM iSeries Information Center CD or from the web site http://publib.boulder.ibm.com/infocenter/iseries/v6r1m0/index.jsp?topic=/rzahg/icmain.htm

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Glossary

A

administration. A Tivoli Decision Support for z/OS task that includes maintaining the database, updating environment information, and ensuring the accuracy of data collected.

administration dialog. The set of host windows used to administer Tivoli Decision Support for z/OS.

C

COLLECT. A process used by Tivoli Decision Support for z/OS to read data from input log data sets, interpret records in the data set, and store the data in DB2 tables in the Tivoli Decision Support for z/OS database.

command. A statement used to initiate an action or start a service. A command consists of the command name abbreviation, and its parameters and flags if applicable.

component. An optionally installable part of a Tivoli Decision Support for z/OS feature. Specifically in Tivoli Decision Support for z/OS, a component refers to a logical group of objects used to collect log data from a specific source, to update the Tivoli Decision Support for z/OS database using that data, and to create reports from data in the database.

control table. A predefined Tivoli Decision Support for z/OS table that controls results returned by some log collector functions.

D

Data Language/I (DL/I). An IBM database-management facility.

data table. A Tivoli Decision Support for z/OS table that contains performance data used to create reports.

distributed transaction processing. The distribution of processing among transactions that communicate synchronously with each other over intersystem or interregion links.

E

environment information. All of the information that is added to the log data to create reports. This information can include data such as performance groups, shift periods, installation definitions, and so on.

H

help topics. An online table of contents for the Tivoli Decision Support for z/OS online help information.

K

key columns. The columns of a DB2 table that together constitute the key.

key value. Value used to sort records into groups.

L

library. An OS/400 system object that serves as a directory to other objects. A library groups related objects, and allows users to find objects by name. All user libraries reside in the QSYS library and no user library can be created in another user library.

log. Any sequential data set used as input to Tivoli Decision Support for z/OS.

log collector. A Tivoli Decision Support for z/OS program that processes log data sets and provides other Tivoli Decision Support for z/OS services.

log collector language. Tivoli Decision Support for z/OS statements used to supply definitions to and invoke services of the log collector.

log data set. Any sequential data set used as input to Tivoli Decision Support for z/OS.

log definition. The description of a log data set processed by the log collector.

log procedure. A program module that is used to process all record types in certain log data sets.

logical unit (LU). A port through which a user gains access to the services of a network.

lookup expression. An expression that specifies how a value is obtained from a lookup table.

lookup table. A Tivoli Decision Support for z/OS DB2 table that contains grouping, translation, or substitution information.

O

object. An integral part of a feature component needed for data collection (for example, record definitions, record procedures, and update definitions).

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P

Tivoli Decision Support for z/OS database. A set of DB2 tables that includes data tables, lookup tables, system tables, and control tables.

purge condition. Instruction for purging unneeded data from the Tivoli Decision Support for z/OS database.

R

record definition. The description of a record type contained in the log data sets used by Tivoli Decision Support for z/OS, including detailed record layout and data formats.

record procedure. A program module that is called to process some types of log records.

record type. The classification of records in a log data set.

region. A section of the dynamic area that is allocated to a job step or system task.

report definition language. Tivoli Decision Support for z/OS statements used to define reports and report groups.

report group. A collection of Tivoli Decision Support for z/OS reports that can be referred to by a single name.

reporting dialog. A set of host or workstation windows used to request reports.

resource. Any facility of the computing system or operating system required by a job or task, including central storage, input/output devices, the processing unit, data sets, and control or processing programs.

resource group. A collection of resources identified as belonging to a particular department or division. Resources are organized into groups to reflect the structure of an organization.

resource information. Environment information that describes the elements in a system (for example, a network).

S

save file. A file allocated in auxiliary storage that can be used to store saved data on disk (without requiring diskettes or tapes), to do I/O operations from a high-level language program, or to receive objects sent through the network. The system-recognized identifier for the object type is *FILE.

section. A structure within a record that contains one or more fields and might contain other sections.

source. In an update definition, the record or DB2 table that contains the data used to update a Tivoli Decision Support for z/OS DB2 table.

subcomponent. An optionally installable part of a Tivoli Decision Support for z/OS feature component.

system table. A DB2 table that stores information for controlling log collector processing, Tivoli Decision Support for z/OS dialogs, and reporting.

T

target. In an update definition, the DB2 table in which Tivoli Decision Support for z/OS stores data from the source record or table.

threshold. The maximum or minimum acceptable level of usage. Usage measurements are compared with threshold levels.

Transmission Control Protocol/Internet Protocol (TCP/IP). A non-proprietary communications protocol for linking workstations to host computers and to other hardware.

U

update definition. Instructions for entering data into DB2 tables from records of different types or from other DB2 tables.

updates. Instructions in Tivoli Decision Support for z/OS on how to process data from log data sets to DB2 tables.

V

view. An alternative representation of data from one or more tables. A view can include all or some of the columns contained in the table on which it is defined.

Index

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E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W

AS/400 System Performance Feature Guide and Reference